

# TWM

TISSUE WORLD MAGAZINE

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## SOUTHEAST ASIA

### THE BIG LEARNING CURVE

#### Regional Report

How the 11 nations in China's slipstream coped with Covid-19

#### Plus ...

##### MarketIssues

ROI: Benefits and barriers of digitalisation

##### Special Report: Retail

Climate report on growth

How five key end-use markets will recover from the AfH Covid slump

##### Technical Theme: Packaging

In the loop - a single source provider will create harmony and boost production

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Towards – and reaching – the zero-waste horizon of carbon neutrality

##### ConsumerSpeak

"Senior Millennial" REEL co-founder constantly working to reduce carbon footprint

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"We believe Covid might drive tissue and towel use in the longer term," Dr. Sumrit Yipyintum, Managing director of Thailand's RiverPRO, speaks to TWM.

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Cover: Southeast Asia's 11 nations rise to the challenge of adapting and thriving during Covid-19. Image by Contrast Creative, Manchester, UK



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## EDITORIAL HEADQUARTERS

### Informa Markets – UK

240 Blackfriars Road, London, SE1 8BF, UK  
Tel: +44 (0)20 7017 5000

### Group Director

Chris Edwards: [chris.edwards@informa.com](mailto:chris.edwards@informa.com)

### Senior Editor

Helen Morris: [helen.morris@informa.com](mailto:helen.morris@informa.com)

### Event Manager & Publisher

Tom Hill: [tom.hill@informa.com](mailto:tom.hill@informa.com)

### Executive Director

Chris Kilbee: [chris.kilbee@informa.com](mailto:chris.kilbee@informa.com)

### CEO

Margaret Ma Connolly:  
[margaret.connolly@informa.com](mailto:margaret.connolly@informa.com)

## ADVERTISING ENQUIRIES

### Europe & North America

Silvio Arati  
T: +39 02 4851 7853  
[sarati@studioarati.it](mailto:sarati@studioarati.it)

### South and Central America

Selma Ugolini  
T: +55(11)99904 5350  
[selma@gova.com.br](mailto:selma@gova.com.br)

### China, Hong Kong & Macau

Jennie Zhan  
T: +86 20 86660158  
[info-china@informa.com](mailto:info-china@informa.com)

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Please send address corrections to:

Informa Markets – UK  
240 Blackfriars Road, London, SE1 8BF, UK  
Tel: +44 (0)20 7017 5000  
[info@tissueworld.com](mailto:info@tissueworld.com)

### Subscription online at

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# A BIG LEARNING CURVE IN SURVIVAL AS THE ESSENTIAL TOURIST TISSUE TRADE SLUMPED

Helen Morris

Senior Editor, Tissue World Magazine

**T**he effects of the pandemic have hit the various regions and nations of the world disproportionately. Our Regional Report from Southeast Asia makes that point firmly.

While in China, the regional report in TWM's last edition, reports suggested that normal consumer activity was in place. It is a different picture in several of the 11 nations of the ASEAN region, the huge economic hinterland which to a greater or lesser degree trades in the slipstream of the superpower.

TWM has reported in the past from five of the ASEAN countries ... Vietnam, Singapore, Indonesia and the Philippines. And from Thailand. In 2018 I spoke with Dr. Sumrit Yipyintum, managing director of Thailand's RiverPRO, at the company's Nongkhai mill in the Saraburi province north of Bangkok.

The lasting impression from the trip was the immense potential for growth in the local tissue and towel markets. Consumption per capita was low, with just half of the then 68.86 million population using tissue, and tissue growth year-on-year was a steady 5-6%. Dr. Yipyintum anticipated substantial growth following the increased adoption of tissue habits through urbanisation, tourism and an ageing population.

Three waves of Covid have set that progress back, but not the hope. I have spoken again with Dr. Yipyintum, over Teams this time, and he has outlined the problems, changes and hopes RiverPRO has gone through. Stalled consumption growth, a slump in visitor traffic, curtailed exports to established markets in Cambodia, Laos and Myanmar, but creditably no loss of production and a firm belief that later this or next year will see a return of the essential tourist trade. New consumer habits acquired in the pandemic, increasing urbanisation, leaner and advanced production he is convinced, will see per capita usage rising once more. It has been, he says, "a big learning curve" in how to survive and prosper in the hardest of times.

## Informa Markets announces the return of Tissue World events

The Tissue World Team is delighted to announce that the world's largest dedicated Tissue Industry Trade Show is on schedule to return. At the time of publishing this May/June issue of TWM, event organisers Informa Markets had been given the go-ahead to hold our prestigious exhibition and conference at the Messe Düsseldorf on 21 – 23 September 2021. Over the past 14 months travel restrictions have made it impossible to see clients and peers in the same way as we did before the pandemic, and therefore we feel that it is more important than ever to bring the tissue community back together to plan for the future of the industry. We look forward to seeing you all again – in reality – in September.

## Industry showing an extraordinary level of confidence

So vital to that future are digitalisation and Industry 4.0 ... increasingly factors in the advances made across global production. They play a big part of the reasons for the high degree of confidence tissue companies have about the industry's future.

In MarketIssues, Ralf Möbus, Senior Executive at StepChange Consulting, takes a detailed look at both those trends ... the benefits and the barriers.

The percentage of tissue respondents who have implemented one or more digitalisation project has reached 60%. Only 20% have not started any. The new skillsets of predictive analytics channel massive data collection to the physical processes of production. Traditional functions and departmental structures are replaced. That is a major upheaval. Skilled IT personnel will be vital. Will ROI be justified? His research reveals a remarkable level of confidence in the industry's imminent recovery from the months of the pandemic crisis.

Companies in all sectors – 93% of pulp companies, 73% of tissue companies – expect expansion of the overall markets, and positive growth in 2021 with economies remaining flat in the first months of the year before accelerating.

Pricing and margin management, product development and cost reduction are the main priorities.

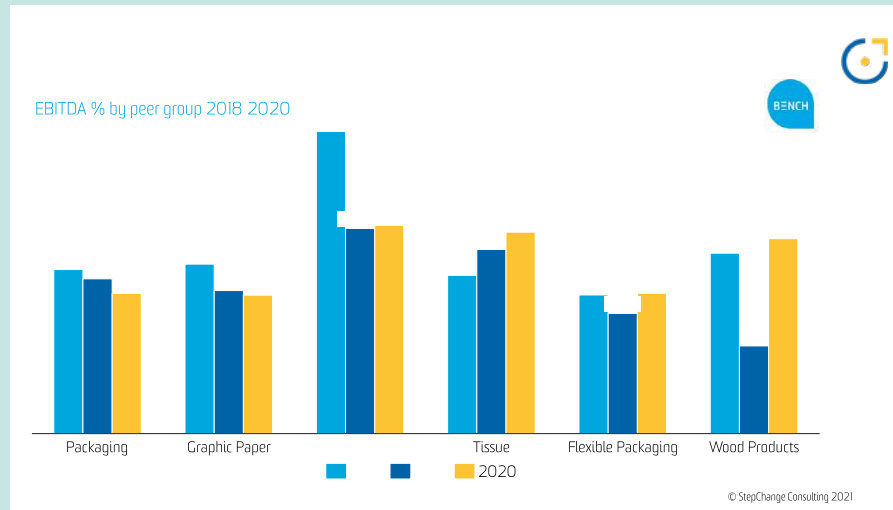
# COVID-19: A CATALYST FOR DIGITALISATION

The impact of Covid-19 on market outlooks, company performance and digitalisation. Ralf Möbus, Senior Executive at StepChange Consulting, reports for TWM.

MI



**Ralf Möbus**  
Senior Executive, StepChange Consulting



**Figure 1:** EBITDA %

When Covid hit in early 2020, it had very different impacts on the various segments of the tissue, paper and processing industries. While the graphic segment was hit hard and demand dropped even further, packaging benefited from the accelerated shift to e-commerce. The tissue industry was impacted by hoarding effects and a peaking demand never experienced before.

It seemed obvious that this sudden increase would not be sustainable, and levels of demand would sooner or later normalise. Losses did accumulate in the AfH segment. However, 2020 was still compensated by the positive effects of the pandemic on tissue markets overall, coupled with relatively low input costs.

According to the latest StepChange BENCH publication, a bi-annual financial benchmarking of 80+ public companies in forest industries, the tissue group experienced an increase of the weighted average EBITDA, reaching the highest value (21,3%; +0,9% from 2019) since 2016

[Figure 1]. It is interesting to note that all tissue/hygiene pure plays improved their profitability in 2020, registering a value that ranges between ~15% and 20%, outperforming the whole sector except for pulp.

The increase in profitability can be partially explained by the reduction of raw material and especially pulp costs registered in 2019 and continued in 2020.

However, since the fourth quarter of 2020, fibre and energy prices have experienced a strong increase leading to deteriorating profitability of the sector. This is particularly true since many producers have had difficulties achieving price increases.

## 2021 global wood, paper, packaging & tissue outlook study

In the second quarter of 2021, StepChange Consulting conducted a study to understand current market perceptions and the impact of Covid 19 on digitalisation efforts in the sector. Managers and stakeholders from tissue, paper and packaging industries were

IT SEEMED OBVIOUS THAT THIS SUDDEN INCREASE WOULD NOT BE SUSTAINABLE, AND LEVELS OF DEMAND WOULD SOONER OR LATER NORMALISE. LOSSES DID ACCUMULATE IN THE AFH SEGMENT. HOWEVER, 2020 WAS STILL COMPENSATED BY THE POSITIVE EFFECTS OF THE PANDEMIC ON TISSUE MARKETS OVERALL



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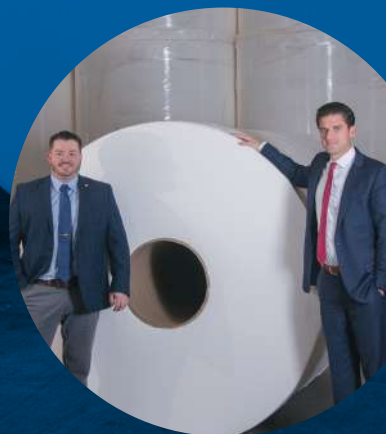


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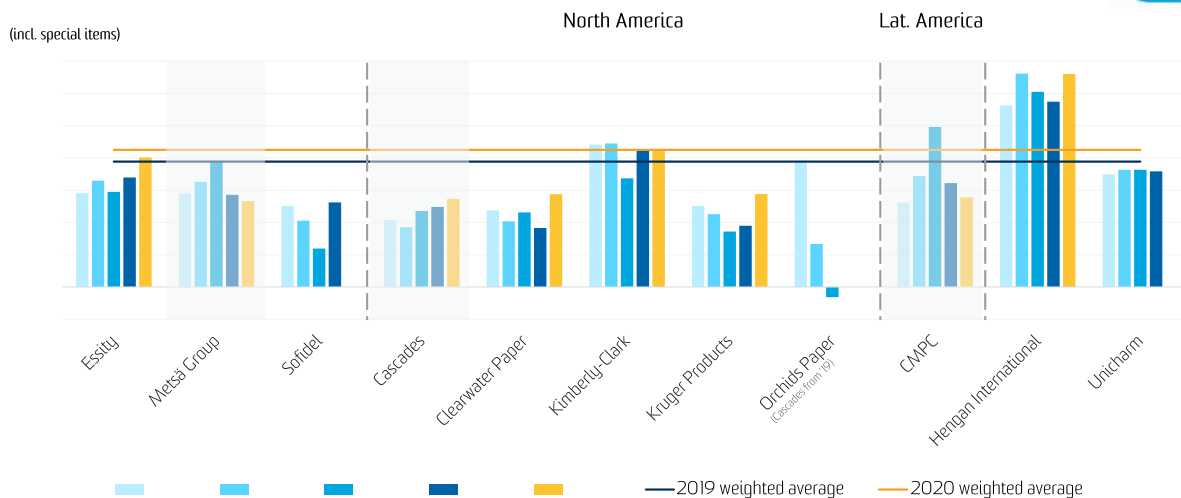
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## Company wide EBITDA (incl. special items) as % of revenue 2016 2020



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Figure 2: Company-wide EBITDA

## AFTER A YEAR OF UNCERTAINTY, COMPANIES AGREE ON A FUTURE RECOVERY AND EXPANSION OF THE OVERALL MARKETS. ON AVERAGE, IN ALL SUBSEGMENTS OPERATORS EXPECT A POSITIVE GROWTH RATE IN 2021 COMPARED TO 2020.

interviewed about the future outlook, and the digitalisation progress of their companies.

In Figure 3, most respondents clearly believe that Covid has accelerated digitalisation and has further helped to identify digital projects with value.

### Market outlook: Mostly clear skies

After a year of uncertainty, companies agree on a future recovery and expansion of the overall markets. On average, in all subsegments operators expect a positive growth rate in 2021 compared to 2020 (see Figure 4). Several respondents underlined that the overall economy might stay flat

in the first part of 2021 and register an acceleration in the second semester of the year. Pulp respondents were the most positive (93% of respondents). Tissue has the second lowest sentiment but still a 73-positivity rate. Printing and publishing has by far the lowest rate to positive expectations.

Taking a closer look on which main drivers will impact the sector in the future, digitalisation and Industry 4.0 were ranked as having the most positive potential together with expected changes in customer behaviours and environmental requirements (see Figure 5).

### How digitalisation will drive future growth

The study identified pricing and margin management, product development and cost reduction as main priorities. Digitalisation has consistently moved up in the priority list of companies in these studies for the last five years. Now 46% of respondents mention it as a priority and rank it #3 on their agendas.

Facing business requirements accelerated by the Covid crisis, the percentage of tissue respondents that have implemented one or more digitalisation projects rose by 16 p.p. reaching 60% (see Figure 7). Now only 20% state not to have started any digitalisation efforts.

All survey participants recognise that digitalisation can bring substantial advantages along the value chain, with

### Covid impact on Digitalization

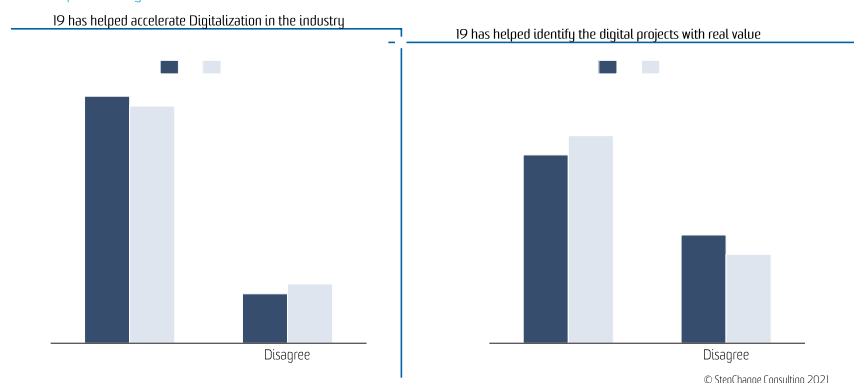


Figure 3





Question: How will your sector develop in 2021?

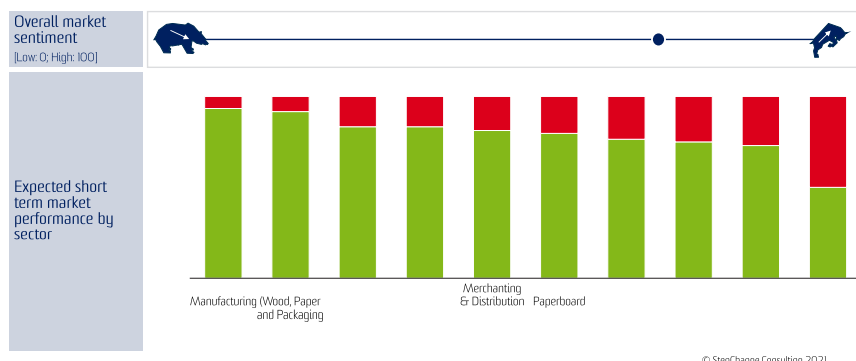


Figure 4

slightly higher benefits for those businesses positioned downstream (see Figure 8).

The main recognised benefits from digitalisation are related to reducing costs (mentioned by 67% of respondents), improving productivity (66%) and energy efficiency (34%) (see Figure 9). In addition, a digitalised company can more easily adapt its organisation to new market scenarios potentially also creating new business models (29%). This factor can be essential in a world where digitalisation is a driving force unseen before.

To obtain the benefits of digitalisation, companies are implementing numerous projects with digitalisation of production processes taking priority followed by predictive analytics.

Digitalisation of production processes (mentioned by 53% of respondents): an example in this area can be increased implementation of online monitoring and process control including condition monitoring including next level augmented asset assistance and documentation. Condition monitoring will further support preventive maintenance practices.

Digitalisation of administrative processes (52% of respondents): the digitalisation of the HR function is one of the examples regarding a multitude of administrative processes that can be simplified and made more efficient using a digital approach. It is possible to manage the complete employee lifecycle including performance and skill management, recruiting and onboarding and manage personnel administration while

provide mobile and self-service capabilities (employee data, time management shift planning, performance feed-backs, etc.)

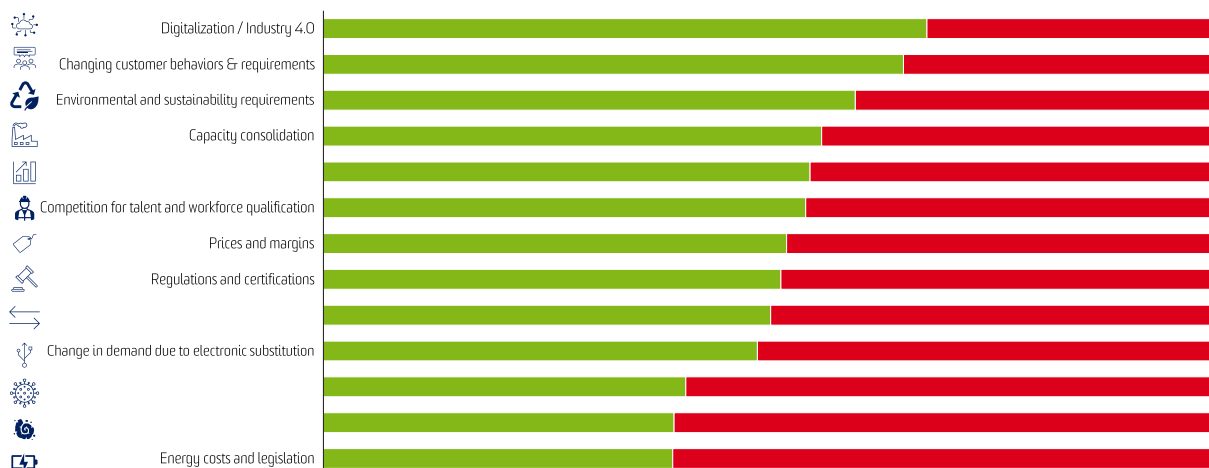
Predictive analytics (46% of respondents): a predictive analytics project can have many targets such as increasing machine efficiencies (OEE) and process control, reducing variations, raw materials consumption and paper breaks using online measurement data combined with artificial intelligence and data mining.

Naturally, there are barriers to every change effort. The three main barriers to digitalisation efforts ranked by the participants of the study are "changing the existing processes" (49%), "IT systems and infrastructure" (40%) and "identifying Industry 4.0 opportunities and calculating their ROI" (34%) – an area that is not as difficult to prove as it is often perceived.

Digitalisation will emphasise a process view as the benefits mostly stem from the interconnectivity of processes through connectivity of data. This stands in contrast to traditional functional or departmental structures of organisations. Additionally, digitalisation will require a new "digital" skillset of operational and technical personnel posing an understandable challenge to organisations. IT systems and architectures pose a challenge when outdated and not capable to handle the massive amounts of data that needs to be processed in Industry 4.0. Proving business cases may seem challenging but based on StepChange research, digitalisation can



What influence do you expect the following drivers to have on the pulp, paper, packaging and wood products sector in the next years?



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Figure 5

## What are your company's current priorities?

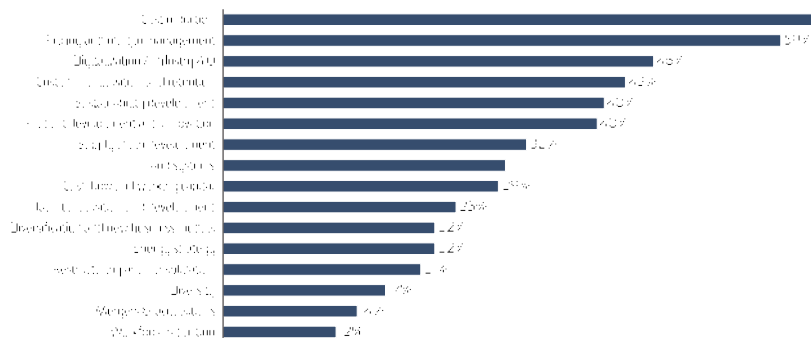


Figure 6

## Digitalization status

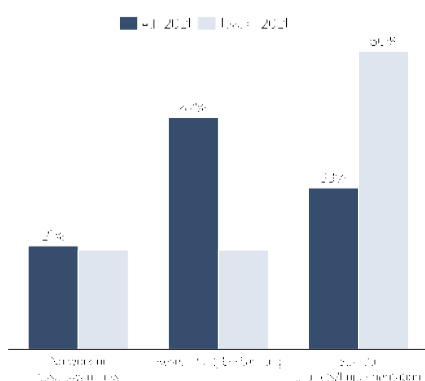


Figure 7

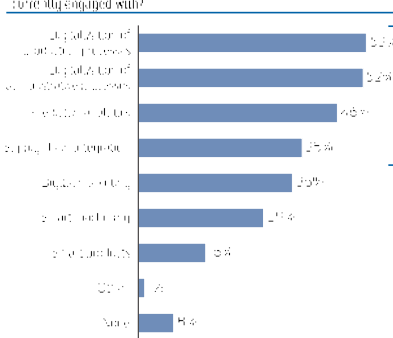
## Which upstream/downstream part of the industry can gain the highest value from Digitalization / Industry 4.0?



Figure 8

## Main digital projects developed in the organizations, Benefits & Risks

What projects concerning Digitalization / Industry 4.0 is your company currently equipped with?



Please select the areas where you expect the highest benefits from Digitalization / Industry 4.0 for your business?

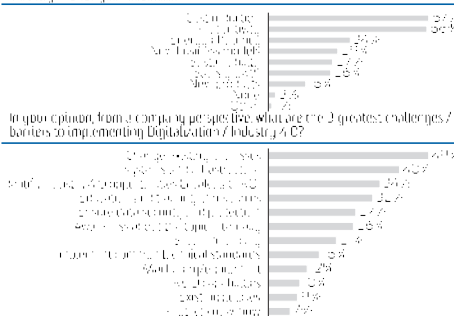


Figure 9

help to tap into next level productivity and cost improvements that have not been captured before totalling potential value improvements of 3-7%.

The Covid-19 crisis has been a game changer for many industries and this is also true for tissue. Those in the industry have a consensus view on an imminent future recovery, and further agree on the importance for companies to defend their profitability against numerous uncertainties related to both costs and revenues. To reach this goal, organisations are becoming more digital. Specifically for the tissue sector, a lot of progress has been made even in the past two years.

Based on the Covid pandemic, many companies have accelerated the digitalisation of their organisation to reduce costs, boost productivity and make it easier to adapt to unforeseeable changes.

While cost and productivity are still the main focus of existing digitalisation efforts, also the attractiveness of using a systematic and digital approach to grow customer insights is increasingly recognised.

As a manager from the tissue segment put it: "Identifying, uniting and using the customer information that is available in the different parts of our organisation really helps us to improve our offering to our customers and to maximise value for them and ourselves – and digitalisation finally provides a powerful opportunity to do just that".

Especially in the area of creating meaningful customer insights, processes have simply been very traditional despite leading edge technology available.

To further grow to digital maturity, it will remain crucial to follow a structured approach and identify the digitalisation potentials that generate real value. Once the best solutions are identified and prioritised according to long term value, the focus will need to be on implementation while taking employees and business partners along on the digital journey.



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# STILL EVOLVING ON MULTI-FRONTS, THE REGION IN CHINA'S SHADOW IS POISED FOR POST-PANDEMIC MARKET GROWTH

The Southeast Asia region of Brunei, Myanmar, Cambodia, East-Timor, Indonesia, Laos, Malaysia, the Philippines, Singapore, Thailand, and Vietnam are included in the demand side analysis in this report. However, Cambodia, Laos, Singapore, and Timor-Leste do not have tissue production, so they will not be included in the tissue export and production analysis.

The tissue capacities of Brunei and Myanmar are minimal, with only one or two machines that will be difficult to show on charts with the other much larger producers.

A map of this region is shown in Figure 1 and the country colour range illustrates the current rate of Covid-19 infections per one million population in May 2021. Myanmar is in significant political unrest, so data reports may not be as reliable.

As we can see, Malaysia is currently having the highest rates of infection in the region, while moderate infection rates have been reported in the Philippines, Thailand, Cambodia, and Indonesia. Brunei, Laos, Singapore, and Vietnam are currently reporting a much lower infection rate.

This means that the higher rate areas could be expected to experience production and distribution issues due to the pandemic until vaccines are available for most populations.

The population of each of the countries in 2020 is shown in Figure 2. Indonesia overshadows the others with almost 41% of the total population for the region. The Philippines is second with 16.4% and Vietnam third with 14.7% of the total population. Brunei and East-Timor are very small, with 0.1% and 0.2%, respectively.

Population growth over the last 13 years for each of the countries in the region is shown in Figure 3 with the Philippines having the highest growth rate.

However, increased tissue demand requires more than just population growth. Figure 4 shows the purchasing power per capita for each of the countries. Singapore and Brunei may be small in population, but their consumers have a disproportionate impact on tissue buying.

The growth of this purchasing power per capita over the study period is shown in Figure 5. As we can see below, Myanmar's consumer purchasing power stopped growing in 2015, and overall regional growth didn't resume until 2017.

Unemployment rates provide another indicator of support for growing tissue demand. Figure 6 shows unemployment rates over the study period available for most of the countries within the region, illustrating that while the Covid-19 pandemic has affected the rise of unemployment in all countries, the



**Bruce Janda**  
Senior consultant, Fisher International

Philippines has been hit the hardest.

Consumer insecurity due to inflation is another impediment to developing additional consumer tissue demand. Figure 7 presents the evolution of inflation in the region over the study period. Inflation has improved in all cases, but the range of effects between countries in this region is extensive.

The development of imports of tissue by country is shown in Figure 8. Brunei, the Philippines, and Malaysia show the most growth in imports.

Tissue exports are charted for the producing countries in Figure 9, which illustrates Indonesia as the overpowering leader in exports and growth of exported tissue.

These tissue exports from SE Asia are going to all regions of the world. Figure

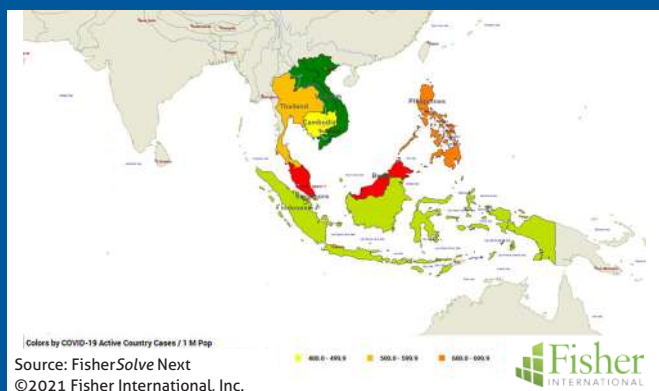


Figure 1: Covid-19 Active Cases per 1 million population

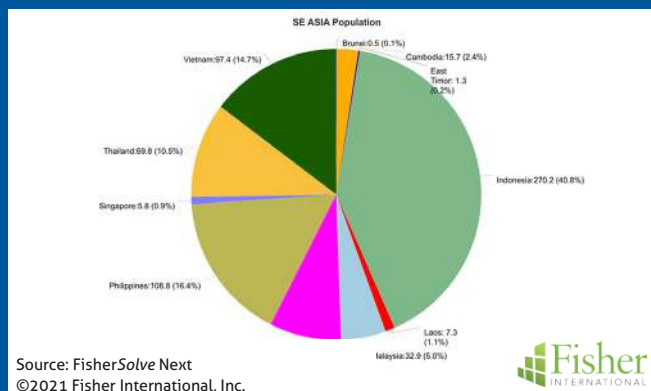


Figure 2: SE Asia Nations 2020 Population



10 shows the top 10 receiving countries for these exports. The top bar growing the fastest is the "all other" category, which is not included in the top 10 legend. Export volume has increased by almost 7x in the 13-year study period.

Indonesia has made the most significant change in the number of tissue paper machines added over the study period, as shown in Figure 11. The Philippines have removed the most machines in this period, with eight removed and only two added, which explains why Indonesia is the export leader in Figure 9.

Figure 12 shows that SE Asia is focused on consumer tissue products, with bath tissue as the top category followed by facial tissue and towels. Hardwood is the leading fibre source, but more softwood is being seen in towels for strength and absorbency. Deinked recovered fibre is only significant in bath tissue and has a much smaller presence in other product formats.

Figure 13 compares SE Asian tissue machines by country to China and Australia in terms of average technical age on the x-axis and average speed on the y-axis. The size of the bubbles represents the size of each country's tissue production per year. China has new but slower machines

compared to Indonesia, whereas Australia has a relatively older asset base but still possesses the fastest fleet in the comparison. It's important to remember that these bubbles represent averages, and some individual machines are better while some are worse.

Figure 14 presents the relative average competitive position of each of the SE Asian countries compared to China and Australia. The Y-axis represents the average cost of production in a standard reference currency, and the x-axis represents the total production in tons. The coloured bars signify the main cost components of fibre raw material, pulp, chemicals, energy, labour, overhead, and miscellaneous materials. Australia has a high-cost position due to pulp costs, along with China who has similarly high pulp costs as well as energy costs. Indonesia, however, has a low-cost position to support its export growth strategy with increasing local fibre sources. Vietnam, Malaysia, and Thailand have the most substantial use of local fibre sources, which helps keep their costs below that of China.

Indonesia is expected to continue to exploit its low-cost position to build the tissue export business. Additional low-cost

fibre sources will become available for tissue production and replace purchased pulp to extend this advantage. The Philippines has taken a relative pause in building its tissue business, while Thailand, Malaysia, and Vietnam have opportunities to improve their tissue production business using local fibre to help keep costs under control. China is expected to rebuild and rationalise its tissue business to more productive assets, which could also provide increased competition in the region.

Analysis of competitive position requires specifics on tissue producers and individual machines. This article presents a static summary of SE Asia's tissue industry today. Fibre prices, exchange rates, and environmental regulations will change, providing participants with advantages and others with new challenges. The region's tissue mills will continue to change hands and consolidate, while neighbouring countries may invest in tissue-making capacity, affecting SE Asia's imports and exports. SE Asia's consumer tissue consumption trends are still evolving. Stay tuned for changes.

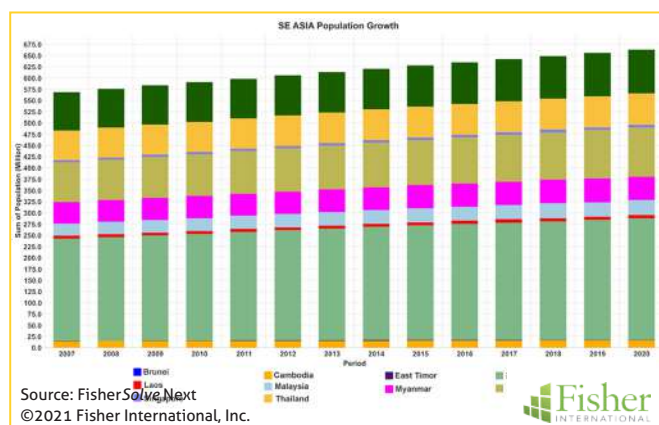


Figure 3: SE Asia Nations Population Growth

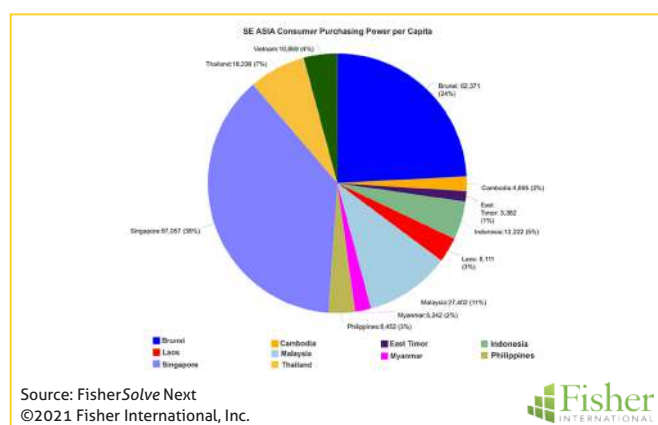


Figure 4: SE Asia Consumer Purchasing Power per Capita

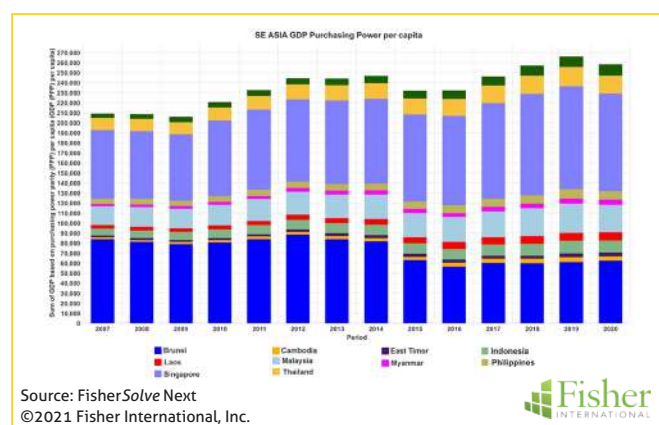


Figure 5: Southeast Asia GDP purchasing power per capita



Figure 6: Southeast Asia unemployment

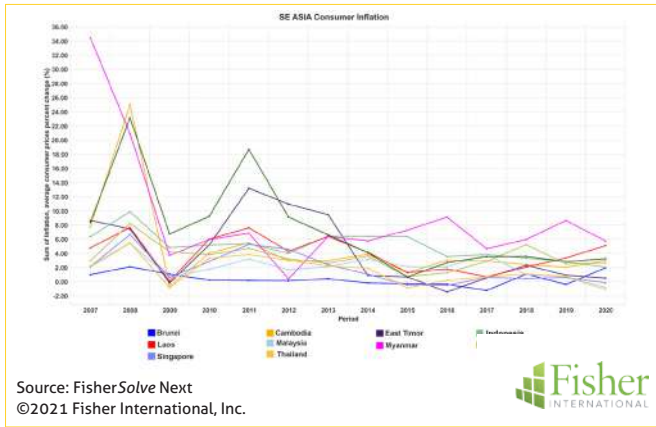


Figure 7: SE Asia Consumer Inflation

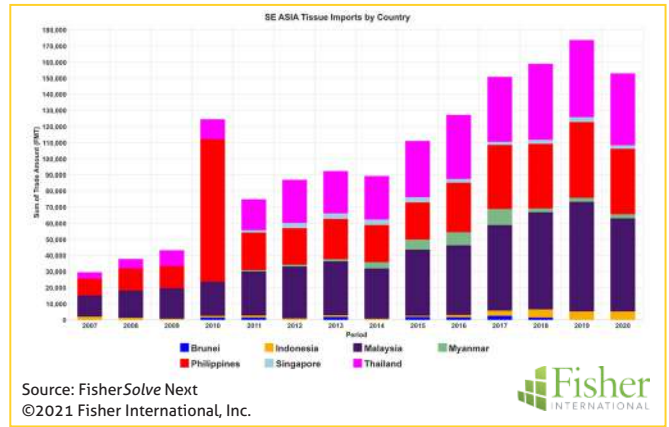


Figure 8: SE Asia Tissue Imports by Country

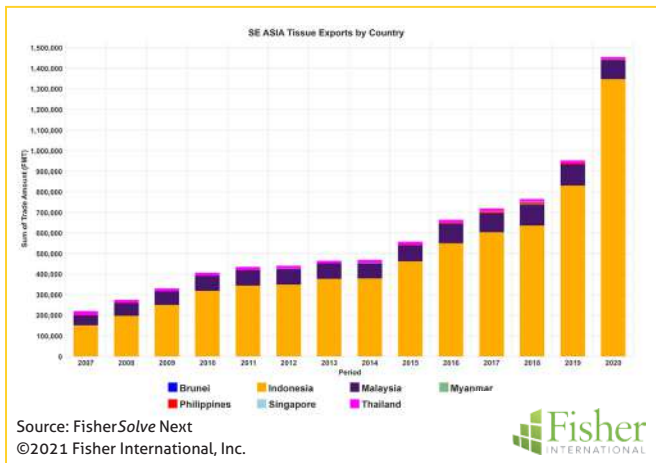


Figure 9: SE Asia Tissue Exports by Country

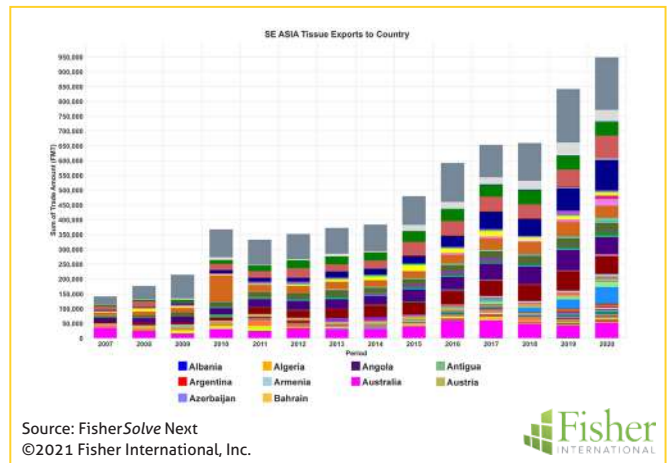


Figure 10: SE Asia tissue Exports to Country

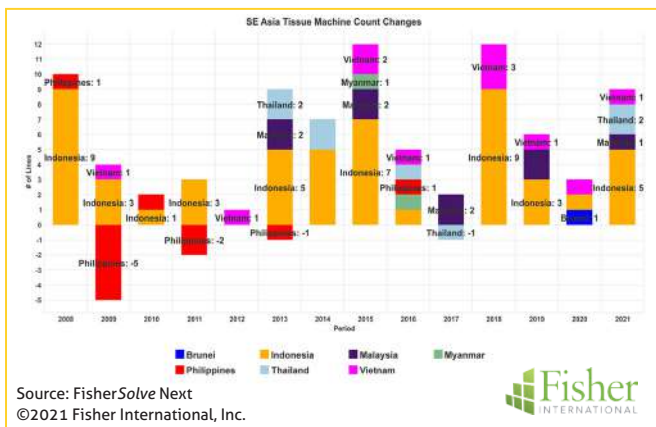


Figure 11: SE Asia Tissue Machine Count Changes

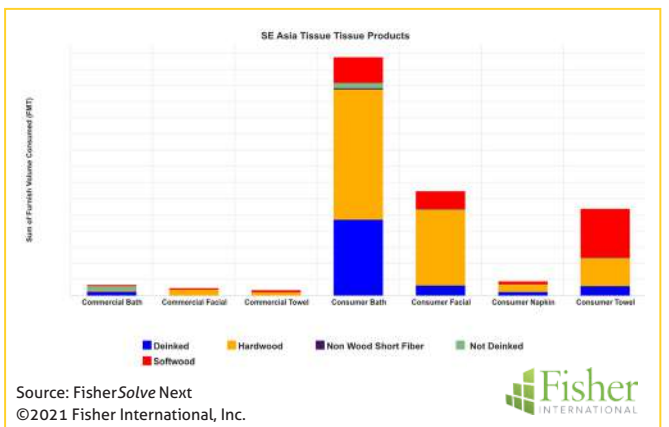


Figure 12: SE Asia Tissue Products and Fibres

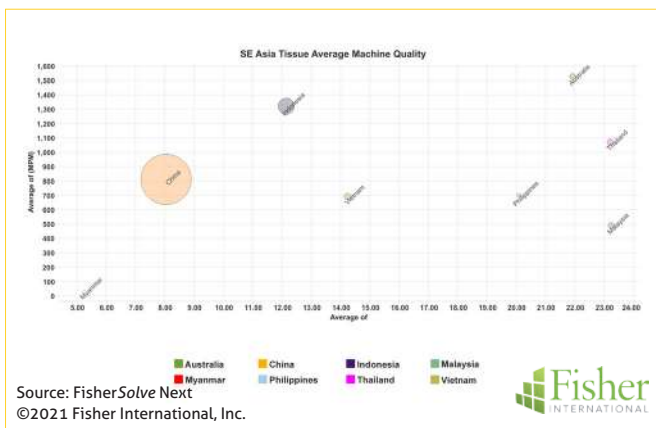


Figure 13: SE Asia Tissue Machine Average Quality

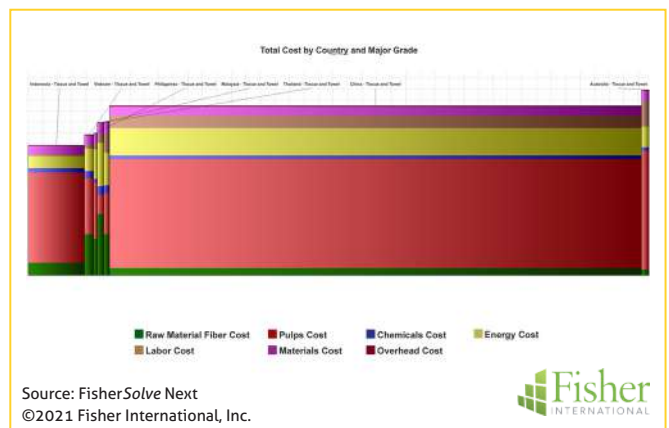
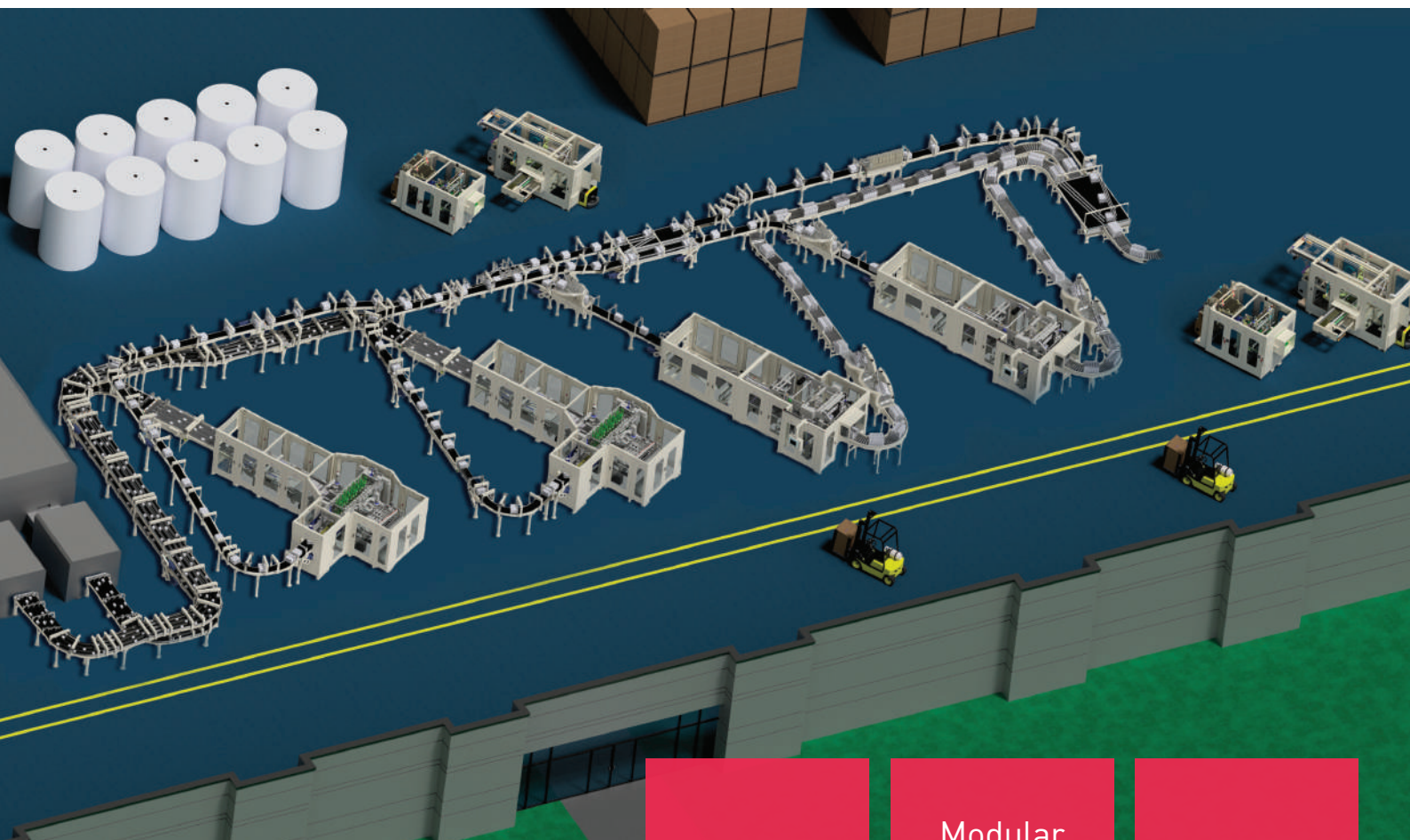


Figure 14: Tissue Production Cost Comparison

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# A HEADY COMBINATION OF DRIVERS TO POWER FURTHER RAPID VOLUME AND VALUE GROWTH

Inside the broad assessment of the region's 11 nations, the contrast between the two tissue powerhouses of Indonesia and Vietnam is the headline story... a tale of two countries, two economies and two Covid-19 responses.



**By Ian Bell**  
Global Lead - Home and Technology,  
Euromonitor International

The world market for retail tissue was particularly buoyant in 2020 following the Covid-19 pandemic, with consumers spending more time at home and looking to tissue as an agent of hygiene, and in some cases stockpiling.

That said, the tissue industry responded in broadly two tiers. Developed markets tended to see heightened growth, while developing and emerging markets saw

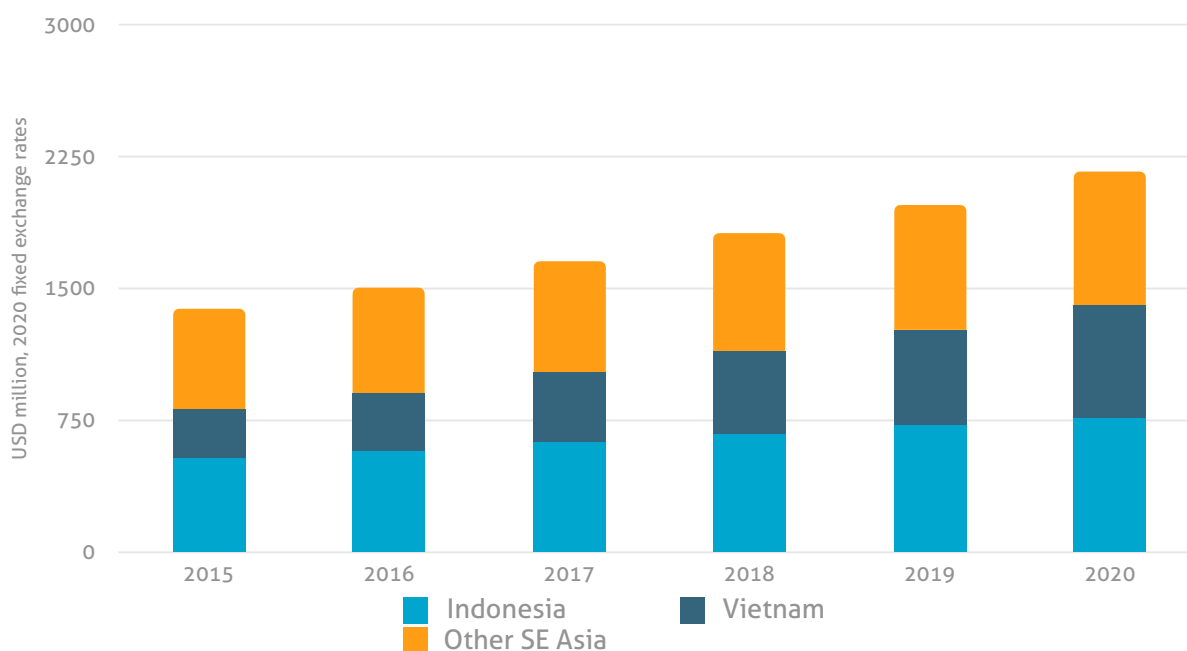
overall growth slow but also, conversely, accelerate in some outlier examples, this was largely the result of specific local pandemic conditions and government intervention.

## Southeast Asia in Focus

Southeast Asia (Brunei, Cambodia, Indonesia, Laos, Malaysia, East-Timor, Myanmar, the Philippines, Singapore,

SIMPLY PUT, INDONESIA'S COVID-19 EXPERIENCE SAW THE RATE OF VALUE GROWTH DIP TO 6.5% (DOWN FROM AN AVERAGE CAGR OF AROUND 8%) WHILE VIETNAM WAS PROPELLED IN THE OPPOSITE DIRECTION, AS VALUE GROWTH SURGED TO FOUR PERCENTAGE POINTS TO 19% IN 2020. A TALE OF TWO COUNTRIES, OF TWO ECONOMIES AND TWO COVID-19 RESPONSES.

Southeast Asia: Retail Tissue Value Sales 2015-2020



Source: Euromonitor International



## Retail Value Sales, Real US\$ mn 2018 - 2025

2020 Constant Prices, 2020 Fixed Year Exchange Rate

### Vietnam - Retail Tissue

#### Retail Value Sales, Real Growth

○ Passport Baseline

#### Driver effects

■ GDP Per Capita

■ Product Price

■ Habit Persistence

■ Population

■ Demographics

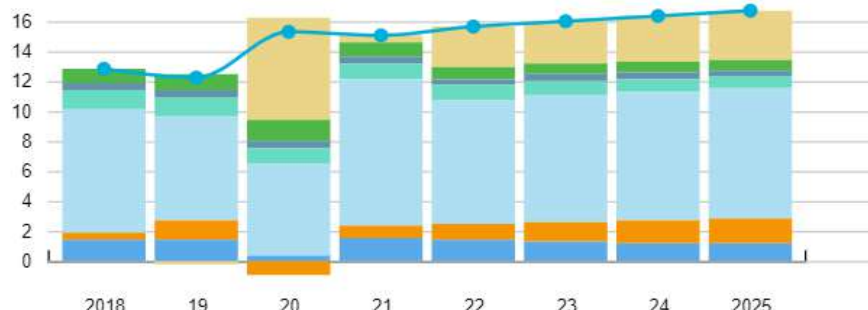
(Share of Households of 4+ persons;  
Urbanization)

■ Market Environment

(Modern Grocery Retailers Selling  
Space per Capita; Passenger Cars in  
Use per Capita)

■ Soft Drivers

(+ Preventative Health; + Product  
variety; + Promotion; + Stockpiling)



Thailand, and Vietnam) was emblematic of this mixed bag of growth in response to the pandemic. Value sales were \$2.1bn in 2020 across the region but significantly, growth was half a percentage point up over 2019 levels at 9.5%. The big story in the region remains the contrasting performances of Indonesia and Vietnam, the regional tissue powerhouses, accounting for 65% of retail tissue expenditure in 2020.

Simply put, Indonesia's Covid-19 experience saw the rate of value growth dip to 6.5% (down from an average CAGR of around 8%) while Vietnam was propelled in the opposite direction, as value growth surged to four percentage points to 19% in 2020. A tale of two countries, of two economies and two Covid-19 responses.

### Indonesia

Indonesia accounts for 35% of value sales in the region and displayed a typical Covid-19 response, consumer changing lifestyles seeing an upturn in products like disposable wipes, an area in which consumers prioritised expenditure on products offering higher levels of hygiene/protection. The economic impact of Covid-19 is also a key consideration, meaning that consumers looked to cut expenditure and also consumption of non-essential items, to both cut overall outgoings and to free up expenditure for products offering hygienic protection, such as disposable wipes.

Indonesian consumers in this respect

**LOOKING AT FORECASTS, ALTHOUGH 2021 WILL LIKELY SEE VALUE SALES RECOVER AND BY 2022 THE MARKET START TO RETURN TO PRE-PANDEMIC SALES LEVELS, HABIT PERSISTENCE – THE IDEA THAT USAGE ITSELF DRIVES FURTHER USAGE – SUPPORTED BY ECONOMICS AND INCOMES WILL BE THE CORNERSTONE OF A RETURN TO MORE PREDICTABLE YEAR-ON-YEAR VALUE GAINS ACROSS CATEGORIES.**

became more price-sensitive as an outcome of the pandemic, meaning that cut price brands overall performed better than the market average, but this – surprisingly – did not translate into a bonanza for private label products. The market share for private label remained stubbornly around the 5% mark, with local sources pointing to supply side issues as a factor in holding back sales.

As with other markets, the pandemic clearly boosted online sales. Southeast

Asia was not alone in this respect, and it is interesting to observe that retailers around the world largely approached the pandemic from a similar standpoint. In one sense a major disruption, affecting operations, customers, and supply chain; on the other, an opportunity to drive scale (and therefore profitability) on home delivery options. In 2020, 5.5% of retail tissue value came through e-commerce channels, a four-fold increase over levels reported in 2015.

**\$2.1bn**  
VALUE SALES IN 2020 ACROSS  
SOUTHEAST ASIA

**65%**  
RETAIL TISSUE EXPENDITURE  
IN INDONESIA AND VIETNAM  
IN 2020

**AS WITH OTHER MARKETS, THE PANDEMIC CLEARLY BOOSTED ONLINE SALES. SOUTHEAST ASIA WAS NOT ALONE IN THIS RESPECT, AND IT IS INTERESTING TO OBSERVE THAT RETAILERS AROUND THE WORLD LARGELY APPROACHED THE PANDEMIC FROM A SIMILAR STANDPOINT. IN ONE SENSE A MAJOR DISRUPTION, AFFECTING OPERATIONS, CUSTOMERS, AND SUPPLY CHAIN; ON THE OTHER, AN OPPORTUNITY TO DRIVE SCALE (AND THEREFORE PROFITABILITY) ON HOME DELIVERY OPTIONS.**

Looking at forecasts, although 2021 will likely see value sales recover and by 2022 the market start to return to pre-pandemic sales levels, habit persistence – the idea that usage itself drives further usage – supported by economics and incomes will be the cornerstone of a return to more predictable year-on-year value gains across categories.

### Vietnam

Vietnam accounted for 30% of value sales in the region in 2020 and over the last decade has exhibited nothing short of a stellar retail tissue growth trajectory. In 2020 tissue growth was positively affected by the pandemic which was closely linked to government response early on. Strict lockdowns at the beginning of the pandemic, while keeping infection rates low also encouraged increased expenditure on tissue products, including stockpiling, as consumers tried to avoid running out while retail channels and supply chains faced severe disruption.

In terms of consumer buying behaviour, the onset of the pandemic created considerable financial stress for the economy and household budgets, with many people fearful of losing their jobs. As a result, there has been a marked increase in price sensitivity, with consumers carefully considering their spending, paying more attention to product value.

This also stimulated a change in distribution channel, with some switching to outlets that offered lower prices and better value for money. This change in behaviour also provided local brands with an opportunity to grow, given their generally more economical pricing and improving product quality.

Like other markets, Vietnam was by no means alone in reporting a significant upturn in e-commerce value sales, which doubled to 2% of total retail tissue in 2020. The biggest winners proved to be modern grocery retail channels, which strengthened

their grip, dominating sales at the expense of health and beauty specialists and traditional retail outlets. Product availability and the impact of restrictions were clearly at work here.

Looking at forecasts, although 2021 will likely see value sales tail off slightly as the dominant soft drivers of the core pandemic year dissipate, by 2022 the market looks set to be back on track and retuning to stable and high growth, again driven by habit persistence, economics, incomes and retail initiatives.

### Forecast outlook

While the full extent of the economic fallout associated with the pandemic is still unknown, it is safe to say the region and world face some significant disruption over the coming years. Many observers see this as a five-year horizon, meaning that by 2025 we may well have navigated the worst of the impact.

Euromonitor's tissue forecasts, which are produced through a combination of econometric modelling and local trade interview sources, suggest the outlook for tissue in the two leading Southeast Asian markets is more upbeat, with 2022 a likely year for something closer to normalisation.

For the retail tissue industry, the perspective remains extremely positive for the Southeast Asian region – there is still much to be hopeful about outside of economic disruption. Incomes will rise

again and local populations continue to grow, as well as the number of households, and access to sanitation and modern retail. Taken together this is a heady combination to drive further rapid volume and value growth as we move out of pandemic, with more positive income profiles ultimately supporting habit persistence which remains the number one future growth metric across the region, particularly in the Indonesian and Vietnamese markets.

### A question of retail tissue

One consideration for the tissue industry, and this observation is applicable globally: Given the fact that consumers around the world have had a significant shock, which has led to an unprecedented focusing of attention around hygiene, how can retail and commercial tissue products better align themselves with what looks set to be the prevailing trend of our time – personal hygiene?

This leads to a broader question – industries as diverse as consumer appliances, home care and retail hygiene are asking themselves, "who does hygiene"?

All the evidence points to the fact that (in many cases) consumers will not easily forget the huge investment that has gone into education and changing lifestyles, with a clear focus on hygiene and disease prevention. While this has clearly benefited non-wovens and no-compromise sanitisation products, clearly the tissue industry has a part to play here, and this is more than likely a larger role in lower income markets.

**ONE CONSIDERATION FOR THE TISSUE INDUSTRY, AND THIS OBSERVATION IS APPLICABLE GLOBALLY: GIVEN THE FACT THAT CONSUMERS AROUND THE WORLD HAVE HAD A SIGNIFICANT SHOCK, WHICH HAS LED TO AN UNPRECEDENTED FOCUSING OF ATTENTION AROUND HYGIENE, HOW CAN RETAIL AND COMMERCIAL TISSUE PRODUCTS BETTER ALIGN THEMSELVES WITH WHAT LOOKS SET TO BE THE PREVAILING TREND OF OUR TIME – PERSONAL HYGIENE?**



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# THE ASIAN CENTURY: THE RISE OF CHINA WILL PULL THE ASIAN REGIONS WITH IT

China is the largest trading partner to all nations in the world's largest free trade bloc ... The Association of Southeast Asian Nations (ASEAN). Dr. Phillip Lawrence, Lecturer, Government and International Relations, University of Sydney, looks at the wider regional prospects.



**P**rior to the Covid-19 outbreak many economists predicted that the next century belonged to Asia, and in particular China.

The Chinese economy has provided around 30% or more of global economic growth following the global financial crisis in late 2008. Despite China's recently slowing economy, it continues to be the driver of the international economy. Of course, the country's position is fortified by the stagnation in just about every other nation. Perhaps it is the progressive decline of capitalism, or just a period between technology and social change. It has always been the case that following an economic decline, there is a golden

period of growth. However, the period of decline has been like no other in history, so what the future will bring is anyone's guess.

Most of the Asian region, mostly Southeast and East Asia, hardly blinked with the 2008 GFC. It was mainly a Western financial crisis. While interest rates in the West plummeted, a sure sign of stagnation over a decade, the Orient maintained reasonable rates. As a result, there was an inflow of money to Asia to find growth.

Money seeks out interest rates, like tree roots always find cracks; money seeks profits. For the past decade many Asian nations experienced economic wellbeing, especially those with a good economic and political relationship with China. Twenty-seven countries in the region, almost every Asian nation, note China as their largest trading partner.

China has taken its newfound international leadership role seriously, and perhaps with some modicum of opportunity. The Belt and Road development initiative is a programme of funding infrastructure in many of the country's trading partners, both in the Asian regions, and around the world.

This is a serious level of investment. The economic commitment to development projects dwarfs the amount of money in today's value that was spent by allied country's rebuilding Europe after WW2. The programme has its critics. Some suggest it is a way for China to lock in, debt control nations around the world. Perhaps that might be a narrow view? It is an assessment not shared by the UN.

On the other hand, international development programmes have been the hallmark of globalisation for the past half century, so the benefits or otherwise of this foray for China itself, and for signed-up nations, has yet to become clear.

While the UN has offered positive comments about Belt and Road, many of the world's developed Western countries are suspicious of the programme. Belt and Road has the potential to greatly improve economic wellbeing of many of China's trading partners – all of them less powerful - but the nation has an imperfect history of completely following through on aid and support commitments.

How Belt and Road plays out will be important for how the world will look in a few decades. China's foray into the South China Sea recently is also putting a lot of regional trading partners on edge. To describe the region as a happy place of unfettered economic growth might be drawing a long bow. But there remains so much potential.

By 2027, most international economists agree, China will have overtaken the US as the world's most financially dominant nation.

**HOW BELT AND ROAD PLAYS OUT WILL BE IMPORTANT FOR HOW THE WORLD WILL LOOK IN A FEW DECADES. CHINA'S FORAY INTO THE SOUTH CHINA SEA RECENTLY IS ALSO PUTTING A LOT OF REGIONAL TRADING PARTNERS ON EDGE. TO DESCRIBE THE REGION AS A HAPPY PLACE OF UNFETTERED ECONOMIC GROWTH MIGHT BE DRAWING A LONG BOW. BUT THERE REMAINS SO MUCH POTENTIAL.**



President Xi Jinping openly calls it China's rejuvenation, a return to past glory. By mid-century, China will be more than three times the size of the US, a time when the Chinese currency will be the dominant world money market, not the greenback. A change completely unexpected in 1979 when it first started to crack open to the world. China's participation in the region cannot be understated. The recent trade agreements in Asia, with China at the centre reinforces the reality that a vast amount of trade from the region is within the region. For this reason, the Asian Century is only reinforced, except for uncertainty of associated with Chinese international relations.

Many have commented that China will become old before it becomes rich, a victim of the "Lewis principle", where the country runs out of workers because its population is growing older, the former one-child policy a key to this. However, the Lewis principle can be managed by applying technologies rather than traditional industrial activities, with fewer hands, using more brains. The national focus on technology will be key to negating a looming problem.

Now China, having abandoned its one-child policy in 2015, has responded with Beijing recently announcing that it will allow couples to have up to three children. So still some measure of control over births.

The consumption growth follows logically in the region's improving economic condition. It is also likely that B&R will increase economic wellbeing in other parts of the world, in developing nations, including Africa.

As economic conditions improve, there is a natural increase in consumption. With paper products, consumption will logically follow the path set by developed Western nations. The growth of social media as the primary source of political, social, community and economic news will mean that printed communications such as newspapers and magazines will continue to decline.

Paper products such as various tissues will witness an increase as these are seen as essential in a modernising economy. Perhaps it would seem logical that Southeast and East Asia will continue to be the leading growth area in the world's tissue market. However, the many nations benefiting from B&R will see changing living standards as the programme rolls out.

**PRESIDENT XI JINPING OPENLY CALLS IT CHINA'S REJUVENATION, A RETURN TO PAST GLORY. BY MID-CENTURY, CHINA WILL BE MORE THAN THREE TIMES THE SIZE OF THE US, A TIME WHEN THE CHINESE CURRENCY WILL BE THE DOMINANT WORLD MONEY MARKET, NOT THE GREENBACK. A CHANGE COMPLETELY UNEXPECTED IN 1979 WHEN IT FIRST STARTED TO CRACK OPEN TO THE WORLD.**

The next three decades will be the world's most challenging period in history. What will this mean? As the world's dominant businesses are from the USA, they will likely see increasing opportunity in being more and more involved in China. Like periods in history when there has been a significant

economic decline, what follows is a golden era. Much depends on it.

**2015**

**WHEN CHINA ABANDONED ITS ONE-CHILD POLICY**

**3**

**BEIJING RECENTLY ANNOUNCED IT WILL ALLOW COUPLES TO HAVE UP TO THREE CHILDREN**

### **Southeast Asian region: Value sales of \$2.1bn in 2020**

- The 11 nations of Southeast Asia produce a wide range of varying economic performance.
- Total value sales of \$2.1bn in 2020 were recorded.
- Growth was half a percentage point up over 2019 levels at 9.5%.
- Tissue powerhouses are Indonesia and Vietnam, accounting for 65% of retail tissue expenditure in 2020.
- These two nations produced dramatically contrasting performances.
- Indonesia's Covid-19 response experience saw the rate of value growth dip to 6.5% from an average CAGR of around 8%.
- Vietnam was propelled in the opposite direction, with value growth surging four percentage points to 19% in 2020.

### **ASEAN: The world's largest free trade bloc**

- Eight of the nations are members of the ASEAN free trade bloc - Indonesia, Vietnam, Cambodia, Singapore, Malaysia, Brunei, Myanmar, and Thailand. Many other larger and small nations have differing levels of association. India, for example, is a summit-level partner.
- It is the world's largest free trade bloc, backed by China but excluding the US after the Trump administration's withdrawal.
- The aggregate economic size, as measured by the total GDP of the member countries, is in excess of almost \$3 trillion.
- As of January this year, the ASEAN bloc became China's largest trading partner for the first time, with trade volumes hitting 4.74 trillion yuan (\$731.9 billion), a 7% growth year-on-year.

# THE RETURN OF A MUCH-NEEDED TOURISM BOOM IS ANTICIPATED TO BRING BACK INCOME – AND HIGHER TISSUE CONSUMPTION

The anticipated rise in tissue use of three years ago has been hit by three waves of the Covid-19 pandemic. TWM interviewed Dr. Sumrit Yipyintum, Managing Director of Thailand's RiverPRO, who believes resulting changes in consumer habits, urbanisation and an aging population will drive an increase in the longer term.

TWM first met RiverPRO's Managing Director Dr. Sumrit Yipyintum in 2018 at the company's Nongkhai mill in the Saraburi province north of Bangkok. The lasting impression from the trip was the immense potential for growth in the local tissue and towel markets. Consumption per capita was low, with just half of the then 68.86 million population using tissue, and tissue growth year-on-year was a steady 5-6%. Dr. Yipyintum anticipated substantial growth following the increased adoption of tissue habits through urbanisation, tourism and an ageing population.

Following the outbreak of the pandemic, a very different set of opportunities has occurred. Speaking in June 2021 on a Teams call from the plant, Dr. Yipyintum emphasises the many changes in the tissue market following the outbreak of Covid-19: "The biggest impact has been the drop in tourism," he says. "The larger picture for Thailand's economy is that around 16% of our GDP is from tourists, and since the start of the pandemic tourism has been very negatively impacted. We've lost all tourist activities, hotels everywhere have closed, and employees have lost their income. Around 10% of our working population is working in the tourist sectors, so the outbreak has really had a negative effect on demand for both the AfH market and the purchasing power of households."

Thailand is currently in the middle of a third wave of the pandemic. Dr. Yipyintum references Facebook's Movement Range and Google's Mobility Data, which show population movement during the past year and a half: "In the first wave of the pandemic in April last year, we had our first lockdown and there was very little mobility across Thailand, people just stayed where they were. The situation then got better and there was more movement, but then we encountered the second wave in January 2021." Despite cancelling the country's



**Green potential:** The company's environmentally-friendly products are seeing increased demand in Thailand and across Southeast Asia.

famous Songkran water festival – Thailand's New Year's national holiday and a peak money spending period for Thais – the Thai people still travelled around the country to visit their relatives. "So the third and the most severe wave began in mid-April 2021."

Most fast-moving consumer goods sales have been impacted from decreased household income. While traditional trade remained fairly consistent across Thailand, it has gained from the government's relief and stimulus packages since January 2021, mainly from the subsidising of half the cost of consumer products purchases from an involved traditional trade shop of up to 3,000 baht per person per month. On the other hand, modern trade took "a big dip" in April 2020, and again in January 2021. "It's now still on a continuous downward trajectory away from pre-pandemic levels," he says.

People are afraid to go shopping at big and crowded hypermarkets and have reduced the number of times they visit, going less often

but buying more in a single shop. "This has been a key change in the consumer market. However, it's also presented an opportunity for the tissue market: e-commerce. We have seen the number of people shopping online for household items has increased, but not much for tissue yet. This is because most of the products manufactured and sold in Thailand are a soft roll. The delivery cost for short and bulky rolls is not worthwhile for stores to sell online. However, with an increasing number of people buying things online, manufacturers eventually have to improve their products to respond to the change. While toilet rolls are by far still the most popular product, paper towels are seeing the most product growth."

AfH has seen the biggest impact in the tissue sector: "The kingdom's hotel occupancy rate is still at the bottom, and restaurants don't allow people to eat inside, they have to buy food and take it home. Because of this you can see that



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the behaviours surrounding tissue paper use are now very different. When you have dinner in a restaurant, tissue is a free product there so you use however much you like. But for takeaway orders, they just give you one small piece of tissue. So even though they've opened restaurants, tissue consumption has dramatically changed."

In comparison, he cites the severe flooding that occurred in Thailand ten years ago during the 2011 monsoon season: "When we had that disaster, most people and organisations gave a lifesaving pack to sufferers, and in that pack they put tissue paper. So, people got tissues, and that really helped to introduce tissue to a lot of people in Thailand that hadn't used it before. But for Covid, there has not been that same support. I haven't really seen an increase in demand for tissue from new users."

It will be a "long, long recovery," he says. "Even more for the AfH market." The opening of the economy, he says, mostly depends on when the vaccine will reach the necessary levels for herd immunity. "According to the Bank of Thailand, one scenario is that we will get herd immunity in the first quarter of 2022. If so, then the number of tourists will be 15 million people, which would be positive for Thailand because then our GDP will have about 4.7% growth in 2022. The second scenario is that we get herd immunity in third quarter of 2022. Then the number of tourists will drop, from 15 million to just 12 million, our GDP will grow at only 2.8% growth, and people will continue to lose their income. Lastly, the third scenario is that we reach herd immunity in the fourth quarter of 2022, and then we will see a drop to only eight million tourists. At present, the most likely case is the second scenario. So, this year and next year will still be the worst years for AfH products because we simply won't get enough tourists back yet."

RiverPRO is still active in the AfH market, which makes up about 25% of its production, alongside 70% for consumers and 5% for Jumbo rolls. He aims to go more into the consumer market this year while maintaining the company's position in the AfH market: "Since offices have closed down, people are now working from home. Moreover, the pandemic has led to more concern about personal hygiene. Even though we have seen just a small increase in demand from the consumer market, I believe that it will drive more demand in the long term. With the government's subsidy programmes to traditional trade shops, we'll focus on utilising our experiential



*"The pandemic has led to more concern about personal hygiene. I believe that it will drive more demand in the long term," Dr. Sumrit Yipyintum, Managing Director, RiverPRO*

nationwide sell and distribution networks to penetrate the traditional market. And for AfH, we'll continue to introduce our value for money AfH products to our new customers, who are looking to survive this severe situation by reducing their costs."

As a main producer for private labels in Thailand, the company will continue to work closely with stores to provide better solutions to benefit both the stores and their customers: "Because of the number of visitors who are afraid to go shopping at big and crowded hypermarkets, private label products are decreasing and branded products are aggressively expanding in order to maintain their market share. We have to work more closely with stores to maintain our sales by providing better alternative solutions to consumers."

Moreover, the company's environmentally-friendly products, including unbleached products, will have more potential from increasing green awareness: "Because of the global warming issue, the Thai government recently initiated a green procurement policy. This policy won't only provide opportunities for our environmentally-friendly tissues in the AfH market, it will also create more green awareness in people in general."

The company's export regions – Laos, Cambodia and Myanmar – are also suffering from a drop of tourists. "They have the same issues as Thailand: they depend on tourism, so we have stopped exporting there because of the drop in demand."

The business hasn't needed to reduce the number of its products, and still operates four tissue machines in two locations on

the outskirts of Bangkok, its Taeparak mill in Samutprakarn Province and its Nongkae mill in Saraburi Province, with a total capacity of 54,500tpy. Recent investments have included conveyors, packaging machines, a warehouse, and a rooftop photovoltaic power station in order to improve productivity and energy cost.

Investment plans include opportunities for exporting wet recycle pulp and the business is also looking to improve its stock preparation lines and converting lines. "Our productivity improving plans also include training our employees. And a new way we have to work with our suppliers to keep our machines running effectively without onsite visits... it's been a new and big learning curve."

An opportunity could also come through China's Belt & Road Initiative: "Whilst we haven't seen any direct effect from the initiative yet here in Thailand, China's policy on banning waste paper is something that has impacted us. After the policy was implemented, besides the changes in raw material prices there have been many requests whether we can supply a wet recycle pulp to China, so this is an opportunity for us to use our deinking line to produce and export the pulp to China."

Dr. Yipyintum still believes tissue and towel demand will continue to expand in Thailand: "In terms of consumption per capita, we are still very low. The most influential factor will continue to be urbanisation and an aging population. In addition, I believed that Covid has elevated an awareness of hygiene and will drive demand for tissues in the long term."

# WHEN THE COVID-19 CRISIS BROKE WE WERE ALREADY GEARED UP TO MEET THE NEW CHALLENGES

Sopanusa Tissue & Packaging Saranasukes and Sun Paper Source's state-of-readiness was due to a dynamic business strategy which today sees it trading in over 80 countries and across five continents. TWM spoke to Chief Executive Ventje Hermanto to hear how Covid-19 accelerated the habit of hygiene across the region – and value-for-money tissue products



**Gearing up:** The company's 13-acre Sun Paper Source plant in Indonesia; Following the outbreak of Covid-19, the businesses have expanded into new and bigger markets they previously weren't able to get a foothold in.

Ventje Hermanto looks back today from the vantage point of 2021 at what can only be described as the extraordinary year and a half in Indonesian's tissue business, but also somewhat wistfully to the preceding pre-Covid-19 years.

TWM first visited sister companies Sopanusa Tissue & Packaging Saranasukes and Sun Paper Source, part of SPS Corporate, in 2013, at the company's 12-acre Sopanusa site and 13-acre Sun Paper plant in Indonesia. It was clear then that the dynamic company was expanding rapidly, and was well placed to benefit from systemic economic and cultural changes underway across the nation, and the Southeast Asian region.

The middle class was growing, consumer needs were changing and increasing, more

**THEN COVID BROKE AND NEW CHALLENGES HAD TO BE MET. THEY WERE MET, BECAUSE, AS HE PUTS IT, THE COMPANY HAD BEEN UNWITTINGLY GEARING UP TO MEET THEM THESE PAST FEW YEARS. TODAY FROM HIS OFFICE IN SURABAYA, INDONESIA, VENTJE HERMANTO EXPLAINS THAT THE COMPANY'S AMBITIOUS GROWTH PLANS HAVE NOT BEEN HELD BACK BY THE OUTBREAK OF THE GLOBAL PANDEMIC,**

disposable income was available, and export opportunities were coming on-line across the western Pacific Rim and beyond.

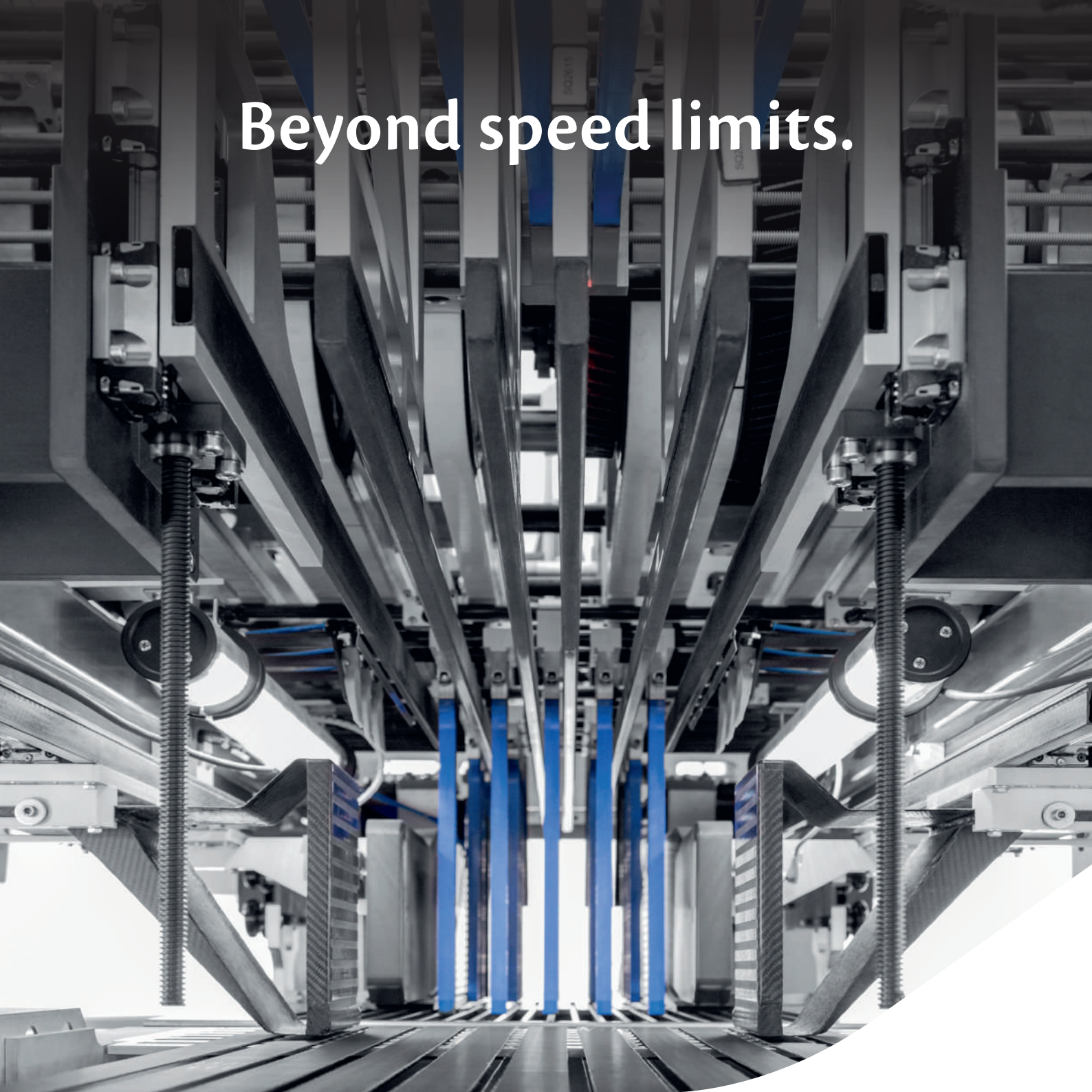
Then Covid broke and new challenges had to be met. They were met, because, as he puts it, the company had been unwittingly gearing up to meet them these

past few years.

Today from his office in Surabaya, Indonesia, Ventje Hermanto explains that the company's ambitious growth plans have not been held back by the outbreak of the global pandemic: "The main change this past year and a half has simply been



# Beyond speed limits.



## TMC WRAP250: BEYOND SPEED LIMITS.

WRAP250 is a **tissue roll wrapper** that runs up to 250 packs per minute, thus requiring just one packaging line downstream the converter. Either wrapping single or multi tissue rolls packs, forget about the issue of machine stops: WRAP250 automatically checks the correct rolls configuration, discarding the non-compliant ones and replacing them. Switch the format quickly: a complete standard changeover on WRAP250 requires no more than 10 minutes.

**TMC WRAP250 meets all needs, from single to multi tissue roll wrapping.**





matching supply to the rapid increases in consumption.

"We are seeing huge opportunity to develop tissue production in response to this increase following the outbreak of Covid-19. And it has presented a great challenge as well as opportunity for us."

The response in the first quarter of 2020 was to start up a paper machine at Sun Paper Source's Mojokerto, Indonesia-based site, and a second machine was started up a few months later, boosting the company's paper mills to six with a production capacity of 120,000tpy. At Sopanusa Tissue & Packaging Saranasukes, two paper mills currently produce 45,600tpy.

SPS Corporate has also invested in eight converting machines for the two businesses, all of which are fully-automatic and semi-automated in order to "improve quality and capability both for the local and export markets". Parent rolls and finished products are now exported to customers in over 80 countries and across five continents, reaching as far as the Middle East and South Africa.

Yet it is the regional tissue powerhouse of Indonesia that remains key. Indonesia produces 750,000tpy of towel and tissue paper, and is the largest T&T producing nation in the Southeast Asia Geographic Zone. In 2020, tissue consumption increased substantially in the retail market due to stockpiling, whilst similarly with the rest of the world it decreased for the AfH due to local and regional lockdowns.

"We are in the retail market, particularly in the local market, and also the AfH sector in both local and export markets - we always see opportunities in every sector," Hermanto says. Demand for consumer tissue in Indonesia "continues to see positive growth" in 2020 as people are increasingly aware of hygiene: "Following Covid we have also been able to expand into new and bigger markets where we have previously not been able to get a foothold, both locally and also abroad. Hygiene has become more of a habit: it's now a lifestyle for people to wear a mask and wash their hands more frequently. And while the AfH segment had been negatively impacted during this pandemic, we have definitely seen the use of household tissue and the personal daily use of tissue increase."

The increase in demand for consumer tissue products is a result of more people implementing healthy lifestyle, especially the people who live in the cities and developing areas: "This has created a higher demand for consumer tissue, and it is also being driven by the unusual

**IN INDONESIA, POPULATIONS ARE INCREASINGLY GETTING USED TO USING FACIAL TISSUE SOFTPACK AS A 'MULTIPURPOSE' TISSUE, WHICH HAS SEEN A DROP IN HOUSEHOLD TOWEL USAGE. "IN COUNTRIES IN SOUTHEAST ASIA THE BIGGEST INCREASE IN TISSUE USE WAS FOR PRODUCTS THAT HAVE PREVIOUSLY BEEN USED FOR HOUSEHOLD TASKS, SUCH AS TOILET, FACIAL AND KITCHEN TOWEL TISSUE. THIS DEMAND INCREASE WAS CAUSED BY PANIC-BUYING THAT LEAD TO STOCKPILING AND ALSO SEVERAL RESTRICTIONS."**

increase in people's activities, cooking and dining at home."

In Indonesia, the population is also increasingly getting used to using facial tissue softpack as a 'multipurpose' tissue, which in turn has seen a slight drop in household towel usage. "In other countries in Southeast Asia the biggest increase in tissue use was for products that have previously been used for household tasks, such as toilet, facial and kitchen towel tissue. This demand increase was caused by panic-buying that lead to stockpiling and also several restrictions."

Private label tissue products have also become "the most saleable item" for the business, compare to branded tissue products for the modern market. "More and more tissue customers are starting to see private label tissue quality as acceptable and good value for money," he adds.

The businesses are also starting to see "a significant change" in demand for napkin and towel AfH products, as restaurants and hotels start to open up again: "We have seen the closure of some other tissue paper suppliers following the low demand of 2020. Casualties of Covid. But it meant that when the demand started to come back in 2021, we were ready to support it, to grab the opportunities. And we are also exporting even more."

Does he expect a full re-bounce for the AfH market? "It depends on every country's public policy, especially in terms of how fast a country can distribute the vaccine to its people. When people feel they have the necessary 'armour' for Covid-19, then they will start to have more activity in public places. However, I don't believe the AfH market will recover 100% back to its volume pre- pandemic. It will be recovered 50-70% by 2023/2024."

The change in people's hygiene and tissue habits will be lasting however, and a positive for the global tissue and towel market: "We see a permanent behaviour change in everyone due to Covid-19," he says. "Paper towel demand is increasing

and will continue to do so due to people's increased awareness to wash their hands more often. We also see that toilet and kitchen towel tissue are big opportunities and we are planning to invest more on our converting line for these products."

China's Belt & Road initiative also holds further export opportunities for the company. With high ocean freight rates having had a negative impact on the export of lightweight product such as tissue paper, Hermanto says Belt & Road means that some distribution may well be carried out by truck: "We hope ocean freight rates can be adjusted to be back in "competitive" rates, so that the export of tissue paper can go back to previous more sustainable rates."

"Covid-19 is impacting the economic situation of the world, including Indonesia and Southeast Asia, and it will have lasting repercussions on the industry's sustainability efforts and margins. Environmental issues remain a main concern in this industry - some people are still reluctant to use tissue paper since the raw material is well-known as coming from a tree. To survive, we have to take care of the environment by reducing the use of energy and fresh water per tonne of tissue paper, increasing recycled tissue paper product portion and to keep providing FSC-certified products for both virgin pulp and recycled grades."

He adds that a final crucial challenge for the market remains pulp prices: "We have seen our raw material pulp costs increase more than 70% during the past six months. It is getting tougher for tissue producers since the retail price is difficult to be adjusted as the buying power has not fully recovered. At a certain point, if pulp prices keep increasing then the retail price has to be adjusted, just as with other commodities. We believe that in the next two to three years, the growth rate of tissue paper will keep along a positive trajectory. However, it could equally be stable or even start to decrease if there is a significant retail price adjustment."

# AS A SENIOR MILLENNIAL I'M CONSTANTLY WORKING ON REDUCING MY CARBON FOOTPRINT

Derin Oyekan is co-founder and CMO of REEL, the US-based exclusively bamboo product tissue company. He explains how his personal preferences inspired his business strategy.

**O**bviously I'm biased, but at home I exclusively use tissue and towel products made by REEL, the 100% bamboo toilet paper company I co-founded in 2019. I also use paper towels for cleaning up big messes such as grease and pet waste. It is a truly multi-functional product!

In terms of my personal product preferences I like sustainable products that don't feel like a compromise when used. I try to buy sustainable versions of any product whenever I can and I'm constantly working on reducing my carbon footprint as much as possible and finding new ways to do so. But for most products, I do prefer simple, minimalist aesthetics – I am a senior Millennial after all.

This personal belief also lies behind the launch of REEL. Our goal was to build a sustainability-focused, mission-driven company that made it easy for consumers to make simple changes that collectively had a big impact on the environment. Specifically around deforestation. We started with our 100% Bamboo toilet paper, one of the biggest consumer product categories and it's also an essential item. These are two characteristics that made it very attractive as a product category to go after and it was also ripe for disruption/innovation as it had been stagnant for decades.

We launched our second product, our 100% bamboo paper towel product earlier this year. All of our shipping materials are also biodegradable and we use plastic-free packaging.

The outbreak of Covid-19 created several opportunities for us. The first was in the At-Home market. With demand quickly spiking, we saw rapid growth during the periods of toilet paper shortages at retail stores.

Another was that I, like a lot of people, now have an online subscription for most things. At my home, I don't really like buying in bulk as I don't have a lot of storage space, but the



**"OUR GOAL WAS TO BUILD A SUSTAINABILITY-FOCUSED, MISSION-DRIVEN COMPANY THAT MADE IT EASY FOR CONSUMERS TO MAKE SIMPLE CHANGES THAT COLLECTIVELY HAD A BIG IMPACT ON THE ENVIRONMENT. SPECIFICALLY AROUND DEFORESTATION. WE STARTED WITH OUR 100% BAMBOO TOILET PAPER, ONE OF THE BIGGEST CONSUMER PRODUCT CATEGORIES AND IT'S ALSO AN ESSENTIAL ITEM. THESE ARE TWO CHARACTERISTICS THAT MADE IT VERY ATTRACTIVE AS A PRODUCT CATEGORY TO GO AFTER AND IT WAS ALSO RIFE FOR DISRUPTION/INNOVATION AS IT HAD BEEN STAGNANT FOR DECADES."**

convenience of auto-delivery is something I think I'll be keeping for the foreseeable future. Especially for essential items such as tissue and towel.

For REEL, we are a DTC-first company and so we were well positioned to take advantage of the increases in online subscriptions. There has definitely been a rise in people purchasing products online during the Covid period, and even now I can't see that changing much. Certainly not in my household!

Longer term, we plan to expand to countries where toilet paper usage is the norm. I

believe there is a huge market globally for bamboo tissue products, especially in the western world.

And I'm very excited about the future of the personal-use paper categories. I can't wait to see what earth-friendly options for toilet paper, paper towels, napkins and facial tissues are available for consumers two to five years from now.

# AS AT-HOME TISSUE REACHED A DECADE HIGH, AFH PLUMMETED

The broad contrast between tissue sectors during the pandemic is well established, with AfH decline into Q1 2021 touching 20% for leading producers, with smaller players registering 30–40%. Here, AFRY Management Consulting Senior Consultant Olivia Ying and Analyst Navodya Denuwara look in detail at the five key end-use markets including food service, lodgings, healthcare, office building, and education and government to assess how, where and when the predicted recovery will occur.

MI



**Olivia Ying**  
Senior Consultant, AFRY

Over the past decade, North America's AfH tissue market has been leading the tissue demand growth at 2% per year compared to the annual growth rate of about 1% per year in the retail tissue market. This all changed when the Covid-19 pandemic shut down the AfH tissue market due to stay-at-home orders.

AfH tissue consumption hit a decade-low in 2020 at 2.6 million tonnes after an estimated 15% decline in consumption from 2019. While the AfH tissue market suffered from terrible demand in major end-use markets, the consumer tissue retail market thrived from customers who went on tissue hoarding sprees and panic buying hygiene products during the pandemic.

Leading North American tissue producers saw plummeting AfH tissue segment revenue and a decade-high At-Home tissue segment revenue in 2020 due to consumption shifts created by the stay-at-home orders. Tissue companies reported drastic sales declines for their AfH tissue segments. Kimberly-Clark, for instance, reported a 10% volume decline in its AfH category in 2020, which continued with an even higher reduction rate in Q1 2021 at -18%. Essity, another AfH tissue producer in North America, faced more than 20% decline in 2020 in its professional hygiene

business mainly due to lockdowns and restrictions on outdoor activities and indoor dining. Some smaller market players witnessed drastic sales decline with a 15% decrease in AfH revenue in 2020, followed by a 30-40% decline in Q1 2021.

Short term consumption effects in both retail and tissue markets were very visible. However, the long-term effects of the pandemic are less known and discussed due to the various factors involved in growth outlook in the different market segments.

Overall, the North American AfH tissue market can be divided into five key end-use markets including food service, lodgings (airline, hotels, and cruises), healthcare, office building, and education and government [Figure 1]. We examined the past performance of each of these end-use sectors as well as compared current issues in each sector to determine what the recovery will look like for the AfH tissue market [Figure 2].

## RECOVERY WITHIN THE LODGINGS INDUSTRY VARIES AMONG THE THREE MAJOR MARKETS

Among the main end-use markets, lodgings got hit the most by the pandemic as the major markets (airline, cruise line

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**Navodya Denuwara**  
Analyst, AFRY

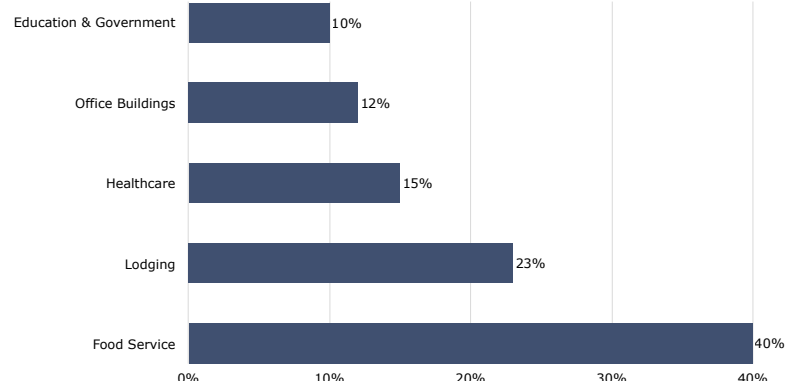
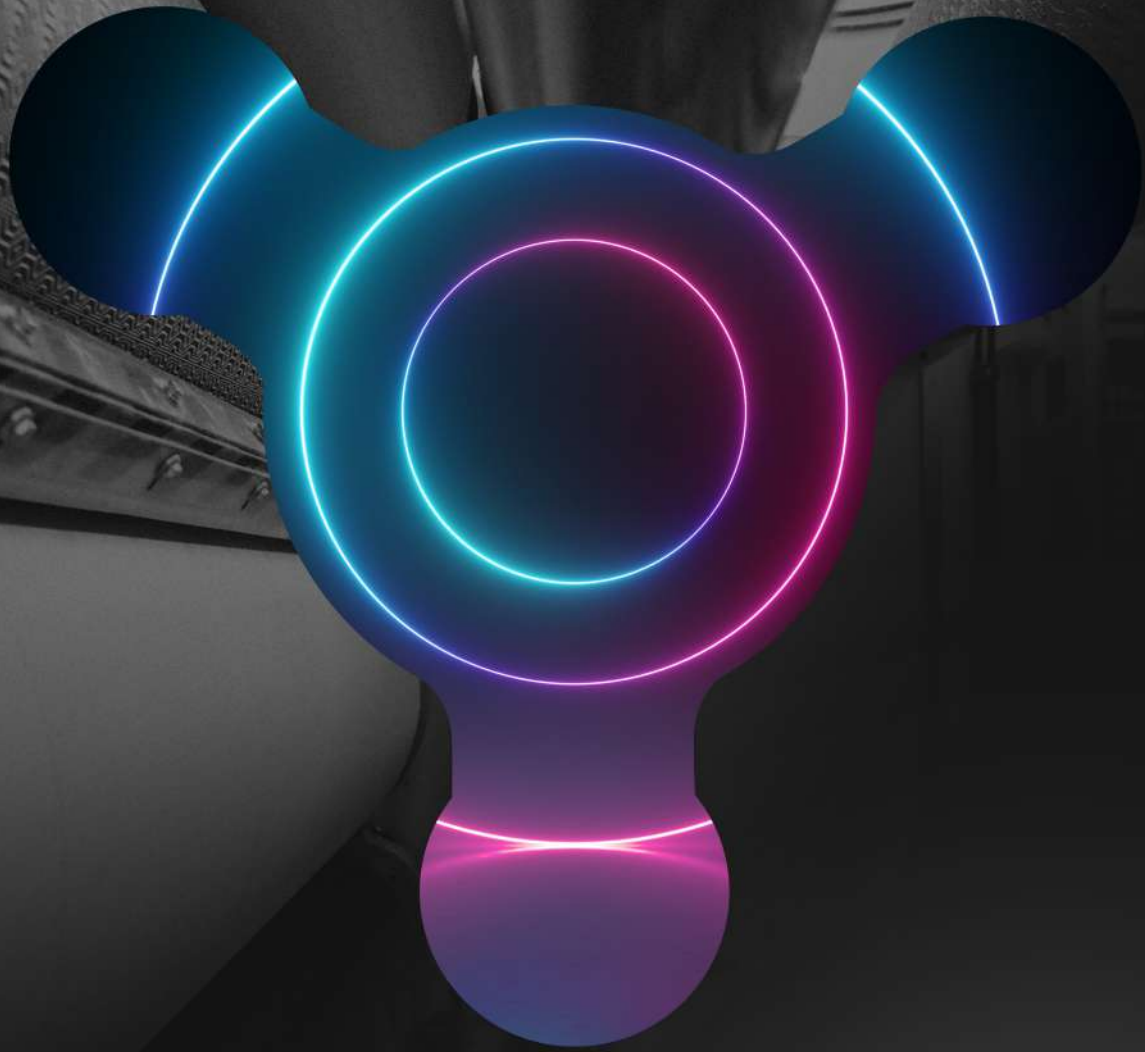


Figure 1: AfH tissue demand by end-use market

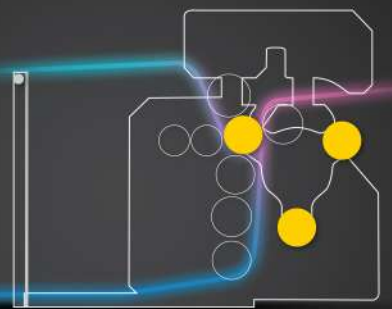




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and hotel industries) suffered due to the lockdown. Total tissue consumption in the lodgings industry were down roughly 30-40% due to the sharp demand drop in consumers looking and willing and able to go on vacations. According to the International Air Transport Association, the airline industry experienced a 60% decline in 2020 from the 2019 level, and Cruise Line International Association reported a 70-80% decline in passenger travel in the cruise line industry. Leading hotels also reported a 50% decline in their 2020 revenue compared to 2019 level [Figure 2].

Within the lodgings industry, the hotels sector is expected to recover the earliest this year (2021), followed by cruises sector in 2022, and finally airlines in 2023/2024 thereafter. The current issue in airline recovery is whether a vaccine passport will be required to travel in the future. Most say that for domestic travel it is not expected to be required, however there is a large chance that for international travel it may be. Several issues accompany vaccine passports, one being the sheer distrust from the public about mandates from governments forcing for vaccination.

The second is that such passports might permanently limit travel by people who have yet to - and will refuse to - take the vaccine. Additionally, there is expected to be large differences in regional recovery for global airline travel because in strong domestic travel regions like the United States, airline travel will possibly rebound since passports may only be used within international regions. Due to this, regions such as Europe where travel is mostly international and not domestic, vaccine passports are expected to affect the recovery of the market.

As such, vaccination and government risk are expected to severely limit the ability of the airline industry to make a full recovery before 2023/2024.

In 2022, it is expected that cruise bookings will far outpace 2019 bookings because of future cruise credits. When cruises were suspended in 2020, passengers were given the option to get a full refund or a future cruise credit. Approximately half of cruise passengers that had their cruises cancelled chose a future cruise credit over a refund based on Carnival Cruise Lines. While 2022 sees a tremendous jump in expected cruise revenue, it will take until 2023 to get back to 2019 revenue levels. The current issue in the cruise industry also surrounds the use of vaccine passports because different

## IN 2022, IT IS EXPECTED THAT CRUISE BOOKINGS WILL FAR OUTPACE 2019 BOOKINGS BECAUSE OF FUTURE CRUISE CREDITS. WHEN CRUISES WERE SUSPENDED IN 2020, PASSENGERS WERE GIVEN THE OPTION TO GET A FULL REFUND OR A FUTURE CRUISE CREDIT.

states in the US are making these passports a state-level issue even though the initiative is a federal one.

The hotels industry had a less severe Coronavirus revenue drop compared to the airline and cruise line industries because hotels – if certain precautions are taken – can fall under Covid-19 safe travel. For example, it is possible for customers to avoid people that are not in their travel party relatively easily compared to cruises and airlines where the passengers would be enclosed in a confined space for a long period of time with no option to leave. Due to the appearance of relative safety, hotels fared better than airlines and cruises, even though they sustained a 50% loss in revenue during the pandemic. In the near future for hotel travel, consumers desire to stay closer to home, visiting destinations within easy driving distance such as cottages.

To accommodate this change in consumer preferences, large hotel chains will need to redirect their efforts to understand and engage with this new domestic, short-trip traveler. In this event, the hotels industry can recover their 2020 revenue loss relatively quickly in 2021.

## STRONG DEVELOPMENT OF HEALTHCARE SECTOR CONTINUES

The healthcare industry remained strong during the pandemic. Government funding and Covid related spending offset much of the revenue loss in healthcare professional services (such as non-emergency surgeries like dental care, cosmetic, and others) due to the lockdown and fear of contracting Covid-19 in healthcare settings. This helped to result in only a 1% decline in overall healthcare expenditure in 2020.

While the sector itself experienced a relatively small decline compared to the other industries, an increase in virtual healthcare visits created a shift from AfH tissue consumption to the retail tissue segment. A survey by McKinsey in April 2020 found that the share of virtual visits out of total healthcare appointments significantly grew during the pandemic and surged from 11% in 2019 to almost 46%

by mid-2020 and 76% of patients who used telehealth during Covid-19 said that they are likely to use it in the future, even post-Covid-19. The industry itself is expected to see a CAGR of approximately 5% growth each year from now until 2023. However, some say the growth will decelerate in spending due to emerging technologies, an ability to cure and prevent disease, and highly engaged consumers, while others say that spending will grow more than the expected 5% because of higher healthcare prices (not necessarily by amount of visits or patient numbers).

## FOOD SERVICE REBOUNDS QUICKLY DRIVEN BY DEMAND SURGE

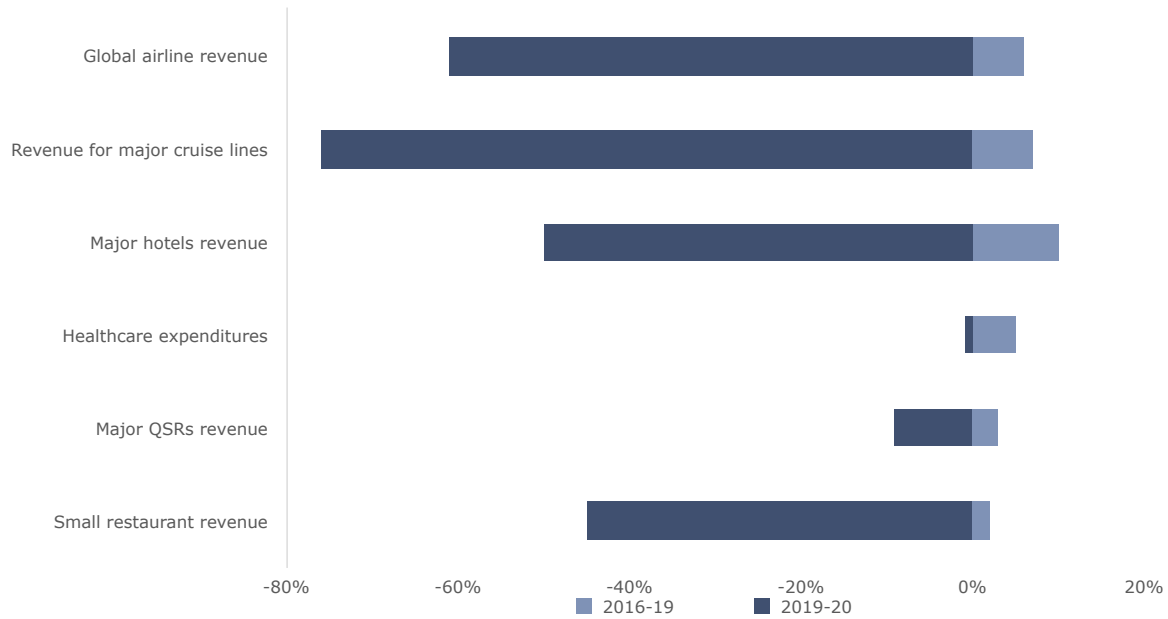
The food service industry saw a severe drop in 2020 due to massive lockdown and restricted capacity in indoor dining, although the booming food delivery business partially mitigated the revenue loss of the industry. During the pandemic, the food delivery business more than doubled the revenue in 2019.

Small to medium restaurants faced a more significant revenue drop, while major food chains and Quick Service Restaurants quickly adopted to food delivery services, which largely reduced the severity of the lockdowns and stay-at-home orders. Furthermore, single-use paper products started replacing cloth napkins and wipes at eateries due to health concerns.

There is also an additional issue with hand dryers in food service restrooms spreading bacteria and viruses through the hot air used in the dryer. These two factors contributed to the short-term change in tissue consumption in the food service industry, as Centers for Disease Control and Prevention suggested paper products were better than cloth wipes and hand dryers for decontaminating surfaces. Overall, the restaurant industry is expected to recover in 2021 to 2019 levels.

## OFFICE BUILDINGS AND EDUCATION GOES THROUGH STRUCTURAL CHANGES

Pandemic driven lockdowns also affected the office building, education, and



**Figure 2:** Annual revenue growth of major AfH end-use market pre and post-Covid-19

**Source:** Bureau of Transportation Statistics, International Air Transport Association, Federal Aviation Administration, Cruise Market Watch, Yahoo Finance, Cruise Line International Association, Smith Travel Research Report, Quarterly Services Survey, CSI Market.

government end-use markets through the trend towards remote working and online learning models. Tissue consumption shifted to the retail tissue market as people set up home workspace and took online courses which resulted in a 15-20% demand reduction.

Based on an AFRY survey in April 2021 of 600 US consumers, 60% of employees who worked from home during Covid-19 expect to do so post-Covid-19 after finding that their productivity levels stayed the same or increased while working from home. This generally positive reaction towards remote working is expected to contribute to a permanent decline in AfH tissue demand in office-buildings.

Interestingly, property specialists believe that more office space will be required in the future compared to what was required pre-Covid because of space and health requirements.

Post-Covid-19, only part of tissue consumption in the education industry is expected to return because of the move to homeschooling and online learning. The parents and students who took a liking to the current pandemic learning experience and found it suited their lifestyles may potentially choose to homeschool their children even after the education industry returns to the new normal.

Another contribution towards general decline in the industry is if the amount of online course options increases in the future for schools, a certain amount of post-secondary students may be less willing

to pay the same levels as prior years to attend school.

This will severely limit the number of students that go to colleges and universities in the US. What happens to the education industry in the future will rely on the students' and parents' willingness to shift to online learning, in effect replacing traditional schooling and forever changing the education landscape to digital for the future.

## WHAT IS THE NEW NORMAL FOR THE AFH TISSUE SECTOR?

Major shifts have occurred across AfH tissue consuming end-use industries and the question now is whether they will recover to pre-Covid levels. Table 1 summarises the unevenness of the impact of the pandemic and the estimated post-Covid-19 recovery across major AfH end-

use markets. The lodgings and food service industry are expected to make a comeback due to demand surge; the healthcare industry was not especially affected and so any recovery will be slight compared to the other end-use sectors; finally, the education sector and office buildings will most likely never recover due to the structural changes that occurred in consumer behavior and preferences.

*This article was written for TWM by AFRY Management Consulting Senior Consultant Olivia Ying and Analyst Navodya Denuwara.*

END-USE	COVID-19 IMPACT	RECOVERY	YEAR BACK TO PRE-COVID LEVEL
Airlines	● ● ● ●	➔	2024
Cruises	● ● ● ●	➔	2022
Hotels	● ● ● ●	➔	2021
Healthcare	● ● ● ●	➔	2021
Food service	● ● ● ●	➔	2021
Office buildings	● ● ● ●	➔	Part of the consumption to stay at At-Home market driven by remote working and hybrid education
Education	● ● ● ●	➔	

**Table 1:** Covid-19 impact and post-Covid-19 recovery by end-use market



# OPPORTUNITY FOR SUPPLIERS TO ASSUME DUAL ROLES OF PROJECT MANAGEMENT AND INTEGRATOR FOR FULL END-OF-LINE PACKING APPLICATIONS

Case study: Josh Goulet, Account Manager, Edson, discusses designing and installing automation into end-of-line packaging for diaper manufacturers. A TWM report.



**Josh Goulet**  
Account Manager, Edson

There was a time not that long ago that many end-user paper customers would manage all aspects of a new packaging line integration. They would map out expansion plans within their facility, research available packaging options, evaluate different packaging suppliers, compare quotes – in other words, do all the heavy lifting themselves in addition to their regular duties.

These types of expansion scenarios are becoming less common however, as trimmed-down staffs and dwindling tribal knowledge relating to managing projects of this scope are leading some companies to look for alternatives. Reduced staffing is pushing companies to streamline the specification process by having one supplier assume control of a project from initiation through completion. This trend relies on the expertise of the partnering supplier to work with other vendors to research and recommend a total line solution.

This shift has created an opportunity for suppliers to assume the dual roles of project management and integrator for full end-of-line packing applications. Some RFPs are directing a supplier to essentially take ownership of the whole line from the time their products are in the primary packing all the way to the pallet.

That can be a big endeavor to undertake but, we are seeing more requests like this, and not just from small to mid-size

companies; large Fortune 500 companies have begun pushing project management duties onto suppliers as well.

ProMach's business model has evolved. If you call us with a project involving a case packer, you also need the labeling, marking, coding, weighing, conveying and palletising equipment that comes both before and after the case packing machinery. While Edson specialises in case packers, our business can attend to the rest of a packaging line. The advantages of this is that we can specify all the equipment needed for a diaper packaging line, and do so in a streamlined process where all facets of the project are unified under one roof.

An entire case packing line installation was completed recently for a major North American diaper manufacturer in which two ProMach brands, Edson and Zarpac, managed the project from start to finish. The customer was bringing to life a fully automated packaging line and successful installation that was not only turnkey, but, managed by one central point of contact.

For years, the diaper manufacturer followed the practice of hand packing all its diapers and it was not looking to add more automation to its packing process. For larger orders, leadership would schedule 20 or more temporary workers to handle shipments; other days, a staff of 10 could handle packing duties. The drive to automate was in part due to Covid-19 and the regulations outlining distancing to employees, but the company was also growing and needed to upgrade its packing capabilities to meet increased orders without having to hire temporary workers.

While the initial thought was to automate case packing and palletising, Edson identified areas where additional efficiencies could be gained during the exploratory process by auditing the customer's entire packaging and packing lines. When Zarpac was brought in, overall equipment effectiveness optimised line design and turnkey packaging systems.

Edson and Zarpac completed an on-site visit to the diaper manufacturer where

they laser-scanned the facility to create a 3D model of the layout. From there, they began designing the lines by placing equipment such as the conveyors, metal detectors, weight checkers, case packers, and palletisers, to ensure adequate product flow within the facility. Additionally, their plans called for the expansion of 11 total lines, so future installations were also accounted for. The first part of this project included two pack lines.

While the conveyance was supplied by a non-ProMach company, ProMach integrated that system with the entire line. Edson can integrate with other brands, especially if customers have a pre-existing packaging line or relationship with other brands but is looking to upgrade just their casepacker, or if another brand may be a better solution for the project.

For the factory acceptance test, Edson and Zarpac hosted it remotely through video conferencing, machine videos of operation, speed runs, induced failures, individual machine assemblies, as well as supporting test documentation to provide the customer with full action validations. With ongoing travel restrictions, the customer was able to express any questions or concerns it had before receiving its machines.

When all the pack lines are fully functional they will be running at around 21 cases a minute. If future production increases, the pack lines and case packers have the flexibility to increase speed as well. Some diaper manufacturers are packing 30 cases per minute; those speeds are likely to rise to 40 or more cases per minute in the coming years due to market demands. It is important that not only the case packer can handle those speeds but also that all machinery on the line is up to the task. Flexibility of equipment to meet changing market environments for diapers and other converted paper products is key to staying ahead of the competition.

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

# THE KEY DESIGN CRITERIA TO RAISE LOGISTICS RELIABILITY LEVELS TO BETWEEN 90-95%

**The challenge:** to create a fully-automated facility producing more tissue tonnes per person and more tonnes per metre than any other same-size mill in the world. Gary Urban, Elettric80's Sales Director Americas: Food, Beverage, Paper & Hygiene Products, explains the process. A TWM report.

**T**exas-based manufacturer Texas Tissue Converting produces bath tissue and paper towels, supplying paper products to local communities and the surrounding States.

Our project with them was to custom design a fully automated facility to produce 60,000tpy of tissue paper products for owner Luis Gomez. Space optimisation, productivity, and sustainability were the key design criterion, and the goal was to create a tissue factory that produced more tonnes per person employed as well as more tonnes per metre of land employed than any other tissue factory of its size in the world today.

To achieve this, Elettric80 Consulting Services (E80CS) employed an eight-step design process (pictured) to create a complete layout, technology and software solution capped by a simulation that raises the reliability level of the proposed solution to between 90% and 95%.

The completed building size is 37,375 square metres. When production is at full capacity there will be five high-speed converting lines and 150 persons employed. That is equivalent to 400 tonnes a year per person employed and 1.6 tonnes a year per square metre of land employed, meeting the stated goal.

Specifically, the new facility was designed with everything under one roof starting with:

- A high-density parent reel warehouse with reels stacked three high;
- An extremely economic machine spacing between laterally laid out lines in the converting all of which include Elettric80 (E80) high speed automatic palletising islands;
- A fully optimised block storage warehouse and truck loading pre-staging area sized precisely for daily inventory and shipping needs;
- A compact raw materials warehouse organised on racks;



**“OUR PROJECT WAS TO CUSTOM DESIGN A FULLY AUTOMATED FACILITY TO PRODUCE 60,000TPY OF TISSUE PAPER PRODUCTS FOR OWNER LUIS GOMEZ. SPACE OPTIMISATION, PRODUCTIVITY, AND SUSTAINABILITY WERE THE KEY DESIGN CRITERION, AND THE GOAL WAS TO CREATE A TISSUE FACTORY THAT PRODUCED MORE TONNES PER PERSON EMPLOYED AS WELL AS MORE TONNES PER METRE OF LAND EMPLOYED THAN ANY OTHER TISSUE FACTORY OF ITS SIZE IN THE WORLD TODAY.”**

- Inventories of all raw materials are precisely calculated, balanced, and perfectly timed for arrival on our premises to meet our production needs;
- When completed, all pallet movements will be fully automated by the energy efficient CO2-free lithium powered Laser Guided Vehicles (LGV's) and

the entire system will be managed by the E80 SM.II.E80 software, the “conductor” that ensures all E80 machines perform the right task, in the right place, and at the right time.

The third and newest line features the Perini Constellation for optimum product quality. Like the previous two lines there is an HSM Baler integrated between





# PULP & PAPER TAD TISSUE MACHINE FOR PREMIUM PRODUCTION

*PrimeLineTAD*

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

The superior properties generated by the Through-Air Drying (TAD) process

give these tissue products significant advantages over conventional processes. As TAD production is normally energy intensive, ANDRITZ is using its tissue pilot machine and field installations to develop a range of possibilities to reduce energy consumption and costs, e.g. by raising the entry solids to the

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

**Contact us** for more information about our *PrimeLineTAD* machines or technologies for tissue production: [tissue@andritz.com](mailto:tissue@andritz.com)

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the log saw and tail sealer to which the trims and rejected logs are fed directly by the conveyor to the baler. From here, tightly bound bales are directly ejected onto a wooden pallet because when fully automated those pallets will be retrieved automatically by E80's LGV's and later recycled.

Infinity Machine & Engineering Corp. supplied the packaging and bundler/case packers to achieve maximum flexibility and packaging quality. Pulsar supplied a very innovative compact conveyor system integrating both floor level and elevated conveyers to stay within perimeter span tolerances, and efficiently move the product through the system without damaging it, and harmonizing production flow.

Like the previous two lines, the newest line includes an E80 high speed palletising system. But this newest line is a double leg configuration meaning there are two log saws, two wrappers, two bundler/case packers and two robotic palletising islands.

Also, each island includes three robots: The third robot is dedicated to the pick and place of empty pallets as well as the pick and place of interlayer sheets, eliminating the empty pallet de-stacker machine and the hydraulic slip sheet platform.

The third robot also eliminates the need for an end of line pallet stacker because there is sufficient system capacity to stack the pallets directly on the palletiser.

Other innovations of the new E80 palletising system include:

- Guide adjustments of the infeed switcher for display and boxed products have been motorized and now are fully automatic so production change downtime is reduced to zero;
- Sectional plastic tape conveyor tops hardened and much more durable increasing their life while significantly reducing maintenance activities;
- Fully servo driven grippers which are much more reliable and require much less maintenance since there are far fewer reciprocating mechanical or pneumatic parts;
- The Bema Smart II stretch wrapper on this new line features the automatic film reel/wrapping head change feature increasing machine autonomy and eliminating the need to stop the machine for film reel changes;



**LIKE THE PREVIOUS TWO LINES, THE NEWEST LINE INCLUDES AN E80 HIGH SPEED PALLETISING SYSTEM. BUT THIS NEWEST LINE IS A DOUBLE LEG CONFIGURATION MEANING THERE ARE TWO LOG SAWS, TWO WRAPPERS, TWO BUNDLER/CASE PACKERS AND TWO ROBOTIC PALLETISING ISLANDS.**

- The new Bema Raptor robotic labeler, a human arm-sized robot equipped with a vacuum end of arm tool for both label handling and application;
- The Pallet Pattern Tool software which allows users to prepare product changes off-line and upload them instantaneously when needed.

All material flows in/out are automated "end-to-end" by a fleet of LGV's that includes:

- Two Elephant LGVs to manage the parent reel warehouse and delivery to the converting lines;
- Seven "Clamp" Model CB16 LGV's

to manage the movements of finished product unit loads (with or without pallet);

- Two "Fork" Model CB16 LGV's to manage the movements of raw materials and empty pallet stacks.

When completed, all of the technology will be fully integrated, digitalised and managed by the SM.I.LE80 software, and connected to Texas Tissue's centralised ERP, providing full product traceability.

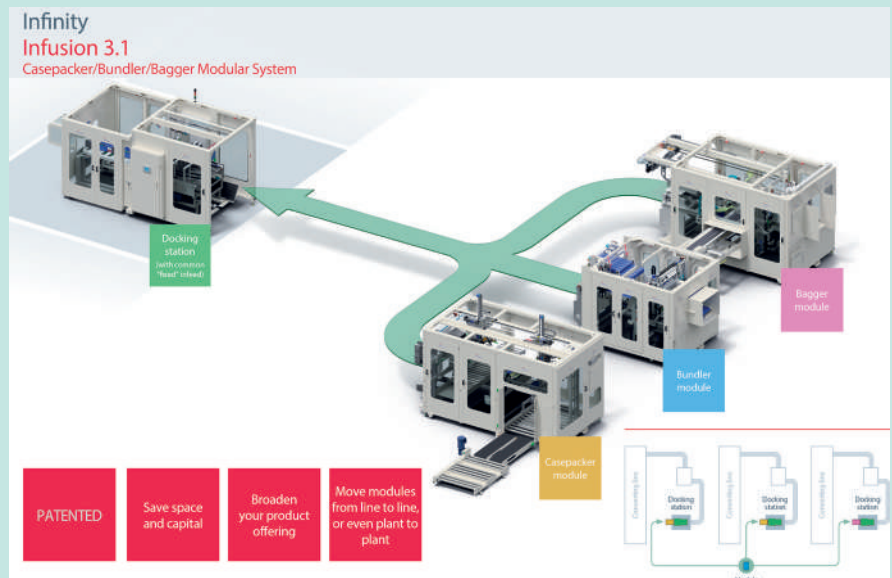
*This article was written for TWM by Gary Urban, Eletttric80's Sales Director Americas: Food, Beverage, Paper & Hygiene Products.*

# INFINITY INFUSION 3.1 MODULAR MACHINE SYSTEM EXPANDS GLOBAL PRESENCE

US and Italian company Infinity Machine & Engineering Corp. is taking its Infusion 3.1 modular capable bundler to Asia and Europe. Ryan Holmer, Sales & Marketing Manager, explains the concept.



**Ryan Holmer**  
Sales & Marketing Manager,  
Infinity Machine & Engineering Corp



**P**ackaging trends will always be fluid, and this can present many challenges for converters around the world. Whether it is the need to package in poly bags, poly bundles, cases, trays or even an unforeseen packaging trend, Infinity's Infusion 3.1 modular machine system is designed to solve this challenge.

This revolutionary modular system is the "industry original" and it was first created to solve the limitations of large footprint fixed machines which were common in the North American market at the time. Tissue converters are often presented with the challenge of having to ship both cases and bundles to retailers, and the flexibility of the Infusion system was tailor-made to address that.

Already installed in converting plants across North America, in 2020 Infinity installed its first Infusion system in Asia, and in 2021 the first modular capable bundler will be installed in Europe. The

European converter wanted the flexibility to add cases to its secondary packaging mix due to the increasing trend to reduce single-use plastic packaging. In addition, this converter wanted to save the potential future capital expenditure of having to add entirely new casepacker to the line. Not only that, the company also had limited production space and the Infusion system solved that challenge as well.

Infinity's patented, modular packaging system utilises a fixed-infeed diverter and flight bar, which can be coupled with modules that are moved in and out of the docking station to give you three machines in one. The Infusion 3.1 modular system is compatible with Infinity's casepacker, poly bundler, and poly baggers. The system can handle all types of products including tissue rolls, tissue packs, diapers, folded products ... and much more!

The actual module change process is very simple and can be done in one hour

by an average operator. The module change process includes three steps. First, the operator unplugs the quick connection air and servo cables and then the mechanical locking jack to the docking station. Then the operator removes the module from the docking station utilising an electric pallet jack. The operator uses the same electric pallet jack to retrieve the new module and then docks the module. Finally, the operator re-connects the air/servo cables and the mechanical jack. Since all three module programmes are stored within the same Programmable Logic Controller, the docking station can automatically recognise the new module and reconfigure the servo drives.

Other solutions on the market, such as two-in-one machines, don't offer the same flexibility as the Infusion system. Due to the small footprint of the modules, the Infusion system modules can be shared from line to line or plant to plant. In addition, since they can handle all product types, they can even be shared between rewinder, folder and diaper lines!

Infinity's goal is to engineer and build simple products that solve complex problems for our customers. The Infusion 3.1 modular machine system does just that – and more!

*This article was written for TWM by Ryan Holmer, Sales & Marketing Manager, Infinity Machine & Engineering Corp.*

**INFINITY'S PATENTED, MODULAR PACKAGING SYSTEM UTILISES A FIXED-INFEED DIVERTER AND FLIGHT BAR, WHICH CAN BE COUPLED WITH MODULES THAT ARE MOVED IN AND OUT OF THE DOCKING STATION TO GIVE YOU THREE MACHINES IN ONE. THE INFUSION 3.1 MODULAR SYSTEM IS COMPATIBLE WITH INFINITY'S CASEPACKER, POLY BUNDLER, AND POLY BAGGERS.**





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# A SINGLE SOURCE PROVIDER FOR ONE INTERCONNECTED NETWORK CREATES HARMONY AND OPTIMISES PRODUCTION

Sections of most tissue and towel packaging systems in the industry can be supplied by four or five different manufacturers. Kyle Demerath, Director of Product Management, Packaging and Conveying Systems, PCMC, reports on the company's coordinating vision after teaming up with STAX.



**Kyle Demerath**  
Director of Product Management,  
Packaging and Conveying Systems, PCMC

**A** converting line packaging loop is one of the most common systems found in converting. Without it functioning properly, production needs can be slowed, or worse yet, stopped. Despite that criticality, these systems have often been afterthoughts, incorporating pieced together independent modules without a coordinated vision of how they should function. The usual result is an expensive system running far below its potential, but this does not have to be the case.

Coupling the latest innovations in machinery with Conductor, a patent-pending approach to line integration, PCMC and STAX can provide a coordinated system vision and the right pack loop on any project. With the ability to verify the design through simulation before ever cutting steel, the result is a project executed with confidence, providing peace of mind and maximum productivity for the end customer.

A major factor in why most tissue and towel packaging systems in the industry lack vision is that the modules are supplied by a multitude of original equipment manufacturer (OEM) vendors. Wrappers may come from one vendor, while bundlers or case packers come from another.

Add in conveyor and palletising and the total number of vendors for a pack loop system that is meant to run as one interconnected network may be as many

as four or five. Each OEM, specialising in a particular module, leaves the integration up to the end customer. Coordinating these distinct modules into a well-integrated system is no small task and the trend has been that converters have less and less capacity, desire, or knowledge to take this on. Too often, the outcome is a suboptimal system that is labour intensive and limits production.

This problem is certainly not new, and vendors have offered solutions to ease this pain by synchronising the various OEM modules. While this helps, a primary issue is that the integrator is often working without complete process knowledge of each unit. Without possessing this knowledge, the integrator is limited in their ability to interconnect the modules, and the solution is only a layer on top of independent modules. Too often this results in a system that is simply turned off because it resulted in lines that did not run smoothly, choked production, and resulted in more downtime and operator intervention.

There is a simpler way. By using a single source provider for the pack loop and allowing that OEM to craft a coordinated vision based on the needs of the project the system can be created from the ground up to work in harmony and optimise production.

Packaging systems can vary considerably from project to project. However, a single-source OEM needs to have a wide-ranging product line to effectively address these wide-ranging needs. This is where the PCMC-STAX partnership applies. With the combination of flow and reciprocating technologies, conveyor solutions, case packing, bundling, and palletising solutions, PCMC-STAX offers an optimal solution for any project. Whether the vision of the line is high throughput "power SKUs" or a flexible, wide format system, PCMC-STAX has the equipment.

That said, having the right machines does not guarantee that a pack loop will perform at the highest possible level. It is necessary to be deliberate in all areas of the design to provide a pack loop that is both operator

friendly, cost efficient, and reliable. To do this, PCMC-STAX use advanced simulation software to model the pack loop design prior to ever cutting steel.

This simulation work identifies potential bottlenecks such as short conveyors, devices too close together, and even poor sensor locations. Left unidentified, these issues can cause problem inducing speed fluctuations and extra machine stops, which ultimately result in lost production.

This advanced simulation capability can also be used to compare theoretical production numbers from layout changes, such as shorter or longer conveyors or different control methodologies. Ultimately, the simulations demonstrate that PCMC's line integration method, Conductor, reduces rewinder stops and increases product out the door. Once these integrated and validated systems hit the converting floor, they are ready to run with PCMC's line integration method, Conductor, taking centre stage. By modeling the pack loop system in real time as a digital twin, Conductor fluidly manages the backlog of each machine to an ideal amount, optimising runnability and reducing stops without the need for operator intervention, freeing them up for more critical tasks.

Overview screens and messages notify operators if there is a condition that requires attention somewhere in the pack loop. Finally, if the accumulator is filling up because the pack loop is limited in capacity, Conductor can slow the rewinder to minimise downtime and reduce the mean time to recovery. PCMC-STAX can take on the full responsibility of the pack loop as a single source provider, eliminating the need for converters to manage multiple OEMs. Converters simply provide the project requirements and allow the combination of industry experience, advanced simulation, line control innovation, and a clear singular vision will result in peace of mind that their truly integrated system will make the most of their converting line.

*This article was written for TWM by Kyle Demerath, Director of Product Management, Packaging and Conveying Systems, PCMC.*

# TOWARDS – AND REACHING – THE ZERO-WASTE HORIZON. A TWM REPORT

**T**he tissue industry has long been on a journey towards clean manufacturing. In many cases research, innovation and diversification towards that aim began decades ago.

The benefits were early recognised to be many: a major driver towards economic advantage, increased savings and margins on site through energy, technology and production; through packaging, distribution and logistics; and increasingly

a necessity down the years, answering the gradually rising clamour among environmentally aware consumers.

Today, issues surrounding carbon neutrality and sustainability rarely leave the headlines, and in tissue many mills are approaching the zero waste horizon ... or have attained it.

TWM reports on two leading case studies. Essity's Lilla Edet plant in Sweden became the company's first large-scale

CO2 emission-free tissue production facility in May 2021. As Christian Carlsson, manager at the plants puts it: "It's been a long journey."

And L.C. Paper in Spain put all its efforts into becoming a leading player in sustainability and earning the niche market of eco-friendly tissue products. Pau Vila, Transformation Manager, explains how they did it.



**FOR US IT'S SOMETHING TO BE PROUD OF AND A NUMBER OF YEARS WE HAVE WORKED TOWARDS THIS GOAL**

**Christian Carlsson, site manager, Lilla Edet, Essity**

**W**e are proud to say that as of May 2021, Lilla Edet is now Essity's first large-scale CO2 emission-free tissue production plant.

Successful shorter tests had already taken place during the beginning of 2021, when on 22 March we received deliveries of biogas. Since conducting longer test runs and completely replacing natural gas with renewable liquefied biogas (LBG) as energy to produce our Tork brand and our consumer tissue products, we have reduced our fossil CO2 emissions to zero during normal operations. Both natural gas and biogas contain methane, and as biogas is renewably produced through the digestion of biological waste, it does not then give rise to fossil CO2 emissions.

No major technical changes were needed to achieve this as we had already made some major changes in the past, changing from liquefied natural gas (LNG) to LBG. If we had still been using propane, then this change would not have been possible to do. That was quite a major investment but it was some time ago now. It's been a long journey. Before that we also removed all the steam production from oil so now we have a bio-boiler so we are burning our sludge, and that is producing the steam for the production and we are also supplying Lilla Edet's municipality and we are covering their need of district heating. For us it's something to be proud of and a number of years we have worked towards this goal.

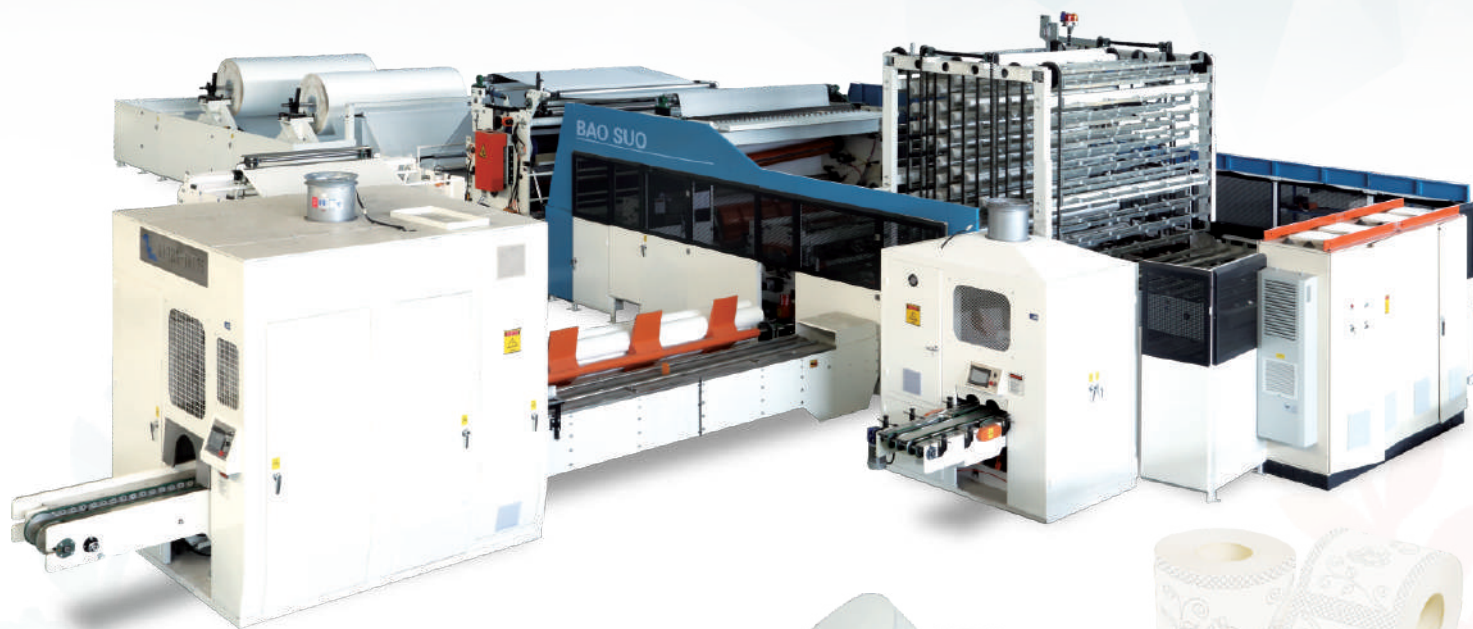
Sustainability will continue to be high

on our agenda and we have a very clear strategy. Even despite the outbreak of Covid-19 last year, we have stringently kept to our clear and ambitious sustainability targets. It's been a very busy – and a very different – year. Most people are still working from home if it's not critical for them to be on site, and we have spent the last year committed to taking care of our people and protecting them from the disease, continuing to contribute to society as our products are such important products, and also securing the business and taking care of our customers.

We are also constantly working to reduce our energy consumption at the plant. Energy continues to be a very strong focus also. When I started working here in 2009,



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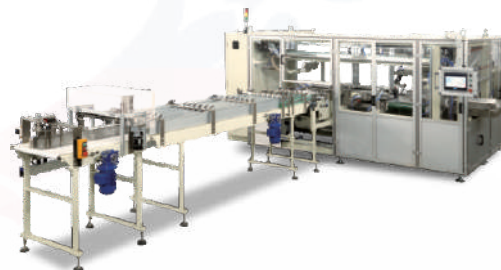
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we were already on the low side of energy consumption and we have been optimising the process and being more efficient year after year. We are always looking for new ways to be more energy efficient.

We definitely have further investment plans in the future, but for now this is our focus and make this big improvement.

When we met at Lilla Edet a year and a half ago, we were also heavily into using recycled plastics for our packaging, and this has also been improving since then. Almost all our products are now packed in post-consumer recycled packaging (PCR). There is huge demand for these products from customers and consumers, who are asking more and more about it. Awareness of these types of products is increasing all the time and we want to be brave enough to take the lead here.

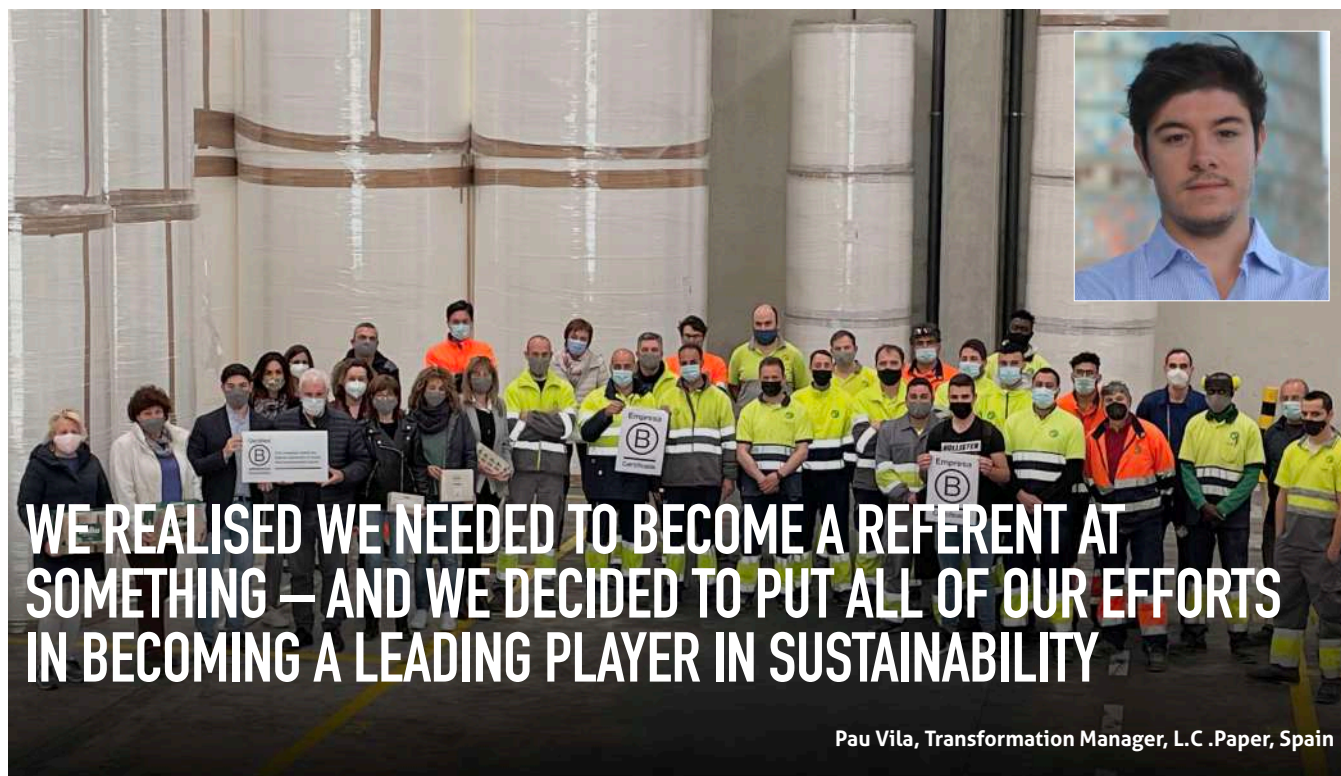
We have also seen an increase in demand and hygiene awareness. It's been increasing all the time, but when the pandemic started – or at least when it came to Europe in

**WE'VE SEEN AN INCREASE IN DEMAND AND HYGIENE AWARENESS. IT'S BEEN INCREASING ALL THE TIME, BUT WHEN THE PANDEMIC STARTED – OR AT LEAST WHEN IT CAME TO EUROPE – WE SAW THE SAME PATTERN HERE ... PEOPLE PILING UP, THERE WERE EMPTY SHELVES OF TOILET PAPER. THIS IS HOW PEOPLE REACTED, AND THE PSYCHOLOGY BEHIND IT I CAN'T ANSWER.**

March 2020 – we saw the same pattern here ... people piling up, there were empty shelves of toilet paper. This is how people reacted, and the psychology behind it I can't answer. But in March 2020 we had a huge peak in demand for consumer products. Over the months that followed, it stayed higher than usual in the consumer market, higher than pre-pandemic. But as people were working from home more, demand for AfH products has been a little lower, especially for toilet paper for this market. For hand wiping and surface cleaning in this sector, we of course saw an increase in demand for these products. There was a

change in behaviour, people are much more aware of prioritising hygiene and we're still seeing a big demand for these products.

There are two main questions that will continue over the coming years – suitability, and how sustainable the products people are buying, and hygiene and health. It's important to know if you buy a product and want to use it to dry your hands or clean surfaces, you need to buy a product that is doing the job so you can use just the required amount. This is a clear focus for us a company to explain this to the customer, what type of products are suitable to this task.



**WE REALISED WE NEEDED TO BECOME A REFERENT AT SOMETHING – AND WE DECIDED TO PUT ALL OF OUR EFFORTS IN BECOMING A LEADING PLAYER IN SUSTAINABILITY**

Pau Vila, Transformation Manager, L.C. Paper, Spain

**T**he tissue sector in Europe, and particularly in Spain, has been suffering from low margins that have driven mergers and acquisitions across the market. In this context, being competitive as a smaller mill is challenging, as we are not able to compete in the same economies of scale. At L.C. Paper,

we realised that in order to remain a strong player in such a saturated market we needed to become a referent at something – and we decided to put all of our efforts in becoming a leading player in sustainability and earning the niche market of eco-friendly tissue products, both in jumbo parent reels for converters as well as

finished products for AfH and Consumer.

As of today, most factories use FSC-certified pulp, or have Ecolabel certifications, so in order to position ourselves as leaders in sustainability it was evident that we had to go well beyond that. We decided to focus our strategy in three axes:

First, carbon-neutrality. Carbon emissions in papermaking are mostly related to energy usage, which includes both steam and electricity. Carbon neutrality can be achieved mainly through developing carbon-neutral alternatives for each of the two main energy consumption vectors that most paper mills have: electricity and steam. We have a specific initiative for each of them. For transitioning the steam to carbon-neutral sources, we launched a biomass boiler in 2017. It mainly consists of a high-capacity industrial boiler (4 t/h) which is powered by residues from the cleaning of nearby forests, which are routinely undertaken to avoid wildfires.

We also use the residues of the water treatment plant (sludge) to power our boiler and generate steam. In the energy world, biomass is universally considered a carbon-neutral source, as the CO<sub>2</sub> captured by the vegetation during its life exceeds the CO<sub>2</sub> emitted during the combustion of said vegetation. It is also important to note that biomass doesn't use vegetation specifically cut down for power sourcing, but rather from forest cleaning activities that would otherwise have no clear usage.

For the electricity consumption, we committed to purchasing 100% of our electricity certified from renewable sources, while we are building a solar power plant for self-consumption with more than 8.500 panels in a 20Ha site just by our mill. We expect to have it working by late 2021 to early 2022.

This will allow the generation of 3,9 MWh peak on-site (self-consumption) through a PPA agreement. That power figure is still far from our total electricity consumption. For the rest of the consumption, we already purchase electricity from the grid with 100% renewable sourcing guarantee. Our goal is to progressively expand our in-house renewable generation over the upcoming years, reducing our dependence from grid purchasing; however, it is important to note that the carbon emissions are zero either if it is renewable electricity purchased from the grid or if it's on-site generation.

So, as of today, we are already able to produce manufacturing orders with zero emissions, consuming steam from biomass and electricity purchased from certified renewable sources, and we plan on moving part of that purchased electricity to in-house solar produced in the upcoming months. It is also important to clarify that, as of today, our focus on carbon-neutrality is in the scope of our manufacturing process. We still have room to further

## FOR THE ELECTRICITY CONSUMPTION, WE COMMITTED TO PURCHASING 100% OF OUR ELECTRICITY CERTIFIED FROM RENEWABLE SOURCES, WHILE WE ARE BUILDING A SOLAR POWER PLANT FOR SELF-CONSUMPTION WITH MORE THAN 8.500 PANELS IN A 20HA SITE JUST BY OUR MILL.

develop that approach in the before-and-after manufacturing: from pulp sourcing, transportation, delivery to customers. A first step in that direction has been to move all of our converted products' packaging to cardboard, as it allows great logistics optimisation and stacking, thus reducing the number of trucks needed for delivering converted products and making it easier to compensate the transportation related emissions in the future.

Our second competitive axis is independent certifications. It's increasingly difficult to differentiate greenwashing claims from tangible process changes. For that reason, we believe it's fundamental to certify each step we take, by trusted and independent audits. In this regard, we have been one of the first tissue mills to be EcoVadis Gold certified, and most recently, the first EU mill to be B Corp certified – both of them are trusted environmental and CSR audit programmes. We also regularly monitor our improvements in carbon emissions through the ISO 14.067 audit.

Our third competitive axis is increasing the circularity of our plant and defining a zero-waste horizon. As we approached a new energy sourcing paradigm, we were able to introduce innovations in terms of circularity and waste recycling. We installed a sludge drier which converts the sludges of the water treatment plant into sludge, which can be later used in the biomass plant to generate electricity. On the other hand, by switching to cardboard packaging for the converted products, we are now able to recycle the packaging of defective products in-house, making repulping easier.

Regarding the next steps in sustainability for our company: the solar plant that we are currently constructing is a pilot test that will be expanded over the years if successful.

We already have the land and the permits to grow the renewable solar electricity generated on-site.

As is typical for the tissue market, most mills (and ours too) work 24/7. This is a challenge when combined with solar power, as it only works during the daytime. We are currently exploring different options in terms of energy storage to solve that challenge. However, bear in mind that the rest of the electricity that we cannot generate on-site (including that of the nighttime) is purchased with 100% renewable certificate, so it is already carbon-neutral electricity despite not being produced on-site.

Our approach to sustainability, and specifically carbon-neutrality, is incremental and cyclical. We started this path decades ago with little improvements in energy consumption and sourcing. That philosophy quickly translated to the product definition itself: we prioritise one ply and high grammage products when possible, instead of two low grammage plies; we developed printed designs for our cardboard boxes to make them appear to be transparent, so this format can work in consumer stores. Each process innovation to further reduce energy consumption or allow a greener energy supply results in new know-how to be applied in our product definitions, and each new product definition opens the door to further optimisations in machinery design and manufacturing process.

## WE STARTED THIS PATH DECADES AGO WITH LITTLE IMPROVEMENTS IN ENERGY CONSUMPTION AND SOURCING. THAT PHILOSOPHY QUICKLY TRANSLATED TO THE PRODUCT DEFINITION ITSELF. WE DEVELOPED PRINTED DESIGNS FOR OUR CARDBOARD BOXES TO MAKE THEM APPEAR TO BE TRANSPARENT, SO THIS FORMAT CAN WORK IN CONSUMER STORE.

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