

ISSUE 1
2020

BIOFORE

WHAT WILL IT TAKE
TO TRULY CHANGE
CONSUMER CULTURE?

THE FUTURE OF
PACKAGING IS ABOUT
DOING MORE WITH LESS

HANDICRAFTS ARE
MAKING A COMEBACK

NEW EMPLOYEES CARE
ABOUT MORE THAN
THE BOTTOM LINE

CAN HYDROGEN
DECARBONISE EUROPE?



Reset

RENEWABLE
FEEDSTOCKS

RECYCLABLE
PRODUCTS

RESPONSIBLE
CHOICES

Switching from fossil-based solutions to new bio-based alternatives is good for your products and customers. And for the environment.

UPM Biochemicals solutions are produced outside the food value chain using responsibly sourced wood. Our bio-based products help you improve your company's responsibility performance – while upholding the required quality. Moreover, our team of experts and technology partners support you in making a smooth switch from fossils to renewables.

Together, we lead the way to a future beyond fossils.

SWITCH

How do you begin to sum up the year we have had? I think it is safe to say that no one will be disappointed to see the back of 2020 and I do not want to dwell too much on the negatives. We have all had our fair share of ups and downs, but it is my belief that we learn most about ourselves during the hard times. Working together and supporting each other can only make us stronger and more determined to make the world a better place.

So, how is UPM making a difference? To start with, we were one of the first Finnish companies to commit to the UN's Business Ambition for 1.5°C, and we are very proud of this. We will strive to mitigate climate change by innovating novel products, committing to a 65% CO₂ emission reduction and practising sustainable forestry. We also tied the margin of a EUR 750 million revolving credit facility to long-term biodiversity and climate targets. And our EUR 550 million investment in wood-based biochemicals production is a great example of innovation and introducing something completely new to the world.

The theme of this magazine is 'reset' and it could not be more appropriate at this time. Throughout, we want to champion the good being done both in our business and beyond, in order to create a sustainable future for many generations to come. At UPM, we firmly believe that better times are ahead if we all work together towards a common goal.

There are some fantastically talented people doing some simply remarkable work at the moment to make the world a better place; this is something that gives me great hope. To this end, this publication explores the expanding role of hydrogen and biochemicals, looks at resetting global consumption and examines the role of companies when it comes to climate change. We also take a crash course in whittling and learn about the history of the humble milk carton, so there truly is something for everyone.

Before signing off, I would like to point out the incredible versatility and perseverance that my colleagues have shown throughout this most testing of times – you are a credit to UPM and I'm proud to work alongside each and every one of you.

Stay safe and be kind to each other,

Hanna Maula, Editor-in-Chief



Editor-in-Chief Hanna Maula **Managing Editor** Sini Paloheimo **Editorial Team** Kristiina Jaaranen, Joonas Linkola, Tommi Vanha, Päivi Vistala-Palonen
Content & Design Spoon Agency **Cover photo** iStock **Printing** Punamusta **Cover** UPM Finesse Silk 200 g/m² **Pages** UPM Star 1.2 matt 100 g/m²
Address UPM-Kymmene Corporation, PO Box 380, FIN-00101 Helsinki, Finland **Tel.** +358 (0)204 15 111 **upm.com**

We deliver renewable and responsible solutions and innovate for a future beyond fossils across six business areas: UPM Biorefining, UPM Energy, UPM Raflatac, UPM Specialty Papers, UPM Communication Papers and UPM Plywood. As the industry leader in responsibility we are committed to the UN Business Ambition for 1.5°C and the science-based targets to mitigate climate change. We employ 18,700 people worldwide and our annual sales are approximately EUR 10.2 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils. UPM BIOFORE – BEYOND FOSSILS.



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Two UPM employees show how the small steps they take every day can make a big difference.

Shopping goes viral

What goes into consumers' carts has changed significantly this year, and some of the adjustments could be permanent.

If there's one thing that's consistently true about 2020, it's this: no person or business has been immune to its challenges. This includes the grocery industry, which didn't pause when Covid-19 swept the planet. In fact, if anything, an explosion of demand for food items, toiletries and household goods made grocery stores more central to people's lives than ever.

A massive leap for e-commerce

Meghann Martindale, global head of retail research at CBRE, says that 2020 has seen a massive increase in e-commerce adoption in the grocery sector.

"At the end of 2019, grocery e-commerce penetration was only about 3%. That surged to somewhere between 15–20%, and my guess is that it's going to stabilise around 8% in 2020." Therefore, she says, "depending on the data you're looking at, e-commerce grocery growth accelerated by 3–5 years due to Covid-19."

In the long run, Martindale expects many customers will return to stores either due to dissatisfactory experiences with grocery delivery or simply out of a desire to hand-select their products, particularly speciality products and produce.

Natalie Cantave, who lives in the Boston area, certainly falls into this camp. "When the Covid-19 pandemic started, I used grocery delivery a few times," she says. However, due to the inconvenience of delivery timeframes and a preference for selecting certain grocery items herself, she returned to purchasing her own groceries in store once the lockdowns eased in her neighbourhood. "Grocery delivery works for pasta and boxed goods" without variance, she says, "but I really want to pick my own produce" for quality control purposes.

Cost-benefit analysis

Globally, a trend towards more convenience shopping and in some cases restrictions on movement has led to conflicting trends.

The importance of proximity means that some households are purchasing the same volume of items as pre-pandemic but paying higher prices. This is the case for **Ashley Pii** in Kuala Lumpur, Malaysia. "Pricier supermarkets are more accessible for me than the average ones," she explains, so although her household's weekly grocery purchase volume has remained the same, her overall spending on food has increased this year.

Joice Carrido-Carrera in General Trias, the Philippines, has also seen an increase in her grocery bills during quarantine. "Weekly spending has gone up a bit, by around 10%," she says. However, she's unsure as to whether this is specifically due to the pandemic or if

it is due in part to other lifestyle changes in her household which they had made pre-pandemic.

In Kolkata, India, the country's strict lockdown has caused **Nupur Chowdhury's** family to eat out much less and therefore increase weekly spending on groceries to cook more at home. Similarly, as a result of India's continued lockdown, she notes, "the frequency [with which] we use grocery delivery has increased since the pandemic as we go out less often, so it's easier to have things delivered if we can't just pick up groceries on our way back from work like we used to."

The combination of economic pressure and limited choices in stores also have led more shoppers to choose store brands. "Because of the weak economic condition of many consumers globally, we've seen a lot of consumers go to private labels and lower price points if they've been financially impacted," says Martindale, "and that's something to keep in mind because the economic recovery isn't going to be equal globally."

Shoppers' desires for lower prices may also affect the composition of the grocery industry itself. IGD Retail Analysis predicts that discount grocers will become the fastest-growing channel in 2021 and 2022, due to shoppers' needs to economise amidst rising unemployment.

The 'new normal'

In the long term, it seems likely that many customers' "new normal" for buying groceries will combine old habits and beneficial behaviours that they've adopted during quarantines. This is certainly the case for **Lauren Branigan** in New York City, who has continued to purchase her groceries in person throughout the Covid-19 pandemic, but adapted the time and location of her grocery runs to reduce her transmission risk.

"I try to plan in advance so I don't have to go to the grocery store terribly often, and when I go I try to go during off hours (afternoon, early morning, late at night)." She has also changed her grocery store of choice.

"I used to go to Trader Joe's and drop a pretty penny, but now there's a line around the block to get in. Because I'm going to my local supermarket, I'm less inclined to buy [unnecessary items]."

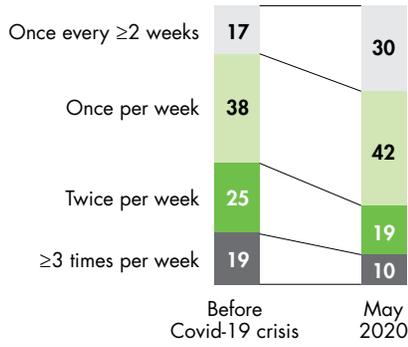
Even after the threat of the pandemic eases, Branigan expects to continue pre-planning meals to streamline weekly grocery shopping. She also predicts her newly honed cooking skills may lead her to cook at home more often than she did prior to 2020. **B**

"At the end of 2019, grocery e-commerce penetration was only about 3%. That surged to somewhere between 15–20%, and my guess is that it's going to stabilise around 8% in 2020."



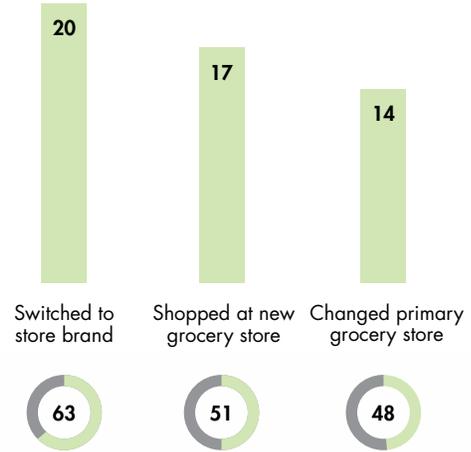
THE CORONA CHECKOUT

Grocery-shopping frequency, % of respondents



Average number of stores shopped per week

Changes in grocery-shopping behaviour since the Covid-19 crisis, % of respondents



Percentage of consumers who say they will maintain the new behaviours

Source: McKinsey COVID-19 Consumer Pulse Survey of US customers



The Milky Way

From wood to steel and glass and now back to wood? Life seems to have come full circle for the milk container, and its newest design is rooted in Finnish innovation.



Pre-1850

Wooden buckets

Known as 'pails', they were used to transfer milk from farms into nearby towns, but they had no lids or any form of refrigeration, which led to spilling, spoilage and contamination.

Steel churn

This metal container was easy to transport, stopped milk from sloshing out, and offered a slight degree of refrigeration and protection from the elements.

1850s



1879

Glass bottle

This was a hygienic, sustainable alternative because it could be cleaned, sterilised and sealed until needed. But it was heavy and made up of non-renewable materials.

'Pure-Pak' milk carton

A toymaker named John Van Wormer, from Toledo, Ohio, patents this idea following a glass bottle accident. The carton was made entirely from paperboard and then dipped in paraffin wax to prevent the material from getting soggy.

1915



UPM's innovative BioVerno renewable naphtha, made from crude tall oil, a residue of pulp production, is key to making better containers. Not only does it eliminate the need for plastic in milk cartons, it could well set the trend for food and drink packaging around the world.



1933

Tetra Pak
Swedish entrepreneur Hans Rausing launches the Tetra Pak brand. Made using a groundbreaking combination of polyethylene and paperboard, the carton was much lighter and easy to both distribute and package.



1967

Modern milk carton
Arla Suomi announces that 40 million of its packages will become more environmentally friendly. This will be achieved by introducing a wood-based gable top paperboard carton for milk, which is recyclable with cardboard.

1952

2019

Paper milk carton

This carton was coated in wax to provide a waterproof layer, which replaced the less-than-desirable paraffin wax layer. Soon afterwards, polyethylene, the most common type of plastic used today, took over as the waterproofing material of choice.



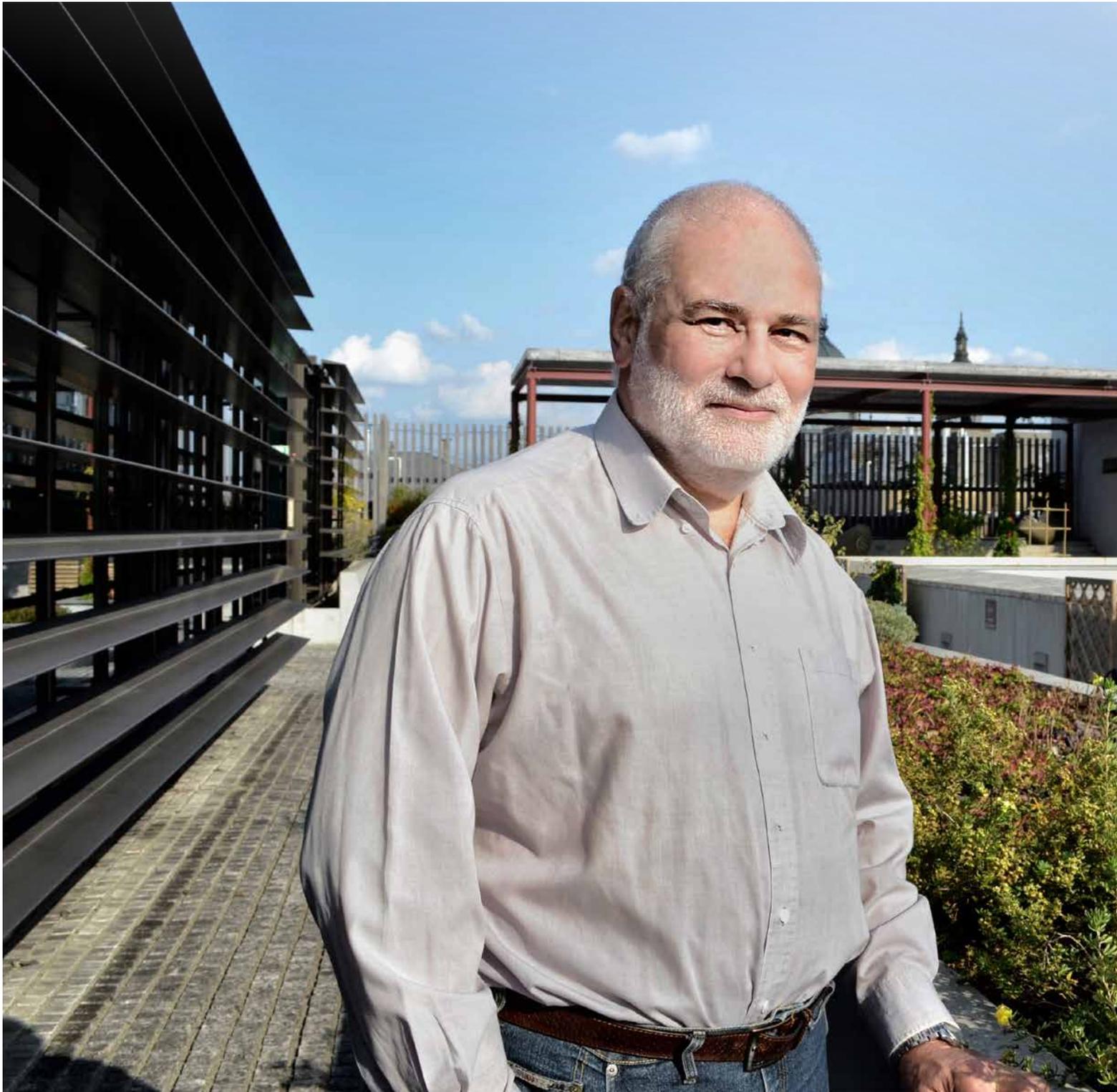
Milk jug

Made almost entirely of plastic, the plastic milk jug quickly became popular due to its lightweight design, mass production, low cost and increased sealant values. For decades, this was the acceptable face of milk.



'Climate change is not the only danger threatening the global environment'

Ruben Mnatsakanian, a leading academic and environmental expert talks about why it's imperative to change the conversation around climate if we are to have any chance of saving the planet.



What can history teach us about climate change and what must we do to prevent it?

The climate is changing all the time; it is a natural process. For centuries, mankind managed to cope somehow with these changes, either adapting to new conditions by changing agricultural practices, migration or, in some extreme cases, abandoning territories which became uninhabitable (like central parts of the Sahara Desert 3,000 years ago or Greenland 600 years ago). We also need to be aware of other processes that in addition to climate change are playing an important role in the environmental crisis – things such as land degradation due to improper agricultural practices, deforestation, desertification due to improper cattle grazing or irrigation techniques, etc.

Many of these problems arise from the excessive use of re-

sources and are linked to over-consumption. Humanity needs to learn how to maintain a high standard of living without consuming ever-growing quantities of material goods.

How do we go about doing this?

First of all, I think schools and universities should teach students that climate change is not the only danger threatening the global environment. There are many human activities and practices that perhaps do not directly affect climate, but which are equally devastating for the environment, ecosystem health, biodiversity and, at the end of the day, even human well-being. The pollution of oceans with all sorts of pollutants (including plastics), soil erosion on agricultural lands, deforestation and overfishing are activities that humans undertake without thinking much about the consequences. How to make human activities less environmentally destructive and at the same time achieve decent living standards is the major challenge for the next generations.

Arming the next generation with the necessary skills to meet this challenge is a major part of your job. What do you prioritise teaching to tackle such a complex topic?

We have an extremely diverse student body, ranging from journalists, economists, business managers and lawyers to physicists, chemists and environmental scientists of all sorts. Lecturing in front of such a group always poses a challenge because for some these topics look trivial, while for others they are mind-opening. My task first and foremost is to bring the whole group to some sort of common denominator in the way they understand environmental problems, and also to engage the more experienced students in discussions so that they can demonstrate their knowledge and share it with the rest of the group.

As for the content, on one hand I need to deliver some established, well-known facts, and on the other hand, try to keep up with the latest developments. Probably my favourite subject to teach is 'humans and the biosphere.' It's the subject that started me on this path.

While we are on the topic of the biosphere, how can we address the problem of biodiversity loss globally?

There is no other way to solve this problem other than to extend the network of nature preserves, national parks and other protected areas. All other measures, such as the creation of seed banks or keeping certain species at zoos around the world are important, but they cannot replace the proper functioning natural ecosystems with all their biota. Whether or not our civilisation will be able to preserve these protected areas and ensure a safe future for them remains an important issue, crucial for the survival of biodiversity on our planet. This is not an easy task, especially when the appetites of extracting companies are growing and they are looking at the development of new deposits in remote areas, like in the Arctic, for example.

A lot of this extraction is being done to fuel the world's need for energy. To balance this, should we focus on improving energy efficiency?

Energy efficiency is a huge issue, encompassing many things – from new light bulbs to good building insulation, to more efficient industrial technologies. But perhaps most importantly, energy efficiency often comes at a price – before you can become energy efficient, you need to invest a lot. So, the key issue here is the long-term commitment of governments, who should create favourable conditions for the introduction of energy-efficient solutions.

MEET

RUBEN MNATSAKIANIAN

A native of Moscow, Ruben Mnatsakanian has taught in the Department of Environmental Sciences of the Central European University for more than 25 years. He is an expert on regional environmental problems in Central and Eastern Europe and Central Asia.





Number of broadleaved trees to be doubled

Current research shows that increasing the proportion of broadleaved trees improves forest growth and yield as well as species diversity and resistance to climate change. UPM plans to increase the proportion of broadleaved trees to one-fifth of all tree species growing in habitats that are suitable for birch. UPM is the first forest company in the world to officially adopt measurable targets for enhancing biodiversity in its forests, and this decision is one part of an extensive toolkit of instruments for safeguarding biodiversity.



UPM COMMITS TO UN BUSINESS AMBITION FOR 1.5°C

UPM is one of the first global forest industry companies to make this commitment to pursue science-based measures to limit global temperature rise. The company will strive to mitigate climate change and drive value creation through innovation, emissions reduction and practising sustainable forestry.



FIRST CLINICAL BIOMEDICAL PRODUCT BROUGHT TO MARKET

Leading medical device distributor Steripolar now sells UPM's FibDex® wound dressing made from nanofibrillar cellulose to Finnish healthcare professionals. The dressings gradually peel away as wounds heal, eliminating the need for dressing changes and avoiding damage to the new skin.



COVID-19 SUPPORT FOR LOCAL COMMUNITIES

UPM has procured half a million facial masks that UPM production sites can provide to their local communities free of charge. Thanks to this initiative, thousands of masks have been donated to healthcare units, nursing homes, day care centres and cancer organisations.



UPM STARTS PARTNERSHIP WITH SCOUTS AND GUIDES OF FINLAND

This new two-year partnership will support scouting as a hobby among Finnish children and help them build a relationship with nature. Through the partnership, UPM hopes to increase the dialogue between youth, companies and policymakers especially on topics concerning climate change and responsibility.



PHOTO AKVILA CUTLERY

France

This summer, consumers in France enjoyed their baguettes and cheese with Akvila Cutlery's reusable cutlery made from wood-based UPM Formi EcoAce biocomposite. The new cutlery's carbon footprint is 90% smaller than cutlery made of fossil-based plastics for single use.



Germany

UPM has begun construction on a state-of-the-art biochemicals refinery in Leuna. The biorefinery investment of EUR 550 million is a major milestone in UPM's strategic transformation.

Finland

The first biorefinery in the world to produce wood-based advanced biofuels started commercial production five years ago in Lappeenranta, Finland. Today, the biorefinery produces approximately 160 million litres of advanced biofuels and biomaterials each year.



Japan

UPM and Moomin Characters® are bringing joy to office workers with the launch of the new Moomin copy paper brand, available through an online store.



Uruguay

The construction of the pulp mill in Paso de los Toros is proceeding at full speed and on schedule. Civil construction, earth moving and road works are ongoing, and the construction of the 130-metre chimney is in its final phase.

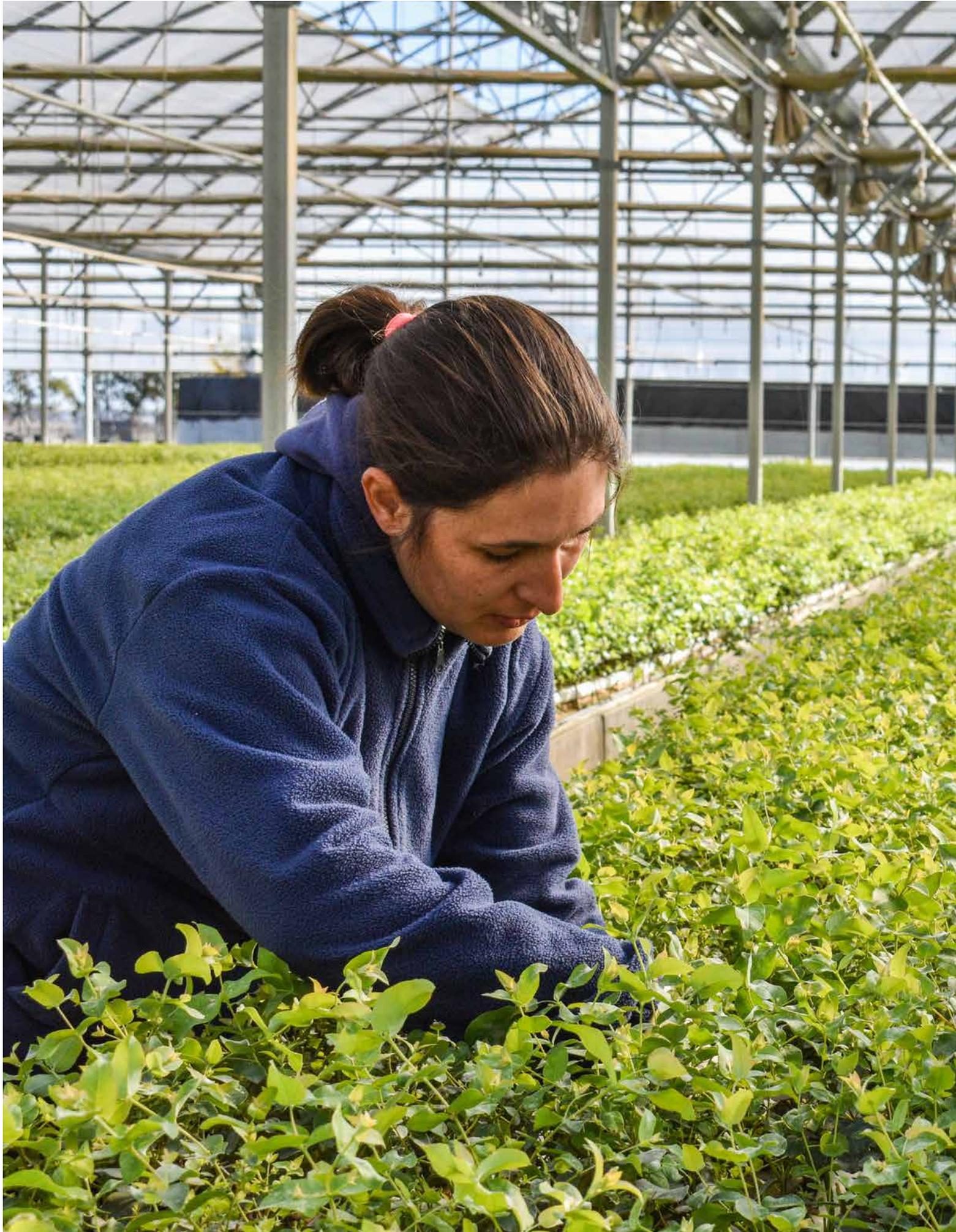


China

UPM has opened its second direct-to-consumer store on Tmall - Asia's largest online shopping platform. With this additional online shop, consumers in any part of China can have UPM copy paper delivered to their door within 1-2 days.



UPM NEWS AND INSIGHTS FROM around OUR GLOBAL NETWORK OF OPERATIONS the world





Planting the seeds for growth

The best seeds are the foundation of a healthy forest, but even the highest quality seeds need a little help on their way. That's where a seedling nursery comes in. UPM supports seedling nurseries in Finland and in Uruguay, making sure that millions of future trees get a good start in life. When the company's newest facility in the Durazno area of Uruguay opens in 2022, it will produce around 10 million Eucalyptus seedlings every year and provide more than 120 permanent jobs.

These high-tech nurseries monitor every aspect of the seedling's development, from ventilation to irrigation to fertiliser needs. Nursery workers make sure the young plants are free from pests and weeds. After a year of care, the seedlings are sent out to be planted.

As the world adjusts to new realities, those in the know say the current period is an opportunity to press reset on overconsumption and pursue a more sustainable way of life.

Are we being consumed by consumption?





In recent decades, as incomes have risen around the world, the burgeoning middle class has powered global economic growth driven by consumption. With this increase in consumption, however, came an even greater amount of waste – something that has exacerbated the global climate crisis.

So, when the coronavirus pandemic abruptly shut down borders and businesses and forced many people to stay at home, some experts speculated that this monumental event could potentially result in a complete reconsideration of how people consume. So, when the post-pandemic period begins, will people consume smarter? What does the future of consumption look like and how does sustainability factor in?

Mixed signals

Some experts are cautiously optimistic about the effect the pandemic might have on the future of consumption.

“The pandemic opened people’s eyes to how we consume in our daily lives. I think it took something of this scale for people to realise the way we’re currently living: always in a rush. We didn’t stop to think if we’re doing the right thing, we didn’t question it – we just lived the way society lives,” says **Larissa Copello**, Consumption & Production Campaigner at Zero Waste Europe. “So, this pandemic could be a good opportunity to start questioning how we live and why we live like this, is it sustainable? What is the impact are we making on the environment, or to our own health? How we can change and live more sustainable lives.”

“Consumers need to be given access to information so they can make informed choices, and not just make decisions based on a cultural or societal paradigm.”

Kes McCormick, Associate Professor at the International Institute for Industrial Environmental Economics (IIIEE) at Lund University, thinks the pandemic has shown that consumption patterns can be shifted very quickly:

“For example, do I really need to fly to Brussels for a one-day meeting? Or can the meeting be held effectively online? The pandemic has meant that almost all business meetings and events have shifted to the virtual world. While we certainly want to continue to meet in person, it is also very clear that we can greatly increase our use of online services,” McCormick says.

Although there are some encouraging signs in some parts of the world that consumption patterns will be reset, **Carsten Beck**, futurist and expert on consumer trends at the Copenhagen Institute for Future Studies, has doubts that smarter consumption will happen just because of the current crisis. He anticipates that globally, extra demand will increase from East and South Asia as the middle class there grows. If this prediction holds true, overall consumption may



not change significantly. Beck says the need to focus on smarter consumption remains, regardless of whether overall volume falls.

Shifting patterns of consumption and production

One thing that the experts agree on is that if the world is to meet the UN's Agenda 2030 Sustainable Development Goals (SDGs) then consumption patterns and levels need to shift considerably – and that it's time to reconsider these patterns in high-income countries where over-consumption has long been an issue.

Ultimately, consumers make their own decisions about what to buy. But consuming consciously is often a daunting task. This is especially true if consumers don't have the information needed to determine the sustainability of their choices.

"For there to be consumer awareness, information is key. Consumers need to be given access to information so they can make informed choices, and not just make decisions based on a cultural or societal paradigm," Copello says.

This means that it's not always the consumers who need to be pushing for companies to change but rather vice versa. Beck suggests that companies should be motivated to offer convenient, easy to understand and sustainable solutions to consumers.

"I think the supply side is going to be extremely important going forward. And the supply side is not only about better and smarter solutions from companies, but also about the political will to change things. Obviously the world is, to put it mildly, a little chaotic right now, so the political will is going to be different in different parts of the world," Beck says.

Systematic changes are needed if we are to get the necessary processes in place that will cater to circularity and to reducing emissions. Most of the systems that are necessary require collaboration between companies, according to Beck. Moreover, many companies in the EU are willing to speed up change, but they don't have the necessary systems or regulations in place.

"I work a lot with Ikea and if we're talking about circularity in the furniture business, of course it's a superb idea. We really need it, and Ikea and its competitors are working on it. But it's just extremely complicated. What do you actually do with a bed that you want to get rid of besides burning it or throwing it in the trash? These systems are simply not in place yet and they take a lot of time to develop," says Beck.

These systems also are needed acutely in delivery services based on disposables, according to Copello. Delivery services have helped businesses survive during a period when in-person sales weren't an option, but these current delivery models cannot be maintained long-term. There are already many existing solutions based on efficient and reusable systems that can be scaled up, including for e-commerce



packaging, and takeaway of food and beverages. These systems can offer great benefits for the local economy as they are usually based on short supply chains and can promote green jobs. However, policy support is needed for these systems to become mainstream, as there is currently an unfair market competition with single-use and disposable models.

Progress reversed?

At the same time, as outlined by Zero Waste Europe's FAQ on Covid-19 and zero waste, as a result of the pandemic there are a few concerning trends that might reverse the progress that has been made towards encouraging sustainable consumption and production. Some companies are using the pandemic as an excuse to create "wobble room" for their commitments and halt attempts to push towards ambitious progress (i.e. reducing their single-use plastic footprint). Copello underscores that it is absolutely essential that industry not be allowed to use this situation to push for their own agenda and interfere with recent achievements such as the SUP Directive, the EU Green Deal and Circular Economy Action Plan.

There is also the misconception that single-use items somehow guarantee sanitisation, so in many places, customers are not allowed to bring their own reusable cups, bags, containers or utensils. However, single-use plastic and other kinds of packaging can carry germs, and any touching of the packaging has the ability to pass germs on onto other surfaces. Therefore, reusables are just as safe as single-use items. While Bring Your Own (BYO) programmes should still be encouraged,

says Copello, it is also important to move towards establishing more effective programmes like third-party operated reuse systems that comply with hygiene and safety measures. Once again, it comes down to creating systems that are in line with the circular economy and that work for both producers and consumers.

Policy intervention needed

Sustainability needs to be the foundation of decision-making on consumption. The circular economy, for example, is a concept that has become even more prominent in recent years and is often seen as a solution to the unsustainable production/consumption cycle. As McCormick explains, for the circular economy to really take off, changes in policy and regulation are needed to send clear signals to the market to embrace its processes. In Sweden, for example, the city of Umeå is working with the OECD to explore how to make the circular economy a reality on the city/regional scale. It is a great example of an innovative city taking action.



“The interlinked crises that challenge our natural environment today provide an existential threat to human life and society. The world can no longer afford not to act.”

Larissa Copello says that in the long-term, governments need to invest in city-scale zero-waste systems that build circular economies at the local level, require much less capital, and create multiple social impacts. Combined with educational programmes and community involvement, these systems could greatly reduce the amount of disposed waste, thus avoiding serious environmental harm from waste disposal and incineration. Moreover, the pandemic has made it clear just how vulnerable our system is now and how our current methods of treating the environment – driven by unsustainable consumption and production models – will lead to more pandemics in the future. Therefore, any future policies must be geared towards ensuring a green and just economic recovery that addresses environmental challenges and ensures resilience when the next global crisis strikes.

Definitive moment for change?

It is still unclear whether the status quo has definitively changed for either producers or consumers, but maybe there is now an impetus to push sustainability developments forward.

“I don’t see 2021 or 2022 as a sort of huge breakthrough where we look back and say that everything changed, but I think it will be a stepping-stone towards a smarter supply side dynamic,” Beck concludes.

What is clear, though, is that when an urgent crisis appears, access to billions can be found – as the financial response by EU Member States and governments across the world to the pandemic shows.

“The interlinked crises that challenge our natural environment today, from climate change to biodiversity loss, provide an existential threat to human life and society. The world can no longer afford not to act,” says Copello. **B**

Boxing clever

E-commerce may be booming, but the packaging that items come in has become a concern for consumers. What can designers do to make packaging affordable, reliable and eco-friendly?





Delivery services and e-commerce have seen a jump in demand as more people than ever are working, learning and socialising from home. This increase in online shopping has a downside, however – a corresponding rise in waste. These interrelated trends have shone a spotlight on the role of packaging. How a product looks – and ships – plays an essential role in the decision to buy an item, the process by which it arrives at a home and the way it eventually leaves. With the at-home economy likely to continue at least in the near future, increasing the sustainability of packaging will be key to reducing the carbon footprint of e-commerce.

What IS the box?

To understand how packaging can be made more sustainable, it's important to examine the primary concerns that go into deciding what sort of packaging to use. The needs of the product and the type of retail channel are the starting point.

“Conventional characteristics like price, aesthetics, and performance are always taken into consideration,” says **Adam Gendell**, Associate Director at the Sustainable Packaging Coalition. “Packaging can serve to protect and preserve the product, market the product, communicate health and safety information about the product, and for certain products, can serve to provide theft prevention, child safety, dosed dispensing and more.”

The main challenge is designing packaging that works for both bricks-and-mortar retail and e-commerce. Gendell believes that this balance has flipped and that designing packaging for e-commerce

is starting to take precedence over packaging that works on store shelves. This could be good news for many categories of products since e-commerce eliminates the need for packaging to provide marketing, which means that packaging can be stripped down to its core function of containing and protecting the product during transportation.

However, **Luc Speisser**, Group Chief Innovation Officer at Landor and FITCH Global, notes that packaging is “more than just casing to allow for easy transportation and storage of products.” The “unboxing” trend (exactly what it sounds like: people opening boxes and narrating their actions) demonstrates that it's also an important brand touchpoint.

Gendell agrees that every packaging material can be advantageous or disadvantageous depending on the package design, the product being packaged, the type of retail channel and other factors.

“We often say there's no such thing as a good or bad material - only good or bad designs. For many packaging applications, paper-based packaging can be advantageous, and for others, plastic-based packaging can be best. This is true for all materials, including glass, steel, aluminium and more. Depending on the package design, trade-offs can include carbon footprint, packaging weight, recyclability, toxicity – any packaging material can introduce a trade-off in any performance, aesthetic, economic, or environmental attribute,” Gendell explains.

More than just material

For Speisser, packaging choices are more than paper or plastic. Increasingly, pack-

The way forward for sustainability in the packaging industry will boil down to technology, collective intelligence and a real commitment.

aging is “in the firing line” as the traditional practical and emotional considerations are being balanced with environmental concerns, with companies facing a strong demand from consumers to operate sustainably. This has made many brands “race to show they are doing something,” Speisser says. Companies are considering the need to rethink their whole supply chains – from storage to transportation, delivery in the final mile and even consumer behaviour around purchasing and returns. Using new types of packaging is often the easiest way for a company to show it is taking action.

Gendell says that companies are approaching this push from consumers in different ways.

“Most companies that address the environmental considerations of packaging aim to build a story that is accessible by the general public, with narratives around recycling, using less packaging, preventing deforestation and other concepts that consumers can easily relate to. Within this trend, there’s a trend of making improvements that go beyond these more tangible concepts. More and more companies are addressing carbon footprints, toxicity, volumetric efficiency, and other areas that may not directly translate into a mass-marketable story,” Gendell notes.

But standing up on the issue of sustainability is not enough; companies have to stand out too. Here, collective intelligence plays a vital role. Landor and FITCH, for example, sees it as vital to bring together an ecosystem of minds, including packaging technologists, design specialists, supply chain, procurement, brand, marketing, sustainability experts, and a constellation of expert partners. Through this collective process, Speisser explains, “we not only imagine but, most importantly, improve.”

Consumer paradox in corona times

According to Gendell, the effects of the pandemic on packaging design choices are still being understood. Although

consumer awareness and sustainability concerns have been rising in recent years, some believe the Covid-19 pandemic has caused a consumer paradox. On the one hand, there are demands for sustainability in terms of packaging, on the other hand, Speisser points out, we are seeing a renewal of mass consumerism motivated by convenience and safety.

“The pandemic has resulted in a back-track in progress on single-use plastics. For example, we are being told to dispose of face masks after use to stay safe,” Speisser says. “Likewise, many people still do not feel safe or comfortable visiting a physical store and so choose to shop online. And e-commerce has been so good at removing the barriers to purchase, meeting buyer demand for immediacy and ensuring clothes fit and look good by allowing multi-buys and free returns. However, this has an enormous impact on the environment and online brands now have a responsibility to change consumer behaviour to reduce this impact.”

Luckily, there have been tremendous gains in designing product packaging that is suitable for transportation on its own, which has the potential to eliminate the infamous dilemma of box-in-a-bigger-box shipping, Gendell argues. The way forward for sustainability in the packaging industry will boil down to technology, collective intelligence and a real commitment to the goal.

“Brands need to go further and influence consumer behavioural change, encouraging customers to use this technology,” Speisser concludes. “Once again, any solution will require enormous collective intelligence. However, we should not be fazed by this challenge. We believe that small changes can make an immediate difference. For sustainability to be achieved, and for it to be truly sustainable, it must benefit people, planet and profit. Brand-led sustainability is the key to transform doing good into a competitive advantage.” **B**



Over the past few years, the phrase “war on waste” has been popping up frequently in Chinese media headlines. Last year, China’s state news agency Xinhua described tackling the waste problem as “a tough and drawn out battle.” The campaign began in March 2017, when the Chinese central government set out a waste sorting plan with the goal of recycling 35% of municipal solid waste in 46 of the country’s major cities by 2020.

Shanghai and Beijing, the two largest cities, have since amended the municipal rules to enforce mandatory waste classification – in July 2019 and May 2020, respectively. In January this year, a state commission announced another ambitious goal: to eliminate all non-biodegradable plastic bags across the country by 2025.

Drowning in rubbish

The Chinese government has many valid reasons to take such dramatic moves, and many would argue that these measures have come rather late. Although China has been drowning in rubbish for decades, the country still lacks a nationwide recycling regime and depends heavily on private scavengers to collect recyclable waste from public rubbish bins and people’s homes.

Before the authorities started banning imports of solid waste in 2018, China was a scrapyard accommodating half of the world’s rubbish. In addition to the vast imports of waste, China also churns out overwhelming amounts of waste itself. Driven by skyrocketing growth in consumption and rapid urbanisation over the past 30 years, China, home to one-fifth of the global population, produces the most plastic waste in the world.

Although many countries have a higher per capita rate of plastic waste generation than China, its lack of waste incineration

plants and a proper recycling system has led to overwhelmed landfills and heavy pollution.

The Jiangcungou Landfill, the largest landfill in China at a size of 100 football fields, was designed to operate for half of a century but met its capacity after only 25 years. Considering that it takes up to 1,000 years for single-use plastics to degrade in a landfill or the environment, the scale of pollution is unquestionably massive.

A sense of responsibility

While some remain doubtful about how effective the new measures are and whether the Chinese government will be able to hit its seemingly far-fetched target, promising progress has been seen in Shanghai, the first city in China to roll out compulsory waste sorting.

In 2019, the government of Shanghai introduced a separate collection scheme dividing household rubbish into four categories: recyclable, hazardous, perishable and dry waste. Statistics released by the local authorities in July show that one year after the launch of the new rule, the waste sorting rate has increased from 15% to over 90%.

According to **Jue Wang**, senior environmental specialist at UPM and a Shanghai resident, the establishment of a clear waste collection routine, the numerous volunteers in every community providing guidance, and the wide distribution of public recycling bins in the city are the keys to the new programme’s success.

“The citizens of Shanghai got used to the new system and developed good recycling habits very quickly. Now, they even proactively look for waste sorting bins when travelling to other cities in China,” says Wang.

The results of a study by a research team from Fudan University in Shanghai focusing on long-lasting waste sorting

“To reduce the amount of delivery packaging waste, we need a systemic reform of the whole delivery process.”

Can China win its war on waste?

The world’s top producer of plastic waste has gone on the offensive to ensure a greener future for its citizens. If China succeeds, it could offer lessons for the rest of the globe.



behaviour echo Wang's observation. The research group has been closely following the waste sorting process in six communities in Shanghai since last year, and found that once people realise they bear the responsibility for sorting waste, they are more likely to continue to recycle even without supervision and potential sanctions like fines.

According to the data provided by the Shanghai government, when the recycling guidance volunteers withdrew from the local communities in March amid the coronavirus pandemic, two-thirds of Shanghai residents still maintained their waste sorting practice.

More effort required

Despite the impressive advancement in recycling observed in Shanghai, China's waste problem is still urgent thanks to the growing use of plastic packaging, especially from the food delivery and e-commerce business, two of the fastest growing sectors in the country.

Meituan, the largest food-delivery group in China, revealed in August that its platform alone processed more than 40 million orders per day. According to an estimation by Greenpeace China, every food delivery on average involves 3.27 units of single-use plastic containers, which means

at a minimum, more than 130 million units of non-degradable plastic bags or boxes are put into use every day by the food delivery industry in China.

The situation does not look any brighter in the e-commerce industry, where almost 34% of the delivery packages use plastics. Although many of these materials are recyclable, research conducted by Greenpeace last year found that 95% of such plastic packaging is burnt or buried along with household waste due to its low recycle value. Even under the new recycling regime in Shanghai, plastic packaging materials are classified as dry waste and excluded from the official recycling system.

Damin Tang, a campaigner at Greenpeace East Asia, thinks that more efforts are needed from the e-commerce companies since simply replacing single-use plastics with recyclable materials is not enough. "To reduce the amount of delivery packaging waste, we need a systemic reform of the whole delivery process," says Tang. Several small-scale pilot projects in this direction have been launched. For example, some delivery companies in China now offer "shared express boxes", which can be reused for multiple deliveries.

Since paper is easier to be recycled and biodegraded at the end of its lifetime, new

paper packaging materials might also contribute to waste reduction in China. As more advanced technology is introduced in the production process, paper packaging is expected to be lighter, more waterproof and cost-effective to replace plastic packaging while meeting the needs of all industries. "In terms of recyclability, degradability and renewability, paper is still considered a more sustainable material than biodegradable plastics," explains Wang.

The crux of the solution, however, may lie in Chinese consumers' awareness of sustainability. With China's food-order and e-commerce businesses still expected to grow, experts worry that the country's battle with waste is only becoming harder. While Shanghai's success is noteworthy, it remains to be seen whether other cities with fewer resources can duplicate the city's success in waste sorting.

"The real key is to consume less," says Wang. "But if we can't consume less, we can at least start using more sustainable packaging materials." As shown at this year's China Packaging Container Expo, an increasing number of packaging manufacturers in China are now making efforts in downgauging packaging, using more recyclable or recycled materials, and replacing fossil-based materials with renewable and biodegradable ones. **B**





GrowDex is helping to
change the way we treat
cancer and other illnesses
– and it is made exclusively
from trees.

The future of medicine is about to get personal

Piia Mikkonen is a Product Development Scientist at UPM Biomedicals. She started her career in academia at the University of Turku and admits: “I never dreamt I would end up working for a forest company! I worked in a project with GrowDex and couldn’t quite believe at first that you could use birch trees in cell culture. I was impressed with how innovative the product was and now I’m working for UPM.”

GrowDex is a ready-to-use hydrogel that supports cell growth with consistent results. Made using nanocellulose found in birch trees, the product is also sustainable, sterile and environmentally friendly. It can be used across a range of biomedical research and is completely animal-free. In fact, GrowDex is being used to reduce the need for animal testing in biomedical applications. Furthermore, it is being applied to the expanding and innovative concept of personalised medicine.

Personalised medicine refers to the process of approaching a patient’s treatment from a personal perspective. Specifically, it uses an individual’s molecular and genetic profile to help determine the best medical treatment procedure. For example, if a patient has been diagnosed with cancer, rather than receiving the prescribed broad spectrum treatment for that cancer, a sample of their cancer can be extracted from the patient and used to screen a range of other compounds that may be more effective or result in fewer side effects. This allows for an individual, personalised treatment plan.

UPM’s GrowDex hydrogel helps with this process by creating an environment similar to the human body for the cells. Examining samples in 3D rather than conventional 2D allows researchers to recreate the way they grow in the body rather than on a flat, two-dimensional surface. “GrowDex is inert, meaning there is nothing extra in it that would disturb the analysis of the cells – it is essentially nanocellulose and water. The hydrogel surrounds the cell and replicates the three-dimensional cellular environment found in the human body,” Mikkonen says.

This is only the beginning for this treatment approach, which is being spearheaded by Finnish research. “At the moment, personalised medicine studies using GrowDex are focused on a specific range of diseases, but there is no reason why they cannot be advanced to include other aspects of medicine in the medium-term. I firmly believe that this is the future of medical treatment; however, the only question now is over who will pay for its universal rollout,” says Mikkonen. **B**





A sample of cells extracted from a patient are embedded in GrowDex. GrowDex replicates the pressure the cells would experience in the human body, ensuring they are not damaged or compromised. Because GrowDex is essentially made up of just cellulose and water, it does not interfere with the cells' make up.



GrowDex keeps the cells suspended in their natural formation, meaning researchers can examine them in a 3D state as opposed to on 2D surface. This allows experts to experiment with different drug treatments, offering the patient the best chance of recovery.







The cells, now surrounded and held in place by GrowDex, are transferred to an incubator, giving Piia Mikkonen and her research team the necessary tools to examine the samples and determine the best treatment plan.



Kyrö's concept was dreamt up by Mikko Koskinen and four friends during a visit to the sauna.

That's the spirit!

Rye spirit producer Kyrö is flying the flag for ecological and responsible production, starting from something as basic as labels. Its success in managing this shows an approach worth emulating.

The origin story of rye spirit producer Kyrö is as quintessentially Finnish as you can get – except perhaps for one detail. A cold beer is the common beverage of choice for refreshment after a sauna bathing session – more so than the rye whisky that Kyrö's five founding members were sipping when they decided to establish the company in 2012.

It used to be a tradition for Finnish business people to use the sauna as a venue for sealing deals. In the case of Kyrö, five friends went in for a relaxing steam and came out with a brilliant business concept. Today, Kyrö's spirits are firmly established as a top Finnish brand, while the company has its sights set on an increasingly prominent European market profile.

"The idea was inspired when we wondered why there was no rye distillery in Finland," says **Mikko Koskinen**, one of the Kyrö brand's five 'founding fathers.' "All of us shared the dream of founding one and, in spite of our lack of experience, we were daring enough to pursue the dream. That enthusiasm has remained at the core of the distillery. We make different things – gin and whisky – from rye, because we want to stand out. It makes sense that they are made in Finland. We don't want to make Scotch whisky in Finland, we want it to be Finnish, and we want to be local wherever we are, to source local materials and to be part of local communities."

The company's sustainable values are rooted in this focus on local priorities.

A down-to-earth sense of place – and a very Finnish sense of humour – underline the brand image. Kyrö is a reference to the village of Isokyrö on the flat agricultural plains of Ostrobothnia in western Finland where the distillery is located, and rye is a dominant crop for the expansive farms of the region. This rustic connected-to-nature theme is reflected humorously in the company's promotional material and repeated in the products' chunky bottles and packaging, and crucially, in the bold labelling.

Unpretentious enjoyment

Koskinen characterises Kyrö's brand as "democratised premium" and the bottle labels are designed to convey this message to the consumer. "Although it's not a cheap product, it shouldn't require huge amounts of knowledge to be enjoyed," he says. "It is accessible, but premium. The worlds of whisky and also of gin are sometimes complex, like the world of wine. We thought that we could make things easy, so everything we produce is made under the name Kyrö. That stands for the best ingredients, unpretentious enjoyment, and bringing people together at the same level. We provide the option of enjoying whisky, for example, without the hierarchy that often goes with it."

A big difference between Kyrö's approach and that of other, more established spirit brands is the inclusion of more than one product under a single brand umbrella – namely gins and whiskies. The identity was an almost instant success in its home market, but breaking through into international markets presented a challenge, not least because of this umbrella approach.



“We did some soul searching and saw that naming and labelling was rather complex,” says Koskinen. “It carried messages that are familiar in the domestic market, but might be a bit difficult to understand anywhere else. That’s when we decided to do some consumer research into the labelling of the bottles and it’s why we have implemented the results of that research.”

The company turned to the Finnish research firm Sense N Insight for support in this process.

“Packaging is very significant as a marketing medium,” explains **Virpi Korhonen**, co-founder of Sense N Insight. “It can access places that other media cannot. Every product that is packaged must have a label by law, and that label must display certain information, especially for food, drink and medicine. With premium product labelling, the producer needs to consider how to optimise the product’s sales potential, and this means the consumer has to experience the value of the product. Designers and brand managers tend to think they know how customers feel about their product, but often they don’t because they are too close to the product and they don’t necessarily represent the typical consumer who buys that product.”

In Kyrö’s case, the aim was to study perceptions of labels for gin and whisky so that the optimal label design and material for each could be determined. Consumers of both gin and whisky were recruited from a large Helsinki mall and asked to take part in eye tracking, focus group interviews and sorting tests. These included choosing bottle label materials, varying in colour and paper type, from 12 samples for each product category in order of perceived quality and authenticity. It became clear that the bottle label materials perceived as premium quality for gin varied significantly from those for whisky.

“We corrected misconceptions with a redesign,” says Koskinen. “It seems to have worked very well because we are now beating other traditional brands in terms of brand ‘top of mind.’”

Rooted in sustainable values

The collaboration with Sense N Insight emphasised the differences in perception of what is premium when it comes to different spirit categories. “The label material hadn’t been the best for cross-category labelling. We could have used different materials for different products but that would have taken away from the consistency of brand. The study helped us to make the kind of trade-offs that are very hard to make. It also underlined our values, of which sustainability is one.”

The label material chosen for the Kyrö brand is a product of UPM Raflatac, whose offering covers a wide range of innovative label materials. “The label is basically the face of the product and our aim is to help brands make themselves desirable and differentiate themselves,” says **Matilda Rosti**, Senior Marketing Manager. “The insights we can provide in label material selection are based on knowing the market and the needs.”





Kyrö has combined stunning labelling with environmental awareness.

“Packaging is very significant as a marketing medium. It can access places that other media cannot.”

UPM Raflatac is leading the way in sustainable labelling, responding to the growing need and demand for sustainable packing solutions. The company also works closely with designers, helping them to identify the label materials that enable them to bring their visions to life.

“Design is the starting point for sustainable packaging,” says Rosti. “Our ecodesign approach guides us to select raw materials that reduce raw material needs, enable recyclability and provide renewable alternatives to fossils and lower environmental footprint over the lifecycle. The main goal of ecodesign is to promote circularity, as well as minimise the negative and maximise the positive environmental impacts of sourcing raw material, manufacturing, logistics and the use and disposal of products.”

The rougher, matte feel of Kyrö’s redesigned labels is one aspect of a holistic brand message supporting sustainability as a value. Koskinen understands that claiming to be sustainable is not enough in itself and that Kyrö has to “walk the talk.”

“Our labels are made in Finland in accordance with the highest standards with local materials, and we can easily assess effects on the environment. We source local rye and the more we grow the more we can have an effect on sustainable farming practices. We use biogas in our distillation. So sustainability is an underlying quality,” he says. **B**

The new era of **BIOCHEMICALS**

Wood-based biochemicals are renewable, recyclable, can shorten supply chains and boost local production. And they can be used to make almost anything.

The future of wood is here. Soon all kinds of products – from bottles to de-icer to tyres – will be made from wood-based biochemicals, ushering in a new era of sustainability.

It's not a new idea. For years, if not decades, there has been discussion about how wood-based products could replace things made from fossil materials. Until now, this idea was mostly hypothetical. Now it is really happening.

"I am very excited," says **Juuso Konttinen**, Vice President, Biochemicals at UPM. "We have worked for many years to evaluate and develop different technologies for wood-based biochemicals, and it is absolutely fantastic that all our hard work is paying off."

In early 2020, UPM announced a new biorefinery to be built at Leuna, Germany. The biorefinery will produce a range of wood-based biochemicals that can replace fossil raw materials. This is not a simple lab to showcase the possibilities of biochemicals; this is a major plant with a price tag of more than EUR 500 million and with an anticipated annual capacity of 220,000

tonnes. The next phase of sustainable biochemicals has well and truly arrived.

Huge sustainability benefits

"Look around you. Chemicals are in practically everything you can see: the paint on the wall, the carpet on the floor and the plastic in your mobile phone," says **Michael Duetsch**, Vice President, Biochemicals Business at UPM. "Today 80–90% of these chemicals are fossil-based. If we replace them with chemicals based on biomass, we will have a more sustainable future."

The advantage of wood-based biochemicals is that they are





better for the environment. Wood is a recyclable and renewable resource that can store carbon in the material. It will play a key role in moving the world into a carbon-neutral circular economy.

Additionally, wood-based biochemicals can shorten supply chains and boost a regional economy. Fossil fuels might be shipped halfway around the world, but wood can be produced and used locally, helping those who live and work nearby and reducing both the financial and environmental costs of transportation.

“The Leuna plant will use hardwood trees which are native to Germany,” Duetsch says. “It is good that we have more industrial applications for native hardwoods instead of using non-local softwoods. These natural hardwood forests will be more climate-stable and can help biodiversity.”

An easy replacement

The Leuna plant will convert wood into the next generation of biochemicals. Renewable glycols will go into bottles, packaging, textiles, cosmetics and detergents. Lignin will be used in adhesives and bioplastics. Wood-based functional fillers will go into rubber tyres and thermoplastics. These biochemicals have a huge number of potential industrial and consumer applications.

“It is important that our customers don’t need to make changes to their existing value chains, such as their production and recycling,” Konttinen continues. “There is no burden to switch from fossil-based materials to wood-based materials. The new biochemicals fit in their existing processes, but with sustainability built in.”

Sustainability is the main draw for these new biochemicals. They will initially be a premium product, but a good example of the potential in their future growth might be renewable energy. Not too long ago, solar and wind power were chosen only for their environmental credentials, but today they are often cheaper than energy produced from coal or oil. Could wood-based biochemicals become more cost-efficient than their oil-based alternatives?

“It’s possible. Costs should come down in the future,” Konttinen says. “We are constantly optimising our systems and developing different technologies which will make these materials more economical.”

A new era for UPM

This new era of biochemicals is also a new era for UPM. The customers who want biochemicals are not the same customers who want paper or timber. This requires much more than simply building a new plant.

“We are not just building a new factory,” explains Konttinen. “We are building a new organisation, new business processes, new systems and competences, all to serve these new customers better.”

Molecular bioproducts are one of UPM’s three spearheads for growth. They have already led to a profitable biofuel business and are now forming the new biochemicals business. The other two spearheads are speciality packaging materials and high-value fibre products. Together, the three provide the potential for sustainable growth long into the future.

“This is a challenge, because this is new to us and new to the world. No one has done this before and there is no playbook,” Konttinen says. “We have to develop all these new technologies and systems.”

Yet this is no longer a daydream. Work on the Leuna plant has started and the new era of biochemicals has begun.

“The plant is expected to start up by the end of 2022,” Duetsch says. “During 2023 you could be holding a bottle which came from our biochemicals and we are starting to help to improve sustainability in many other different products as well.”

B

“There is no burden to switch from fossil-based materials to wood-based materials. The new biochemicals fit in their existing processes, but with sustainability built in.”

Quenching our thirst for plastic

Many have tried to replace plastic with ecological alternatives. Now, a Finnish firm may have cracked the code by turning to biocomposites made from wood fibres.

When **David Solomon**, CEO of Finnish home carbonation company Mysoda, began making plans for his firm's latest device, he knew it had to be different. The company had a solid share of the Finnish home carbonation market but wanted to expand internationally.

"So, we made the decision to design the best sparkling water maker in the world," Solomon says.

But what makes the best sparkling water maker in the world? For Solomon and his design partner **Arni Aromaa** at Pentagon Design, the appliance had to be beautiful, functional and – most of all – sustainable.

"When we started the Mysoda project, it became very obvious that the home carbonation process is sustainable by its nature because it is eliminating the use of plastics in the water industry. Since they have this strong sense of sustainability, we thought it made sense that the product also should be as sustainable as possible, and we didn't want to use fossil-based materials," says Aromaa.

"There has been of course a strong sustainability angle always, but today because of the issue of climate change, sustainability has been the number one thing. The shift from being human-centric to being planet-centric is the most important discussion in design today, and that puts sustainability at the core of everything."

Market research conducted in Finland and France showed that the goals of the

team aligned with those of consumers. More than 70% of those surveyed were interested in a product that was not made from traditional fossil-based plastic.

The new UPM Formi EcoAce material offered the ideal solution. It behaves like plastic but is actually made of biocomposite. The material is formed from wood fibres and renewable polymers (on a mass balance principle). Products made from UPM Formi EcoAce can be produced using the same moulds and in the same facilities as fossil-based plastics.

The material even has an edge over other biocomposites because it is made from residual material from the pulp industry, explains **Jonas Eklöf**, application development manager at UPM Formi.

"It's more sustainable than other bio-based materials because it doesn't require extra harvesting and doesn't disrupt the food chain like materials made from sugar cane or rice," says Eklöf.

This extra aspect piqued the interest of Mysoda.

"Finland as a country is all about wood, so it was quite natural to look for something in wood composites," says David Solomon.

And, because UPM Formi EcoAce comes from wood, it has an additional benefit that fell in line with team's overall goal to produce a product that was beautiful.

"You can see the wood chips," Solomon explains. "Every device is unique, so there are no two Mysoda devices that are the same."



Each Mysoda machine is unique due to the visible wood chips used in its construction.



A new material

Because the material is so new, however, getting the new Mysoda appliance into production took a little more work than using traditional fossil-based materials.

Mysoda works with a manufacturing partner in China to produce its appliances, and this subcontractor had never worked with a biocomposite before.

“It was a challenge to convince the Chinese subcontractor that this was the right way to go, to convince them to take a chance on a material they didn’t know,” says Solomon. “But we were already so excited about this material that we made it clear that if they wanted to work with us, they needed to make this happen.”

The UPM team in China was key to keeping the process moving forward, especially since no one from Mysoda or UPM in Finland was able to go to China due to coronavirus-related travel restrictions.

“Always with a new material, it takes time to get familiar with it and learn how to work with it,” says **Dayong Han**, an international product manager with UPM based in Shanghai. “Our material can run smoothly within the industrial moulding process, we just had to help them find the right settings to use.”

Han and his colleagues in China spent a lot of time on calls with Finland discussing how to manage the trial runs of the material, the overall production and quality control. They also had to send physical samples back and forth, all under the pressure of very tight deadlines. —>

Han says that despite the challenges, the overall success of the project will benefit the subcontractor in the long term.

“They understand the problems with plastic globally and they understand that this biobased material is the future,” Han says. “It was a good learning experience for them because this is the kind of case we will be facing in the future.”

A team effort

The coordination between Mysoda, Pentagon and UPM was critical to making the project work, and it was also part of what made the case unique.

“This has been a pioneering work,” says Jonas Eklöf. “Even as a raw material supplier, we have been very involved because so much technical expertise was needed.

We have been able to work together with the client and the designer, and helped them connect the dots with other stakeholders as well.”

Aromaa and Solomon agree that this kind of cooperation is key to creating more sustainable solutions in the consumer market.

“It’s a lot of pressure to put on the designers to say that we should design products in a more sustainable manner,” Aromaa says. “It’s impossible for a designer alone to make any change, and in this respect, it’s important that we have customers who are willing to take and use new materials and new solutions, and we need players like UPM who can provide material that is available for mass production. It is not the designer’s vision alone

that can change anything, but we need the consumers who are interested and all the partners and players who can really make it happen.”

“It was quite an exciting journey,” says David Solomon. “We’re happy that we invested the time, money and effort because the end result is really beautiful, really sustainable and now it is becoming part of our DNA as a company. For us there is no way back with plastics.” **B**

“It is not the designer’s vision alone that can change anything, but we need the consumers who are interested and all the partners and players who can really make it happen.”

Q&A with Arni Aromaa, Pentagon Design



What kinds of goals do you have in mind when you start a project?

Since we work for a wide range of clients, there is always a wide range of goals and principles, but generally we aim for results that will provide better everyday life for ordinary people. At the same time, we always want to develop a competitive advantage for our customers. And what has become increasingly important in the last few years is sustainability.

What are some ways this focus on sustainability has affected design?

If we think in terms of the traditional values of Finnish design, I think the idea of longevity is a strong value in itself and is seen as one of the measures of good design. If we think about this from the sustainability angle, it becomes very important. There are many products that don’t necessarily get old, but if people feel that the design is not up to date, then of course there will be a lot of new

production and new waste. From that perspective, the single most important thing we can do is try to design things so that they will be as long-lasting as possible. If something is used for five years or 15 years, there’s a huge impact from a sustainability perspective.

What impact does the consumer have on your choices as a designer?

I think there is a strong trend from the consumer side towards having fewer and better-quality items. Our experience has been that retailers are looking for new materials and new choices and they are looking entirely from a business point of view. Retail is sometimes presented as a gatekeeper that doesn’t let these new ideas in, but in this case, the consumers and the retailers are looking for new innovations. In a market economy, we have to be able to design products that are desirable and sustainable.

What are some trends you see that will have an impact on design in the near future?

Within design, there is a movement today to move from human-centric design to planet-centric design. In Scandinavian design and Finnish design, I think there is a strong heritage of human-centric thinking, designing for real people, for real needs, and for a better everyday, and this is good. But it is also part of the problem, because we have been focusing too much on what people need and not necessarily what is good for the planet. The wellbeing of the whole planet is, of course, also key for the wellbeing of humans. **B**

Corporations are necessary for meeting climate goals

With climate change posing a grave threat to business continuity, big business may have no choice but to embrace decarbonisation.

Any serious endeavour must have a clear matrix to judge success and failures. This is even more critical when the endeavour is to literally save the living planet. I am talking about the UN Framework Convention on Climate Change (UNFCCC) and its successes and failures in tackling the climate crisis. A dispassionate and objective assessment of the UNFCCC's performance is critical to finding a pathway for ambitious climate action and hence our chances of meeting the 1.5°C target.

Let's be clear: UNFCCC has failed in its objective to "stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." Over the past 26 years, the atmospheric concentration of carbon dioxide (CO₂), has increased from 358 parts per million (ppm) in 1994 to 412 ppm in August 2020. A concentration of 400 ppm CO₂ was last witnessed on earth about 3 million years ago. The global temperature has steadily increased; in 2019, the average global temperature was 0.95°C above the 20th-century average of 13.9°C, making it the second-warmest year on record.

Despite the impressive growth in renewable energy in the last few years, the global energy system has remained unchanged. In 1994, about 80% of the global primary energy supply came from fossil fuels; this figure has remained unchanged in 2019. The number of the energy poor has also remained constant: about 2.8 billion people still use polluting solid fuels to cook food. This has happened largely because countries have failed to take leadership on climate issues, and UNFCCC doesn't have the tools to drive fast global collective action to combat the climate crisis.

The IPCC's special report makes it clear that to limit warming at 1.5°C, CO₂ emissions will have to be reduced by 45% by 2030 from 2010 levels and reach net-zero by 2050. This means that we just have a decade to turn around the energy system and cut emissions drastically. Can the UNFCCC alone deliver on this? Can we solely rely on governments to deliver 1.5°C? The answer, unfortunately, is no to both questions. It is now clear that without sincere commitments from corporations, we will not be able to meet our climate goals.

The world's top corporations have more economic prowess than

governments. They also are responsible for the lion's share of greenhouse gas (GHG) emissions. Corporations, therefore, are part of the problem, but they are also the solution. Consider these facts:

- Just 100 companies have been responsible for 71% of the global GHG emissions since 1988, the year IPCC was established.
- More than two-thirds of the richest 100 entities on the planet are corporations, not governments. In fact, the revenue of the top 10 corporations is higher than the revenue of the bottom 196 governments combined.

Corporations, therefore, have the resources to transform their businesses into zero carbon by investing in renewable and other zero-carbon technologies and by developing products and services with small carbon footprints. The question is: will they do it voluntarily, or should there be mandatory regulations for it?

There are indications that larger corporations are moving towards decarbonisation because they consider climate change as a grave threat to their business continuity and survivability. For example, a quarter of Fortune Global 500 companies have made a public commitment to become carbon neutral by 2030 or meet a science-based emission reduction target.

It is also a fact that business needs clear rules and regulations for a level playing field. We do not want a world where some corporations freeride, while others become uncompetitive. So, regulations will have an important role to play to push the laggards to climate action. But here also we should recognise the limitations; regulations are generally the least common denominator.

I, therefore, believe that both voluntary action and regulations will not be sufficient; we will have to change the charter of corporations to make climate change a fiduciary duty of the board of directors and hold them accountable for polluting the climate. This is the only way to make companies commit sincerely to climate goals. **B**



Chandra Bhushan is the CEO of the International Forum for Environment, Sustainability & Technology (iFOREST).

Young, gifted and woke

Millennials are demanding that their employers stop making noise and instead walk the sustainable talk. Are companies listening?



There is now plenty of evidence to show that engaging in responsible business practices can boost profits and benefit firms in other intangible ways.

“To be honest, the question isn’t really why a company would pursue sustainability, but why you wouldn’t,” says **Andrew Winston**, author and founder of Winston Eco Strategies. “Businesses that embrace managing their environmental and social impacts strategically outperform. They cut costs, reduce risks, drive innovation and build brand value.”

Strategies for sustainability

The magnitude of the money being poured into sustainable business practices shows the trend can no longer be dismissed as a feel-good exercise. Sustainable investment across the globe rose above USD 30 trillion in 2018, up 68% since 2014 and more than tenfold since 2004, according to the Global Sustainable Investment Review.

In a landmark letter to CEOs in early 2020, **Laurence Fink**, the head of USD 6 trillion investment firm BlackRock and UPM’s largest shareholder, argued sustainability was now a key issue for investors. “Each company’s prospects for growth are inextricable from its ability to operate sustainably,” he wrote.

Steps toward a sustainable business model can take a variety of forms, from changes to supply chains, like those made by retail giants IKEA and Walmart, to the adoption of science-based targets on greenhouse gases, or more concrete moves, like delivery firm FedEx’s gradual conversion of its vehicle fleet to electricity.

“Sustainability efforts touch all aspects of the business, from operations, to procurement and supply chain, to R&D, to diversity and inclusion,” says Winston.

Capturing value

Perhaps most importantly for businesses, it is becoming clearer and clearer that sustainability also creates value. “There is a positive, causal link between sustainability and financial performance,” says **Ioannis Ioannou**, Associate Professor of Strategy and Entrepreneurship at the London Business School. “In other words,

the integration of environmental and social issues into the core of what a company does is directly linked to financial performance.”

This value creation can come from sustainable practices facilitating growth, reducing costs, minimising regulatory risk problems, increasing productivity, optimising investment and fostering greater innovation. Academic studies show there is a relationship between greater sustainability and higher credit ratings.

Companies investing in sustainability tend to be more transparent, have higher levels of disclosure, and are more engaged in long-term thinking, according to Ioannou. “And,” he adds, “the markets are able to see through what you say if what you say does not follow through with implementation.”

It is a widely-held myth that investing in more sustainable practices is something that only pays off in the long term – there are significant savings to be made immediately. “In terms of capital outlay... making operations more efficient can save money very quickly, like, say, a lighting retrofit or installing tech to make buildings smarter,” says Winston.

A host of other benefits

In addition to the financials, sustainability provides a whole series of more unexpected bonuses for companies – in fields from reputation and human resources to regulation.

In particular, there is a growing pool of data to suggest young people – whose futures are directly impacted by climate change – increasingly factor sustainability into their job choices. In other words, when a company embraces sustainability, it paves the way to hiring the best young talent.

A study last year by employee feedback company Peakon found that Generation Z (born between 1996-2015) is “the only generation to reference social concerns within employee comments.” And known leaders in sustainability, like consumer goods giant Unilever and clothing brand Patagonia, receive thousands of applications for every

vacancy. Unilever is the most in-demand employer in its sector in the 50 countries where it operates.

At the same time, interest in sustainability – from all different age groups – means companies with sustainable business practices enjoy better community relations, increased levels of trust and higher levels of brand loyalty. “The leaders get more access to new markets, and can get things done quicker,” says Winston. There are more and more examples of sustainability clauses being an integral part to contracts and tenders.

Looking ahead

The weight of the arguments in favour of sustainability mean everything is pointing in one direction: companies that build concern for the environment and social commitment into their business models will be the norm. While there is much left to do, a lot of progress has been made. Corporate sustainability reports and greenhouse gas targets are common, and the latest trend in reporting is transparency in climate-related financial disclosures – the material financial impact of financial risks and opportunities.

The commercial advantage to be reaped by adopting sustainability looks set to continue being a powerful driver of change. “The pressure on companies to go down this path is rising fast among stakeholders – customers, communities, employees, and increasingly investors. Those who don’t embrace it will quickly be irrelevant,” says Winston. **B**

When a company embraces sustainability, it paves the way to hiring the best young talent.

Renewable hydrogen offers a solution to tackling the critical challenges presented by climate change mitigation. Green hydrogen is produced via electrolysis using electricity from renewable sources. Its versatility means that it can be utilised directly to reduce emissions in a range of hard-to-decarbonise sectors, such as iron, steel and long-haul transport. It can also be combined with captured CO₂ to produce e-fuels and e-chemicals that can replace fossil materials.

Despite its inherent potential, renewable hydrogen has struggled to gain a commercial foothold. For one thing, producing it is capital- and energy-intensive – in part because there has been a lack of low-cost, low-carbon electricity, and a regulatory framework supporting its use has not been fully developed yet. However, recent developments have moved in a more promising direction.

Bridging energy gaps with hydrogen

A significant development came in July when the EU issued its strategy for expanding the use of hydrogen as part of its commitment to reach carbon neutrality by 2050. Renewable electricity is expected to decarbonise a large share of the EU's energy consumption, and hydrogen has the potential to bridge remaining gaps.

“Since 2010, the world's attitude to hydrogen has changed a lot. The EU has become progressively more active, regulations are moving and, most importantly, renewable energies are increasing in availability and decreasing in cost,” says **Heikki Ilvespää**, Vice President of Research and Development at UPM.

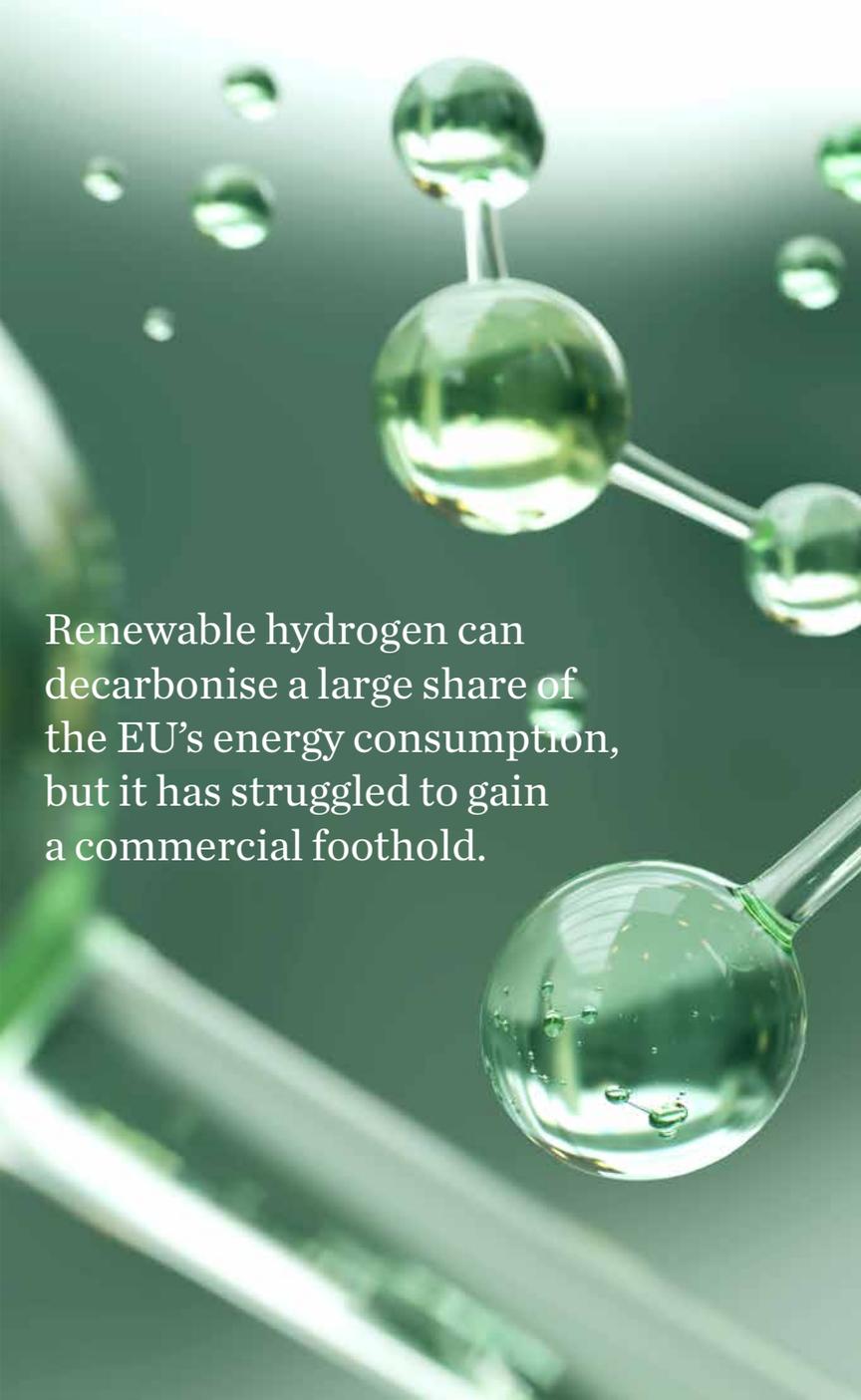
What's holding hydrogen back?

While hydrogen can be produced using a variety of processes, the production of renewable hydrogen with electrolysis must use electricity derived from zero-carbon emitting energy sources. The basic technology has been around for a long time, but it has been impeded by a lack of available low-cost renewable energy and strong political support to fight climate change.

“It took over 10 years for wind power to drop to a competitive cost level, and a similar trend will happen with hydrogen if investment into green hydrogen grows significantly. We still need a lot of renewable or zero-emission energy to scale up this technology, but it looks like the clean hydrogen economy is going to start because there is a great deal of activity in Europe and also globally,” says Ilvespää.

Hyping up hydrogen's potential

Hype has been growing across Europe in recent years with companies and governments investigating the feasibility of joining the hydrogen economy. **Christian Hoffmann**, Director of Market Intelligence and Innovation at UPM Energy, warns that it is not a silver bullet that will



Renewable hydrogen can decarbonise a large share of the EU's energy consumption, but it has struggled to gain a commercial foothold.

replace everything, and that establishing a hydrogen industry “is not something you can expect to be there tomorrow.”

“It takes time to build the infrastructure, write the legislation and develop the companies that are acting within this industry, as well as finally providing it to the user, who eventually also needs to invest in using hydrogen as a feedstock or as an intermediary for processes,” says Hoffmann.

Nevertheless, there are a broad range of industries looking into joining the hydrogen economy. From energy-intensive industries, such as refining and steel manufacturing, to the marine and airline sectors, interest is growing because they all need to decarbonise and consider hydrogen as one viable solution.

“What also makes it attractive is that you can produce it anywhere, so long as you have cost-competitive zero-carbon emitting electricity, and potentially a suitable infrastructure in place,” Hoffmann says. In addition, if costs and infrastructures allow, it’s possible to ship hydrogen from one destination to another, eventually transforming it into a globally traded commodity.

Europe can lead the hydrogen economy

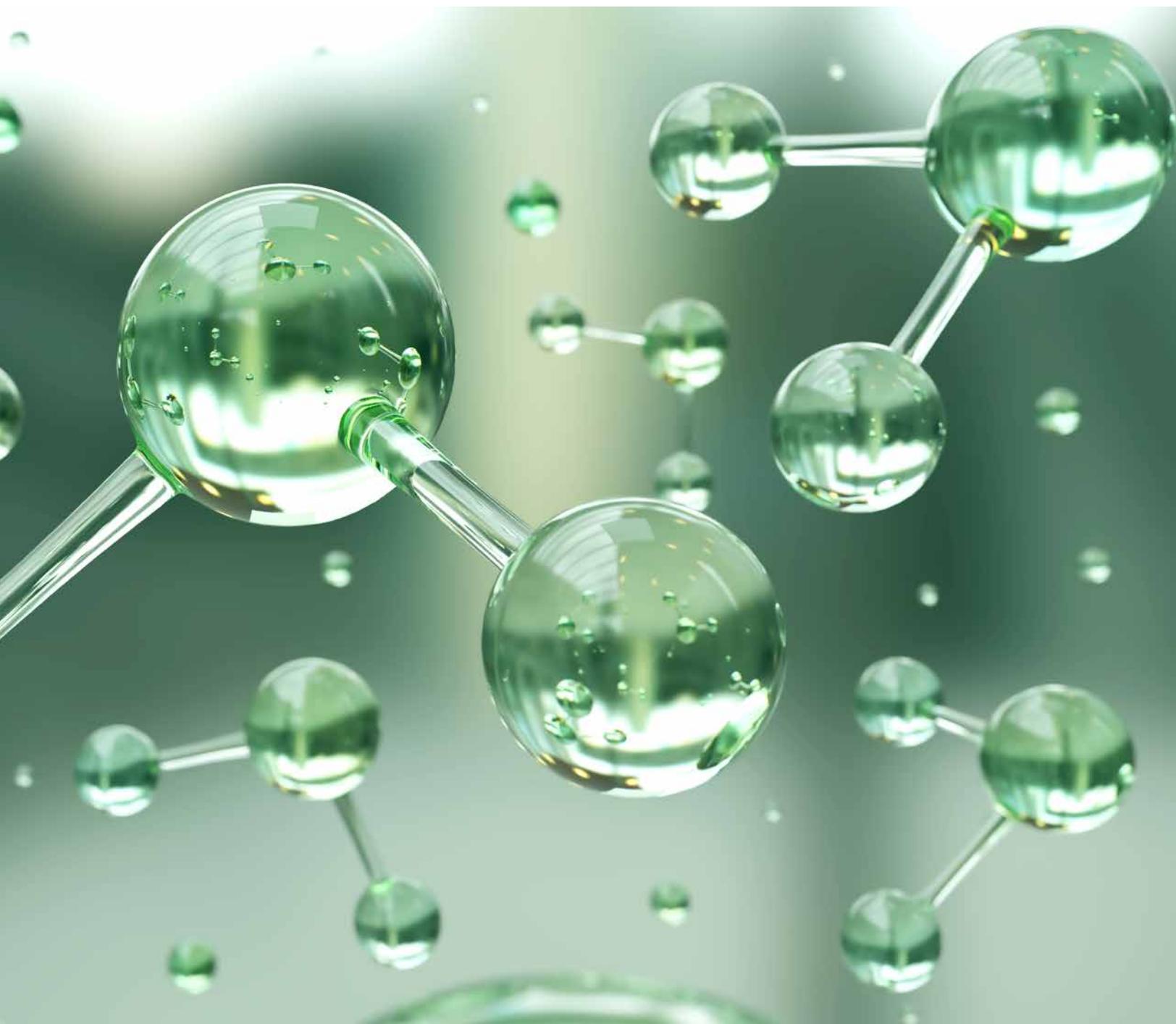
Most of the energy UPM uses is based on fossil-free energy, such as bioenergy, hydropower and nuclear power, which has resulted in its remaining emissions being rather low. UPM has, nevertheless, committed to further lowering its carbon emissions to meet the UN target of 1.5°C.

Ilvespää notes that UPM’s renewable diesel lowers CO₂ emissions by over 80% compared to its fossil counterpart: “If we use green hydrogen instead of fossil hydrogen in the diesel production process, we could come close to a 100% reduction.”

Further opportunities emerge by capturing biogenic CO₂ from the pulp mills or biofuels processes. “While bioenergy based on sustainable forestry is described as climate neutral, since tree growth and use are in balance, the burning of biomass still emits CO₂. This could be utilised as a raw material if it is captured and combined with hydrogen,” says Hoffmann.

Ilvespää agrees. “We are looking into technologies that can synthesise our biogenic CO₂ and turn hydrogen into hydrocarbons. We are

→



also evaluating its feasibility and how to make it cost-efficient,” he says. This underscores the versatility and advantages of utilising clean hydrogen. “You can store it, convert it, use it directly or indirectly, and it can bring sectors like electricity, gas, heat and traffic together. We must make better use of what we have,” stresses Hoffmann.

Integration of renewable hydrogen into a multiproduct refinery that produces renewable fuels might be one of the most likely scenarios for hydrogen technologies in Finland. From a storage and transportation point of view, bio- or e-fuels are even more viable than pure hydrogen.

“Europe is the driver here. It has these initiatives, like the Green Deal, and is far more aware of these environmental topics,” notes Ilvespää. “It is about creating a market that makes it a good business in which to invest. This is the chance for Europe to be a leader in this economy and technology.” **B**

“This is the chance for Europe to be a leader in this economy and technology.”

Riversimple driving the green transport revolution

Riversimple first made headlines in 2009 with its ground-breaking hydrogen-powered urban car, which demonstrated that hydrogen fuel cell vehicles (HFCVs) could drive the green transport revolution. With water as its only by-product, the prototype not only showcased technological possibilities but fuelled optimism that carbon emissions could be reduced.

Since then, the self-styled ‘sustainable car company’ has developed the concept into the two-seater Rasa, a road-legal engineering prototype that the Wales-based

firm describe as a ‘Network Electric’ car – meaning that energy is networked around the car and can flow in any direction on any path apart from back into the fuel cell.

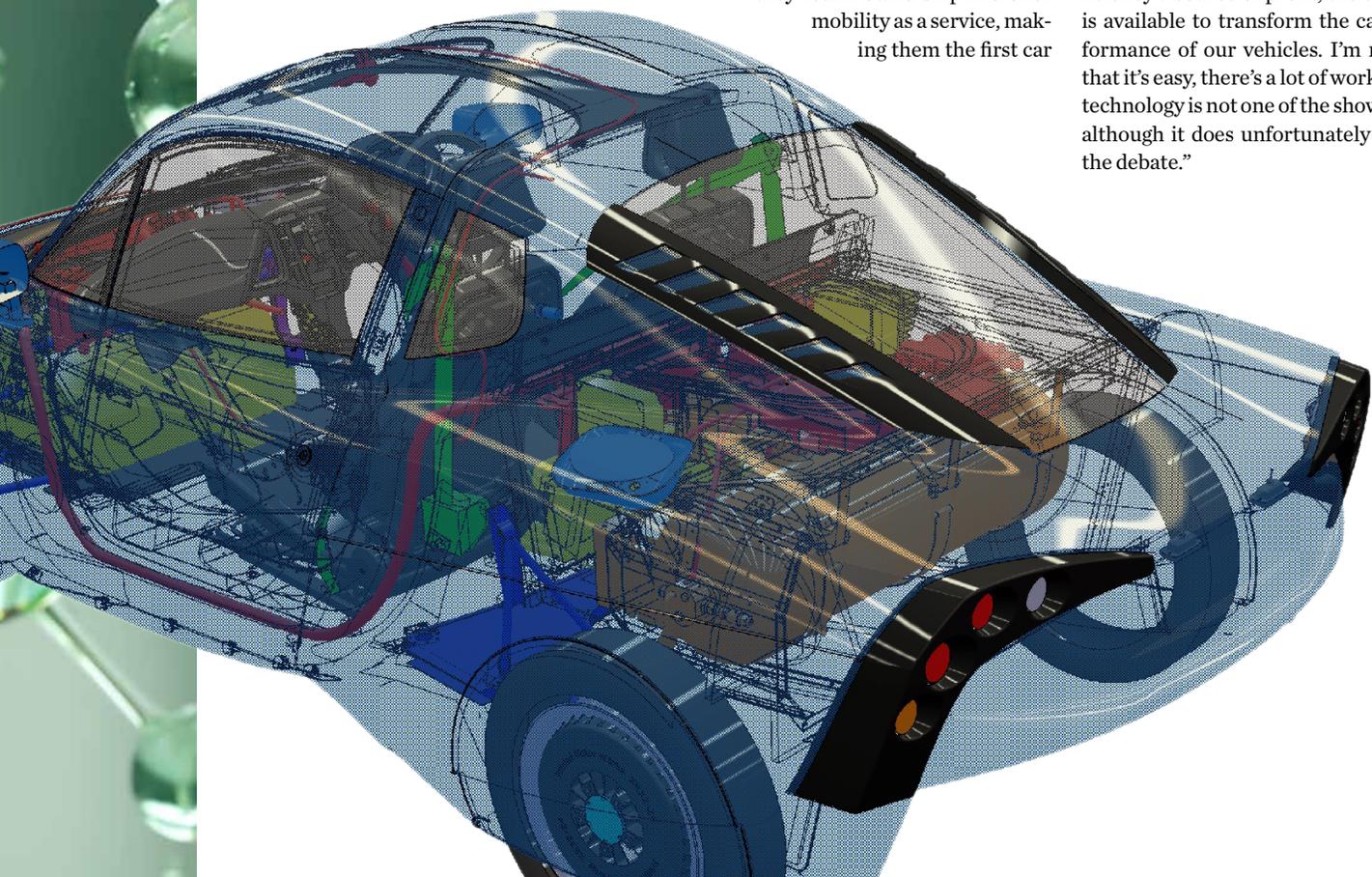
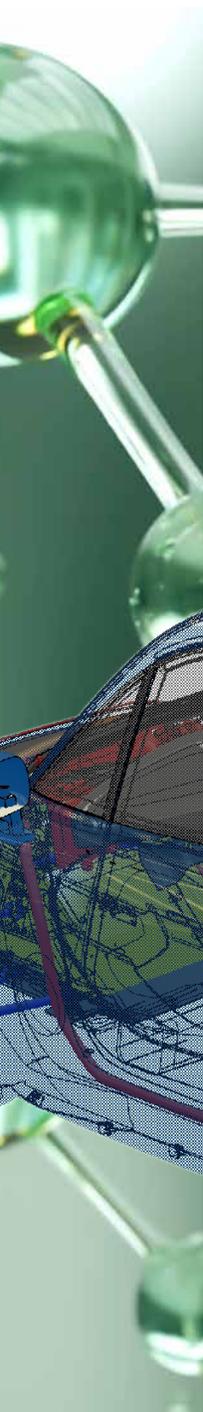
Designed by renowned car designer **Chris Reitz**, the eco coupé can reach 0–60 mph in 9.7 seconds, boasts a range of 300 miles and only takes three minutes to refuel. “Every aspect has been created and interrogated for simplicity, efficiency, lightness, strength, affordability, safety and sustainability,” according to Riversimple.

Despite being the only hydrogen electric car manufacturer in the UK, the company doesn’t actually sell cars. In fact, they retain ownership and offer mobility as a service, making them the first car

company to adopt a circular service-based ownership model.

With this approach, their objective “to pursue, systematically, the elimination of the environmental impact of personal transport” is supported, especially since the UK government is being urged to ramp up its development of hydrogen as part of its decarbonisation strategy. One solution to this is to make efficiency profitable, according to Riversimple’s founder **Hugo Spowers**.

“The principal barriers are not technical, but to do with people, politics and business inertia,” he writes on the company’s website. “If we make the pursuit of efficiency a source of profit, the technology is available to transform the carbon performance of our vehicles. I’m not saying that it’s easy, there’s a lot of work to do, but technology is not one of the showstoppers, although it does unfortunately dominate the debate.” **B**



How responsibility can be good business

UPM's new RCF agreement shows that we are integrating responsibility into everything we do.



Sami Lundgren
is Vice President,
Responsibility at UPM.

In March, we took an important step forward in our commitment to responsible business practices with a unique financial agreement. This new agreement links the pricing mechanism of a syndicated revolving credit facility (RCF) to both biodiversity and climate targets. With this decision, UPM is making yet another strong statement that responsibility is at the core of our business.

A revolving credit facility is used to increase liquidity reserves. It offers big companies like ours more options than a traditional loan. In recent years, more and more companies have been tying such instruments to environmental targets, particularly around the issue of climate change. Including these targets is a recognition that reducing emissions has some financial value for the companies, and the banks in turn acknowledge that there is concrete financial advantage in such goals.

In fact, given UPM's high profile on topics of sustainability, when we began discussing the terms of this loan with the banks, it was practically self-evident that the terms of the facility would include some kind of ESG targets.

In January, we signed the UN Business Ambition for 1.5 C° to mitigate climate change, so including an emissions reduction target seemed clear. The new loan requires us to achieve a 65% reduction in CO₂ emissions from fuels and electricity purchases by 2030 compared to 2015 levels.

But tying the loan to emissions didn't seem to go far enough.

We are aware that biodiversity is decreasing globally, and this topic has now been increasing in importance due to new reports on the loss of plant and animal species around the world. So, when determining what the targets should be for the loan, we decided to try something that has never been done before: connect the terms of the loan to a positive increase in biodiversity here in Finland.

Of course, it is extremely difficult to measure biodiversity and set measurable targets. We decided that we needed to make an index that would allow us to do that. We have had a programme to improve biodiversity in Finland since the late 1990s, so based on our knowledge, we created indicators that we are able to follow. For the terms of the loan, we created an index of eight separate key performance indicators with targets that we can examine to measure positive change. These indicators include increasing the volume of species of broadleaved trees, maintaining and increasing diversity in forest age and structure, and improving and increasing nature conservation areas and valuable habitats.

So many companies say they are working to make a difference, and we, too, have been claiming that we are taking steps to be more responsible. But there is no data, no science. We wanted to have something tangible to prove that we are actually making progress. These indicators offer a way for us to develop this data and monitor it over time. These ways of measuring and monitoring are not scientifically absolute, but they represent a starting point that we can build on.

It took a while for us to convince the banks that we can actually measure biodiversity in this way. The negotiations involved a wide range of parties from UPM, the banks and even outside analysts. But once they were on board, the banks were excited. This type of KPI is something new that they can offer. Now, they are working to develop indicators of biodiversity that will work in other contexts such as agriculture or water-related projects. If our RCF is successful, if we meet our targets and can show progress towards our goals, we hope to be able to market this type of index to the whole world to show that it is possible to measure biodiversity and tie it to financial incentives. It is something unique, and we want to show the way forward.

By including biodiversity targets in our loan, we are addressing our particular impact on the environment. For companies to actually make a difference in mitigating climate change, they have to confront the issue at the core of their business. For us, biodiversity is one of those issues. It affects everything we do.

We have long said that we are committed to responsible business conduct, but this transaction makes it clear that our commitment goes beyond production or sales or marketing – it is also part of our financing, it affects our bottom line. With this loan, we are claiming quite boldly that responsibility is good business. **B**

By including biodiversity targets in our loan, we are addressing our particular impact on the environment.

Playing house

Stuck at home with more time on your hands? Maybe it is time to take up some do-it-yourself projects and become the master of your toolkit.

With people spending more time than ever at home, apartments and houses are now functioning as workplaces, gyms and classrooms, while socialising with friends and family is being done safely outdoors. Adjusting to this 'new normal' has resulted in an unprecedented boom in do-it-yourself (DIY) projects, along with a surge in sales of gardening and home improvement products.

In the US alone, sales at garden centres and building supply stores were up more than 22% in the first half of 2020 compared to the year before. Additionally, according to a survey from the European Home Improvement Monitor, 25% of consumers in 11 European countries report they are working more on home improvement projects.

"When the coronavirus outbreak began in March, our initial worry was that the whole world would shut down. And it did for a while, as shipping was on hold and factories in many industries were forced to close. But in the beginning of May, we noticed that the lockdown had created a new marketplace for the wood industry, and the demand went up as a result," says **Mika Nokelainen**, a Supply Chain Manager at UPM Timber.

The summer holiday, reinvented

Part of that demand was from people like **Anna Ehanti** and **Henna Simola**. The long-time friends were planning to spend their summer holidays travelling abroad with their families, but instead they embarked on a journey together by purchasing a 1950s cottage just a stone's throw away from the centre of Helsinki.

It was love at first sight for Simola, who saw the miniature wooden house first.

"I fell in love straight away," says Simola. "It was the same colour as the place my grandmother had when I was a kid and I immediately felt at home. I didn't even want to think it through, I just knew that I wanted it."

Luckily, Ehanti felt the same way, and soon the two friends were enlisting the help of their extended families to fix up the cottage. The two women spent the summer installing a kitchen, painting surfaces and putting up new wooden boards in and outside their new summer house.

Neither Ehanti or Simola are experienced at DIY, but they wanted to create a cosy place where they can spend time with their friends and family.

"I like the social aspect of this place. We have a lot of friends who can pop over on their bicycles. This place allows us to



Anna Ehanti and Henna Simola have lovingly restored a Finnish cottage that dates back more than 60 years.

"This has been fun because the cottage is so small, it's like a little playhouse."



spend time with people even during this corona time because we can be outside. We've organised some barbecues already. And I like the fact that we can spend a day here and then go home for the night," says Simola.

A long-term project

For Simola and Ehanti the summer cottage is not a short-term solution but one that will hopefully stay in their lives for years to come, and their DIY projects are

far from over. They are planning to build a small wooden storage shed at the back of the house, and they want to renew the old door with help from Ehanti's father. They hope to work remotely from the cottage once in a while, and also plan to install solar panels or a battery, since the house has no electricity.

"This has been fun because the cottage is so small, it's like a little playhouse. But it has also made us realise that we wouldn't want to take on a project that is bigger

than this. This is perfect for us," says Ehanti.

While it is impossible to know if the DIY trend will continue in the longer term, Nokelainen says he is optimistic that it will continue to grow, even if the future is uncertain.

"The feedback that I've been getting from the market is that the demand for wood is high right now," he says. "It looks like the market situation will continue at a good level into early next year." **B**



Molla Mills is reconnecting people with the joy of handicrafts – and they might get hooked.

wh



ittling away

It could almost be called a whittling accident – except that no one was injured. As **Mari Leppälä**, better known as **Molla Mills**, was finalising her third book about the art of Virkkuri crochet in 2015, she decided to add an extra feature: a step-by-step guide for whittling a crochet hook. After all, the book was inspired by ideas aimed at encouraging men to take up crocheting. She thought maybe the option of making your own hook would do the trick.

“It was a light-hearted way to end the book, my dad and I wandering in my brother’s forests in North Karelia,” Mills recalls. “It was a lot of fun, and people have really liked it.”



Then, in 2020, the Finnish Crafts Organisation Taito chose whittling as the craft technique of the year. In the press release, director of the organisation **Minna Hyytiäinen** said that while in earlier times people learned to handle knives as children, now traditional whittling skills have been forgotten by many.

“The skill of whittling is part of folklore that is at risk of disappearing,” the press release reads.

In the announcement, Taito emphasised that the aim of choosing whittling as the technique of the year was to show that

you don’t need to be an expert woodcarver to enjoy it; even the simplest experience can bring tradition just a little bit closer. All they needed to get the message across was someone to do a bit of teaching and encourage everyone to give it a try.

Enter Molla Mills.

A DIY family

To the general public, Molla Mills is best known for her work promoting crocheting. In addition to numerous Virkkuri books about the art, which have been translated into about a dozen languages,

she also occasionally travels the world leading crochet workshops.

Her love for handicrafts stems from childhood. Her father is a carpenter, and her mother, a textile worker.

“We’ve always been a really DIY family,” Mills says. “We had all the time and space in the world to try out and experiment with all kinds of things, pushing our boundaries in what we could and couldn’t do in handicrafts.”

Later, her studies turned her into an arts-and-crafts professional. Although she hadn’t taught whittling before being approached by Taito, she’s very familiar with working with wood. During her stud-

ies at a university of applied sciences, she had access to all kinds of tools, even if she looked a bit out of place in the woodworking studio with her signature 1950’s-style dresses and high heels.

“Being able to use the facility at school was what really opened up the world of wood to me,” she recalls, “even if I looked a bit strange next to all the machinery.”

Forming bonds

What Mills particularly appreciates about crochet and whittling is that they’re both very simple and easy – in other words, accessible. The tools required – be it a knife or a crochet hook – are affordable (or even



“The skill of whittling is part of folklore that is at risk of disappearing.”



A step-by-step guide to whittling a crochet hook

1. Find a stick that fits the purpose. If it's wet, let it dry. You'll feel it! At this stage, you can also peel the neck, but you don't need to necessarily remove the bark from the handle.
2. Use abrasive paper to shape the head of the stick as you wish it to be – some like it sharp, some like it round.
3. Use a coping saw to shape the bowl of the hook.
4. It's whittling time! Whittle the neck towards the bowl of the hook, never towards yourself.
5. Then, finish off the work with another piece of abrasive paper, getting rid of sharp corners.

free!) and small, just as are yarn and wood, and the techniques are relatively straightforward, yet versatile.

When it comes to teaching, Mills is excited to see how things turn out. She doesn't consider herself a guru, but more as someone who can share inspiration and enthusiasm. She also doesn't think workshops are – or even should be – just about learning, rather, she approaches them as a way to build community and even as a kind of therapy.

"It's been incredible to see how people begin to bond and form friendships as they get to know each other in the workshops," she says. "I remember a workshop in Chile where the women seemed to get along so well, I thought they'd known each

other for ages, but it turned out that they'd just met."

When it comes to the therapeutic side effects of handicrafts, Mills believes that getting to know new people and sharing and caring is helpful for mental health as well.

"Half of the workshop is actual work," she says, "and the rest of it is just being together."

Meditative moments

For Mills, her dad's workshop remains her safe space, a spot where she can just relax, forget about the outside world and focus on what is – literally – at hand. Although at this point in her career, handicraft isn't as much meditation as it is work, one of the things she loves best about her job is seeing others experience a meditative mo-

“It seems like we’re slowly losing the connection between our brains and our hands.”



Molla Mills has travelled the world teaching people about the therapeutic benefits of handicrafts.

ment when working with their hands.

She’s also thrilled to be part of spreading the skill of whittling and encouraging people to give it a go, even if they don’t consider themselves very arts-and-crafty. Mills says we all have that element to us, but we tend to forget it.

“It seems like we’re slowly losing the connection between our brains and our

hands, and many young people aren’t that interested in handicrafts,” she says. “Instead, we use our mobile phones almost as an extension of our hands, like our own imagination wasn’t enough!”

Maybe, she hopes, whittling and other forms of handcraft will make a comeback soon, just as the coronavirus pandemic has led many to reconnect with nature

and make their way outdoors. To Mills, forests have always been a place of calm and relaxation, and the more she travels, the more she learns to appreciate Finnish forests.

“Whenever I’m away, I miss the Finnish woodland terribly,” she admits, “especially the ease of access and the fact that you’re often the only one around.” **B**

A company is only as great as its employees.
UPMers from around the world share their stories.

Today, I...



Szymon Wnuk

Pay to Support Manager, UPM Business Services Hub, Wrocław, Poland

Today, I made a difference by taking part in a project that will help our customers modernise and streamline their operations. My biggest concern is the future of our planet and how we are not moving quickly enough to change our behaviour. I am grateful to be able to make a difference in my job at UPM.

Meeting new people is a huge perk of the job for me and I like to think I'm a patient person, which helps a lot in my work when it comes to supporting the team.

Outside work, I love being active. My dad got me into skiing and these days I cannot wait until the winter so we can get out on the slopes together. I also enjoy cycling and badminton, as well as spending time with good friends. I also have to admit that I never grew out of video gaming and it remains a real passion. **B**

"Meeting new people is a huge perk of the job for me."

Lysia Liu

Development and Quality Manager, UPM Changshu Paper Mill, China

Today, I worked with my team to develop safe, clean and sustainable products for our customers. I feel proud that I can do my bit for the environment while also helping UPM's clients make a difference.

My biggest concern is that we need to prepare for the future before it is too late. Changes have to be made to ensure we leave a clean future for the next generation. I feel very fortunate that in my role with UPM, I can help to facilitate that change.

I've been with UPM my entire career, joining the UPM Asia Research Centre when I finished my master's degree in 2008.

In my free time, I love to read and travel, as well as spend time with my family and friends. **B**

"My biggest concern is that we need to prepare for the future before it is too late."





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exciting videos and
the latest news?
Join the conversation.**

COMMITTED TO **CLIMATE ACTIONS**

We have joined the UN Global Compact for 1.5°C.
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