SPRING 2021

Board

METSÄ BOARD PROFESSIONAL MAGAZINE

Materials at the heart of circularity

Next normal of packaging

A revolution that began at the Kemi mill

CIRCULAR PACKAGING

CONTENTS

Circular economy

When it comes to recycling, paper and board packaging is outstanding, with a recycling rate of 83% in Europe.

Source: Eurostat

Theme:

EVERYTHING MUST FLOW

What does the circular economy mean for the future of packaging?
page 16

Investing in sustainable growth

Demand for paperboard is growing globally, and the trends favouring fossil free packaging materials are further accelerating growth. We are in a good position to respond to this demand and to grow sustainably with our customers.

With the Kemi investment, we will strengthen our position in white-top kraftliners, and the planned capacity extension in Husum in Sweden will do the same on the folding boxboard side. The Kemi bioproduct mill project and the Husum pulp mill renewal are both good news. With our own modern pulp mills, we will be in an excellent position to develop our paperboard business in the longer term.

The investments are also an important step towards our 2030 sustainability targets. Effective actions are needed to mitigate climate change, and we want to lead the way to fossil free production. This will mean further opportunities for our customers to decrease the carbon footprint of their packaging.

In addition to the investments in paperboard, we are continuing our innovation collaboration with our customers and partners at our Excellence Centre. This collaboration and our virtual workshops bring together global design perspectives and technical expertise to co-create innovative packaging solutions for our customers worldwide. I've been impressed to see the success you can achieve through virtual cooperation and advance joint innovation also at a time when physical meetings are not possible.

Throughout this exciting journey, we aim to leverage our in-depth knowledge of fibres and fibre-based packaging and the benefits of using pure, safe and sustainable northern wood fibre material. Read more about these topics in this issue.

Mika Joukio

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Texts: Miia Esa
Photos: Metsä Board,
Andrew Taylor

SHORTS

A new 3D fibre product to meet high demand

Metsä Group's innovation company Metsä Spring has begun the construction of the new pilot plant in Äänekoski, Finland. The technology applied in the pilot plant will convert wet wood pulp into ready-to-use 3D fibre products without any intermediate steps.

"The technology opens up new possibilities for developing a competitive production process and new innovations to replace plastic in a variety of packaging solutions. We use sustainably produced wood fibre as our main raw material and strive to process it into first-class packages," says **Jarkko Tuominen**, Project Lead at Metsä Spring.

The pilot plant, scheduled to start operations in late 2021, will be built in cooperation with Valmet, a Finnish developer and supplier of technologies.

Could a chocolate box look like this? This is a demo sample of 3D fibre packaging.

1—

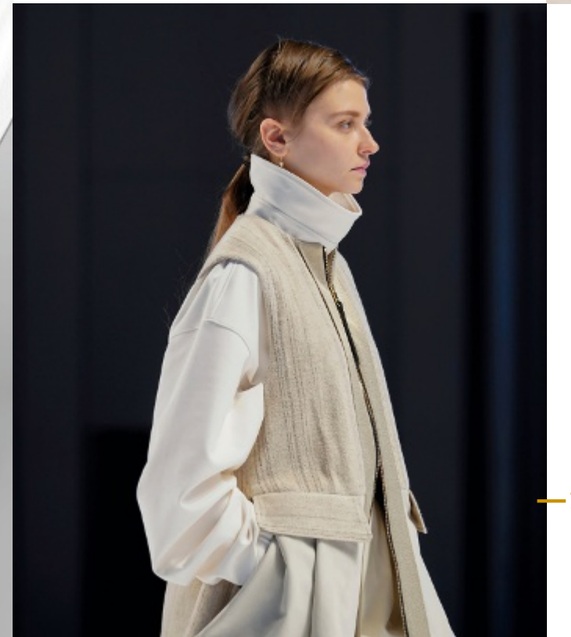
1— NEW CORRUGATED BERRY PACKAGING COMPLEMENTS PREMIUM STRAWBERRIES WITH TOP-QUALITY PRINT

With their partner network, Metsä Board and DS Smith have innovated a modern and top-quality berry box. The packaging is printed using process colour and Full HD technology, which has reduced ink consumption while enabling exceptionally high image quality and bright colours. A photo-based multicolour print was printed on the corrugated board.

"This process was extremely demanding, and required a high-quality coated white kraftliner," says **Ville Laiho** from DS Smith, the packaging producer.

The final result is sustainable and safe packaging which adds value to sales recognition and helps branding go further.

Facts about the product:
Material: EB-flute corrugated board using MetsäBoard Pro WKL 175 g/m²
(36 lbs/1000 ft²) as topliner
Converter: DS Smith
Repro: Marvaco
Design: Futupack



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2— SUSTAINABLE TEXTILE FIBRE? YES PLEASE!

The textile fibre demo plant in Äänekoski, Finland, has produced the first test batches of the new material. The textile fibre is made from Metsä Group's paper-grade pulp, using a novel and environmentally friendly production process.

The demo plant is owned and operated by MI Demo, a joint venture between Metsä Spring, Metsä Group's innovation company, and Itochu Corporation.

"Reaching this stage of the investment project is a significant milestone within the overall demonstration project," says **Niklas von Weymarn**, CEO of Metsä Spring and Chairman of the Board of MI Demo.

The test and development phase began in late 2020 and is expected to last about two years. Based on the outcome, Metsä Group will consider investing in a commercial mill.

Texts: Miia Esa
Photos: Mikko Tikka / Fotonokka,
Metsä Board, Lina Jelanski / Duotone

SHORTS

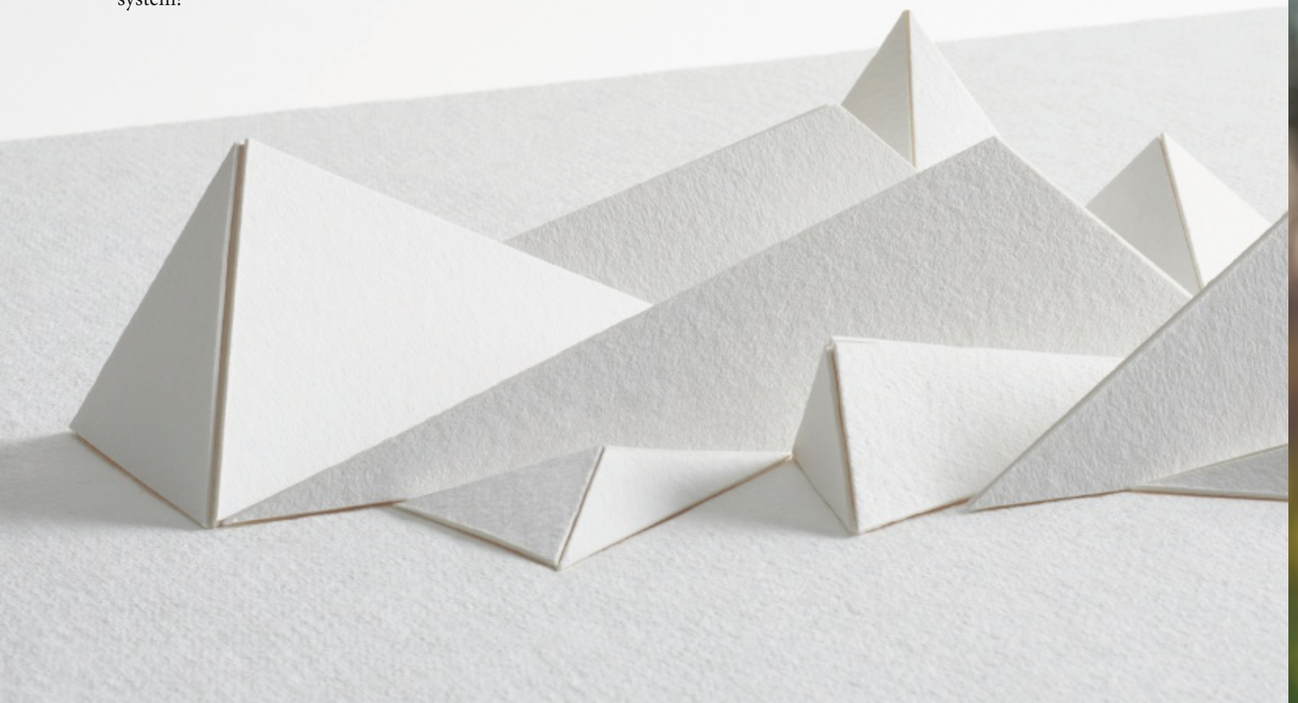
Exploring new opportunities for using pulp fibre

Could pulp be used more diversely in packaging? ExpandFibre, the joint EUR 50 million R&D collaboration and ecosystem launched by Metsä Group and Fortum, aims to answer questions like this. The goal of the next four years is to develop new technologies and business concepts that help produce new bioproducts using pulp derived from straw and wood.

In particular, food packaging and the grease and moisture resistance of packaging – the barrier solutions – are possible end-use areas. Metsä Board is leading the development of new pulp-based packaging solutions with Metsä Group's innovation company Metsä Spring. The programme aims to build a global innovation ecosystem.

"This is a new way of collaborating in a network. The ecosystem currently includes 35 partners," says **Katariina Kemppainen**, Investment Manager at Metsä Spring and Programme Manager of ExpandFibre.

We welcome our packaging partners to join the ExpandFibre ecosystem!



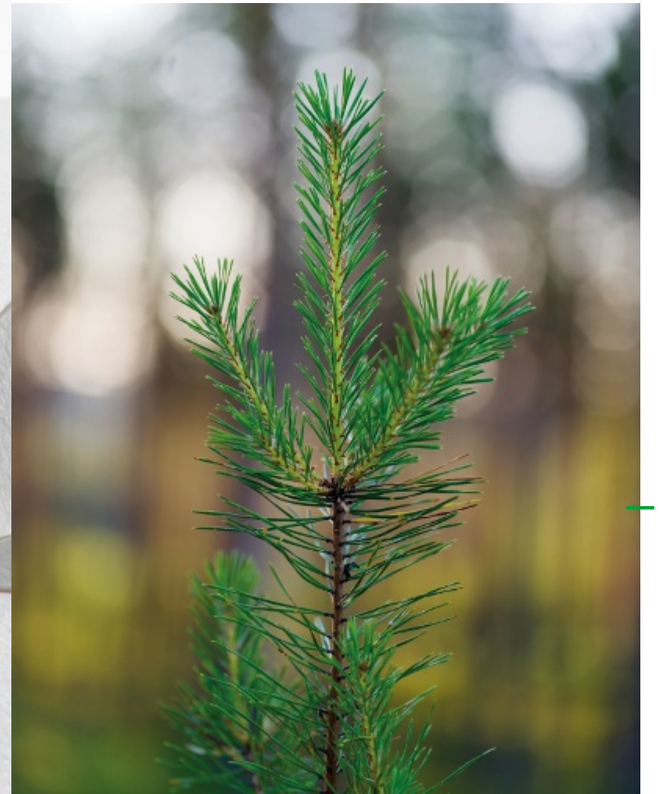
METSÄ BOARD PLANS INVESTMENTS AT HUSUM MILL

Metsä Board has started pre-engineering for increasing the annual production capacity of folding boxboard machine BM1 at the Husum mill in Sweden by approximately 200,000 tonnes. The final investment decision is subject to the results of the pre-engineering phase. The readiness to make the final investment decision is expected to be achieved in the summer of 2021 and the ramp-up of the additional capacity would start in 2023.

The renewal of the Husum pulp mill is progressing. The first phase, with an investment value of EUR 320 million, includes a new recovery boiler and turbine and is an important step towards fossil free production.

In January, Metsä Board concluded the sale of 30 per cent of the Husum pulp mill to Norra Skog, a Swedish forest owners' cooperative. The deal further strengthens Husum's availability of local certified wood and releases capital for growth in paperboard.

"At the time of closing of the transaction Metsä Board is practically a net debt-free company. This provides an excellent platform to grow our core business – sustainable and high-quality fresh fibre paperboard," says CEO **Mika Joukio**.



2

1

1 — NEW STUDY COMPARES SINGLE-USE FIBRE-BASED PACKAGING WITH REUSABLE TABLEWARE

A study published by the European Paper Packaging Association (EPPA) reveals that single-use fibre-based food and drink packaging used in European quick service restaurants provides significant key environmental advantages compared with reusable tableware.

The Life Cycle Assessment (LCA) was carried out by Ramboll, the independent Danish consultants to the European Commission, and certified by TÜV. According to the study, reusable tableware generated 177 per cent more CO_2 emissions than the paper-based single-use system and consumed 267 per cent more fresh water.

"The study provides science-based evidence on how single-use paperboard products can reduce CO_2 emissions and the use of ever-decreasing water resources," says **Risto Auero**, Metsä Boards' Sales Director of food service boards and representative to the EPPA.

Read more on EPPA's web site **www.eppa-eu.org**.

2 — METSÄ BOARD SCORED AGAIN ON CDP'S A LISTS

Metsä Board has again achieved a place on CDP's Climate A and Water A lists. CDP is a non-profit global environmental data reporting system that aims to get companies and governments to reduce their greenhouse gas emissions, and secure water resources and forests.

In addition, Metsä Board is also included on the 2020 CDP Supplier Engagement Leaderboard. The company has been on the "A List" in CDP's Climate programme since 2016.

"Our ambitious target is to have 100 per cent fossil free mills by 2030, and the 'A List' positions are a recognition of our systematic work to achieve these aims," says **Mika Joukio**, CEO.

Unilever strives for sustainable packaging

More ecological packaging is in the minds of many corporate front runners right now – but how do you ensure that your products utilize sustainable packaging solutions at all times?

Sami Anteroinen, photos: Unilever, Marika Lindström

One of the pioneers in the field is Unilever, a global market leader in various sectors and the owner of several world-class brands such as Dove, Pepsodent and Rexona. **Marika Lindström**, Procurement VP, Packaging and Beauty & Personal Care at Unilever, says that the company has both paper and board as well as plastics related sustainability targets.

"We want to have a deforestation-free supply chain for wood-based packaging by 2023. For plastics, we want an overall plastic reduction of 100 kilotonnes by 2025, 50 per cent virgin plastic reduction, 100 per cent recyclability and 25 per cent post-consumer recycling inclusion by 2025," she says. Post-consumer recycled content (PCR) refers to material that is made from the items that consumers recycle every day, such as aluminium, cardboard boxes, paper, and plastic bottles.

According to Lindström, the issues related to packaging are vital in many respects.

"Packaging is critical to protect the product, to make the product appealing and convenient for consumers, and to help deliver brand purpose," she lists.

The future is fibre-based

Unilever sources its paper and board packaging from around 300 suppliers. In 2019, 97 per cent of the directly purchased paper and board packaging materials used by the company came from certified sustainably managed forests or were made from recycled fibre.

For Unilever, sourcing paper and board packaging in a sustainable manner supports its commitment to zero net deforestation. At the same time, these green methods strengthen the supply chain and help build trust among consumers.

When it comes to the eminent rise of fibre-based packaging, Unilever sees the role of fibre-based packaging increasing in the future as the company keeps reducing plastic. "Fibre-based materials have good recyclability and recycling infrastructure. We need to ensure a full chain of custody and transparency in the supply chain to make sure that we are deforestation-free," Lindström says.

"At present, we use both virgin and recycled fibres in our categories, depending on the product that the packaging is for. Both are equally important."

Less plastic, better plastic, no plastic

Running parallel to the fibre-based approach, Unilever is engaged in carrying out its "Less plastic. Better plastic. No plastic." internal framework. Implemented in 2017, the framework outlines the company's approach to how it will achieve its set sustainability targets, thus guiding Unilever innovation ever more into sustainability.

The innovative Vegetarian Butcher series is packed in MetsäBoard Prime FBB EB 265 g/m² (17.9 pt). The eco-barrier board helps reduce plastic in the packaging.

Lipton is an example of the cooperation between Unilever and Metsä Board. The company's world-famous brands can also be seen in Singapore, where Marika Lindström is based.

PIVOTING FROM PLASTIC

By 2025, Unilever wants to:

- Halve the amount of virgin plastic it uses in its packaging, delivering an absolute reduction of more than 100,000 tonnes in plastic use.
- Help collect and process more plastic packaging than it sells.
- Ensure that 100% of its plastic packaging is designed to be fully reusable, recyclable or compostable.
- Increase the use of post-consumer recycled plastic material in its packaging to at least 25%.

Here's the breakdown: "Less plastic" is about cutting down the amount of plastic Unilever uses in the first place. "Better plastic" is about making the products recyclable and eliminating problematic materials. And, ultimately, "no plastic" is about thinking differently – using alternative materials such as board, paper, aluminium and glass where possible and removing plastic where it is not necessary.

"Plastic is still a valuable material for us, and it will be used where appropriate. Having said that, we are exploring the use of alternate materials in some categories like refreshments, while ensuring affordability of packaging in each market," Lindström says.

Shared mindset, common goals

While Unilever is tackling these packaging materials challenges, it is not doing it all alone. Unilever relies on its wide network of suppliers to be sustainable also and to pursue low carbon practices. After all, making the circular economy a reality requires massive global cooperation.

"We expect our suppliers to drive towards a similar aspiration to Unilever in the journey towards the circular economy, both in fibre- and plastic-based packaging materials," confirms Lindström.

Metsä Board is a long-term supplier to Unilever, with the industry's most ambitious sustainability target setting of 100 per cent fossil free mills by 2030. While possessing industry leading ratings in CDP and Ecovadis as well as SBTi targets, Metsä Board has set sustainability leadership as a strategic target, clearly sharing Unilever's goals to be among the most responsible global actors in mitigating climate change.

Lindström assesses that Metsä Board's sustainability drive matches Unilever's mindset very well.

"For example we've had great success with Metsä Board with the packaging of the Vegetarian Butcher brand. Using new coating technology, the packaging has been made more sustainable," she says.

Butcher boost

The material used in the Vegetarian Butcher is MetsäBoard Prime FBB EB, a fibre-based eco-barrier alternative to replace plastic/fossil-based materials in many end uses. In essence, it's a barrier board that can be collected and recycled in standard paper and paperboard waste streams and is also home compostable.

"Similarly, in Knorr bouillon cube packaging, great steps have been taken to make the packaging more sustainable," Lindström says. •

Ari Kiviranta
SVP of Development
at Metsä Board

“We are an innovation partner”

Minimising the environmental impact of operations is an integral part of Metsä Board’s way of working. Ari Kiviranta, Metsä Board’s Senior Vice President of Development, explains how this is reflected in practice.

WHAT IS THE ROLE OF COLLABORATION IN YOUR DEVELOPMENT WORK?

“In partnership with other Metsä Group companies, we can develop new innovative bio-based materials providing alternatives to plastics in various end uses. A good example of the longer-term development work are the 3D fibre products being developed by Metsä Group’s innovation company, Metsä Spring. The aim is to develop a competitive and environmentally friendly new packaging solution in a pilot plant that is ready to start its operations in late 2021. **You can read more about this on page 4**.

Our strengths include proactive collaboration with machine equipment manufacturers and chemical manufacturers. We strive to be our suppliers’ innovation partner, with whom they can develop and trial new solutions.

We are happy to involve our customers in longer-term development projects at an early stage, for example, in the development of new packaging materials.”

HOW DO YOU SEE THE POSSIBILITIES OF REDUCING THE USE OF PLASTIC?

“The amount of plastic used can be reduced by using materials sensibly and avoiding excessive packaging. Although plastic can already be replaced with paperboard, there are a lot of products where this is more challenging. The main challenge lies in plastic’s barrier properties – for example, its resistance to moisture – because these need to be added to the paperboard separately. However, fibre-based products with good barrier solutions can be used to replace plastic in an environmentally friendly manner for an increasing number of purposes.

We have been piloting barrier solutions for a long time. As a result, we have a lightweight bio-degradable eco-barrier paperboard, **MetsäBoard Prime FBB EB**, which can be recycled along with paper or paperboard. **MetsäBoard Prime FBB EB** provides medium-strength protection against moisture and grease, making it particularly suitable for food and food service packaging.

We will continue our barrier board development in several areas.”

WHAT ARE THE KEY ACTIONS IN ACHIEVING METSÄ BOARD’S AMBITIOUS 2030 FOSSIL FREE MILLS TARGET?

“We have a clear roadmap and investment plans for how to get there. An important part of the plan is the renewal of the Husum pulp mill in Sweden.

Our target for fossil free mills by 2030 includes both emissions from the company’s own energy production and emissions from purchased energy. Currently, 82 per cent of the energy used by our mills is generated from fossil free sources.

The development programme launched at our Kemi paperboard mill is also a significant step towards our sustainability targets for 2030. It will reduce the mill’s water consumption rate per tonne of paperboard produced by around 40 per cent, and energy consumption by around five per cent.”

Investing in a sustainable future

Metsä Group's new bioproduct mill in Kemi is the largest investment ever made by the Finnish forest industry in Finland. In this connection, Metsä Board has decided to invest in increasing the capacity of its Kemi white-top kraftliner mill to continue sustainable growth.

Metsä Board & Charlie Bass / TenFour, photos: Metsä Group

EUR 1.6 billion
investment value

1.5 million tonnes
of pulp / year

250 %
electricity self-sufficiency

0 %
fossil fuels

Metsä Group is to build a new state-of-the-art bioproduct mill in Kemi in Northern Finland, to be completed in 2023.

The Kemi bioproduct mill will produce some 1.5 million tonnes of softwood and hardwood pulp per year, as well as many other bioproducts. A significant proportion of the pulp is processed into high-quality white-top kraftliner at Metsä Board's mill at the integrated site.

Steps towards 100 per cent fossil free mills

The investment will play a significant role in Metsä Group's journey to fossil free production.

The new mill is based on Metsä's unique bioproduct mill concept, the core of which is the resource-wise use of the wood raw material and production side streams. In the concept, the renewable wood raw material and production side streams are used in full as different bioproducts, replacing fossil-based materials and fossil fuels. The first completely new mill using the concept is the Äänekoski bioproduct mill, which was started in 2017.

The planning of the bioproduct mill is based on a high degree of environmental, material and energy efficiency. Despite the significantly increased production compared with the current Kemi pulp mill, the new bioproduct mill will stay below the emission limits of the existing mill's current environmental permit.

The bioproduct mill will not use any fossil fuels.

Increasing capacity with lower environmental impacts

Together with Metsä Board's white-top kraftliner mill, Metsä Group's new bioproduct mill will form a world-class integrated mill site in Kemi. The site offers a highly efficient and sustainable platform for expanding production of white-top kraftliners to meet the growing demand.

Metsä Board's development programme will increase Kemi mill's annual white-top kraftliner capacity by approximately 40,000 tonnes. It will include a series of modernisation and bottleneck investments in the board production line.

The development programme, worth EUR 67 million, is a significant step towards Metsä Board's 2030 sustainability targets. It will reduce the Kemi white kraftliner mill's water consumption by about 40 per cent and energy consumption by about 5 per cent per tonne of kraftliner produced.

"This will also support customers' sustainable business. We will offer our customers more capacity with a lower environmental impact and high resource efficiency," says **Veijo Korkalainen**, VP Sales, White Kraftliners at Metsä Board.

Veijo Korkalainen
VP Sales, White Kraftliners
at Metsä Board

Strengthening global leadership

Sustainable and high-quality corrugated packaging will play an ever-greater role in the growing market for retail-ready, consumer and e-commerce packaging.

"The demand for premium white kraftliners is driven by the growing needs of retail and brand promotion activities in e-commerce," says Korkalainen.

Corrugated converters and printers worldwide recognise Kemi's white-top kraftliners for their quality and consistency. Kraftliner production started at Kemi 50 years ago, in 1971. In 1990, the company upgraded its processing and invested in a coating unit, with production of coated white-top kraftliner starting the same year.

"We've had a clear development focus in our products – a focus on premium quality and specialising in the most demanding products. This is also visible today in the uncompromising quality culture at our mills," Korkalainen concludes.

Today, Metsä Board is Europe's leading producer of white kraftliners and the world leader in coated white kraftliners. This investment will be built on for the next 50 successful years of the Kemi mill. •

GOOD NEWS ON MANY LEVELS

Adara Pakkaus Oy is a Finnish company that manufactures corrugated cardboard and packaging made of corrugated board. **Jere Alaruka**, Financial Director at Adara Pakkaus OY, welcomes the news.

"The news is not only good for us as a customer, but this is also very positive for the Finnish forest owners and the national economy in general," says Alaruka.

LONGSTANDING COOPERATION

Cartonajes Santorromán is a family-owned company with a long history of 110 years and longstanding cooperation with the Kemi mill. CEO **Leopoldo Santorromán** sees Kemi's investment as important to supporting productivity and availability.

"In the next fifty years, paperboard will be the main packaging material, as it has been to date. I'm sure that Metsä will continue to be there, sharing that future, given its innovation, quality and service, a sign of its ability to adapt to the normal evolution of industry and society," says Santorromán.

MUCH-NEEDED EXTRA CAPACITY

Atlantic Packaging Products provides sustainable packaging solutions and co-packing services. The company designs, manufactures and delivers innovative corrugated packaging products to customers across North America.

Michele Galway, Operations Manager at the Pre-print Division of Atlantic, sees the investment news as very positive for the industry.

"Exciting news! Much-needed extra capacity! We look forward to our continued partnership."

Pertti Kaasalainen
Former Technical Customer
Service Manager at Metsä Board

A revolution that began at the Kemi mill

Ever wondered what the secret is behind the bold, bright and beautiful designs on the box for the new TV or laptop you've just bought, or the eye-catching vegetable boxes and store displays at your local supermarket? The answer is coated white-top kraftliner, a material that changed the corrugated packaging market for good after its introduction in the early 90s.

When they were first introduced, it's no exaggeration to say that coated white-top kraftliners sparked a revolution in the world of corrugated paperboard and packaging. While its main job has always been to protect what's inside, modern packaging plays another equally important role – showcasing a brand's image and acting as an eye-catching sales tool. And this is where coated liners really come into their own.

"Back in the 70s, corrugated board was basically used to make big brown boxes to transport things in, because they were robust and sturdy," says **Pertti Kaasalainen**, former Technical Customer Service Manager at Metsä Board.

Kaasalainen, or "Mr Corrugated" as he was known to his clients, saw first-hand how visual appeal became as important as robustness in the packaging world.

"More and more brand owners started to look for materials that would allow them to create glossy, attractive designs with excellent printing results, which is exactly what coated kraftliner delivers."

Consumer appeal was the main driving force behind the adoption of coated kraftliners, but they also brought another change to the market – notable opportunities for saving heat and energy in the corrugating process. Coated liners can be run cooler and minimise preheating. This "less is more" philosophy plays a crucial role in reaping the benefits of coated liners, and it represented new thinking at the time. It still does.

"There's always a tendency when things don't go right to add more rather than take things away – more steam, more heat, more glue – but with coated liners, the opposite is what's needed," says Kaasalainen.

The introduction of coated liners heralded a change in the industry's philosophy.

"The liner produced at Kemi was the first of its kind on the market. In my opinion, it was the start of a worldwide revolution in corrugating," Kaasalainen says.

"With these liners, moving from a hotter to a colder setup means producers get the best results from the materials they're running and improve their energy efficiency at the same time. It's a true win-win," he concludes.

Ongoing investments in the Kemi mill will eventually help it to achieve completely fossil free operations and energy self-sufficiency, setting a new benchmark in the industry and driving further improvements in sustainability. •

Everything Must Flow

The circular economy is driven by major international brands as well as climate-conscious citizens – but what does this mean for the future of packaging?

Sami Anteroinen, 3D images: Futupack

The circular economy is quickly becoming the focal point of sustainability. With limited planetary resources, we have to be mindful of the products we produce and the way we produce them.

Recognizing the need for change, the European Commission adopted a new Circular Economy Action Plan in 2020 to serve as one of the main blocks of the EU's Green Deal agenda.

The new Action Plan features initiatives along the entire life cycle of products, promoting circular economy processes, fostering sustainable consumption, and ensuring that the resources used are kept in the EU economy for as long as possible.

In fact, the new Circular Economy Action Plan wants to make sustainable products the norm in the EU as well as cut down on waste. Under the Action Plan, the EU is focusing on the sectors that use most resources and where the potential for circularity is high, such as electronics, batteries, packaging and plastics.

Finally in the same boat

Maria Coronado Robles, Sustainability Insights Manager at Euromonitor, argues that the circular economy has been a central piece of the sustainability debate for some time – but what is happening now is that we are forging the link between circular economy and other global issues such as climate change and pollution.

When it comes to recycling, paper and board packaging is outstanding, with a recycling rate of 83 per cent in Europe.

Source: Eurostat

"For the first time in history, the three biggest and most polluting economies, the USA, China and the European Union are rowing in the same direction, pledging to achieve carbon neutrality," Coronado Robles says.

Still, while energy efficiency, electric vehicles and renewable energy are key pillars of the unified climate strategy, the "elephant in the room" continues to be excessive consumption that fuels unsustainable growth.

"That problem needs to be looked at through the lenses of circularity."

Still early in the game

According to Coronado Robles, moving from a linear to a circular world is not only a way to decouple economic growth from the use of resources and avoid unnecessary waste but is also a powerful tool to bring emissions down and fight climate change. She acknowledges, however, that we are still very early in the journey, with most of the talk and action focusing on plastics and packaging.

"This is just the tip of the iceberg. The circular economy opens opportunities across all industries."

Coronado Robles sees the circular economy as a great framework to re-configure businesses to sync with nature and to allow planetary healing.

"That's the way forward for a sustainable and resilient recovery. There is a huge potential for nature-based solutions in the circular economy," she believes.

Understand the entire value chain

When it comes to recycling, paper and board packaging is outstanding, with a recycling rate of 83 per cent in Europe. **Markku Leskelä**, VP, Research & Development at Metsä Board, comments that both the high recycling rate and the biodegradability of paperboard packaging significantly reduce the littering problem.

However, compared to the product inside, the total climate effect of the package is actually very small.

"It is important to understand the entire value chain of the product to optimise materials, design, production, transport and reuse or recycling in order to protect both the content, the people and the environment," says Leskelä.

According to Leskelä, the recycling, reuse and reduction of packaging will enable material savings and innovation that will drive new resource-saving production technologies.

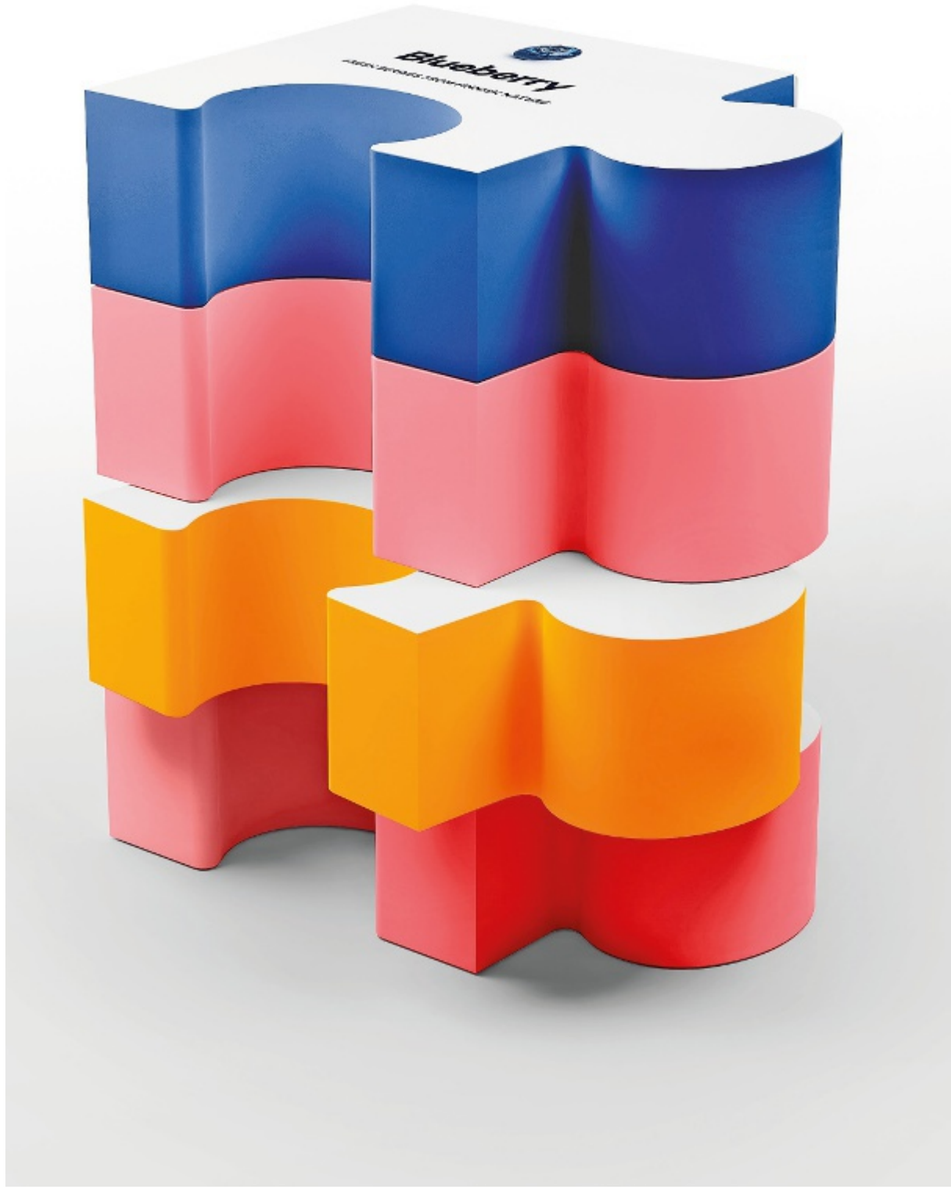
"One example of this is the further lightweighting of paperboards that we do at Metsä Board as well as circulating water and fibres effectively in the production processes," says Leskelä, who expects to see growth in fibre-based packaging both in recycled and fresh fibre material packaging.

"This way, the sustainably managed circular loops will enable the overall growth."

Reinventing packaging

The role of the packaging industry in seeking sustainability is certainly significant. For example, the Ellen MacArthur Foundation estimates that replacing a fifth of plastic packaging with reusable/refillable options could open – at the very least – a USD 10 billion opportunity.

Maria Coronado Robles assesses that the packaging industry is under "huge global scrutiny" and, in response, companies are heavily investing in innovation to rethink their packaging.



"While some of these innovations provide opportunities to build loops, there is still a long road ahead to achieve a circular economy for packaging," she says.

That's not to say that good things aren't happening all over. Under the watchful eye of consumers, businesses have come up with a combination of solutions, from launching reusable packaging to changing packaging design and investing in new recycling technologies expected to be more effective at capturing the value of packaging waste.

Coronado Robles calls this a good start but points out that if the world is to achieve circularity, we need to change the whole system, turning the tide from volume consumption to value creation – and, ultimately, deleting the word "waste" from our vocabulary altogether.

"Furthermore, we need to incentivise circular consumption and production, start designing long-lasting repairable products, building circular supply chains and creating markets for secondary materials."

Respect the material!

Iiro Numminen, Structural Packaging Designer at Metsä Board, is equally passionate about the circular economy. In his mind, it is crucial to respect the raw material by using it as little as necessary. Numminen points out that even a small modification to package design can make a big difference when you are in a volume business.

"When you understand and master your material, you're able to use it economically. This is the ethos of the designers in the packaging industry in the 2020s and beyond," he believes.

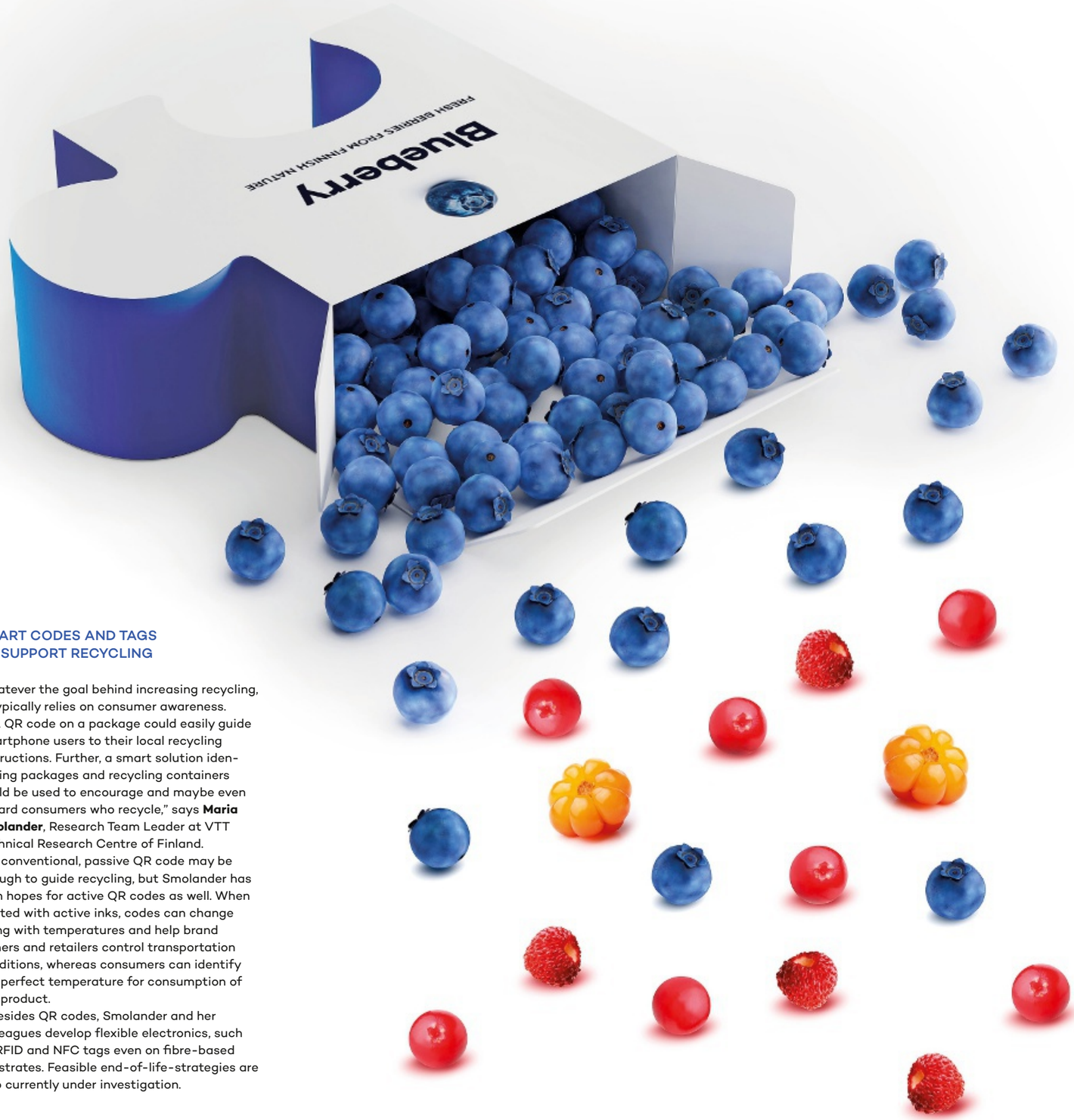
According to Numminen, big brands have indeed taken notice of the changing times and are setting up programs to optimise their packaging processes in a sustainable way. There are also some low hanging fruit left in the field, such as unnecessary plastic

Maria Coronado Robles
Sustainability Insights Manager at Euromonitor

Markku Leskelä
VP, Research & Development at Metsä Board

Iiro Numminen
Structural Packaging Designer at Metsä Board

Maria Smolander
Research Team Leader at VTT Technical Research Centre of Finland



windows in paperboard packages sold online.

"If the customer is purchasing the item online, what's the point in a plastic window?" he asks.

Numminen knows that there are innovations – such as bottles made out of paper – coming down the industry pipeline. "Material development requires constant work and we have to be mindful of the package lifespan at all times," he says, adding that Metsä Board utilises a hi-tech simulation tool to explore those green alternatives out there.

"Via simulation, we're able to optimize material consumption. With design and material development, it is possible to cut down on the use of plastics," he says.

"For instance, we can use the simulation to determine how the package holds up structurally with or without a plastic window."

Local + digital + sustainable

In the final analysis, Maria Coronado Robles sees that there are three powerful drivers for circular innovation, related to local, digital and sustainability angles.

"First of all, circular models benefit from local supply chains. Proximity allows local synergies and potential partnerships and enables the creation of reverse logistics," she says.

"Second, digital technologies offer the tools to map out product journeys and capitalise on the residual value of those products."

And third, there's of course sustainability – that's to say sustainability infused with a new kind of meaning and determination. The purpose has become "the Rosetta stone of sustainability," argues Coronado Robles. This means that, for a long time, we watched companies slightly stretch their inflexible business models to make some room for sustainability – basically, very limited action for very limited gain.

"What we didn't know before is that business plasticity has no limits if the willingness is there. This willingness is what we now call 'purpose' and it has become the new way of running companies in the future."

When it comes to countries embracing the circular economy, Coronado Robles perceives the Netherlands to be leading the pack – but a country of millions will never be the same type of gamechanger as a country of billions. Ultimately, economies like China and India hold the key to unlocking opportunities on a large scale.

Courage to trust

Iiro Numminen believes that as the big economies are learning the new, more sustainable ropes, and corporations are adjusting their mindset, consumers also need to finetune their attitudes. For example, during your supermarket visit, it's ok to open an egg carton to check if the eggs are undamaged. Couldn't we do this when buying, say, cherry tomatoes?

"As an industry, we need to increase people's trust that they're getting their goods in prime condition – and then we need to live up to that promise."

Asking citizen-consumers to demonstrate courage in this manner may seem unusual, but then again, every revolution needs its revolutionaries. •

"If the customer is purchasing the item online, what's the point in a plastic window?"

Iiro Numminen, Metsä Board

SMART CODES AND TAGS TO SUPPORT RECYCLING

Whatever the goal behind increasing recycling, it typically relies on consumer awareness.

"A QR code on a package could easily guide smartphone users to their local recycling instructions. Further, a smart solution identifying packages and recycling containers could be used to encourage and maybe even reward consumers who recycle," says **Maria Smolander**, Research Team Leader at VTT Technical Research Centre of Finland.

A conventional, passive QR code may be enough to guide recycling, but Smolander has high hopes for active QR codes as well. When printed with active inks, codes can change along with temperatures and help brand owners and retailers control transportation conditions, whereas consumers can identify the perfect temperature for consumption of the product.

Besides QR codes, Smolander and her colleagues develop flexible electronics, such as RFID and NFC tags even on fibre-based substrates. Feasible end-of-life-strategies are also currently under investigation.

NORDIC FORESTS ARE THRIVING

Together with forest owners, Metsä Group plants more than 30 million trees in Finnish forests every year. This is one way of ensuring that Finnish forests remain forests.

Heidi Hammarsten, photos: Sanna Lehto & Lina Jelanski / Duotone

Finland has a long pedigree in forest management, beginning in 1886 with a law regulating forest use that prohibited deforestation. Forests remain forests, because the Forest Act stipulates that new forests must always be established after regeneration felling.

"We safeguard forests because of our cultural heritage and the environmental, recreational and economic value of forests," says **Vesa Junnikkala**, Sustainability Director at Metsä Group's Wood Supply and Forest Services.

In Finland, one of the world's most heavily forested countries, almost 60 per cent of the forest is owned by private citizens. Everyman's rights give everyone in Finland the freedom to enjoy forests for recreation, regardless of who owns them.

Increasing number and growth of trees in Finland

"In the northern coniferous forest zone of the Nordic countries, there is good forest management and wood production, and the vitality of the forests and carbon sequestration are also positive," says Research Professor **Jari Hynynen** from Natural Resources Institute Finland. He cites some key figures to support this claim.

"The volume and increment of growing stock in Finnish forests have been increasing since the 1970s, with annual growth now close to 110 million cubic metres. Fifty years ago, it was less than 60 million cubic metres, even though felling volumes have also been increasing since then."

Most Finnish forests are dominated by coniferous tree species. In order to ensure the resilience of forests in a changing climate, we should increase the amount of mixed forests with more than one tree species growing in them. According to Hynynen, forests with only one tree species are more vulnerable to storm and insect damage, for example.

Mixed cultivation increases forest biodiversity and improves the resilience of forests. Metsä Group offers forest owners a regeneration service of mixed cultivation of spruce and pine. In addition, deciduous trees such as birch spread to regeneration areas naturally.

Janne Kurtti
Forest Owner

A FOREST OWNER IN A CHAIN OF GENERATIONS

Janne Kurtti and his sister own a 400-hectare forest in Taivalkoski, Northern Finland. Their parents had gradually acquired this forest over the years. Kurtti is trained in forest management, and so he does forestry work as a sideline.

"We follow fairly traditional good forest management practices. We plant seedlings at some point after regeneration felling has been carried out. We leave buffer zones around water in fellings, as well as protective thickets for birds and animals during all forest operations," Kurtti says.

"We gain a modest yet steady income stream from the forest," Kurtti adds. "My sister and I want to take care of the forest for the next generation as well. For me, environmental protection and economic forest management go hand in hand."

DEFORESTATION NOT A PROBLEM IN FINLAND

According to a report from the Food and Agriculture Organization, over the last thirty years, the planet's forested area has shrunk by around 180 million hectares. The problem is especially acute in tropical rainforests.

However, the amount of forested land has remained stable in Finland, and deforestation is not a problem. On the contrary, forest reserves in Finland are growing.

"A key reason for this is that forests have an economic value. In many countries, competing forms of land use contribute to deforestation, but in Finland, forest owners strive to manage their forests well," says **Vesa Junnikkala**.

PEFC certification covers about 85 per cent of Finland's forests.

75%

Forests cover about 75 per cent of Finland's land area. This accounts for about 10 per cent of Europe's forested area.

108 Mm³

In 2019, the annual growth of Finnish forests was 108 million cubic metres. The logging outturn in 2019 totalled 73 million cubic metres.

13%

Some 13 per cent of Finland's forest area is protected or in restricted

84%

In Metsä Group's fellings, 84 per cent of forest owners choose to leave biodiversity

Sources: Ministry of Agriculture and Forestry, Metsä Group

Helping forests serve as carbon sinks

Responsibly managed, vibrant forests sequester carbon from the atmosphere and act as a carbon sink. As a leading forest industry company, Metsä Group has set the most ambitious 2030 sustainability targets in the industry, which include increasing the amount of carbon sequestered in forests by 30 per cent compared to 2018 levels.

"This can primarily be achieved through high-quality forest regeneration and improved management of young forests. As a young forest is thinned, the remaining trees grow better and stouter," Junnikkala explains.

It currently takes about 15 years for a regeneration-felled forest stand to become a carbon sink, but this can be accelerated by good forest regeneration and using bred reforestation material, which grows 20 to 30 per cent faster than seeds gathered from forests. Forest owners and Metsä Group plant more than 30 million seedlings every year.

Forest biodiversity high on the agenda

In addition to carbon sequestration, another key environmental goal is to increase the biodiversity of forests. It is important for living organisms that there is living and dead wood of different ages in the forest. Birds, fungi, lichen and insects are examples of organisms that rely on decaying wood.

"Metsä Group has been actively developing solutions to support forest biodiversity. For example, the amount of decaying wood in Finnish forests needs to be increased. Metsä Group has been leaving high biodiversity stumps in felled areas since 2016, and the number of high biodiversity stumps per hectare has recently doubled," says Vesa Junnikkala.

The biodiversity stumps provide the forest with standing deciduous wood that is important for many forest species.

The certification level of Finnish forests is high. Two forest use certification systems are used in Finland: PEFC (Programme for the Endorsement of Forest Certification) and FSC (Forest Stewardship Council). PEFC certification covers about 85 per cent of Finland's forests, and FSC certification less than 10 per cent.

Sustainable forest management is important to Metsä Board's customers, and forest certificates enable them to ensure this. •

Vesa Junnikkala
Sustainability Director
at Metsä Forest

Jari Hynynen
Research Professor at Natural Resources Institute Finland

Texts: Miia Esa
Photos: Seppo Samuli & Hanne Manelius

Make more informed decisions

Metsä Board's services help customers improve their packaging performance and reduce the environmental impact of packaging.

Global megatrends set increasing safety, sustainability and performance requirements for packaging. Metsä Board responds to the constantly evolving needs with an enhanced service offering that complements the extensive paperboard offering.

The services are not just add-ons, but rather initiatives for a closer collaboration to increase customers' competitiveness.

"Our services help us proactively respond to customer challenges and their perpetual need for improvement. While our high-quality, lightweight paperboards will always be the core of the solution, our expertise can also provide great value," says **Sari Pajari-Sederholm**, SVP of Sales and Marketing at Metsä Board.

Metsä Board has extensive expertise in the paperboard optimisation of different types of converting processes. Technical expertise can help customers improve their productivity and use the most suitable board for their requirements.

Sustainability, product safety and forest certifications are also topics that often require special knowledge. Sustainability services are currently experiencing high demand.

"Brand owners and converters need considerably more information and data than before. They need it for their packaging development, target setting, reporting and communicating with consumers."

"For example, we can support our customers' sustainability targets for mitigating climate change. We can provide in-depth calculations and assistance in selecting paperboard materials that reduce the overall carbon footprint of their packaging – or even suggest an improved design for the packaging to optimise material use." •

MATERIAL LIFE-CYCLE ANALYSES

A material Life Cycle Assessment (LCA) is often used to evaluate the overall environmental impacts of a product during its life cycle. The LCAs are based on prevailing ISO standards and up-to-date and relevant environmental information from production processes, as well as on environmental impact datasets.

The weight of the packaging and energy used in the material production process have major impacts on a material's carbon footprint.

At its best, the carbon footprint of packaging made from Metsä Board's fresh fibre paperboard can be more than 50 per cent less than packaging of an equivalent stiffness made from recycled fibre or solid bleached board.

OUR CO-CREATION WORKSHOP CONCEPTS

PERFORMANCE CLINIC

CHALLENGE US

EXPLORE THE FUTURE

A platform for innovation

Metsä Board's Excellence Centre brings customers and designers together to innovate and create new packaging and materials. The performance of the packaging throughout its life cycle can be studied.

The demand for sustainable packaging, combined with increased consumption, is creating a pressing need for more innovation. The packaging solutions of the future are being developed at Metsä Board's Excellence Centre in Äänekoski, Central Finland, which brings together expertise and technology related to packaging design and product development, as well as paperboard and packaging performance.

"The Excellence Centre is our way of contributing to global packaging innovation. At the same time, it's a channel that provides a concrete way for our customers to make effective use of our expert services," says **Sari Pajari-Sederholm**, SVP of Sales and Marketing at Metsä Board.

Workshops are a central part of the centre's activities, where Metsä Board's experts work with customers to seek concrete solutions to various challenges. These challenges include developing new packaging or functionalities, creating the packaging materials of the future, and improving the performance of paperboard or packaging by minimising waste, for example.

Virtual workshops enable collaborative development, even when working together face to face is impossible.

According to Pajari-Sederholm, the Excellence Centre enables extensive collaboration between customers and partners like material and technology suppliers and universities.

"We can achieve better innovations when we look at things together from many different perspectives." •

Sari Pajari-Sederholm
SVP of Sales and Marketing at Metsä Board

New normal now seen in packaging

E-commerce sets the bar, but all packages must have a credible sustainability narrative and be designed with hygiene in mind.

Markku Rimpiläinen, illustration: Dan Matutina

In May 2019, McKinsey published a report on the forces shaping the global packaging industry. The survey found five significant trends: e-commerce, changing consumer preferences, retail margin compression, sustainability, and digitalisation.

"All of these are still valid, but since COVID-19, their order of priority has changed," says **Oskar Lingqvist**, Senior Partner in McKinsey's Stockholm office.

"As expected, e-commerce and sustainability have grown to be even more important. Besides these five trends, a sixth major trend emerged: health concerns and the importance of hygiene. All of a sudden, we saw old habits returning – fruit being wrapped in plastic because we needed better protection."

Based on recent developments, Lingqvist and his associates wrote a new report called *Beyond COVID-19: The next normal for packaging design*. This report stresses that the packaging industry must address three major requirements: a good sustainability narrative, design with hygiene in mind, and design for e-commerce.

Ready for e-commerce

E-commerce affects all types of packaging.

"The industry must produce packages that travel in one piece to end consumers. Primary and secondary packaging could almost disappear," says Lingqvist.

The importance of sustainability is also growing.

"In the years before COVID-19, the requirements for sustainability relaxed. Now, the importance of sustainability is returning. We even have indications that consumers are willing to pay more for sustainable packaging," says Lingqvist.

Fresh fibre has its place

From a recycling point of view, some old concepts must be abandoned. "The thing you want to avoid is the use of multiple materials. Pure paper-based packages or 100 per cent recycled plastic solutions are turning out to be stronger options. But it is not so easy to go to mono-material solutions. For some products, it is a huge challenge," says Lingqvist.

In addition, fresh fibre has its place in the market. "Fresh fibre solutions must have a perfect sustainability narrative based on reforestation and fossil free production. If producers can convince the world that fresh fibre is also a good choice sustainability-wise, there is interesting room for fresh fibre-based packaging."

E-commerce opens up new possibilities

Growing e-commerce is an attractive playing field for converters and newcomers.

"We have never seen an e-commerce category decline. Once it starts, it is just a question of how quickly it takes off. This could mean that you trade off between the better profitability of the old set-up with something that looks a little bit dubious. But if you win in the new segment, that is an excellent position later on."

To succeed, one has to make the right strategic choices.

"Some large and mid-scale packaging players say their strategy is to go for growth. They need improvements in efficiency and an excellent value chain to make money. For some companies, focusing on premium niche products like the packaging of frozen foods delivered in e-commerce would be a good choice."

Systemic change is coming

Significant challenges in the packaging industry may require a systemic change that re-arranges existing value chains.

"Relevant value chain collaboration is necessary. This is not going to happen if retailers and packaging companies are on the other side of the fence," says Lingqvist.

In the coming years, converters must navigate within multiple challenges while balancing performance and cost-effectiveness.

"Winners will have to master more dimensions. They have to be innovative in their go-to-market model. They must sell to customers who are farther away from their region, and they have to market in different ways than they have done previously," says Lingqvist.

Oskar Lingqvist
Senior Partner
at McKinsey

MCKINSEY & COMPANY

Founded in 1926, McKinsey & Company is an American worldwide management consulting firm. It has a branch for paper, forest products and packaging industries.

Marc Büttgenbach
Chief Commercial Officer
at Van Genechten Packaging

Turning sustainability into reality

Big brand owners are putting a lot of pressure on the transformation from plastic to paper. The change is already visible in the market, says Marc Büttgenbach, Chief Commercial Officer of Van Genechten Packaging.

Markku Rimpiläinen, illustration: Dan Matutina

"In the last six months, we have had more projects than ever before. Many packages will change. The results will be visible for the consumers gradually during 2021," estimates **Marc Büttgenbach**, CCO at Van Genechten Packaging.

According to Pro Carton's survey "*European Packaging Preferences 2020*", consumers are increasingly looking for sustainable fibre-based solutions.

Seventy per cent of consumers are actively taking steps to reduce their use of plastic packaging, the survey finds. Additionally, 44 per cent of respondents would be willing to spend more on a product if it was packaged using sustainable materials.

"Customers are basically interested in using 100 per cent fibre-based packaging solutions – even hybrid solutions containing 10 per cent or 5 per cent plastic are usually not accepted," Büttgenbach remarks.

Packages made from fresh and recycled fibre complement each other. "Fresh fibre is used when strength and resistance are needed. Fibre can be reused six or seven times, but at the end of the day, you need fresh fibre, because recycled fibres get shorter and shorter in each recycling cycle until they are no longer usable," Büttgenbach says.

How fast can the industry change?

Converters need to solve some technical challenges to meet the growing demand for sustainable packaging.

"The big question is how fast we can change plastic-based packages into fibre-based ones. The fibre-based packaging must take over the same functionalities as plastic. It isn't a simple task – for example, if we are dealing with liquids or very sensitive products. We have to focus on innovative contributions, and we have to proceed very fast."

Büttgenbach underlines the importance of close cooperation between brand owners' converters.

"With our deep material expertise, our goal is to make the lives of our customers easier. We provide them with new ideas in design and functionality that focus especially on their specific market. We can provide our customers with new ideas in design and functionality, because we're the specialist for the packaging solution," Büttgenbach says.

First and foremost, converters must work on a customer-focused basis.

"Our aim is to understand what our customers need to achieve their objectives and to advise them on general market trends and legal developments. We help them to do the right thing. Ultimately, we share the success when we're selected by the consumer because of the sustainable, functional, efficient, and of course, shelf-appealing features of the packaging reinforcing the product."

VAN GENECHTEN PACKAGING (VGP)

For more than 180 years now, VGP has been an independent packaging company, with its headquarters in Turnhout, Belgium. Its nine folding carton sites and one extrusion site in seven countries generate an annual revenue of about 300 million euros and employ 1,600 people. The company is a leading provider of packaging in fast-moving European consumer goods: printed folding cartons, offset laminated corrugated board, POS displays and a wide range of other packaging solutions.

Pharma packaging – what's on the horizon?

The pharmaceutical packaging market is constantly changing, with new demands set first and foremost to ensure consumer safety, not to forget efficiency and sustainability. We posed three topical questions to three converters. Here are their answers.

Metsä Board, photo: Vesa Tyni

WHAT ARE TODAY'S SIGNIFICANT TRENDS IN PHARMA PACKAGING?

CEO Thomas Brusila, Jaakkoo-Taara:
In recent years, we've seen serialisation introduced to tackle the health risk posed by counterfeit and falsified medicines. With serialisation, each saleable unit of a prescription product can be tracked throughout the supply chain via its own unique serial number.

Structural Design Mario Rassi, AR Packaging Graz:
Counterfeit protection, serialisation and traceability are still among the significant challenges we face when packaging pharmaceutical products.

CEO Matthias Ratt, RATTPACK:
Grammage reduction to improve the CO_2 balance, even with fresh fibre paperboard. Using renewable raw materials, recycled – or at least recyclable – material. Smart packaging, which includes track and trace temperature, shelf life, tamper-proof security and counterfeit protection. Also, sustainable packaging design and reducing ink consumption.

Jaakkoo-Taara
Finnish packaging converter Jaakkoo-Taara is an ISO-certified company with decades of experience in producing a diverse range of packaging solutions for the demanding and strictly regulated pharma industry.

AR Packaging Graz
Austria's AR Packaging Graz belongs to AR Packaging Group, which is one of Europe's leading packaging sector companies. The Group has 30 factories in 13 countries.

RATTPACK
The RATTPACK Group specialises in printing and packaging for the pharmaceutical, cosmetics and food industries, with five production sites in Austria and Germany.

WHAT IS THE IMPACT OF SUSTAINABILITY AND ENVIRONMENTAL RESPONSIBILITY?

CEO Thomas Brusila, Jaakkoo-Taara:
These issues are increasingly important for how packaging is designed and manufactured. For example, using lighter-weight board grades to make packages lighter or more compact helps reduce products' carbon footprint. Yet the primary function of pharma packaging is to protect what's inside and make the logistics chain as efficient and effective as possible.

Structural Design Mario Rassi, AR Packaging Graz:
Given the world's stance on climate change, sustainability is omnipresent in pharmaceutical packaging. Pharmaceutical companies' main goal is to improve health. There's a lack of consistency if they're damaging the environment at the same time.

CEO Matthias Ratt, RATTPACK:
Packaging design, grammage reduction and protecting the environment are our daily bread.

"The keyword is consistent quality."

Matthias Ratt

WHAT IS THE SIGNIFICANCE OF MATERIAL PURITY AND FRESH FIBRE?

CEO Thomas Brusila, Jaakkoo-Taara:
It significantly impacts visual properties like whiteness and cleanliness. Less pure materials can generate dust, which can cause problems with the machinery on packaging lines. As well as guaranteeing purity, packaging materials made from fresh fibre can also bring greater strength at lower grammages, offering better runnability.

Structural Design Mario Rassi, AR Packaging Graz:
The production of primary packaging that is in direct contact with pharmaceuticals is particularly demanding, requiring compliance with high material purity quality standards.

CEO Matthias Ratt, RATTPACK:
From our perspective, fresh fibre paperboard is the ideal raw material for the pharmaceutical industry. The key is consistent quality. Paperboard packaging made from fresh fibre runs on the packaging lines with higher cycle rates, generating less process waste.

Close up of a designer

ANDREW GIBBS

Lives in Los Angeles • Born in 1985 • Founded the Dieline network in 2007. Dieline specialises in following, developing and rewarding packaging design. • A partner in the A Plastic Planet organisation. • Teaches packaging design at ArtCenter University in Pasadena, California. • A member of Metsä Board's Better with Less packaging design competition jury 2019–2020.

Andrew Gibbs creates packaging to last

Designer Andrew Gibbs is an innovator in sustainable packaging design. The future of packaging depends heavily on a new kind of product thinking. For instance, sparkling water can be made at home, and shampoo is being produced in solid form.

Lotta Ehrnrooth, photo: Metsä Board

Andrew Gibbs, founder of the highly regarded Dieline network for designers, is convinced that wood fibre-based packaging materials are the future of the entire packaging industry.

"They're beautiful, adaptable materials, and the capability to work them already exists. They're suitable for many purposes, and their properties are evolving all the time," says Gibbs.

Sustainable packaging design is a good business opportunity, as consumers are becoming increasingly sensitive to environmental issues.

Gibbs believes that the success of packaging is also measured by consumer choices. Packaging is successful if it is so attractive to the consumer that they want to take it home.

Take the liquid off the liquids

The environmental impact of product packaging has long been a subject of debate. A Plastic Planet, an organisation in which Gibbs is involved, is developing an open database for biomaterials that are suitable for packaging design.

Products that are packaged must also change in line with sustainability principles. These changes will continue to contribute to the selection and design of packaging materials.

For example, the packaging of liquids is one significant challenge in sustainable packaging design. Gibbs knows the food and soft drink industry well. In his view, the globally popular SodaStream sparkling water is a good example of sustainability.

"In one stroke, sparkling water, which produces a lot of disposable plastic, could instead be made at home in one and the same bottle."

Gibbs also mentions solid almond milk packages, which are diluted at home for use. The same "just add water" concept is also applicable to cleaning products.

And cosmetics, where luxury packaging has traditionally been the be-all and end-all, are also getting a makeover. What is sustainable becomes beautiful. Shampoo is already sold in solid form, packaged in paper or paperboard.

Reusing packaging without changing products

It has been some years since Gibbs realised that he wanted to take packaging design in a new direction and to encourage environmentally friendly solutions even more vigorously. Inspiration, enthusiasm and the sharing of ideas are important to him. He already had the same goal of openness in 2007, when he founded the Dieline network.

Gibbs teaches sustainable packaging design at ArtCenter College of Design in Pasadena, California.

He predicts success for the Loop recycling system, which is aimed at reducing disposable packaging and is based on deposits and the return and reuse of sales packages. •

Silver hot-foil and multilayer embossing.

FACTS ABOUT THE PACKAGING

Material: MetsäBoard Prime FBB Bright 355 g/m² (23.6 pt)
Design: Marko Leiviskä, Metsä Board
Printing: Grano
Special effects: Starcke

Marko Leiviskä
Graphic Packaging Designer
at Metsä Board

Pushing the boundaries

Metsä Board's demo brochure shows how graphical packaging plans come to life. With modern printing techniques it is possible to produce various touch and feel properties and capture the attention of consumers.

Miia Esa, photos: Vesa Tyni

Metsä Board has created a new graphical brochure as a tool for, and to provide inspiration to, packaging and graphic design professionals. It showcases a comprehensive set of special effects, from various foil prints to extremely technically demanding embossing.

"Our graphical brochure is a guarantee of the excellent technical characteristics and quality of our paperboard. We have pushed printing and post-processing to the limit, and the material can handle it," says Graphic Packaging Designer **Marko Leiviskä** from Metsä Board.

Leiviskä's starting point for the design of the brochure was a sculptor working metal or bronze. How can the artist's vision be replicated in the most authentic graphic product possible?

"Different techniques can give the paperboard a genuine sculptural sense and feel. At its best, the printed surface mirrors and reflects like real metal."

A metallic effect

The graphic brochure highlights different techniques and different price range solutions for creating a metallic effect. All the desired effects are created with 26 runs on the converting machinery – including printing.

Silver hot-foil stamping under CMYK printing.

Among the special effects are hot-foil stamping with printing on top, gold and silver hot-foil combined with embossing, and a clear holographic hot-foil on top of printing combined with multilayer embossing.

The brochure represents a challenge to established printing techniques. For example, Leiviskä wanted to show that UV colours are not needed to print foiling. There are also foils that can be printed with conventional offset colours.

This implementation also shows how to incorporate the sense of touch into the printed product.

"The haptic element is considered very important on the packaging side. Consumers want to examine packaging, to touch it and feel it in their hands. Promotional campaigns are remembered better and stand out more if they include the sense of touch."

Holographic clear hot-foil and multilayer embossing.

Printing hot-foil with CMYK colours.

Folding boxboard challenges solid bleached sulphate board

The graphical brochure shows how brilliantly Metsä Board's folding boxboard works as a printing surface. The smoothness and whiteness of MetsäBoard Prime FBB Bright, the flagship product of Metsä Board, are excellent.

"Both features are really close to solid bleached sulphate board (SBS) now, so folding boxboard can challenge solid bleached sulphate board on both price and quality. Its environmental properties are also better," Leiviskä says.

The back of the paperboard is also a technically excellent printing surface, with a pleasant haptic feel.

Golden and silver hot-foil with embossing.

A tool for design and sales

With the help of the brochure, Leiviskä wanted to show how to tell an impactful story with a printed product.

The purpose of the brochure is to give designers and brand owners ideas about what they can demand from a printed product, and understanding printing processes and production techniques also helps with design.

"Many merchants have adopted it as a tool, and they are really excited to show it to their customers. That's the best feedback you can get as a designer." •

PRINTING AND CONVERTING FACTS

Total

- 4 printing runs (traditional offset inks)
- 6 printing colours
- 8 hot-foil runs and tools
- 5 embossing tools and runs
- 2 water-based varnishes, matt and glossy
- 2 die-cutting tools
- Creasing and cutting

In total 26 machine runs

METSÄ BOARD FACTS AND FIGURES

OUR PRODUCT PORTFOLIO

	NATURAL	CLASSIC	PRO	PRIME
FOLDING BOXBOARDS FBB	MetsäBoard Natural FBB	MetsäBoard Classic FBB MetsäBoard Classic FBB CX	MetsäBoard Pro FBB OBAfree MetsäBoard Pro FBB Bright MetsäBoard Pro FBB CX	MetsäBoard Prime FBB Bright MetsäBoard Prime FBB EB MetsäBoard Prime FBB CX MetsäBoard Prime FBB CXB
FOOD SERVICE BOARDS FSB	MetsäBoard Natural FSB Cup		MetsäBoard Pro FSB Cup	
WHITE KRAFTLINERS WKL	MetsäBoard Natural WKL MetsäBoard Natural WKL Bright	MetsäBoard Classic WKL	MetsäBoard Pro WKL	MetsäBoard Prime WKL

METSÄ BOARD IN NUMBERS

№ 1

in folding boxboard and white kraftliners in Europe

in coated white kraftliners globally

1.9

Billion EUR sales

100

We deliver to 100 countries

Our customers are brand owners, retailers, converters, corrugated box manufacturers and merchants

2,400

personnel

In Finland, for every tree harvested, four seedlings are planted

OUR VALUE CHAIN IS SPECIAL

High access to Nordic fibre

100,000

Finnish forest owners as our owner base

Sustainable and renewable raw materials

100%

traceability and self-sufficiency in high-quality Nordic fibres and tailor made pulps

Resource-efficient operations

A List

position in CDP's Climate and Water assessments

Metsä Board also has EcoVadis Platinum rating and is ranked in the top 1% of suppliers.

Metsä Board
professional
magazine

—

metsaboard.com

The cover of this magazine is made with
MetsäBoard Prime FBB Bright 210 g/m² (12.0 pt).
It is printed in five colors (CMYK + PMS 812 C),
embossed and coated with matte UV varnish.

WHAT MIGHT BE A DESIGN INSPIRATION FOR CIRCULAR PACKAGING?

We feature our idea on this issue's cover with a picture of an imaginary package.

The concept of a modular packaging structure motivated us to study various combinations. Wild berries growing in northern forests inspired us with their clean, fresh and lively appearance. The colours and shapes were taken directly from nature.

The image was realised as a 3D model, combining the package's structural and graphic design. The solution was co-created by Metsä Board's packaging design team for the packaging's conceptual design, the packaging design agency Futupack for the 3D modelling, and the marketing agency Hube Helsinki for assisting with the graphics.