Ethical CORPORATION

April 2017 www.ethicalcorp.com

It takes a city
Democratising circularity

Protecting privacy
In the digital age

Blockchain boon
Shining a light on supply chains

Zero-waste heroes

Who’s leading the circular economy?

Ethical CORPORATION

The 16th Responsible Business Summit Europe

7th-8th June, 2017 | London ▶ Europe's premier forum on responsible business

£100 Discount
Quote EC100 when reserving your place

Deliver Social Purpose and Impact

Aongus Hegarty
President EMEA

Maurice Tulloch
Chairman, Global General Insurance

Blanca Juti
SVP

Mads Nipper
CEO

Gilbert Ghostine
CEO

Tony Smurfit
CEO

Kelly M. Semrau
SVP, Global Corporate Affairs, Communication & Sustainability

Richard Pennycook
CEO

Magnus Billing
CEO

Truus Huisman
VP Sustainable Business and Communications Europe

CEO KEYNOTES
The end of CSR and the dawn of the Social Purpose Era

INTERNAL ENGAGEMENT AND STRATEGY
Prove your case to generate enthusiasm and win real buy-in

DATA, INFORMATION AND INSIGHT
to deliver impact

EXTERNAL ENGAGEMENT AND COMMS
Understand your stakeholders' agendas and co-create alliances

& NEW FOR 2017: In-depth breakout workshops!

PLUS EXCLUSIVE INSIGHT FROM 70+ RESPONSIBLE BUSINESS LEADERS:

PLATINUM SPONSOR

GOLD SPONSORS

WORKSHOP SPONSORS

BADGE SPONSOR

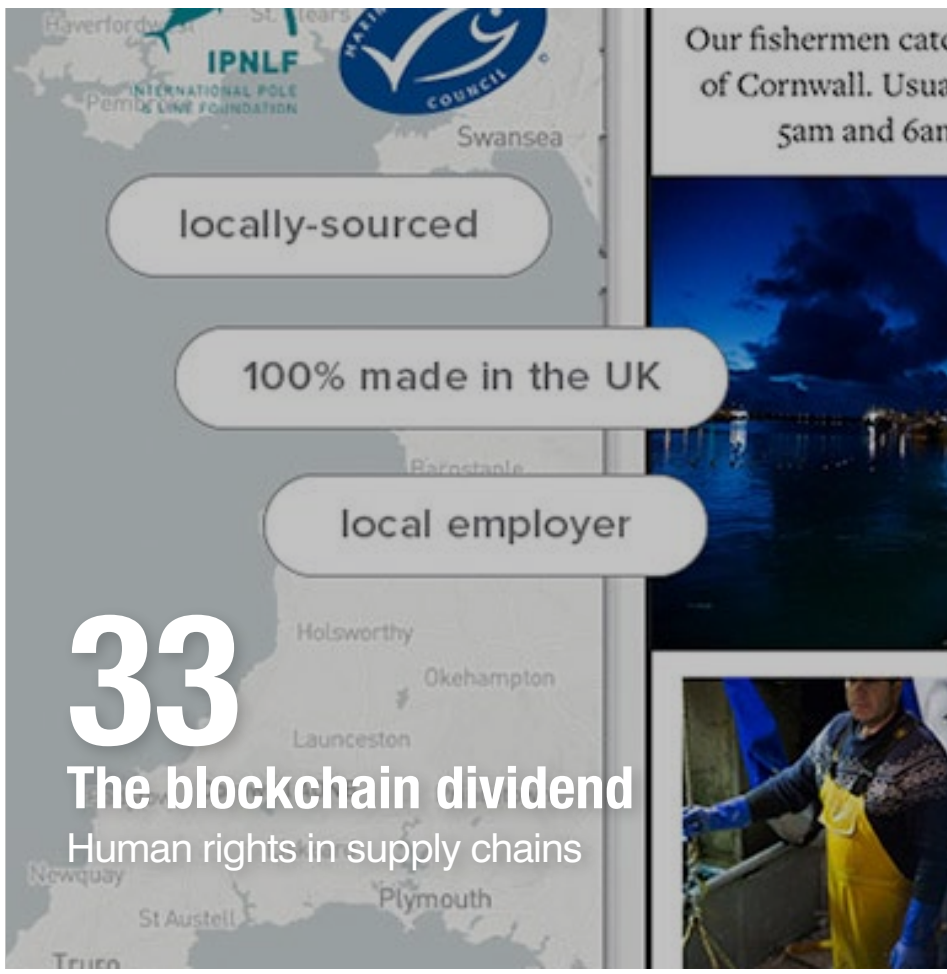
EXHIBITORS

▶ **Secure your place at ethicalcorp.com/rbs**

#RBSEU

Contents

6
Circular strides
Companies walking the talk



33
The blockchain dividend
Human rights in supply chains

Circular economy briefing

Big data and human rights

Welcome to the April 2017 issue

Jo Cox, manager of Smurfit Kappa's Roermond paper mill in the Netherlands, is a worthy person to feature on the cover of the magazine this month, as we look at which companies are leading of the circular economy. Cox is someone who not only fully understands how his industry in contributing to resource scarcity and climate change, but is leaving no loop undone in doing something about it. And that is what the circular economy needs to move forward.

As he explains to me, companies can not act alone, but have to build two-way bridges across sectors to find the highest value for their waste and the least impactful inputs. It is a truly ecosystem approach.

Maxine Perella reports on the new standards, metrics and tools covering the circular economy, and profiles other companies that are making the biggest strides, including IKEA, Kingfisher, Marks & Spencer, Nike, Carlsberg, Timberland, Toyota and Jaguar. She also reports on where some of the biggest circular economy innovation is happening: in cities.

Our second briefing is on big data's implications for human rights, and how companies can reduce the risks and seize the opportunities big data affords. Nadine Hawa looks at how companies such as Vodafone are working to restore consumer trust in their privacy being protected. She also reports on how ICT firms operating in repressive regimes are walking a line between protecting human rights and complying with lawful demands.

Meanwhile Mike Scott explores the flipside of the big data revolution, looking at how companies like Nestle, Mars, and the Coop are using technologies such as blockchain, GPS and mobile phones to reduce human rights risks in their supply chains.

Terry Slavin
Editor

terry.slavin@ethicalcorp.com

Ethical CORPORATION

7-9 Fashion St, London E1 6PX UK

Editors: Terry Slavin

Editorial assistant: Rebecca Ley

Contributors: Maxine Perella, Nadine Hawa, Mike Scott

People on the move
moves@ethicalcorp.com

Subscriptions: +44 (0) 20 7375 7575
Editorial: +44 (0) 20 7375 7518

Subscriptions
subs@ethicalcorp.com
+44 (0) 20 7375 7575

Advertising and sales: Ed Long
ed.long@ethicalcorp.com
+44 (0) 20 7375 7188

Design: Alex Chilton Design
info@alex-chilton.co.uk
+44 (0) 20 7042 6340

Ethical CORPORATION

ethicalcorp.com/awards

Enter Now

Deadline 29th June 2017

Responsible Business Awards 2017

#ECRBA

BRING AWARENESS to your recent ground-breaking sustainability initiative

ENHANCE your corporate reputation and build trust with key stakeholders

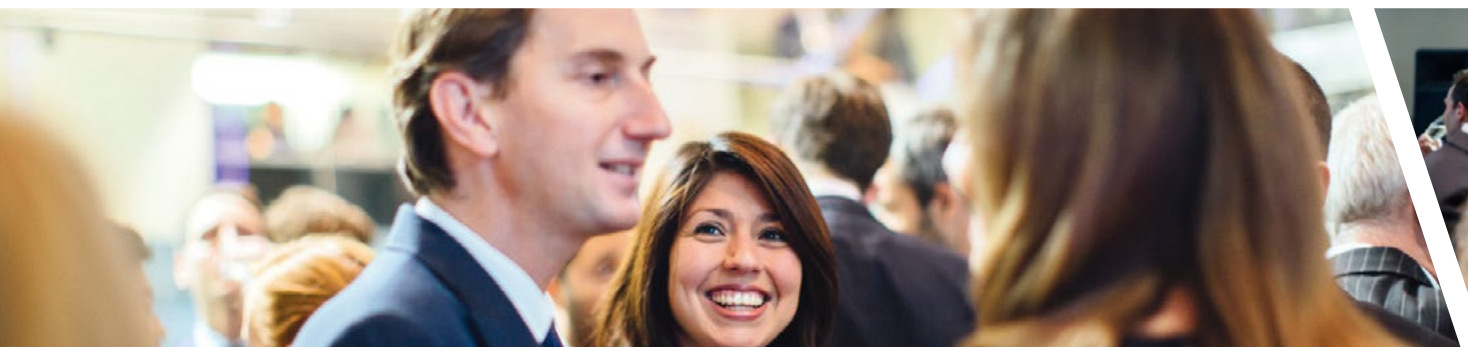
SHOWCASE your sustainability commitments and values

BENCHMARK your performance with 400+ world's leading organisations

REWARD YOUR TEAM for their hard work and make them proud employees

PAST WINNERS AND RUNNERS UP

gsk, YES BANK, JOHN WEST, B&Q, neighbourly, DSM BRIGHT SCIENCE. BRIGHTER LIVING., Vancity, ups, Arizona CHEMICAL, Swedfund, AkzoNobel, T-Mobile, Troldtekt Natural acoustic solutions, KPMG cutting through complexity, East of England CO-OP, HANES for GOOD, Interface, OLDMUTUAL, JAGUAR, LAND ROVER, Timberland, EY Building a better working world, TOGETHER FOR SUSTAINABILITY, O2, PEPSICO, gsk live on



NOMADFRA

Who's ahead on the curve

By Maxine Perella

With a proliferation of standards, metrics and tools to help firms join the circular economy, we look at those that are doing most to close the loop

The world's first standard for the circular economy will be launched next month by the British Standards Institution, a development that reflects the model's growing relevance for business. BS8001 is intended to help companies realise how they can create direct or indirect value by applying circular principles to their processes, products and services.

Demand is growing for metrics and tools that can assess, track and measure corporate progress towards the circular economy. Besides the new BS8001 standard, the Ellen Macarthur Foundation's Circularity Indicators Project offers a methodology and web-based tool, designed to help with internal reporting, supply chain risk assessment and procurement decision-making. Other online toolkits are also starting to emerge, from organisations like Netherlands' Circle Economy and C2C Bizz, Canada's National Zero Waste Council and University of Cambridge's Institute for Manufacturing.

But to what extent is "circular economy" just the latest CSR buzzword? How much real progress are companies making on this agenda? In this briefing we take a detailed look at some of the companies that are establishing best practice in closing the loop, reducing waste and making their production processes more efficient. These include Smurfit Kappa (page 11), Timberland (page 18), and carmakers Toyota and Jaguar (page 20). We also look at how circular economy principles are being applied to cities (page 15).

To what extent is circular economy just the latest CSR buzzword?

Circular to the core

The most progressive companies are those that are looking to embed circular thinking into their core business. In 2015 **H&M**, one of 12 companies working closely with the Ellen Macarthur Foundation as a global partner, declared its intention to be "100% circular" although it has not revealed a timeframe for this. One of the first targets the Swedish clothing retailer set was to increase the number of items made with at least 20% recycled fabric from collected garments by more than 300% in 2015, compared with 2014. It achieved this, with 1.3 million garments now made from 20% recycled cotton.

Similarly, IKEA Group has a vision for all of its products to have circular capabilities. While not wishing to publicly disclose any timeframe, Ethical Corporation understands that the company has a target date in mind. In its latest sustainability report, the retailer states that in 2017 it will "define new targets that measure the impact of quality on customer happiness and sustainability (especially waste reduction)".

H&M

Kate Mara wearing H&M recycled polyester skirt

Part of this will involve making furniture easier to assemble and disassemble, so that customers can take such items with them when they move, prolonging product life. An example of this is the wedge dowel, which replaces traditional metal fittings. The dowels come pre-installed in furniture panels and click into place, requiring fewer tools and shorter assembly time.

The retailer has also been running pilots across its European stores, helping customers to prolong the life of IKEA products through service options such as repair, share, bring back, and resell. The company sent out 1.3 million repair kits to customers during the fiscal year 2016 – 155,000 more than in the previous year.

IKEA sent out 1.3 million repair kits to customers during the fiscal year 2016

Running fast

Nike, another Ellen Macarthur Foundation global partner, is looking to integrate the circular economy into its business strategy by setting a vision for a low-carbon, closed-loop future. One of the more circular goals is that by the end of 2020, all excess materials produced in the manufacturing of Nike shoes will become inputs for other processes. The company also intends to build on its Nike Grind initiative, where materials and products perform beyond a single

use and are repurposed for multiple lifecycles. Around 71% of Nike footwear and sportswear products contain a range of Nike Grind, recycled and regenerated materials from waste streams such as rubber, foam and textile scrap.

Home improvement retail giant **Kingfisher**, a founding partner of Ellen Macarthur, is working to develop products with closed loop credentials under its Sustainable Home Product Guidelines, with 748 such products so far, according to its 2015-16 sustainability report.

PIO3

Around 71% of Nike footwear contain a range of recycled and regenerated materials

Kingfisher is also looking to build 10 circular value chains. As part of this work, it has been working with Bioregional, which helped develop B&Q's One Planet Home sustainability programme, to determine what a circular value chain is by reviewing available metrics and developing criteria to identify and assess these value chains.

Bioregional says it has developed a three-tiered assessment methodology for Kingfisher that will "allow the analysis of both proposed and existing value chains" together with recommendations of how the retailer can enhance circularity. These include high-level design principles, a product checklist and detailed requirements for developing circular products and services.

'It's key that we recognise that we are part of a much bigger economy that needs to go circular'

Top Marks

Marks & Spencer in 2014 announced it would complete a detailed review to identify circular economy opportunities across all areas of its business (food, construction, operations, and clothing) by 2016 as part of its Plan A drive. A spokesperson for the retailer confirmed to Ethical Corporation that this review was now complete, but that there weren't any further time-bound commitments at this stage.

From this initial assessment, M&S has highlighted 10 areas where there is potential to create value around the control of material inputs and outputs. These include improving the durability of clothing and non-food products, exploring new financial models that promote greater reuse of clothing, incorporating a greater proportion of recycled fibres in new fabrics, optimising

redistribution levels of food waste through use as animal feed or via energy recovery, and improving the overall carbon efficiency of packaging.

M&S has also undertaken internal engagement work on the circular economy to help build a common understanding of what the concept means for different departments and job functions across the business. "As we are a business that operates across a number of different product areas, industries and supply chains, we need to tailor our circular economy approach to suit each area," says Munish Datta, head of Plan A at M&S. "We are working with a number of organisations to develop these approaches."

Asked if M&S is looking to set specific circular targets in the future, Datta replies: "Resource efficiency or circularity targets will form an important part of our sustainability strategy going forward,". He adds: "Ultimately we aspire to be a business that wastes nothing and circular economy thinking is an important consideration to achieve this." But he adds that M&S cannot do it alone. "It's key that we recognise that we are part of a much bigger economy that needs to go circular and a collaborative approach is key."

M&S is building circular economy into Plan A

Group think

Collaboration is also a prime consideration for Danish brewer **Carlsberg Group**, which has established its Carlsberg Circular Community. The company set targets over 2015-17 to achieve three cradle-to-cradle (C2C) product certifications for different types of packaging, and to have 17 partners and suppliers in the CCC working actively to create more circular packaging solutions.

In 2015 it achieved C2C bronze certification for the Rexam (now Ball Corporation) beverage can, which is used for the Somersby and Carlsberg brands. This was followed in 2016 by C2C bronze certification for the 25cl Kronenbourg 1664 bottle. "This is especially significant since it is the first time global validation has been given to a glass beverage pack," states the company's latest sustainability report. The report adds that it anticipates a further certification this year, which would see it achieve its initial target, and hopes for more in future.

The key that unlocks the circular economy is creating demand, as opposed to creating supply

However total membership of this community sits at nine, lower than the goal of 12 members that was set for 2016, and far from the 17 set for this year. Carlsberg now plans to expand the remit of CCC to include members "who share our ambition to innovate along the value chain. In particular, we will focus on addressing carbon, water and responsible drinking challenges," the report states.

MONTICELLO

Carlsberg has a cradle to cradle approach

'Only a partial solution'

Leading commentators, however, raise questions over just how accurately businesses can measure their progress towards the circular economy. Sandy Rodger, a consultant who has worked with the Ellen MacArthur Foundation, says that for businesses, the circular economy is about innovation – with an ultimate view to selling new products and services – and that this should be reflected in the targets being applied, and the metrics being used.

"The key thing is they are business targets, not sustainability targets," he says. "The key which unlocks the circular economy is creating demand, as opposed to creating supply. It is more important that buyers are pulling recycled or reused stuff, rather than that sellers are pushing it."

Rodger feels that dedicated circular economy metrics are at best a partial solution, and companies might do better to use existing innovation, sales and profit metrics with some kind of circular filter. "The metrics I would concentrate on for big companies are the quantities of recycled or reused inputs they are specifying and buying. That's much more valuable than lots of people churning out things they claim are recyclable."

James Greyson, a systems thinker who runs his own thinktank BlindSpot, says that while circular targets are "certainly helpful" for companies, they may also encourage silo thinking.

"The goal of greater circularity can look very tangible and business-friendly. Perhaps companies should have targets not just for what seems manageable within their business, but also for inspiring the necessary scale of change everywhere else. How can we make circular economy happen for real, with all products and all resource flows?" ■

'The metrics I would concentrate on are quantities of recycled inputs'

TERRY SLAVIN

The zero-waste alchemist

By Terry Slavin

As manager of one of Europe's largest recycled paper mills, Jo Cox is turning Smurfit Kappa's nearly zero waste Netherlands facility into the linchpin of a bio-based industrial economy

Walk around Smurfit Kappa's Roermond paper mill in the Netherlands, and it is difficult to believe that the pulp and paper industry is one of the world's biggest polluters, spewing hazardous chemicals into waterways, earth and land -- not to mention climate-change inducing CO2 as one of Europe's most intensive users of energy.

As he escorts a group of journalists around his surgically clean plant, Jo Cox, the mill's ebullient managing director, boasts that the water the mill sends back into the nearby river Maas is cleaner than what it withdraws to make its recycled cardboard – a claim scarcely believable to someone who grew up in Quebec, the heart of Canada's pulp and paper industry.

But listening to Cox, who is 64, speak animatedly about the mill's efforts to lead Europe's circular economy, it is clear that clean water is just one of the benefits when those principles are pursued with enough intent, rigour and – in Cox's case at least – passion.

Cox says Roermond, one of the largest recycled paper mills in Europe, is also the most efficient: using 3.7m3 of water and 5.65GJ of energy to produce a ton of paper. This compares with 5.4m3 of water and 6.4GJ in the average European recycled paper mill. "We are energy-intensive, but for units of energy

'We can no longer afford the linear economy. It will kill our future if we continue'

needed to produce one ton of paper we are leading the pack in Europe, and possibly the rest of the world," Cox says.

But the most extraordinary statistic is that Roermond produces less than 1kg of solid waste for every ton of paper it produces, compared to 32kg at its recycled paper competitors. This reflects its success in closing the loops in its processes, both upstream and down, building what Cox describes as a "two-way bridge" of sharing waste streams with other businesses and customers. The mill says it has found valuable and useful applications for 99.5% of its raw materials. And it is working hard to drive out even that vestigial amount of waste.

TERRY SLAVIN

Roermond makes paper with 100% recovered material

"Our objective is to grow in the most climate-neutral way, and to support and shape the bio-based economy," says Cox, who has been at the mill for 15 years. He wants the mill to be at the forefront of what he calls the third industrial revolution. "We can no longer afford the linear economy. It will kill our future if we continue. The ecosystem is circular and built on numerous loops. We can take inspiration from nature and try to close loops in an efficient way."

Water is Roermond's biggest input, with 90,000 litres of water required an hour at full steam. But that water also provides the plant with a lot of added value before it is restored to the river: anaerobic digesters in the water treatment plant generate biogas to help heat the plant; the mill also sell off surplus bacteria globally and sulphur to local farmers for fertiliser. The remaining lime sludge, he says, is used as a raw material in its paper-making instead of going to landfill.

'The beauty is that what was once called waste is now a primary material'

Like seven of Smurfit Kappa's 36 mills worldwide, Roermond does not use virgin wood fibres. Instead it is reliant for feedstock on daily deliveries of 120 truckloads of recovered paper, sourced in the Netherlands and nearby Germany. Its biggest waste headache is the plastics, metal, wood and sand impurities that have to be removed from the recovered paper.

But, as with water, Cox sees all the waste this recovered paper generates as a valuable resource. The mother lode is Rofire, the fuel pellets Smurf Kappa developed with Dutch chemical giant DSM from its plastic waste after extracting harmful PVCs. Each week the mill produces 12 truckloads of this

SMURFIT KAPPA

Smurfit Kappa is experimenting with new materials

fuel source, which has a heating value somewhere between lignite and black coal, which it sells to lime kilns and the cement industry. "Our customers avoided 13,000 tons of black coal avoiding 20,000 tonnes of CO2 last year. That's a really big number."

It has also saved Smurfit Kappa some big numbers in landfill fees. "Before we did that, we had 30,000 tons of wet disposal, which went to landfill. Today the price to get rid of that is €80 per ton. And we earn money for Rofire," Cox says.

Most managers might decide "circular economy job done" after such an overwhelmingly win-win outcome, but not Cox. And this is where the intent and passion really kicks in. The mill has found customers for a stream of fine textile and hair waste, removed from recovered paper in the final screening, including a tulip grower who spreads it over his fields to prevent fertiliser run-off.

It is also striving to reduce its use of recovered paper by using the waste streams of other companies in this industrial heartland near Rotterdam. One example is the calcium carbonate that a nearby toilet paper producer has to dispose of. "We get 12,000 tons of it as a sidestream per year and we use it to replace 6,000 tons of recovered paper. The beauty of it is that what was once called waste is now a primary material," Cox enthuses. "That's the ultimate solution: to use it as high as possible in the cycle and start again in a new loop. We also deliver packaging material to that same mill, so the loop is closed on that side."

Another customer provides starch waste from the potato industry, which it uses in its paper recipe, while a baby food manufacturer, which has to remove

'Paper won't solve the problem of resource scarcity, nor will the chemical industry or agriculture: we have to work together'

phosphoric acid from its products, provides this increasingly rare chemical to Roermond for use in its water treatment plant. Then there is its more experimental use of tomato stems provided by a local tomato grower.

"We produce boxes using 10% tomato stems for a tomato grower, but those fibres are too expensive today for us," Cox says. " We need to develop it further [with other companies]. To make it financially feasible we have to do cascading. In the tomato stem there are substances in it to protect it from diseases that have higher value than for making paper."

This is what Cox means about taking a biorefinery approach, working with other companies and sectors to make the most efficient use of the planet's finite resources.

"That's the way we have to learn to think and work together across the sectors. Paper won't solve the problem [of resource scarcity], nor will the chemical industry or agriculture: we have to work together. If we have the right cascading system and the right amount of money then we can solve the problem."

TERRY SLAVIN

Roermond in one of the biggest recovered paper mills in Europe

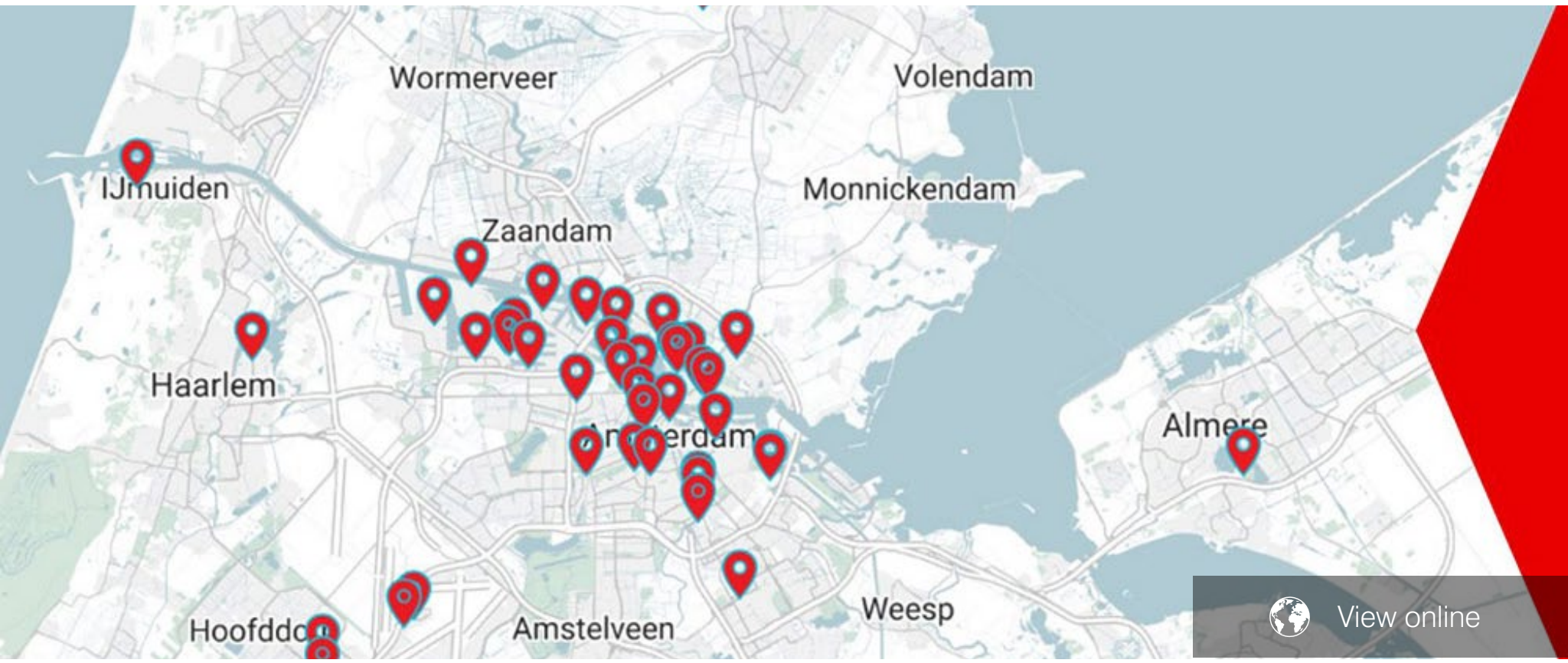
One priority for Cox is to find a use for that remaining 1kg of solid waste per ton of paper, mainly sand and glass, that it has to send to landfill. For this he is speaking to the construction industry. "We will solve that in the coming two years," he vows, and none of the assembled journalists doubts him.

Another is finding a more high-value use for the residual lime sludge the mill produces than using it as a filler. Lime sludge is mostly composed of cellulose, which is used in polyethylene furanoate, or PEF, a bio-based alternative to PET bottles. "We are talking to a company about using our cellulose for new PEF bottles for Coca-Cola," he says.

In a riposte to those companies that have latched onto "circular economy" as the latest hat on which to hang their sustainability credentials, Cox describes the mill's target of being part of a circular economy by 2035 as optimistic.

"There's still a long way to go, because not everyone is convinced it is the business model of the future," he says. "Sometimes you are swimming against the stream. You need endurance to show what is possible. It requires a fundamental reorientation in your thinking. It took us a few years to learn it, but at the end of the day we believe in the beauty of our dream of the circular economy. And that is what you need." ■

'You need endurance to show what is possible. Circular economy requires a fundamental reorientation in your thinking'



AMSTERDAM ECONOMIC BOARD

It takes a city to close the loop

By Maxine Perella

Municipalities from Amsterdam to Peterborough are mapping out how firms can work together to share resources

Cities are increasingly looking to adopt circular economy models, encouraged by collaborative platforms such as Ellen MacArthur Foundation's Circular Cities Network, Circle Economy's Circle Cities programme and Fira Barcelona's Circular Cities event, which debuted last year.

Glasgow and Amsterdam are among those undertaking circular scans to map the scale of opportunity, while London has unveiled funding mechanisms to stimulate circular business models. But how might businesses need to adapt inside a circular city?

One city that is doing a lot of circular engagement work with businesses is Peterborough. Last December, Peterborough City Council, in partnership with Opportunity Peterborough, launched what is thought to be the UK's first business-to-business resource-sharing platform to be developed by a city, Share Peterborough.

The platform allows Peterborough businesses to share resources that they either no longer need or do not fully utilise, such as products and equipment, skills and expertise, spaces and facilities. Members include **Coca-Cola European Partners**, **Skanska**, Queensgate Shopping Centre and Peterborough Greyhounds Stadium.

"The platform aims to contribute to achieving Peterborough's Circular City ambitions by improving resource-use efficiency and minimising waste in the

O'Connor uses the metaphor of building a 'virtual wall' around Amsterdam to see what businesses can be self-sufficient

city. We've already had more than 74 listings and 10 transactions, including the sharing of conference spaces, exhibition equipment and office furniture within the city," says Katie Thomas of Opportunity Peterborough.

"As our journey towards circularity continues, we hope that collaborative business models will emerge," says Thomas. Thomas acknowledges there are challenges to overcome, particularly for SMEs, such as a lack of access to technical and financial support. "Businesses are also challenged by engaging with their wider supply chain beyond the city boundaries," she says.


AMSTERDAM ECONOMIC BOARD

Frank O'Connor is testing business models in a circular city

Amsterdam

The question of how far resource loops should flow out of a circular city has been studied by Frank O'Connor, co-founder of anois, who is helping to develop a circular city vision for the Amsterdam Metropolitan Area. O'Connor is working on a manifesto for businesses that wish to operate in a circular city and has set up a personal care products company, mothu, to test out these principles, based on closed loop models, local value chains, and use of non-toxic raw materials.

He uses the metaphor of building a "virtual wall" around Amsterdam to see what types of businesses can be self-sufficient within such parameters. At mothu, he says, "What we're exploring is [using] waste from citrus fruit or waste from other sources … looking at how waste outputs from a city can be turned into new products. We are also looking at containers for packaging the product, such as reusable glass used from within the city."

He believes that circular businesses able to operate within city limits should be able to manage their externalities more effectively, aided by more responsible production, localised supply chains and closer customer relationships.

A Fab City democratises access to production, so that resources are shared more openly, for the benefit of a city as a whole

GUY SIE FROM UTRECHT, NETHERLANDS (CREATIVE COMMONS)

The Fab Lab innovation space in Utrecht

Democratising the circular economy

The Fab City concept takes this one step further. A key aim of this experimental movement is to create new urban models for locally productive, yet globally connected, self-sufficient cities by prototyping new distribution models that enable goods to be made closer to home.

"We're complementary in that we use circular economy principles in terms of material flows, recycling, extending the lifecycle of products, using waste as a resource," says Tomas Diez, director of Fab Lab Barcelona.

Diez believes there is a risk material flows in a circular economy will ultimately end up being owned by corporations, keen to keep control of their supply chains. A Fab City democratises access to production, so that resources are shared more openly, for the benefit of a city as a whole.

Diez and his team have been working with corporations like IKEA to explore potential scenarios. Instead of people travelling to a large IKEA warehouse outside of a city to buy off-the-shelf furniture, for example, they could visit a neighbourhood IKEA micro-factory that produces personalised furniture on demand.

"Fab City prototypes provide a way to work at a neighbourhood scale to start to test how this new relationship between people, materials, production, consumption is going to be redefined in the coming years," says Diez. ■

There is a risk that material flows in a circular economy will end up owned by companies keen to control their supply chains

TIMBERLAND

Timberland to scale fabric made from Haiti plastic waste

By Maxine Perella

The US outerwear giant wants to use X Thread in all products that use recycled PET

Many circular products have yet to add a strong social dimension to a brand's value, but Timberland's recent X Thread collection launch clearly shows how it can deliver "good with every fibre".

In 2014, Timberland teamed up with Thread, a Certified B Corporation that specialises in repurposing waste plastic bottles from the streets and canals of Haiti into new fabric. Timberland was already working in Haiti at the time, establishing tree nurseries on the Caribbean island as part of an agro-forestry programme when Thread's work came to its attention.

Timberland's director of strategic partnerships Margaret Morey-Reuner says she was attracted by the transparency Thread could offer at every stage.

"The potential ability for Timberland to be able to trace the provenance of the material all the way back to the point of the actual item that was being recycled was a really attractive proposition for us," she says.

Timberland was keen to ensure that the material provider could supply the level of demand needed beyond a limited edition launch, something that isn't always possible with start-up suppliers, Morey-Reuner explains.

"What would happen is these products would be successful and we'd want to increase our order tenfold, but often the material suppliers weren't in a position to create that kind of scale. So we had a hard time establishing long-term relationships with those partners."

Timberland decided to take a different approach with Thread and brought in a multifaceted team including developers, designers, material experts and marketers. In late 2014 it sat down with the supplier to discuss how the partnership could evolve going forward.

"The goal is to scale up, without a doubt," says Morey-Reuner. "Ideally we'd like to get to a point where Thread is able to supply the majority of our need for fabric that includes recycled PET, whether it's a 50% blend with cotton canvas, or it's 100% recycled PET.

"We use a lot of recycled PET in our liners for both bags and boots, and also outerwear, and so there's an opportunity to evolve Thread as a supplier and a partner to help support a lot of our liners."

Thread founder Ian Rosenberger says meeting the high specifications demanded by Timberland's design philosophy SPG (style, performance and green) has helped his company innovate.

"For example, making sure [the fabric] could sit on a boot and in a bag, and not wear out. That's an aggressive bar [to set] when you are making things out of bottles. We are now able to start making performance materials, stuff that is lighter and thinner."


TIMBERLAND

Thread is giving Timberland transparency

The level of transparency Thread can offer has enabled Timberland to apply better impact metrics for products containing recycled content. For the first X Thread line, Timberland purchased 76,528 yards of Thread fabric, for which 765,280 bottles were recycled.

Compared against products made with 100% conventional cotton, this saved 30,521,203 gallons of water and avoided 15,305 pounds of pesticide use. It also generated 77 new income opportunities in Haiti.

"Prior to Thread, most of our partners that supplied us with recycled PET, I couldn't safely say for sure where those bottles came from," says Morey-Reuner.

"Now we're working with a partner who has the ability to take it all the way back to when that bottle was picked out of the ditch. Not only does that enable us to know the provenance of the bottle, it also allows us exposure into the types of jobs and the social impact that it's created. What Thread offers us that nobody else can is a storytelling capability that can connect with the consumer."

Timberland is also exploring ways to ensure the legacy of its X Thread collection doesn't end at the consumer point of purchase. "A leasing model, or other creative type of product lifecycle and chain of custody model, are things we are looking at on a daily basis," says Morey-Reuner. "It's exciting to think about the proposition." ■

JAGUAR LAND ROVER

Toyota and Jaguar show their metal

By Maxine Perella

Leading carmakers are mining scrap vehicles for valuable raw materials to reuse in new cars

The automotive industry is one sector that is pushing the envelope on the circular economy. Japanese car manufacturer Toyota is securing valuable new sources of raw materials, including rare earth metals, by refining its scrap vehicle dismantling processes.

Toyota announced in 2014 that it had developed a system to extract and recycle copper from vehicle wiring harnesses without it being contaminated by impurities.

After trials at Toyota's Honsha plant in 2013, and stringent quality checks, the retrieved copper was successfully reintroduced into the vehicle production process. The car maker says the technology has delivered recycled metal with 99.96% purity, and estimates 1,000 tonnes of copper can be produced annually using the process.

In 2015 it announced a goal to establish a recycling-based society, focused on four key areas: the use of eco-friendly materials; using parts for longer; developing recycling technologies; and manufacturing new cars from end-of-life vehicles (ELVs). Last year, the company embarked on a huge project, the Toyota Global Car to Car Recycle Project, whereby technologies and systems like the copper wire harness recycling scheme will be rolled out globally.

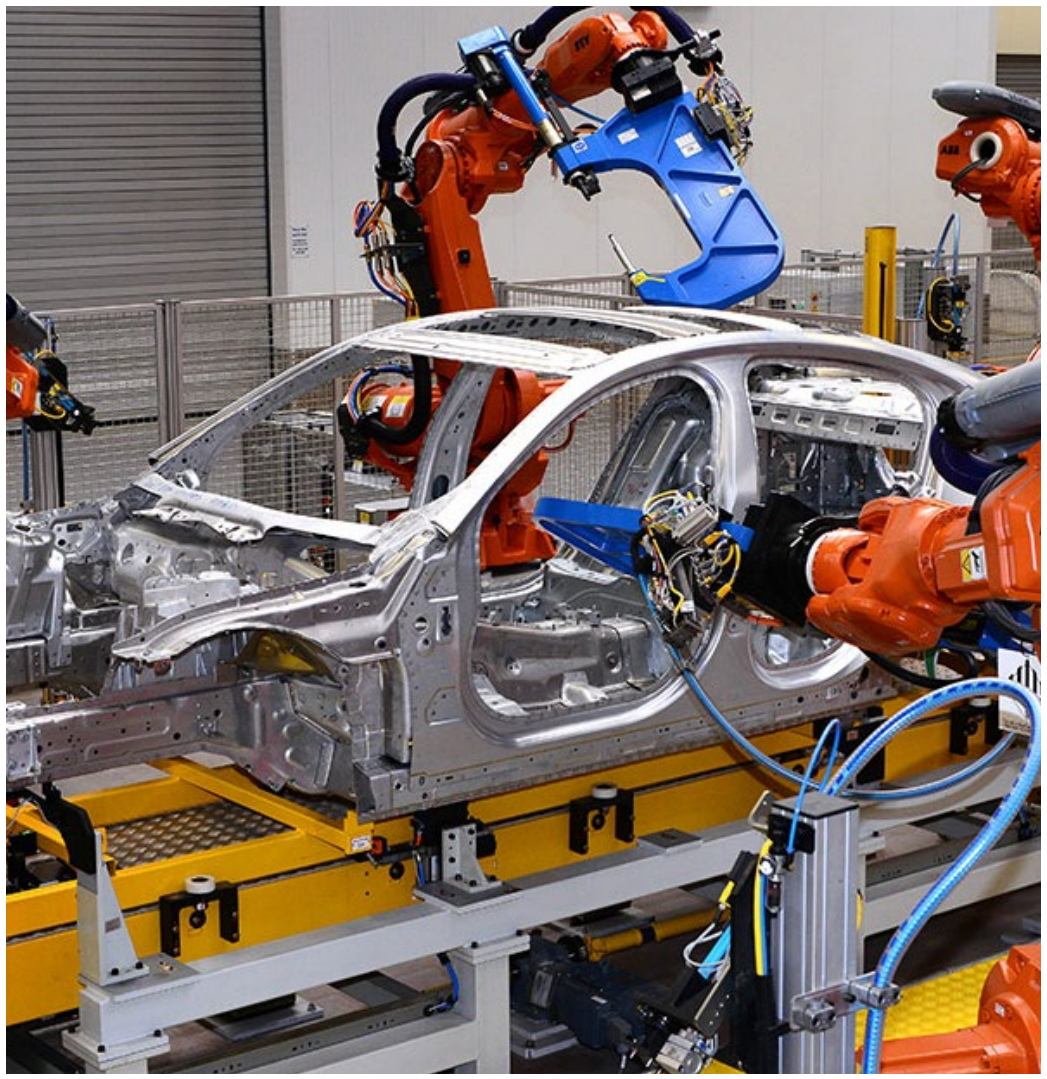
Steve Hope, general manager for environmental affairs at Toyota Motor Europe, says the project will also aim to scale up ELV hybrid vehicle battery-

The challenge is taking pilot projects in Japan and making them work

to-battery recycling, and magnet-to-magnet recycling for neodymium and dysprosium, two rare-earth elements embedded in the magnets used in Toyota's hybrid vehicle motors. Toyota has also been looking to develop a new application for reusing recovered neodymium and dysprosium as additives to catalysts, diversifying the recycling possibilities.

"Those are three technical projects which have been proven at pilot scale, the challenge now is to make them work in an economic way across the world. That's a huge step. You might be able to do some of these things in Japan, but to set up these processes in other countries may take some time."

He adds that a key challenge is the market price of commodities. "It's cheaper in many cases to still use virgin material than to use recycled material. But that doesn't stop us taking these projects forward. Hopefully in the future, enough momentum can be gained to make them financially viable."



JAGUAR LAND ROVER

JLR's XE, XF and F-PACE now contain up to 50% recycled aluminium

Toyota is still undertaking feasibility work with the Car to Car Recycle Project, and no key targets have been set yet for recovery of such materials from ELVs, but Hope says the aim is to get back 100% of Toyota's hybrid vehicle batteries for recycling, ideally to go back into hybrid battery manufacture.

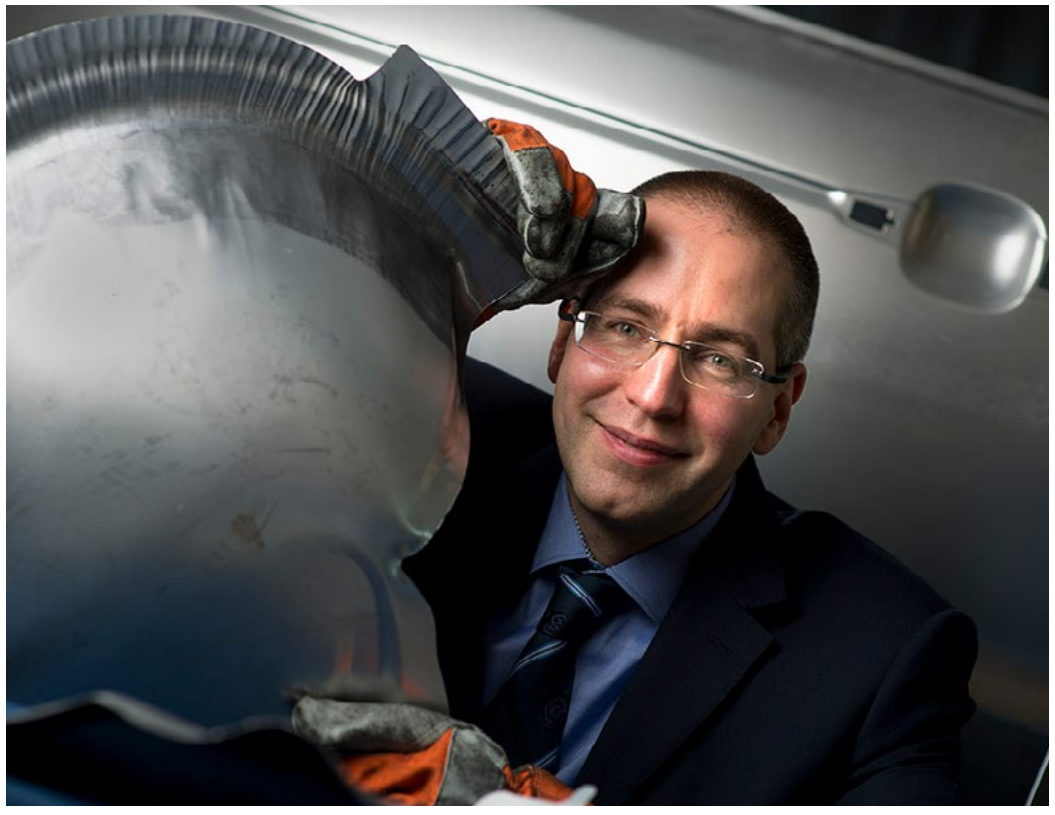
"That means some difficulty for our European operations because we don't have battery suppliers that are located in Europe, so it may involve us producing a recovered material which goes back to another country outside of Europe for incorporation back into the new product."

There are also a number of technical hurdles, Hope says. "There are certain safety and quality requirements that are built into the material specifications for vehicles. You could recycle some plastic, but it may not behave in the correct way during an accident. A bumper made of polypropylene material, if it doesn't deform in the correct way during a collision, might make sharp edges which could then injure a pedestrian. It's important to be aware of these challenges when targeting which materials to take back into the supply chain."

'It's cheaper in many cases to use virgin material, but that doesn't stop us'

Toyota is hoping to address some of these issues through materials innovation. It has developed a high performance polypropylene resin material, called Toyota Super Olefin Polymer (TSOP), which can be used in car bumpers. As TSOP doesn't degrade so rapidly over time, it can be recycled many times.

"If we can stimulate greater use of recycled plastic within our vehicles, that would be quite positive," says Hope. "We want to progress in that area, but we still have work to do, particularly on the R&D side relating to some of the safety and quality considerations."



JAGUAR LAND ROVER

Meanwhile **Jaguar Land Rover's** REALCAR (Recycled Aluminium CAR) project focuses on vehicle lightweighting through the closed loop recycling of aluminium offcuts from its own production process.

In 2015-16, REALCAR reached a milestone by recovering and recycling more than 50,000 tonnes of JLR's aluminium press shop scrap and feeding it back into the manufacture of new cars, preventing more than 500,000 tonnes of CO2 equivalent from entering the atmosphere. Vehicle models like JLR's XE, XF and F-PACE now contain up to 50% recycled aluminium and the car maker is now looking to build on these efforts as REALCAR enters a new, more challenging phase.

In a bid to source greater volumes of scrap aluminium, JLR has recognised it needs to look outside of its own production operations and tap into external waste streams – one of which is the end-of-life vehicles (ELV) market. REALCAR is now being taken to the next level: known as REALITY, this 36-month project, part-funded by Innovate UK, will explore the feasibility of sourcing post-consumer scrap aluminium from automotive sources for recycling and reuse in JLR cars.

"Given our growing volumes we are looking for recycled sources that provide the necessary volumes in line with our current and future consumption of aluminium," says Adrian Tautscher, JLR's group leader for sustainable aluminium strategies. "ELVs will be the main focus [but] we will continue to assess the wider recycling opportunities as we progress through the project."

One of JLR's key REALCAR partners is aluminium reprocessor Novelis. Andy Doran, senior manager for sustainability and recycling development at

Adrian Tautscher, JLR's group leader for sustainable aluminium

'If we can stimulate greater use of recycled plastic within our vehicles, that would be quite positive'

Novelis Europe, says that in order to continue developing circular economy solutions, scrap sourced from ELV will become of increasing importance to the aluminium value chain.

He cites recent research from European Aluminium, which shows the aluminium content of cars produced in Europe contains an average of 150kg per vehicle, of which 50% is categorised as flat rolled products such as sheet aluminium used in body closures, body structure, heat exchangers and heat shields.

PHONLAMAI PHOTO/SHUTTERSTOCK

The aluminium content of cars is growing fast

"This is of direct interest to our recycling operations – this figure could grow to 200kg per vehicle by 2020," he says. "The challenge is to successfully extract the desired material at a consistent quantity and quality to sustain a viable closed loop system."

Doran adds that a key factor here will be to establish what degree of metal dismantling and quality of aluminium alloy separation is needed to meet the high technical specifications demanded by automotive alloys.

Much of the detail around REALITY remains confidential, but the project will utilise advanced sensor-based scrap sorting technologies to separate out the different aluminium alloy types for scrap cars. These alloy types will be melt conditioned to remove or tolerate any impurities, before being turned into scrap-based sheet and castings that will undergo evaluation to ensure they meet JLR's input material chemistry criteria.

The project will utilise advanced sensor-based scrap sorting technologies to separate out aluminium

Asked how much scrap aluminium JLR hopes to recover over the duration of this project, Tautscher says he is unable to disclose specific volumes, but adds that learnings from previous REALCAR projects found the most robust approach was to incorporate both laboratory-based small batch trials and larger production scale trials.

"Production scale trials involve casting full-sized ingots. An automotive ingot produced by Novelis is around 10 tonnes," he says. "A higher recycled content ingot will require a consistent volume of scrap to be sourced, processed and separated to feed the production of several ingots. Progress to a full-sized trial would only happen once there is a high confidence in the source material, established through separate small batch laboratory melt trials." ■

Ethical CORPORATION

The vendors' perspective: SHARE YOUR STORY!

We are looking for consultancies, software and solution providers to share their work

In the coming months, we're looking to present an insider's look at the ins and outs of delivering a sustainability strategy:

- What are the realities?
- How do you engage different teams on the quest?
- How are the expectations changing?
- How will new technologies impact strategies and business in the coming years?

Interested in sharing your perspectives? Get in touch today!

Contact Ed Long at ed.long@ethicalcorp.com or call 020 7375 7188

WHAT'S ON THE **WEB**

CSR Cheat Sheet:

Water access goal in peril

Deconstructing CSR:

Stewardship theory

#2020DontBeLate:

'We have three years to act on climate change'

#whomademyclothes:

Transparency poor in garment supply chain, study finds

Ethical CORPORATION

#RBSWest

USA's leading forum on responsible business | Hotel Kabuki, San Francisco

The Responsible Business Summit West 2017

SAVE THE DATE

November 14-15

2017

Pencil this in your diary & add it to your calendar!

For more information, visit www.ethicalcorp.com/rbs-west
or contact krina.amin@ethicalcorp.com