

TAKE A LEAP INTO CIRCULAR ECONOMY!



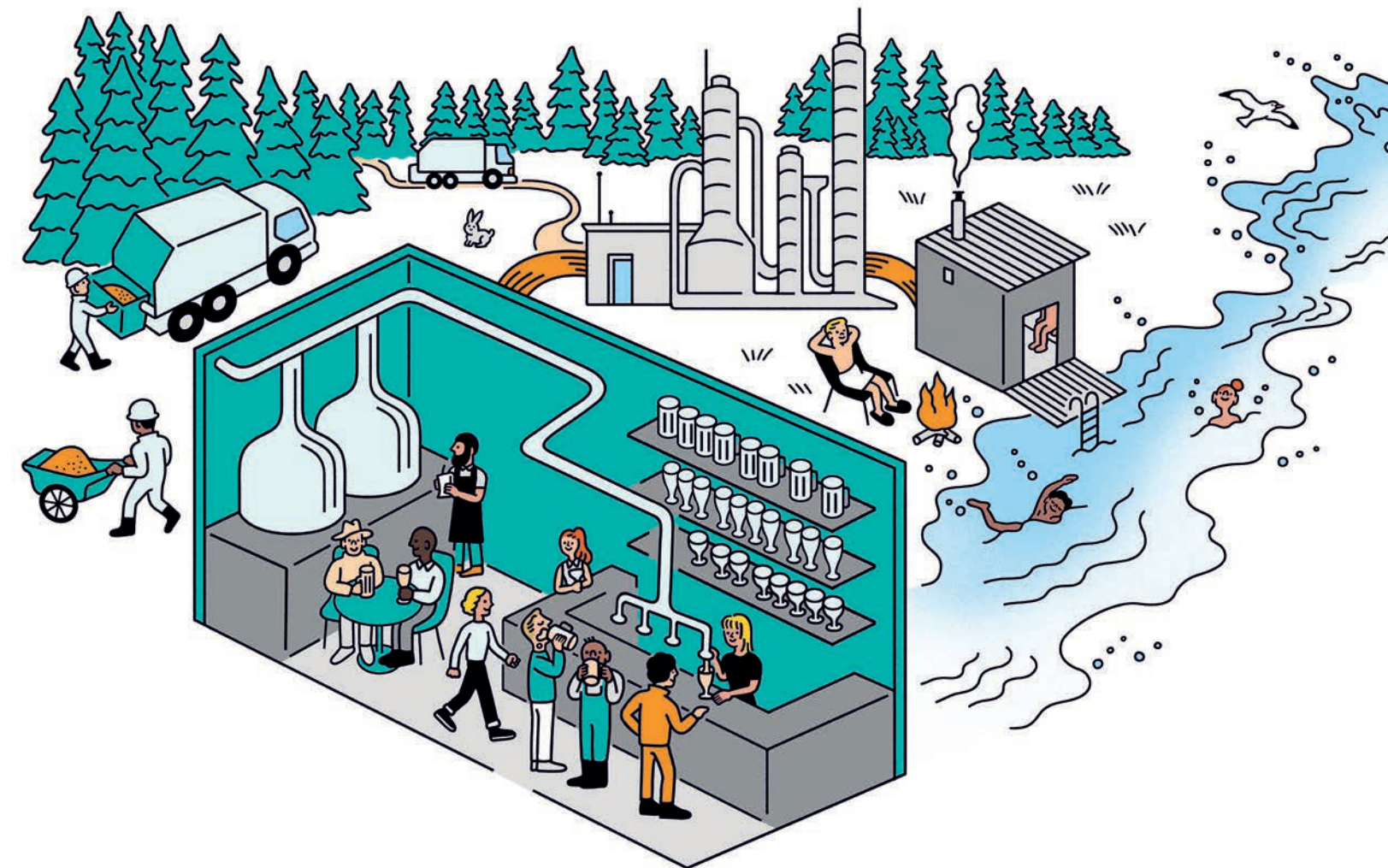
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Circular economy offers prospects for unprecedented growth. This publication provides an overview of what it is all about and how companies have succeeded in embracing the circular economy.



PREFACE

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Circular economy plays a key role in providing solutions to global climate change and scarcity of natural resources. It is also considered to be a world-class business opportunity.

According to a survey carried out by the Confederation of Finnish Industries EK, circular economy is familiar to most Finnish companies as a concept. One quarter of the respondents felt that it offered new opportunities for growth.

There are already numerous excellent examples of success stories based on circular economy in Finland. We wanted to take a closer look at what these companies are doing differently and how their new business came about. This report provides a description of what has been done at the practical level and provides tips for new opportunities.

The Confederation of Finnish Industries EK interviewed people from over twenty companies for this report. The report was prepared in close cooperation with EK's member federations.

According to the respondents, the driving force in the circular economy is partnership. This report provides a concrete description of how to build circular solutions together. Circular economy value networks offer a role for companies of all sizes.

At the same time, the interviews highlighted several problems related to companies' operating environments that may slow down or complicate the development of circular economy. To address these concerns, the report provides a summary from the perspective of business and industry on how to improve the business environment to promote the circular economy. Better cooperation across different industry sectors and with different actors, including for example research institutions and policy makers, plays a key role in making circular economy a European success story.●

Sari Siitonen
Director
Confederation of Finnish Industries EK

These companies have told their story about the opportunities offered by the circular economy.



INTRODUCTION

Companies are currently trying to solve a tricky problem: How to find a new direction and space for growth in rapidly changing markets? One might ask: should we invest all-out in the service business or perhaps revamp all operations by embracing digital platforms? What about seeking added value from new partnerships or focusing more strongly on design and branding? And how can we achieve growth even more sustainably?

Circular economy offers answers to all these questions. It offers recipes for success in a new world where growth calls for innovative use of natural resources and clever creation of immaterial value. This report provides a summary of key circular economy business models and ideas together with examples of pioneering companies that are engaged in the business of the future already today.

Hopefully, these examples will encourage an increasing number of companies to find sustainable growth in the face of the ongoing transition. The report also gives pointers on how to improve the business environment to promote circular economy.●

1.

**ENGAGE IN TOMORROW'S
BUSINESS TODAY.**

Circular economy represents new business thinking that addresses some of the greatest challenges we are facing today, such as the depletion of natural resources, continual population growth, climate change and the digital revolution. Tomorrow's winners foresee future changes and act accordingly today.

3.

**RENEW YOUR BUSINESS TOGETHER
AND MORE QUICKLY.**

In a circular economy, things are done in collaboration with others, and often boldly across industry boundaries. Open innovation and joint experiments improve agility and help large companies to renew their business and small ones to grow and find their place in the new value networks.

2.

**BECOME MORE SELF-SUFFICIENT
AND REDUCE RISKS.**

Circular economy solutions help companies prepare for the potential scarcity of raw materials and possible price hikes. Smart companies minimise business risks and reduce costs by searching for alternative resources and ways of working, and by improving eco-efficiency across the product life cycle.

4.

**SEE THE OPPORTUNITIES WHERE
OTHERS FAIL TO DETECT THEM.**

Those engaged in circular economy realise that the world of materials offers huge potential. A company's own or other companies' side streams, surplus materials and waste – whether food waste, recycled roofing felt or plastic waste – all provide ingredients for new business growth.

**SEVEN REASONS TO
TAKE A LEAP INTO
CIRCULAR ECONOMY**

5.

**ADD VALUE TO YOUR PRODUCTS
AND BRAND.**

Circular economy benefits the customer. The lifetime value of a product increases when its entire life cycle is considered already at the design stage. This extends products' service life and improves their energy and material efficiency. At the same time, it may attract new consumers and customers who value sustainability.

6.

**DIVERSIFY INTO THE GROWING
SERVICE BUSINESS.**

Circular economy encourages businesses to progress from production to selling services. Various leasing schemes, pay-per-use pricing models, refurbishment and maintenance are excellent examples of types of business that take better care of products and customers than before.

7.

**TRANSFORM YOUR BUSINESS USING
NEW TECHNOLOGY.**

In the future, some of the most attractive opportunities will be offered by digital service platforms that can be utilised by many companies. These could represent circular economy at its best because they improve efficiency in the use of resources while attracting new customers at the same time.●

The digital revolution transforms the way we use resources (Photo: Christiaan Colen)



Nearly all materials can be reused as raw materials or energy (Photo: Lassila & Tikanoja)



WHAT'S THE FUSS ABOUT CIRCULAR ECONOMY?



One of the key aims of the circular economy is to conserve natural resources and make full use of materials sustainably. Familiar concepts such as cleantech, low-carbon economy and bioeconomy are all closely related to the circular economy.

One of the fundamental ideas underlying the circular economy is to keep materials in circulation for as long as possible, to retain their value and reduce their harmful impact on the environment.¹ No waste is generated in the circular economy vision because one company's surplus materials are raw materials for others and products are designed to be reused.

But circular economy is not just about efficient use and recycling of materials or environment-friendly business. It is also considered to constitute a new model of economy where value creation is increasingly immaterial: products are replaced by services and goods and resources are shared rather than owned.²

The circular economy offers companies unprecedented opportunities for new type of growth. Growth occurs in the context of versatile value networks, open cooperation and new business models that are supported by new technologies. Transitioning to the circular economy may be the biggest revolution and opportunity for how we organize production and consumption in our global economy in 250 years.³

CIRCULAR ECONOMY IS THE ANSWER TO PRESSING ISSUES

Anyone who follows the news must have noticed that we live in an era of ever accelerating change. The future is no lon-

ger something that lies far ahead of us: more and more often it feels like it is taking place here and now. For example, we used to think driverless cars and virtual reality were part of the distant future. Suddenly, they are part of our daily lives.

Underlying the circular economy are three major transitions, all of which are already very much anchored in our world today: scarcity of natural resources, climate change and the digital revolution accompanied by open collaboration as the necessary precondition for growth. All of these developments are bound to reshape the world much more than any of us can imagine. One might go as far as to say that the circular economy is an inevitable development in the face of these changes.

SCARCITY AND CLIMATE CHANGE CALL FOR NEW TYPE OF RESOURCE THINKING

The circular economy is a necessity created by the global ecological overshoot. The world population is growing, natural resources are being depleted, and the rise of the global middle class means that western consumption patterns are spreading. These developments are directly linked to the accelerating climate change that is already threatening the wellbeing of mankind.

We are already consuming natural resources at an unsustainable rate. Today we use the equivalent of 1.6 planets to provide all our resources and absorb our waste.⁴ Additionally, the need for natural resources will be growing rapidly because over the next 15 years, the world population will increase by almost one billion to close to 8 billion while at the same time the high-consumption middle class will double to 5 billion.⁵

Extensive collaborative networks become the most valuable capital for companies.

Clearly, this is not sustainable. The answer is circular economy because it saves non-renewable natural resources, increases the self-sufficiency of companies and helps prepare for raw material scarcity and price increases. Many companies prepare for the shortage of raw materials by switching to alternative materials and improving eco-efficiency in the design stage, production and at the end of the products' life cycle.

For example, the food industry is looking for ways to reduce the amount of food waste and reuse the valuable raw materials. One of the companies doing so is **HKSCAN** which is developing new uses for inedible biowaste generated by the meat industry. Opportunities for new forms of cooperation are being sought from energy production to pharmaceuticals and a new business area has been established for the new bioproducts.

In another field, Finnish company **TARPAPER RECYCLING** converts roofing felt removed from buildings into asphalt used in street and road pavings. The felt is collected from all over Finland and brought to the production facility in Lahti where it gets a new life as a recycled material. The company's insightful idea both conserves natural resources and reduces the need for bitumen in the asphalt industry.

Circular economy saves natural resources and increases the self-sufficiency of companies

THE DIGITAL REVOLUTION CREATES NEW BUSINESS MODELS

While the recycling of products and materials is one part of the circular economy, it is by no means its only manifestation. The revolutionary potential of the circular economy extends a lot further than that. Digitisation offers unprecedented opportunities for using natural resources in a new, sustainable way.

Accelerating digitisation is resulting in sensors almost everywhere, growing data streams, evolving artificial intelligence, robotics applications, mobile solutions and service platforms. For each sector, these technologies create completely new business models that companies can use to optimise, automate and revolutionise every aspect of their business. At the same time, they generate considerable savings in energy and materials consumption.

Finnish company, **FLUID INTELLIGENCE** combines oil with the service business and digitisation. The company leases oil to industrial customers and ensures its quality on a continual basis with remote monitoring. Thus, the customer only pays for the benefits generated by the oil, not for the amount consumed. This extends the life cycle of oil and reduces consumption.

While digital solutions offer considerable energy and

materials savings for society, they can obviously also increase electricity consumption. For example, data centres want to use more sustainable energy and efforts are being made to recover the heat generated by the hardware. In Mäntsälä, Finland, search engine company **YANDEX** and **MÄNTSÄLÄN SÄHKÖ** work together to harness the heat generated by Yandex's data centre for use in the town's district heating network. This reduces energy loss as well as carbon dioxide emissions from the district heating system.

OPENNESS AND COLLABORATION ARE THE CORNERSTONES OF GROWTH

A digital and networked world calls for updated modes of operation. Increasingly, the mode of operation of many circular economy growth companies resembles the film industry model where several companies and professionals form a flexible ecosystem.

Both large and small growth companies are working actively together and the benefits are plenty. For example, large companies can become more agile while small ones can scale up their operations. Open collaboration also helps accelerate research and development, create more daring joint ventures, and build scalable platform business models. In circular economy, extensive and high-quality collaborative networks become the most valuable capital for companies.

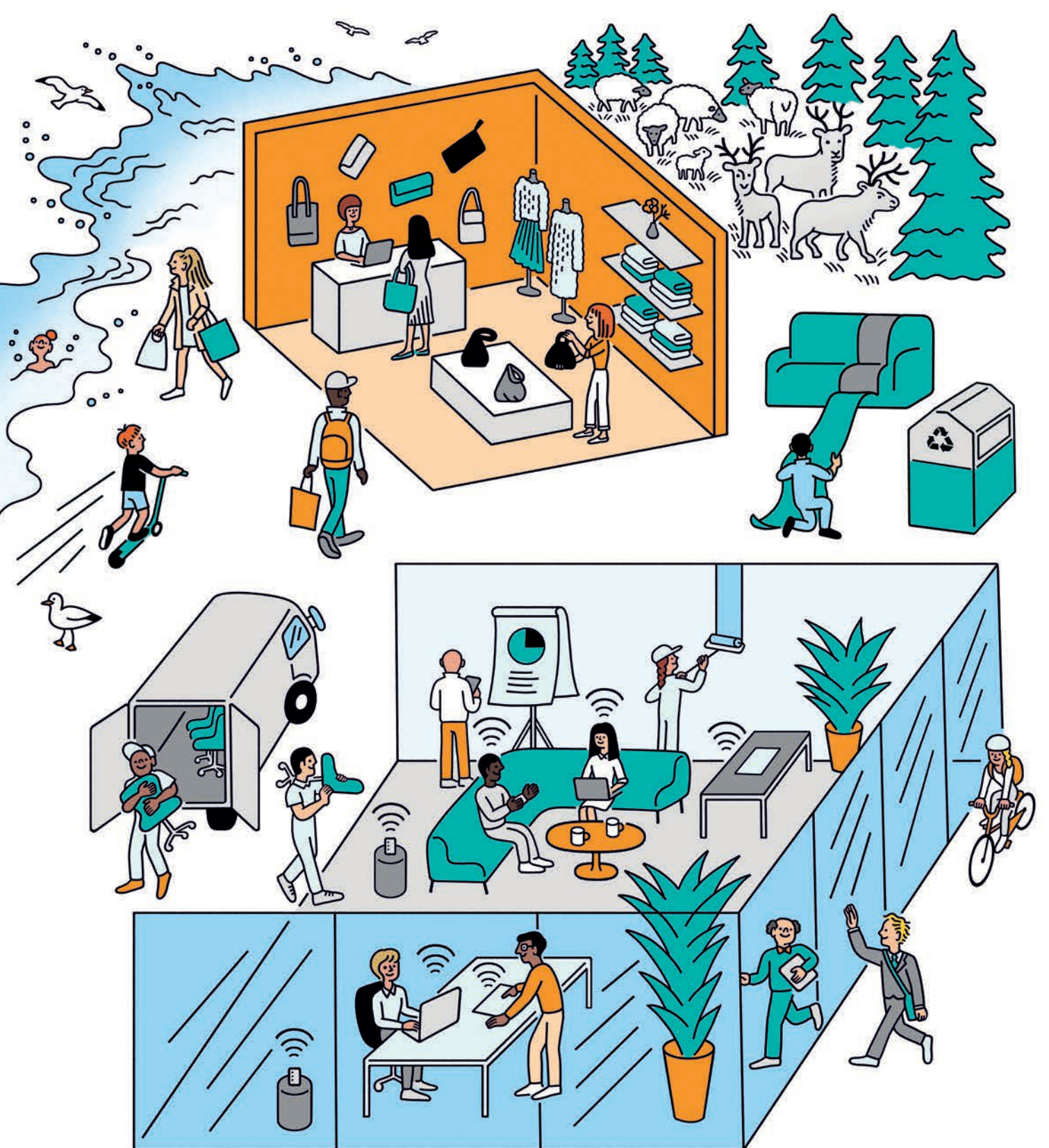
The change is also evident in customer relationships. Many companies do not even perceive customers as consumers: they see people as developers and members of the community who are engaged in the company's operations in various ways. This is highlighted in business models based on digital exchange and cooperation that bring together the sellers, users and developers of products and services in new ways.

For example, the mobility as a service (MaaS) concepts developed in Finland aim to take mobility to the next level. **MAAS GLOBAL** and **TUUP**, two Finnish start-up companies, plan to offer their customers seamless mobility services that combine various means of transportation for a monthly fee. These networked mobility services can significantly reduce the need to own a car.●

1. Circular economy in Finland – the operating environment, policy instruments and simulated effects by 2030, Government plan for analysis, assessment and research (2016).

2. Sitra, The opportunities of a circular economy for Finland, Sitra studies 84 (2014)
3. Waste to Wealth: Creating Advantage in a Circular Economy, Accenture (2016)
4. Global Footprint

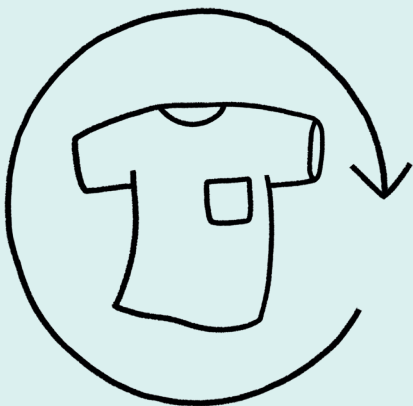
Network (2016)
5. The Emerging Middle Class in Developing Countries, OECD (2011)



THE CIRCULAR ECONOMY OFFERS A WORLD OF OPPORTUNITIES. COMPANIES TELL THEIR STORIES ON THE FOLLOWING PAGES.



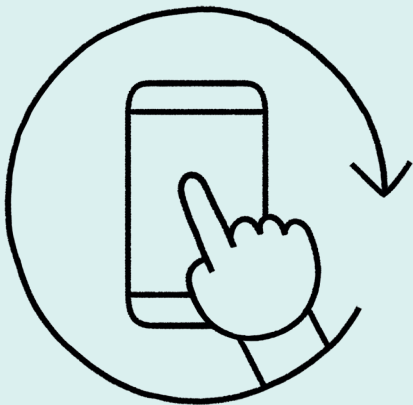
1.
MAKE USE OF MATERIAL FLOWS
ACROSS SECTORS



2.
CREATE NEW VALUE WITH DESIGN
AND BRANDING



3.
EXPAND FROM PRODUCTS
TO SERVICES



4.
GENERATE NEW TYPES OF GROWTH
WITH PLATFORMS

FOUR OPPORTUNITIES FOR CIRCULAR GROWTH

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Many Finnish companies are making headway in the circular economy. This became evident when EK interviewed over 20 companies from large industrial companies to small start-ups that are looking for growth in the circular economy.

The goal was to find out how companies understand the rising trends of the circular economy and seize the opportunities it offers. Based on our extensive research, we identified four areas in which companies can seek substantial growth.

Within each area there are several inspiring companies that create new growth together. On the following pages, we will take a closer look at these opportunities and show how Finnish companies are already closely engaged in the circular economy business.●

1 MAKE USE OF MATERIAL FLOWS ACROSS SECTORS

In the circular economy, companies often engage in creative collaboration across industry boundaries. Partnerships have become indispensable in the development of new business models. A prime example are bio-based material ecosystems that make use of industrial, commercial and agricultural waste to produce biogas.

When materials are used several times over in different products, companies can save on raw materials and identify completely new revenue models. Additionally, predictability increases when companies are no longer bound to the fluctuating prices of virgin materials or dependent on their availability.

There are numerous opportunities for the circulation of materials, and new models are quickly emerging. It is useful to rethink material flows beyond one's sector and in terms of new types of ecosystems and partnerships. This way compa-

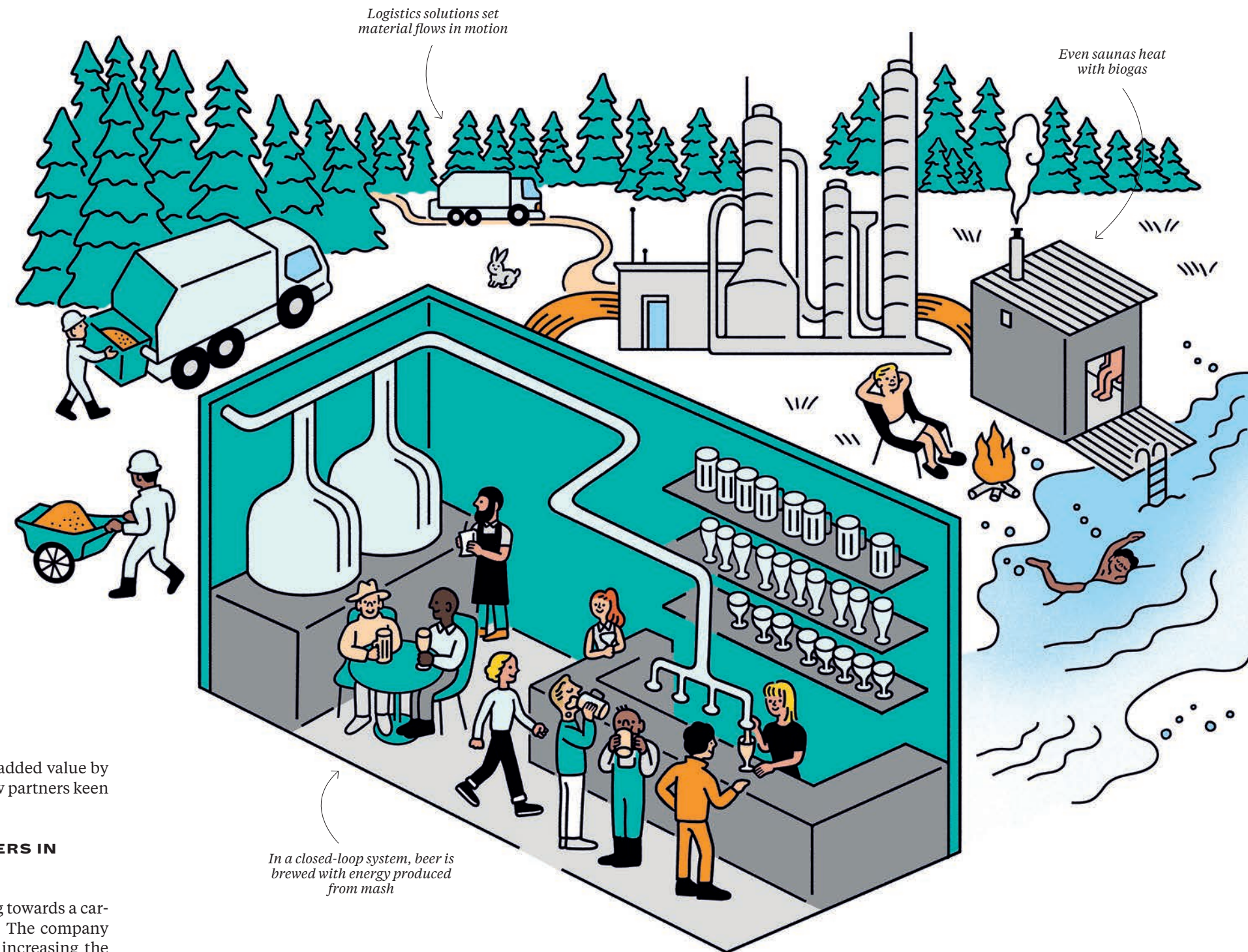
nies can generate new business with greater added value by exploiting unused material flows and find new partners keen to make use of the side streams.

CUSTOMERS BECOME PARTNERS IN THE BIOGAS BUSINESS

GASUM, a Nordic energy company, is working towards a carbon-neutral society both on land and at sea. The company promotes a sustainable energy economy by increasing the supply of Finnish biogas and by developing the inter-Nordic gas markets by bringing together several operators.

Gasum has expanded its biogas business by acquiring companies like Biovakka and Biotehdas and by investing in cooperation with various partners. At the same time, it has turned the Finnish renewable biogas produced from biodegradable food industry waste into a brand.

Biogas has generated great interest among corporate customers who are increasingly aware of the added value offered by sustainability and responsible energy production. ▶



**RETHINK THE CIRCULATION OF MATERIALS ACROSS
BUSINESS SECTORS AND IN TERMS OF NEW TYPES
OF BUSINESS PARTNERSHIPS.**



CONSUMERS VALUE THE SUSTAINABLE CIRCULAR ECONOMY

One of Gasum's partners is **BRYGGERI HELSINKI**, a brewery restaurant. Through its cooperation with Gasum, this popular micro-brewery seeks to switch to a closed-loop process, in which the mash used in brewing beer generates the energy required for the process. Their decision was influenced by consumers' growing interest in sustainable brands and the recently introduced ban on dumping biowaste in landfills.

Bryggeri Helsinki has also adopted the biogas label developed by Gasum. The label that will appear on every bottle will inform users that the beer is brewed using Finnish biogas. The response has been favourable without exception: both shareholders and customers find the change positive.

Clearly, the biogas label is an excellent way of promoting circular economy by means of innovative marketing and branding in collaboration with customers. Many of Gasum's biogas customers, such as **SCANDIC RESTAURANTS** and **NIEMI**, a moving and logistics company, and **ARLA SAUNA** in Kallio, Helsinki, have adopted the label. It conveys the company's values and commitment to sustainability. The

biogas label has been a great success and new customers have started contacting Gasum on their own initiative.

CIRCULAR ECONOMY CONVERTS MATERIALS INTO ENERGY AND NEW PRODUCTS

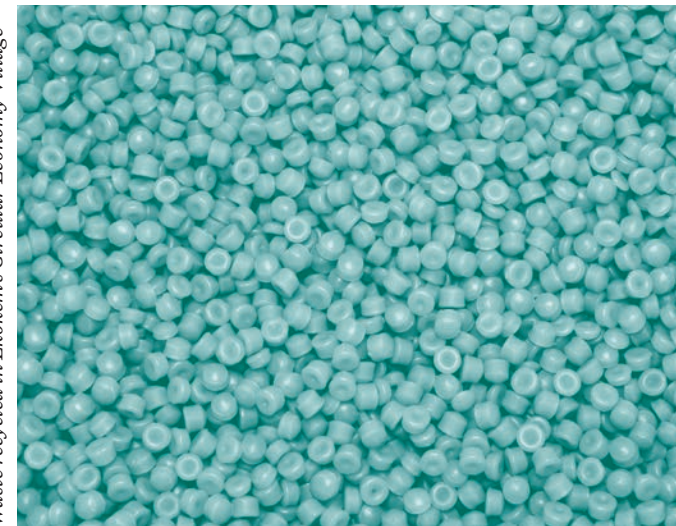
The Finnish wholesaler and grocery chain, **KESKO**, has worked together with Gasum for some time now. Biogas produced from the biowaste of Kesko's stores is reused as an energy source in making 'Pirkka' private label products. Thus, inedible food waste is recycled in the form of renewable energy, which also greatly reduces the chain's carbon dioxide emissions. The arrangement has not only provided Kesko with environmental benefits, it has also provided financial benefits.

Another company involved in the same value chain is **EKOKEM**, a circular economy company that **FORTUM**, an established energy company, acquired in spring 2016. Ekokem has built a Circular Economy Village in Riihimäki, Finland, where municipal waste materials circulate onwards to an eco-refinery, plastic refinery and biorefinery. The materials



WHEN MATERIALS ARE USED SEVERAL TIMES OVER, COMPANIES CAN REDUCE RAW MATERIAL COSTS AND IDENTIFY NEW BUSINESS OPPORTUNITIES.

Waste recycled in Ekokem's Circular Economy Village



Biofuels are made from wastes and residual products



are reused as raw material in the plastics industry and as transport fuel in the form of biogas. The circular economy village concept is currently being introduced to the world market.

Ekokem's decision to invest in refinery capacity was spurred on not only by more stringent waste regulations but also by a technological breakthrough which allows more precise and cost-efficient separation of different plastic grades. Ekokem's recycled plastics are used by Finnish companies such as **AMERPLAST** and **PREMIX**.

LOGISTICS ACCELERATE MATERIAL FLOWS

Materials do not flow smoothly without efficient logistics services that help combine little streams into major flows. For example, Gasum's and Bryggeri Helsinki's logistics partner is **LASSILA & TIKANOJA** which transports the mash to the biogas production plant.

The circular economy model relies heavily on logistics because the materials need to be collected in small quantities from numerous locations while ensuring that costs stay moderate and the environmental benefits outweigh the negative impacts of transportation. There is room in the market for innovative and agile logistic service concepts.

As the business grows, it will be necessary to expand the raw material sourcing and collection network worldwide. The renewable diesel fuel sold by **NESTE** is produced from a combination of international raw material flows. Neste manufactures renewable fuels and other renewable products from over ten different raw materials in its refineries in Singapore, Rotterdam in the Netherlands and Porvoo, Finland. The raw materials are acquired from different continents. Most of it – nearly 80% – consists of waste and residues.

It took a lot of effort to create the new biofuel business, but Neste has succeeded because it was able to address the logistic and sustainability challenges involved. In fact, the company has been so successful that already in 2015 renewable fuels accounted for 43% of its entire turnover. A circular economy business can be global in scale and generate significant revenues as well as help renew the entire company and its operations.

NOTHING IS AS HOT AS A CIRCULAR ECONOMY START-UP

The side streams of Gasum's biogas production are utilised by **SOILFOOD**, a young start-up company. It uses the side streams of agriculture, bioenergy and forest industry to make fertilisers and soil improvers. The company offers solutions that improve crops and the profitability of farming and help reduce the loss of nutrients and carbon in cultivation.

It makes sense for small growth companies like Soilfood to engage in cooperation with one another. Working together with a bigger company helps start-ups to scale up their business more quickly. Conversely, circular economy start-ups can give new momentum and skills to the larger companies and offer the opportunity to diversify into new and unexpected directions.●

2

CREATE NEW VALUE WITH DESIGN AND BRANDING

W

While circular economy revolutionizes many basic principles of business, some things remain the same. Even the best material innovations or most interesting business models do not turn into gold automatically. All success is based on understanding what customers need and want, being able to design the things that deliver that value, and knowing how to engage people with great branding and storytelling.

The most successful circular economy companies invest strategically in design, taking into account the product's entire lifecycle and the whole business model. After all, design is one of the key drivers for exploring new business opportunity, making efficient use of materials, extending service life and improving energy efficiency.

Success also calls for marketing and branding that is not just about fascinating stories and beautiful surface. Pioneering companies know how to make the value of their products and services visible to customers. They are also transparent about the underlying operations and open about the values that guide their actions.

SUSTAINABILITY HELPS BRANDS STAND OUT FROM THE CROWD

FINLAYSON'S new owners have shaken up the brand and business of this traditional textile company by modernizing

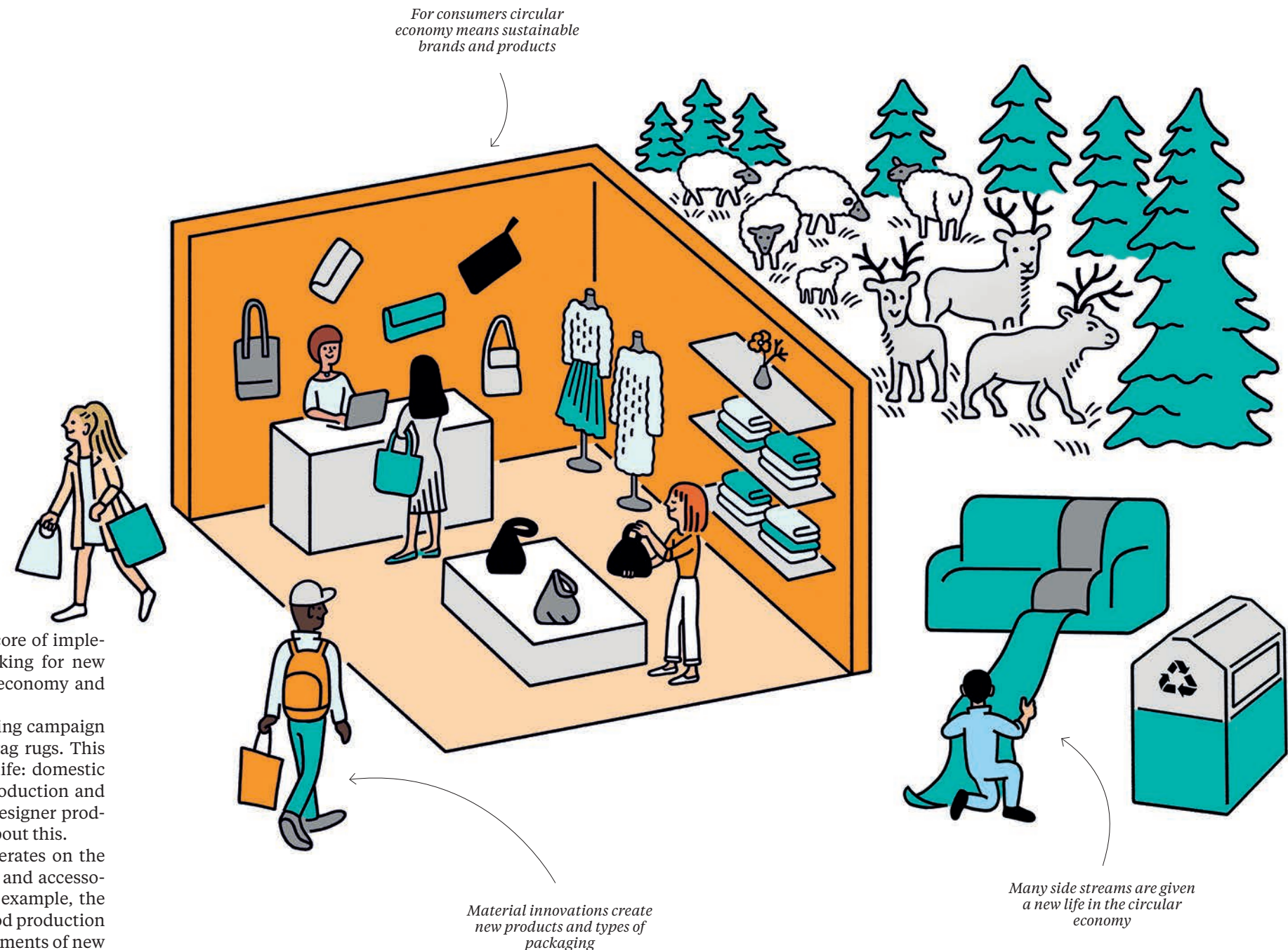
its operations. Sustainability has been at the core of implementing these changes. The company is looking for new business models consistent with the circular economy and trying to reduce the amount of textile waste.

In spring 2016, Finlayson launched a recycling campaign by collecting old bed sheets to be reused as rag rugs. This campaign gave traditional rag rugs a new of life: domestic weaving looms were replaced by industrial production and rag rugs were seen in a new light as modern designer products. Customers have been very enthusiastic about this.

LOVIA, a young Finnish fashion brand, operates on the same principle and manufactures luxury bags and accessories from recycled and surplus materials. For example, the company is rebranding recycled leather and food production leftovers, such as sheep and fish skin, as the elements of new luxury products.

Their materials are acquired from a network of partners that includes the furniture manufacturer **ISKU**, **HELSINKI METROPOLITAN AREA REUSE CENTRE** and the **KALLIOMÄKI ORGANIC SHEEP FARM**. The companies were brought together by shared sustainability values. At the same time, the companies needed to get rid of their surplus materials responsibly and cost-effectively.

Lovia uses sustainability and transparency as a way of standing out from the crowd in the fashion business. The company has created a distinct profile for each product that specifies the origin of the materials and identifies the manufacturers down to the smallest detail, including the zipper maker. ▶



PIONEERING COMPANIES TELL THE STORIES BEHIND THE PRODUCTS.



BASIC RESEARCH GIVES A BOOST TO THE RENEWAL OF THE FASHION AND TEXTILE BUSINESS

Even though success is often based on a company's own inventiveness and innovation, extensive partnerships with research institutes and universities have played an important role in many circular economy breakthroughs. Long-term cross-industry cooperation has already spawned many success stories in Finland.

For example, the Relooping Fashion project based on technology developed by **VTT TECHNICAL RESEARCH CENTRE OF FINLAND** is propelling the fashion and textile industry towards circular economy. The project seeks to create a closed-loop textile ecosystem. The pilot was triggered by concerns about the shortage and price increases of virgin cotton and the prospect of reducing textile wastes.

One thing complicating the recycling of textiles is that the existing recycling methods tend to weaken the quality of fibres. Thanks to the dissolution technique developed by VTT, recycled fibres can now be used to produce better-quality materials. The method is being tested on an industrial scale.

However, technology alone is not enough to solve recycling problems that call for broad-based cooperation. Hence, the project includes several companies, such as **SUEZ**, an environmental management company; **PURE WASTE**, a company specialising in recycled textiles; **ETHICA**, a circular economic consultancy; Helsinki Metropolitan Area Reuse Centre; and **LINDSTRÖM** and **TOUCHPOINT**, two suppliers of work clothes and textiles. Yet another company involved in the project is **SEPPÄLÄ**, which is planning to introduce its first fashion collection made entirely from recycled fibre in 2017. The items will be sold in **REPACK'S** reusable packaging.

This project, which opens new business opportunities for the Finnish fashion and textile industry, received a prize in

the Circularity 2016 Awards Ceremony held in Davos. For the companies involved, the project proved to be an excellent way of learning from one another and it has attracted a surprising degree of media attention, which is highly important to consumer brands.

Another more recent pilot designed to pool value networks in the textile field is the Telaketju project which seeks to establish a global ecosystem for the collection, sorting and further processing of discarded textiles. The pilot is supported by VTT, **LOUNAI-SUOMEN JÄTEHUOLTO**, a waste management company, and the **TURKU UNIVERSITY OF APPLIED SCIENCES**. The plan is to engage in extensive co-operation with various sectors.

NEW PLASTIC MATERIALS MEET BIOECONOMY

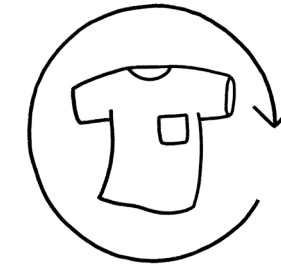
One of the hottest issues in the circular economy is how to develop environment-friendly alternatives to plastic products. For example, several years ago retail stores started using plastic bags made from recycled plastic waste generated by trade and industry. New materials are being introduced on an ongoing basis.

The founders of **PAPTIC**, a VTT spin-off company, were alarmed by reports on plastic waste in seas. After years of development work they came up with a reusable wood-based packaging material that can be used for making light yet durable bags and packages. To expand its operations, the company is making use of the infrastructure and machinery of large companies. It produces the material and products on the paper machines and plastic bag processing machines that are otherwise threatened by shutdowns because of a slowdown in demand.

Paptic has succeeded in creating a strong brand for its new material. In these efforts, it has been assisted by the London-based **PROXY VENTURES** and active cooperation with customers. This has allowed the company to make maximum use of its technical innovation, and the business has got off to a promising start. For example, Seppälä, a clothing company which focuses on sustainability, has replaced plastic and paper bags with Paptic bags in over 100 outlets.

Similarly, **ELASTOPOLI**, a company specialising in plastic and polymer products, has developed a biocomposite made from cellulose fibre that strengthens plastic materials. The raw material is produced by **AQVACOMP** using a method patented by Elastopoli. Its award-winning cooperation with **FLAXWOOD**, a Finnish musical instrument maker, has made it possible to replace threatened wood species with the biocomposite in the manufacture of guitars and clarinets.

While wide-spread interest in the new material has been expressed by manufacturers from the car to the electronics industry, the biocomposite has so far only been used on a small scale. Now Aqvacom is planning to set up a joint production facility with **METSÄ FIBRE**. The first pilot production line is to be opened on a pulp mill site to increase the production of the biocomposite. Cooperation with a major operator helps scale up operations, which is a common stumbling block for industrial start-ups. •



LIFE CYCLE THINKING PLAYS A KEY ROLE IN NEW CONSUMER PRODUCTS AND BRANDS.



3
EXPAND FROM
PRODUCTS TO
SERVICES

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The pioneers of circular economy have expanded their operations from manufacturing and selling products to new service concepts. Instead of trying to sell a maximum number of products, they offer long-term solutions where the revenue model is increasingly based on services.

In these service-based models, customers pay for the benefits offered by the product rather than for the privilege of buying and owning it. Familiar examples include various leasing schemes which are becoming increasingly common, particularly in business-to-business contexts. Pricing is based on use and a product may have several customers during its lifecycle.

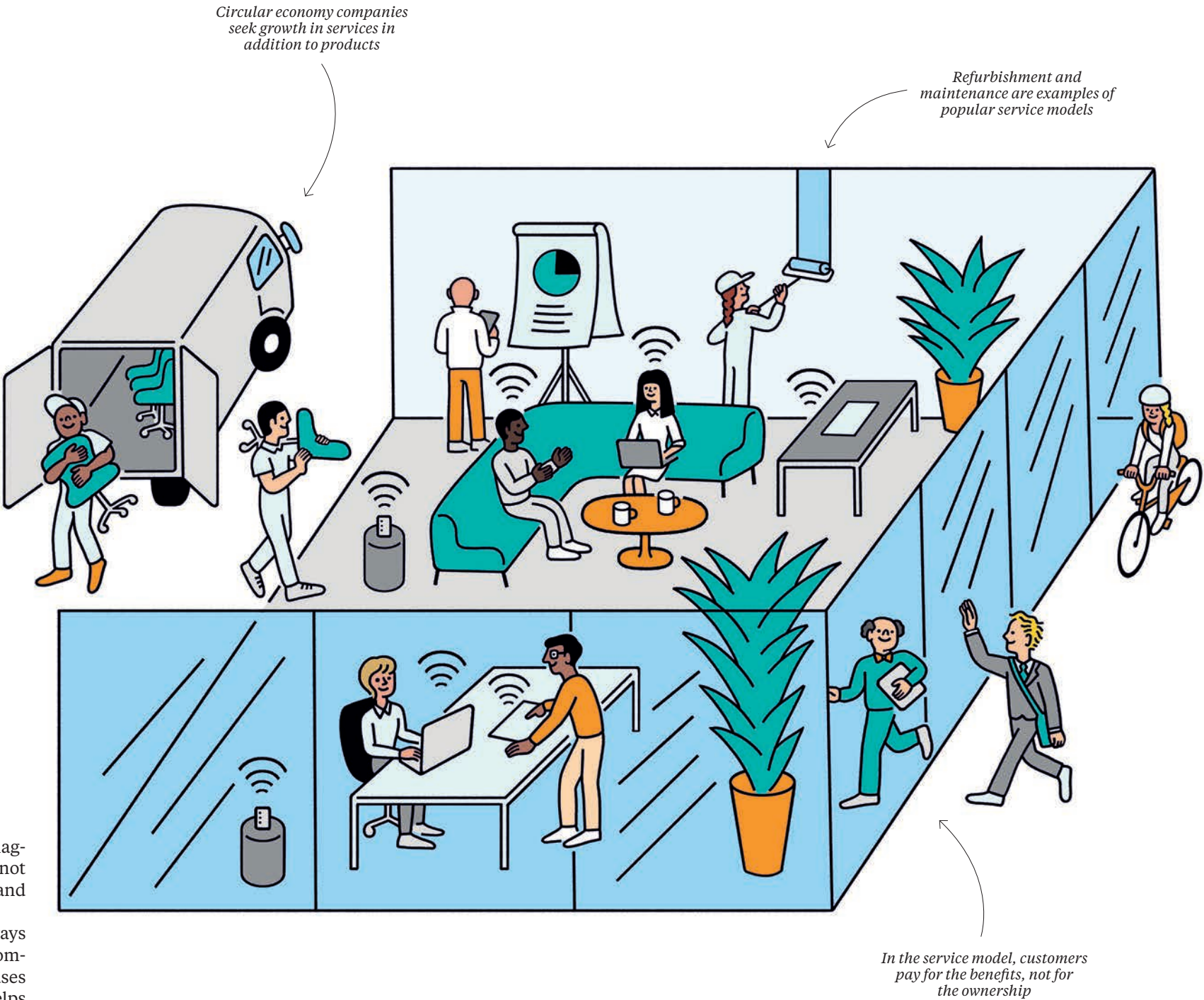
Similarly, refurbishment and maintenance are popular business models that help retain and increase the value of

products. For instance, services may include repairs, diagnostics or technical support. Companies are investing not only in winning new customers, but also in creating and maintaining long-term customer relationships.

Digital services and the Internet of Things offer new ways of increasing the value of products to customers. Now companies know how and where the products are used, who uses them and how they are working. All this information helps develop better products and increase their value through novel service models.

LIFE CYCLE THINKING CHANGES
WORKPLACES

For [MARTELA](#), a company known for its office furniture, circular economy lies at the heart of the business strategy. For several years now, the company has sought new growth in digitisation and services that span the entire work ▶



Circular economy companies
seek growth in services in
addition to products

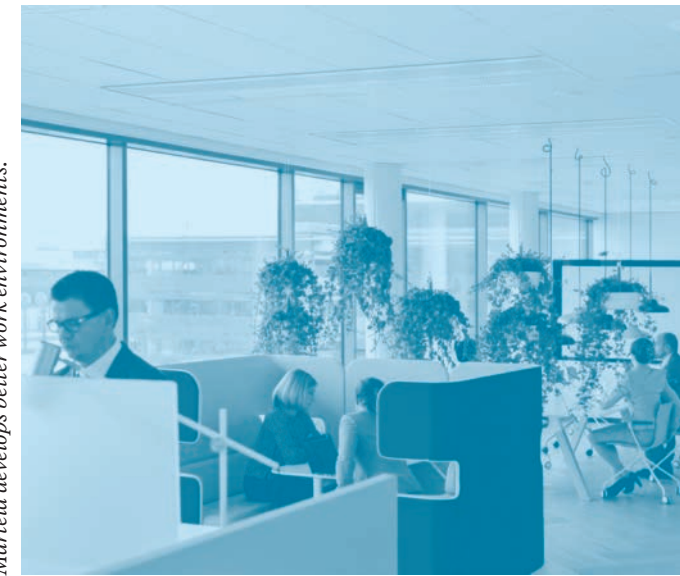
Refurbishment and
maintenance are examples of
popular service models

In the service model, customers
pay for the benefits, not for
the ownership

THE INTERNET OF THINGS ENABLES A WIDE
RANGE OF NEW SERVICE MODELS.

Service business reduces the need for resources while adding new customer value.

Martela develops better work environments.



environment. The underlying reasons for this include shrinking product markets and the need to develop the company's offerings to better respond to the changing customer needs.

Instead of furniture sales, Martela now focuses on offering all-round solutions for developing and maintaining office environments throughout their service life. This helps customers increase the utilisation rates and reduce the costs of office buildings, improve wellness at work and enhance productivity.

Another objective is to ensure that no reusable material or used office furniture end up in landfills. It has always been Martela's ambition to make products that stand the test of time, both in terms of design and quality. The furniture is often passed on from one user to the next for decades.

Additionally, Martela accepts old furniture from customers and refurbishes it for sale in its outlets. Furniture that can no longer be used for the original purpose is used as components in outlet products or recycled for use as raw material.

GOOD-AS-NEW AGRICULTURAL MACHINES FROM OLD PARTS

VALTRA, a tractor manufacturer, has found ways of generating new growth from service-based business models typical of the circular economy by providing maintenance services across Europe. As part of this concept, Valtra has developed so-called remanufacturing services. They have resulted in new business and given important insights into product development and quality assurance.

In Valtra's Reman service, an old component, say a gearbox, is remanufactured to the extent that it is equivalent to a new product. The operating model is based on exchange: when buying a remanufactured product, the customer returns the old component to Valtra.

In terms of quality, the remanufactured product is just as good as a new one because it is assembled and tested in the same way as a new product. What is more, the price is only 60–70% of that of a new product and the delivery time

LEFT: Service business reduces the need for resources while adding new customer value.

is shorter. Not surprisingly, the demand for remanufactured products has grown substantially and the concept is being extended to new product categories. Besides the customer, the environment also benefits from this: remanufacturing uses about 85% less energy compared to what is required to make a new product.

To build up the service business, it has been necessary to adopt new ways of thinking and doing things within the company. Initially, there were fears that the new service business would eat into the profits of other operations because remanufactured products are cheaper than new ones. However, the doubts within the company were quickly dispelled. People realised that the new service business made it possible to offer customers better, more diversified services more quickly and the business proved profitable. •

4

GENERATE NEW TYPES OF GROWTH WITH PLATFORMS



M

Many of the important circular economy innovations stem from the so-called platform economy. Digital platforms and marketplaces offer new ways of providing services, sharing things and exchanging value between companies, micro-entrepreneurs and users.

Digital platforms help make more efficient use of resources, for example, when private cars are being used by several people and surplus food is finding its way to the dinner table instead of being dumped in landfills. In addition, resource efficiency increases when the key components of the service are produced immaterially.

It is no wonder that service platforms are thought to be among the most important new technologies in the circular economy. They help companies expand their operations across market boundaries like never before while decreasing the needed resources. And if companies are not ready to create their own platforms, they can always collaborate with

others and accelerate their business with the agile technology companies.

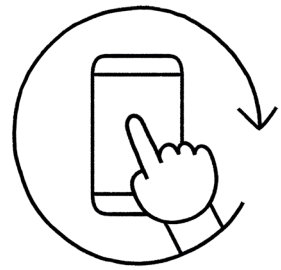
Platform business models pose significant challenges to existing structures and are likely to revolutionize almost all industries. At any rate, the platform economy is here to stay and will probably play a key role in attaining the objectives of the circular economy.

PEER-TO-PEER MARKETPLACES GROW QUICKLY

People are increasingly interested in sustainable consumption and savvy product reuse. For example, marketplaces for used goods have become hugely popular over the past few years. This popularity is not explained simply by the affordability of the products or the ease of buying; their appeal is also very much due to opportunity to encounter other people and the special stories associated with the products.

TORI.FI has become Finland's leading platform for the recycling of goods in the space of six years. Currently up to 30,000 ads for consumer goods, cars and homes are ▶

**THE PLATFORM ECONOMY
CHALLENGES THE WAYS COMPANIES
CREATE VALUE TO CONSUMERS.**



DIGITAL PLATFORMS ARE THOUGHT TO BE AMONG THE MOST IMPORTANT NEW TECHNOLOGIES OF THE CIRCULAR ECONOMY.

uploaded to the service each day. The company is part of the Norwegian Schibsted Media Group that runs similar marketplaces in 30 countries. Tori's history can be traced back to the Bocket.se service launched in Sweden in 2000.

Often, new types of services are perceived to be a threat to existing businesses. An increasing number of companies are, however, seeing opportunities for cooperation. One of the companies that has realised this is a furniture manufacturer, **LUNDIA**, which sells its outlet products through Tori and various other marketplaces. Platform companies like Tori and their partners can also offer shared concepts to consumers: when a family finds a home through the platform, other companies have the opportunity to sell furniture and household appliances for the new home.

The new business models created by the circular econ-

omy also pose a range of challenges to the authorities. How to tax aftersales transactions? How to ensure the protection of privacy? What if stolen goods are offered for sale? Tori.fi is engaged in close cooperation with both the authorities and consumers to ensure that users are satisfied and the company's reputation is not compromised by shady transactions. In a digital world, the value of a brand is extremely important because users have no problems with switching to competing services if they have a bad experience.

MOBILE SERVICES REDUCE FOOD WASTE

LUNCHIE, a Finnish start-up, offers a mobile marketplace to help restaurants sell surplus lunch portions and other special offers directly to customers. Customers can use the application to look for and buy food portions and pick them up in the restaurant at the preferred time. The service has been developed in close cooperation with customers and catering professionals to ensure that it responds to real needs and helps reduce food waste.

One of Lunchie's restaurant customers is **RESTAMAX**, a company that owns several ski resort restaurants, concept restaurants headed by top chefs and a number of Helsinki's best Mexican restaurants. The company's 12 lunch restaurants sell surplus lunches as take-away portions at a reduced price via the Lunchie application.

A digital service platform like Lunchie is easily scalable to the international market. Not surprisingly, the company is planning to expand to European cities. The business model also offers several benefits to Lunchie's partners: the companies involved can reduce the amount of food waste, operate sustainably and reach new customers by developing innovative offerings for the aftersales market.

MORE THAN ONE WAY OF REDUCING FOOD WASTE

Another interesting, yet more traditional digital service designed to reduce food waste is **HÄVIKKIMESTARI** operated by Lassila & Tikanoja. The idea is to monitor food waste on an on-going basis as part of the preparation, serving and storage of food and orders and keep track of discarded products and raw materials. By making waste visible and providing training for the staff, Hävikkimestari has succeeded in reducing waste by up to 45%. In restaurants, this is clearly reflected in cost reductions.

However, it is good to keep in mind that platforms and digital services are not the only models for more efficient use of resources. Sometimes a workable model can be created directly between various parties. A fine example of this is **YHTEINEN PÖYTÄ** (Shared table). It is a network established jointly by the City of Vantaa and the local church to develop food bank activities and enable centralised distribution of surplus food. Currently the network includes some 30 shops, food factories and wholesalers that donate surplus food. Approximately 35 non-profit organisations distribute the food to those who need it. •

Platform business models offer vast opportunities for both new and existing companies.



Lassila & Tikanoja's Hävikkimestari service makes restaurant food waste visible

SEVEN WAYS TO SPEED UP CIRCULAR ECONOMY

An amazing set of pioneering companies in Finland have seized the circular economy growth opportunity. Encouraging examples can be found far beyond the ones presented in this publication. But how can we spark even bigger growth and scale up new business opportunities? Below are our recommendations.

1.

START WITH MIND SETS.

Companies come up with novel ways of making use of materials that would otherwise go to waste. However, doubts and suspicions persist regarding recycled materials even though quality and security issues have been duly addressed. Waste is an obsolete concept in the circular economy: nearly all materials and products can be reused as raw materials and energy.

2.

PROVIDE A SOUND BASIS FOR FUTURE INNOVATIONS.

Many circular economy solutions are developed in cooperation between companies, research institutes and universities. An idea may well have originated in basic research years or even decades ago. It is important to ensure a high standard of quality in research and development and provide sufficient funding for this purpose.

3.

AMEND REGULATION TO MAKE COMMON GOALS ACHIEVABLE.

Promotion of the circular economy is high on the agenda of political decision-makers. Despite this, companies frequently run into obstacles in their

daily activities. It is important for the authorities to work towards the same goal: if new solutions are promoted in one quarter, they should not be hampered in another. The authorities should play the role of problem-solvers. The possible bottlenecks of regulation should be tested together with companies for example during circular economy pilot projects.

4.

LEAVE ROOM FOR THE MARKET.

Companies are aware of the opportunities offered by the circular economy. Innovative thinking and efficient incentives are called for to make the circular economy a real engine of growth. While policy measures to promote circular economy are already being discussed, it is not easy to find workable solutions. Above all, more room is required for innovation: more incentives, less rigid regulation that restricts business.

5.

BOOST INNOVATION THROUGH PUBLIC PROCUREMENT.

The Finnish government seeks to promote innovative solutions in public procurement. This principle needs to be applied in practice. More government investment funding should be directed towards agile experiments and

the commercialization of innovations in the context of the circular economy. More active use should also be made of the funding available from the EU.

6.

ENCOURAGE COMPANIES TO COLLABORATE ACROSS SECTORS.

Much of the growth in the circular economy springs from unconventional cooperation. However, it is hard to find suitable partners because they often operate outside one's own sector and traditional partner networks. Both companies' own initiative as well as parties that bring prospective partners together are needed. Additionally, partnerships can be promoted through various digital solutions.

7.

CREATE COMMON GROUND RULES FOR THE PLATFORM ECONOMY.

As a phenomenon, the platform economy is growing and here to stay. Optimally, digital platforms create added value for numerous companies with agile technology companies working together with more traditional players. It is important for the regulatory environment to keep up with the development of new type of services and solutions, while at the same time ensuring a level playing field for all.●

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