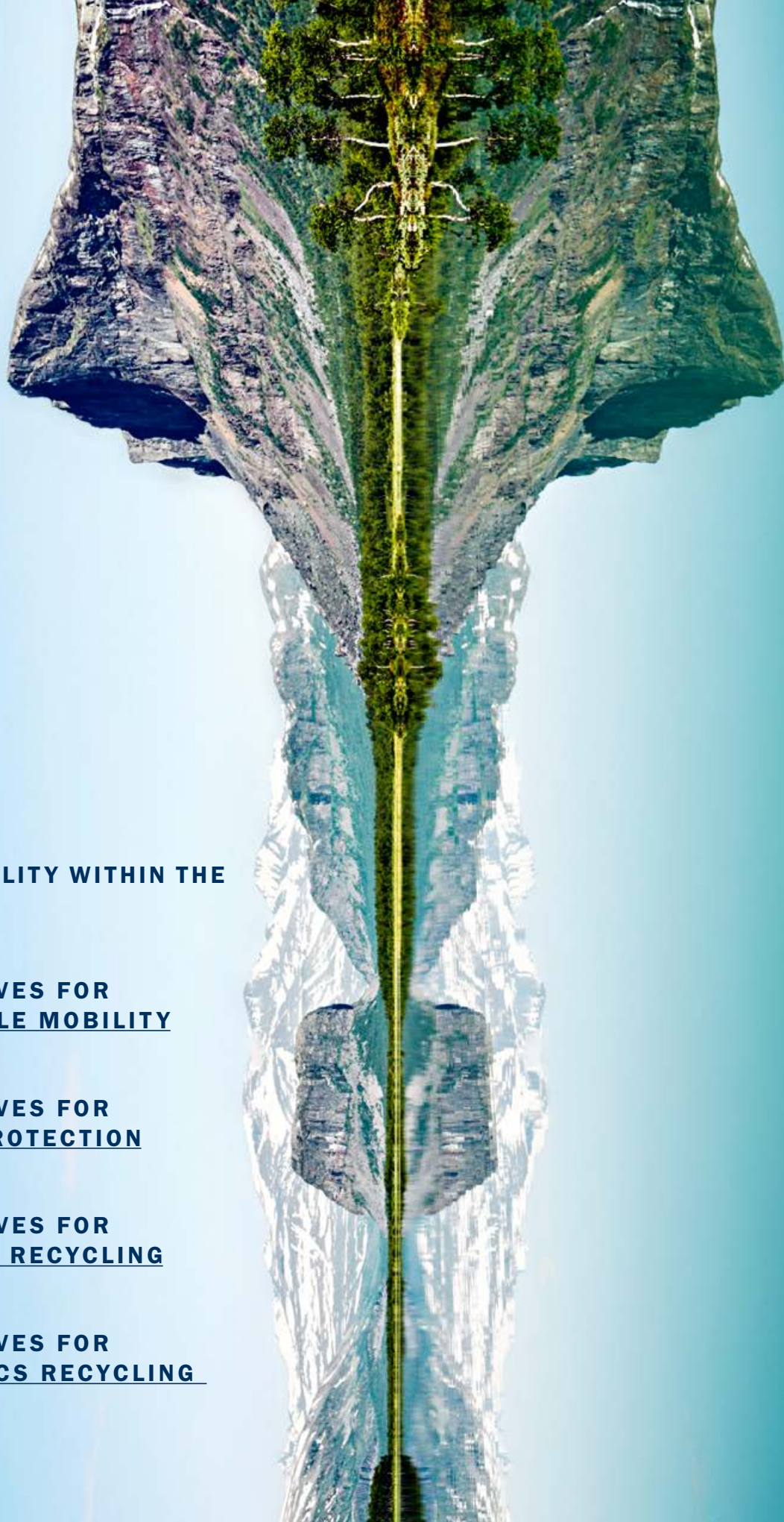




zero waste solutions



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A CHANGE OF PERSPECTIVE

Our vision: a world without wastefulness. We are working to protect the environment and climate by decoupling economic growth from resource consumption. To do so, we need to throw off the shackles of traditional economic theory. A fundamental rethink is in order.

Cologne, June 2019 Interseroh Executive Board

S. Kalich

Langemann

Müller-Drexel

Hans-Stefan Kalinowski

Dr Timo Langemann

Markus Müller-Drexel

For a world without wastefulness: new perspectives are needed for the circular economy

5.8

million tonnes of primary resources were saved by Interseroh's business activities in 2017.

Last year's UN World Climate Conference in Katowice, Poland, clearly showed how the climate problems our planet is facing are now more urgent than ever. At the same time, the delegates understood that effective climate protection depends on solutions that are global in scale. Hans-Stefan Kalinowski, Managing Director, INTERSEROH Dienstleistungs GmbH: "We need more cooperation at an international level not just in the area of environmental and climate protection but also with the circular economy, since this is a key driver for reducing our resource consumption and lowering our environmental impact.

For a circular future

As an international provider of environmental services, we at Interseroh are working to transform the linear type of value creation still widespread in the economy into a circular model. The aim here is to ensure that resources are used for as long as possible before then being introduced into new value chains.

Driven by our vision of 'zero waste solutions', we are developing made-to-measure, innovative solutions for a functional circular economy that is creative, intelligent and future-oriented. Our integrated service portfolio brings long-term improvements to a company's sustainability practices and works to ensure security of supply for its resources. One element of our growth strategy involves major efforts to expand awareness of our service provision beyond our core markets, to achieve a rollout of the circular economy on the greatest possible scale.

And Interseroh is already making measurable contributions to the conservation of resources: in 2017 alone, we saved around 5.8 million tonnes of primary resources and cut greenhouse gas emissions by 834,129 tonnes. Every year, the successes achieved by our business activities within the ALBA Group are documented in the 'resources SAVED by recycling' study conducted by the Fraunhofer Institute UMSICHT.

“Rising levels of consumption accompanied by wasteful handling of our resources are creating an enormous burden for our planet. Ensuring security of supply for resources despite a growing human population is now THE global challenge of our times – for which an all-encompassing circular economy is not just a potential solution but an urgent necessity.”

Markus Müller-Drexel, Managing Director,
INTERSEROH Dienstleistungs GmbH

“A circular model for the economy is essential to ensure the efficient use of raw materials. Achieving widespread implementation of this closed-loop economic model needs a paradigm shift, however, plus active participation at a global level.”

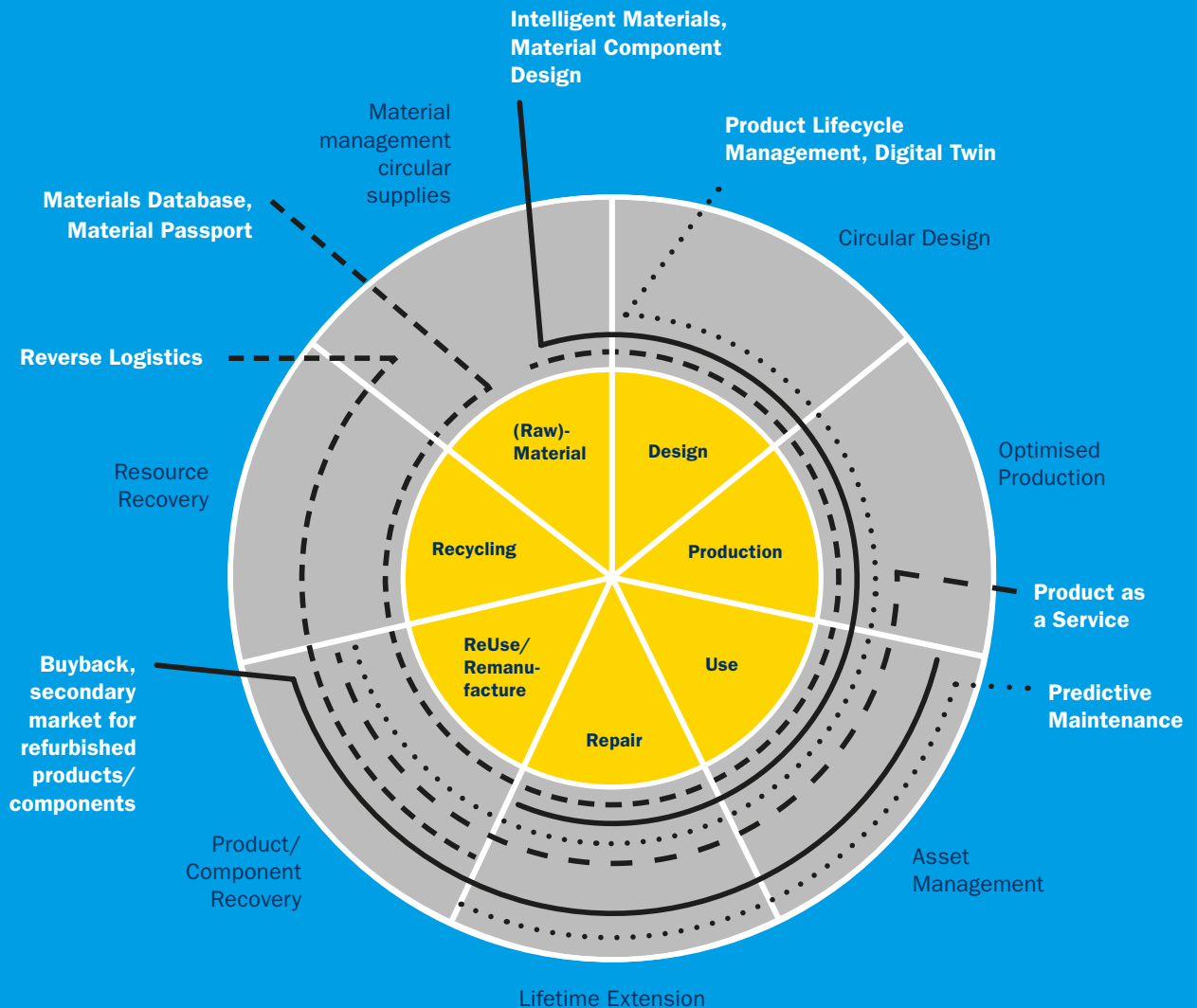
Dr Timo Langemann, Managing Director,
INTERSEROH Pool-System GmbH



“We work with our customers to develop new approaches to design-for-recycling, to create upcycling solutions, to prepare products for recycling or reuse and to design new models for the sharing economy. Our work in these areas is now increasingly international.”

Hans-Stefan Kalinowski, Managing Director,
INTERSEROH Dienstleistungs GmbH

Closing the loop: a look at business models



Good progress is now being made in one key initiative designed to promote the idea of the circular economy. As part of the 'Circular Economy Initiative Deutschland' started by the German National Academy of Science and Engineering (acatech) and SYSTEMIQ, Interseroh is working with other businesses on ways of decoupling economic growth from resource consumption. To this end, potential business models for the closed-loop economy (as shown in the above figure, source: SYSTEMIQ) are being identified as candidates for a circular value chain.

The circular economy requires integrated solutions since it involves much more than mere recycling. Accordingly, maximising the efficiency of resource usage and the service life of products involves the implementation of a broad spectrum of models and measures, which are applied at various points along the value chain and offer the potential to develop a wide range of new business models.

From reusable logistics systems to upcycling solutions and new sharing economy models, Interseroh deploys a wide range of innovative solutions in its four business units to aid in the design of an effective closed-loop economy. To avoid creating waste, we offer well-designed multi-use systems and pooling solutions in our **ReDuce** business unit that optimise our customers' logistics processes while simultaneously cutting costs. In our **ReUse** unit, we extend product lifecycles by utilising highly efficient systems for the return, sorting and reuse of recyclable materials. Once these options have been used to the full, work in our **ReCycle** business segment then focuses on recycling and the production of high-quality recyclates. Activities in our **ReThink** unit involve analysing, appraising and optimising business processes with sustainability in mind – from waste volumes and material flows to logistics or infrastructural processes.

Rethinking the future

To properly address truly monumental challenges, a completely new approach is needed. "Companies must abandon their traditional perspective on the value chain in order to develop a new understanding of and new approaches to doing business," explains Dr Timo Langemann, Managing Director, INTERSEROH Pool-System GmbH.

Achieving lasting change requires active input from actors in all areas affected by the circular economy – including politics, business and civil society. Interseroh keeps all of these separate interests in mind in order to understand and bring together the differing perspectives, objectives and demands. We advise companies located anywhere in the value chain and work with them to develop new solution strategies. We engage in dialogue with the various stakeholders during industry events and company initiatives – one example of this being the Circular Economy Initiative launched in early 2019 (see page 4).

Achieving more together is also a principle we apply within our company. Driven by our 'we are one' corporate culture, this guiding principle is the result of a process that each and every employee at Interseroh has helped to create. Last year, we incorporated 'we are one' into a competency model and expanded the role it plays in company strategy. It embodies a shared understanding of our values and offers orientation for employees throughout the company. It also forms a starting-point for refreshing our commitment to our vision on a daily basis – not resting on our laurels but pursuing the right approaches to achieve 'zero waste solutions'.

3

Three questions for Markus Müller-Drexel

What roles are played by the various actors in the closed-loop economy?

If we want to develop a circular economy, we must learn new ways of producing and consuming things. Doing this requires a coordinated effort – from businesses, lawmakers and the general population.

What role do you believe the government should play?

The implementation of a circular economy is also dependent on support from the state. Governments can set up an appropriate general environment – including incentive programmes – for companies to manage resources in the loop.

Where are we now on the way to a closed-loop economy?

The mood is very positive at the moment: all of the various stakeholders in the circular economy are now very keen to get to work on tackling the challenges. We should make the most of this and grasp the opportunity to put this energy to good use. Of course, everyone in the value chain must play their part.



Our achievements

Our sustainability strategy is made up of four action areas that encompass ten strategic points of focus. We use key performance indicators (KPIs) to audit our performance on an annual basis:

no waste of
ideas

Our strategic points of focus:



Exploit the potential for digitalisation



Extend the service life of products



Develop design-for-recycling approaches

Our achievements in 2018:

↑ 39% revenue growth

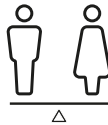
in business models for extending product service life compared to the previous year

no waste of
talent

Our strategic points of focus:



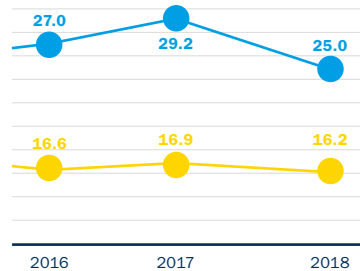
Working to promote employee health



Enabling equal opportunities in our workforce

Our achievements in 2018: Reduced rate of accidents and sickness absences

● Accidents per 1 million working hours
● Lost days per employee





More on our sustainability strategy at www.interseroh.de/en/sustainability

zero waste solutions

Our strategic points of focus:



Discovering new upcycling solutions for plastics



Closing material and logistics loop



Promoting waste prevention and higher recycling targets

Our achievements in 2017:

Our services have saved



5.8 million
tonnes of resources



834,129

tonnes of greenhouse gas emissions



Our strategic points of focus:



Engaging in the transfer of knowledge to the circular economy



Promoting initiatives and dialogue

Our achievements in 2018:

Active membership of the following initiatives:



Wirtschaft macht KLIMASCHUTZ



Deutsche Unternehmer für Klimaschutz

no waste of

resources

no waste of

knowledge

22

Around

percent

of global CO₂ emissions are generated by the transport and mobility sector.



PERSPECTIVES FOR

SUSTAINABLE MOBILITY

The automotive industry is undergoing major changes. Innovative ideas and business models are needed – not just in terms of sustainable development but also as regards the future viability of the entire sector. We advise our customers on how to best integrate the circular economy into these new ideas.



Workshop waste with recycling potential

Every day, the work completed by workshops involves handling a wide variety of materials – and this produces many kinds of waste that require professional recycling. Interseroh handles the safe and efficient waste management of raw materials and other products such as used oil, car tyres and packaging.

By creating opportunities and facilitating participation while connecting people and business sectors, mobility is an essential part of our social and economic lives. At the same time, the automotive sector in particular now faces challenges on many different fronts: transport and mobility sector alone is responsible for 22 percent of our global CO₂ emissions. The environmental burden of airborne pollution, the production and disposal of batteries used in electric vehicles, and the recycling of workshop waste are all significant issues for which mitigation strategies and solutions need to be developed.

Safe waste management of waste materials

Germany's road network is now used by over 50 million motor vehicles, which need regular servicing to ensure they enjoy a long, trouble-free working life. Workshops replenish the various fluids the vehicles use and replace worn components – all processes that create a large amount of residual materials. These materials then need to be managed in a way that ensures they cannot harm the environment, not least because motor vehicles contain hazardous substances such as brake fluid and engine or gearbox oil. On the other hand, many materials have a high recycling potential. A vehicle is constructed from



VW OTLG supplies original parts and accessories plus services to around 3,000 partner workshops.





“Environmentally-friendly disposal has top priority at VW OTLG.”

Nicole Müller, Branch Manager and Head of the Sustainability Management Competence Centre at Volkswagen Original Teile Logistik GmbH & Co. KG

valuable resources such as metal, glass and plastics. If these are professionally recovered, they can all be reused. This conserves the resources the vehicle contains.

“The real challenge here is the huge variety of waste we encounter,” explains Ronald Bornée, Head of Business Unit Recycling Solutions at Interseroh. From liquid and solid materials to packaging, workshops produce nearly 50 kinds of waste material fractions. This means that waste management in the automotive industry requires a high level of know-how and recycling expertise: processes need to be consolidated, and centralised control and management is essential.

An all-in-one solution for waste management

Volkswagen Original Teile Logistik GmbH & Co. KG (VW OTLG), a Volkswagen AG subsidiary, supplies original parts and accessories plus services to around 3,000 partner workshops for the Volkswagen, Volkswagen Commercial Vehicles, Audi, Seat, Škoda and Porsche brands. This also means that VW OTLG faces the task of organising the management of the material waste generated. To master this challenge, the company signed a partnership agreement with Interseroh last year. Bornée: “We work with several hundred

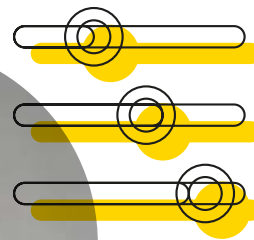
service providers to ensure that the waste from the workshops is picked up and then shipped off for professional, environmentally-friendly recycling.”

The majority of this waste can then be mechanically recycled and reused in the manufacturing processes. Energy recovery is used only in cases where this is not possible. All legal requirements are also observed and implemented. The workshops receive a full set of documentation for the waste management process.

To make its contribution to protecting the environment, VW OTLG is very careful to ensure the recycling of workshop materials. The company is working on increasing its participation in intelligent solutions for the circular economy. Nicole Müller, Head of the Sustainability Management Competence Centre at VW OTLG: “Sustainability is an increasingly important topic for manufacturing in general – and workshop waste management is no exception. We want to ensure efficient, safe and environmentally-friendly waste management throughout Germany.”

“The real challenge here is the huge variety of waste we encounter.”

Ronald Bornée, Head of Business Unit Recycling Solutions at Interseroh



Lithium-ion batteries: powering electromobility

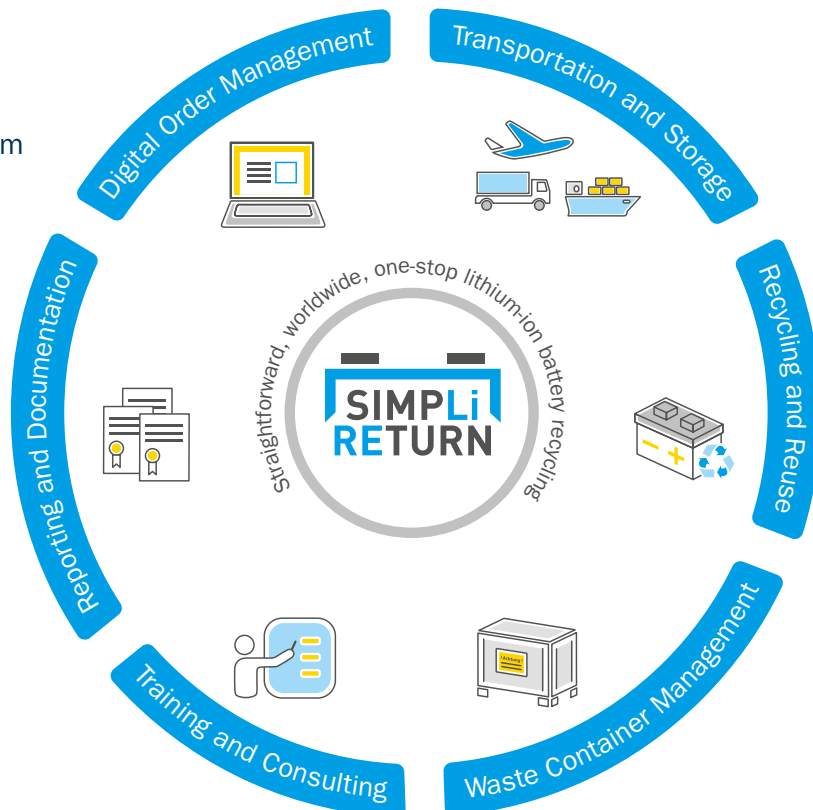
From global markets to country-specific legislation and recycling, Interseroh offers customers in the electric vehicles sector tailor-made solutions to the issues now raised by the high-performance energy storage systems used in their EVs.

The transition to electromobility is accompanied by a wide range of problems – first and foremost the question of how to recycle the batteries used in the vehicles. Quite apart from the plethora of available recycling technologies and heavily globalised markets, the goal of achieving safe waste management while minimising resource usage is made harder by having to predict the likely volume of batteries used in the future.

Sebastian Schley, TD Ebenhausen, Vehicle Recycling Specialist from Ingolstadt: “High-performance lithium-ion batteries are essential to the success of electromobility. As the number and diversity of vehicle models rise, so too will the difficulty of ensuring professional waste management and recycling. This is why we need a partner familiar with the challenges for the relevant markets and battery models who can offer a complete portfolio of services for solving them.”

From order acceptance to recycling certificates,

SIMPLi RETURN is a fully integrated take-back system





“SIMPLI RETURN helps to conserve resources while promoting the expansion of electromobility.”

Ralf Mittermayr, Speaker of the Executive Board, Saubermacher

Worldwide battery recycling

Interseroh provides a safe and environmentally-friendly battery recycling service, thereby supporting car dealers, repair shops and car recycling depots for whom vehicle taking back is required by law. This service is based on the idea of removing batteries no longer usable for mobility applications from the market by means of a worldwide take-back system fully compliant with national and international regulations. These batteries can then be used as stationary storage in their 'second life' – or, if this isn't possible, they can be processed in special facilities to recover valuable materials like cobalt and nickel.

SIMPLI RETURN for efficient solutions

To turn this vision into reality, Interseroh has teamed up with Austrian waste management experts Saubermacher. In their SIMPLI RETURN joint venture, the two companies offer all of the services necessary – from global pick-up to battery shipping and recycling, followed by documentation and training courses focusing on

legal requirements. The two companies also complement each other perfectly. “Saubermacher has the modern recycling technologies needed for batteries while we at Interseroh offer experience and a solid network in terms of logistics,” explains Wassilij Weber, Head of Operations at SIMPLI RETURN.

Straightforward handling

SIMPLI RETURN recently launched an online platform to help its customers negotiate the battery take-back process. “It really simplifies order handling for customers worldwide,” says Weber. “Data and documents are available 24/7 at the touch of a button and customers can follow their batteries step by step on their recycling journey.” At the end of the process, customers are given full documentation as proof that the battery has been recycled. “This ensures that our global recycling services are delivered transparently, securely and on time,” explains Saubermacher CMO Ralf Mittermayr. “In doing so, we're supporting our customers' sustainability practices while promoting the expansion of electromobility.”

MORE INFORMATION:

www.simplireturn.com

We are living beyond our means:
In 2018, the global community consumed
resources equal to around

1.7
Earths.



PERSPECTIVES FOR

**CLIMATE
PROTECTION**

To achieve real progress with the closed-loop economy and security of supply for raw materials, everyone involved must work together. We team up with other companies to develop workable solutions, participate in initiatives, acquire broad-based expertise and deploy effective climate protection measures that are also relevant for our own business.





Dialogue expands horizons and shapes new perspectives

Although possible, the path to a climate-friendly future is not an easy one, and it requires all stakeholders to contribute their insights and act together. This is why Interseroh also participates in industry-wide dialogue.

'Wirtschaft macht Klimaschutz' brings together around

180

companies to work on climate protection.

Achieving each circular economy milestone requires the various actors to understand each other, learn from one another and properly coordinate their activities. Every perspective is important. Legislative frameworks can provide incentives, while scientific expertise is needed to develop suitable methods, discover potential and identify pitfalls. Companies are where resources are used, so they need to establish efficient processes and provide real-world test beds for theoretical approaches. Cultural institutions on the other hand are ideal for raising awareness in society at large. By working together, everyone benefits: business, society and the environment.

Networking is fundamental

To establish a broad-based network and a shared philosophy, Interseroh is an active member of 'Wirtschaft macht Klimaschutz', a forum from the German Ministry for the Environment, Nature Conservation and Nuclear Safety. Participating companies work to develop practicable solutions with support provided by government and academic research.

"We provide a researcher's perspective on the sustainable development of our economy," explains Dr Holger Berg from the Wuppertal Institute. "We engage with businesses to learn about current trends and understand the practical issues they face." The Wuppertal Institute for Climate, Environment and Energy is jointly responsible with Ernst & Young GmbH and the Ecologic Institute for the design and organisation of the forum.



Klaus Lützenkirchen

Siemens representative in the 'Wirtschaft macht Klimaschutz' forum

"Our industry-wide cooperation enables effective knowledge transfer with the aim of designing practicable action plans for putting circular economy theories into practice."

Dr Holger Berg

Circular Economy Expert, Wuppertal Institute

"If you want to really close the loop, you need a global perspective: you have to go off the beaten track and be ready and willing to learn."

Interseroh's work with other companies here is focused on the 'Circular Economy' working group, and on closed-loop economy business models, obstacles to implementation and alternative options for increasing the rate of use for recycled raw materials. The group has also set itself some ambitious goals. "My engagement with the forum is aimed at preparing the way for a more responsible approach to handling natural resources," reports Klaus Lützenkirchen from Siemens.

Forum members are also developing some practical tools. "One of these toolboxes is intended to help businesses implement the circular economy," explains Alexander Häge, Head of Innovation & Strategy at Interseroh. The toolbox is used to create a basic framework before then identifying improvements in a second phase and taking concrete action.

MORE INFORMATION:

www.wirtschaft-macht-klimaschutz.de

Raising awareness in society at large

Dialogue not only needs to be encouraged between businesses: there's also a need to increase familiarity with environmental issues in the wider society. To raise awareness of the problems associated with plastic consumption, Interseroh provided support for a campaign run by National Geographic: 'Planet or Plastic?' aims to make people aware of the environmental impact of non-reusable plastics and to change people's habits. Interseroh's role here was to supply collected plastic waste. The result: an entire tram that was then driven through Berlin with wording saying "YOU make the difference", this drew attention to the drastic consequences of lifestyle choices. Christina Leucht, National Geographic: "Our campaign is designed to raise awareness about our relationship with plastic – especially single-use plastics – in the general population, and partnerships are an important way for us to come up with solutions and also to increase our reach."

“Planet or Plastic?’ is an initiative that aims to show people the impact of using non-reusable plastics and inform them about the alternatives.”

Christina Leucht
National Geographic Partners



MORE INFORMATION: www.nationalgeographic.de/planet-or-plastic

Recycling makes sense: reusing toner cartridges

Reconditioning empty printer cartridges offers enormous potential: the process can cut costs and save raw materials while also protecting the environment. Interseroh has now expanded its business model into this segment.

Every year, around 120 million printer cartridges are used in Germany alone. Of these, 80 percent are used once and then thrown away. Yet they still contain valuable raw materials, since many toner cartridges are petroleum- and aluminium-based products. For this reason, German law now also requires cartridges to be reconditioned as part of the German Life-Cycle Management Act.

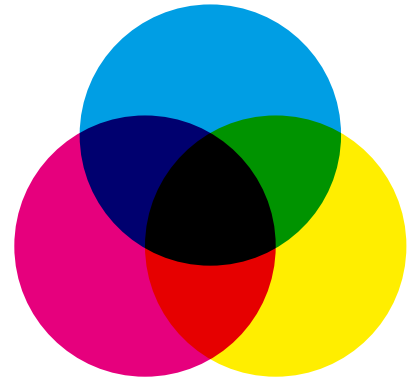
Back in the loop with ReUseMe

For over 18 years, Interseroh has been taking back used printer cartridges as part of its 'Collecting Dragon' project for the benefit of schools, daycare facilities and charitable organisations such as Caritas. As a result, the environmental services provider operates one of Europe's biggest printer cartridge collection systems. And Interseroh has recently expanded this business model: printer cartridges are now being cleaned, reconditioned and refilled under the ReUseMe brand in Germany with the aim of being resold on the market. "This lets us save valuable raw materials and avoid the energy-intensive processes used for new products," explains Tom Reidick, Managing Director of INTERSEROH Product Cycle GmbH. "ReUseMe toner cartridges are comparable to the originals in terms of both quality and coverage."

Reusing a single cartridge cuts greenhouse gas emissions by

4.49

kg when compared with making a new product.



A provable environmental benefit

As the Fraunhofer Institute UMSICHT was able to demonstrate, cartridge reconditioning and reuse can contribute significantly to conserving resources and protecting the environment. In 2017, Interseroh took back 1.4 million cartridges, thereby avoiding the production of 6,300 tonnes of greenhouse gases, which is equal to the annual exhaust emissions from 3,530 motor vehicles. Reidick: "The study reveals the extent of potential savings: reusing the cartridges offers a significant environmental benefit." The new refilled toner cartridges are now available online.

MORE INFORMATION:

www.reuseme-toner.shop



CCF: measuring our ecological footprint

What emissions are caused by our business activities? To answer this question, Interseroh once again calculated its Corporate Carbon Footprint in 2018.

The company first started measuring its CCF in 2015 – aiming to identify potential savings and apply targeted measures to conserve resources. This culminated in the company’s Climate Strategy.

Since 2015, Interseroh has expanded its CCF data collection process and improved the data quality. As a result of expansions to the company’s environmental services portfolio, its ecological footprint amounted to 115,751 tonnes of CO₂ equivalent (CO₂-e) in 2017.

For full details of Interseroh’s Corporate Carbon Footprint, see the Sustainability Report (www.interseroh.de/en/sustainability/sustainability-report).

Climate Strategy: specific objectives

- **50 percent reduction in emissions per site (Scope 1 and 2) by 2025**
- **Continuous identification of potential for optimisation in logistics and working towards the goal of reducing logistics-related emissions**
- **Annual savings of at least 5.5 million tonnes of resources and 800,000 tonnes of carbon dioxide equivalent by the services we provide**

Interseroh applies the results to make informed business decisions. The company aims to cut emissions when placing logistics orders, for example. One option here is to offer incentives to optimise tour planning.

76%

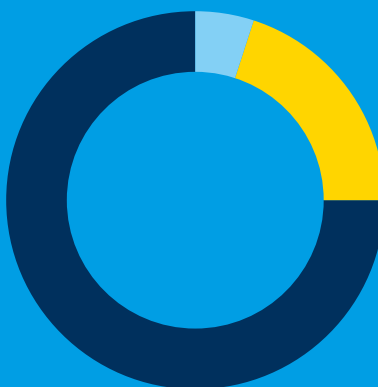
**Scope 3
(upstream and downstream indirect emissions)
87,611 t CO₂-e**

5%

**Scope 1
(direct emissions)
5,347 t CO₂-e**

20%

**Scope 2
(indirect emissions)
22,794 t CO₂-e**



Rounded values, minor differences in totals

Over
30

percent

of the plastics processed
in Germany are used to
produce packaging.



PERSPECTIVES FOR

PACKAGING
RECYCLING

While packaging made from plastics is useful, it also presents major challenges for the climate and environment. At Interseroh, we work with our partners to apply resource conservation and optimised recycled processes to packaging. We also keep track of the latest available technologies.





The new German Packaging Act

In 2018, Interseroh launched a new online shop – Lizenzero – in response to the new German Packaging Act. This shop provides a range of useful services to help small businesses and online merchants register their packaging volumes correctly. The company pick-a-pea was one of the first users of the new shop.



Ida Julia Schlößer, Digital Marketing Manager at Interseroh and Lizenzero co-developer



INTERSEROH

IJS

The entry into force of the new Packaging Act in 2019 places greater product responsibility on merchants and manufacturers. Anyone whose business involves placing packaging on the market must register this packaging with a dual system. From plastic wrap and cardboard boxes to glass bottles – any and all packaging materials that are typically thrown away by consumer households must be licensed. In this way, merchants and manufacturers take steps to ensure that the packaging waste their business has generated can be properly collected, sorted and ultimately recycled.



Anja Rausch, Business Development Manager at pick-a-pea



PICK-A-PEA

PICK-A-PEA

Pick-a-pea has set itself the goal of offering high-quality organic food to Germany's supermarkets and caterers. Already the recipient of several awards for its exceptional quality, pick-a-pea brings passion, responsibility and a love of the natural world to its products – always fresh and naturally 100 percent organic.



AR This was exactly the challenge we faced. The legislation applicable to licensing and the cost calculations required are extensive and complex: as a small business, we don't have the resources to spend huge amounts of time on packaging registration work. So we need a partner who can help us to fulfil our legal obligations as simply, quickly and inexpensively as possible.

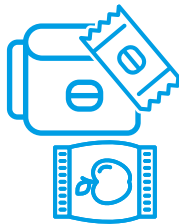
IJS We have tailored our online shop to suit the needs of small businesses like pick-a-pea in particular: Lizenzero gives our customers a simple, straightforward way to fulfil their legal obligations. As customer numbers have shown, our approach works. The packaging volumes registered via Lizenzero in the first quarter of 2019 alone have resulted in savings equal to 30,000 tonnes of primary resources.

IJS This was also the idea behind our Calculation Wizard. This tool gives companies an easy way to work out the packaging volumes they place on the market. Once the number of items per packaging type has been entered, the total weight per material is calculated. The fees we charge are based on this figure. Interseroh also handles all of the take-back, sorting and recycling processes for the materials.

IJS The positive feedback we received from pick-a-pea shows that our Lizenzero shop is the kind of service that our customers need to help them meet the recycling targets required by law.

AR Like many companies, we also need packaging for our products. As producers of organic convenience foods, we need to focus on taste and freshness – and plastic is often our best option here. At the same time, we certainly want our packaging to be recycled properly and efficiently once it has been used. Precondition: the dispensation via payment of a license fee. Interseroh's online shop offers us the help we needed here: it gives a clear overview of the packaging details required and how the volumes are calculated. The entire process is completed online – which is also another time-saver.

AR As a result, we have met all of our responsibilities for packaging recycling, both to protect the environment and to comply with the Packaging Act. Lizenzero gives us the confidence of knowing we have fulfilled our obligations – leaving us free to focus on our core business.



Pick-a-pea uses recyclable plastic packaging to preserve product freshness.



The new German Packaging Act has now increased recycling targets for individual materials: since 2019, at least 58.5 per cent of plastics must now be recycled (using mechanical methods) compared with the previous figure of 36 per cent. In 2022, this figure will rise even further to 63 per cent.

PODCAST WITH MORE INFORMATION:

www.onlinehaendler-news.de/e-recht/gesetze/130780-onair-verpackungsgesetz-praxisnah-mit-interseroh

“We want to make sure that our packaging can be recycled efficiently after it has been used – and Lizenzero is the helping hand we need.”

Anja Rausch, Business Development Manager at pick-a-pea

Optimising packaging for sustainability

Interseroh offers its customers a range of services to help them design packaging for environmentally-friendly recycling. An independent assessment standard is first applied to evaluate recyclability. Specific recommendations for action are then given to help customers make improvements.



Bio-Zentrale Naturprodukte GmbH has been working hard to achieve improvements to its packaging, as Managing Director Johannes Mauss explains: “In the food industry, we’re not yet at the stage where we can do away with plastics entirely. However, we can take resource conservation into account when we design our packaging – and we believe we have a moral obligation to do so.” In its quest to design recycling-friendly packaging, the company has made use of the ‘Made for Recycling’ portfolio of services offered by Interseroh. The new German Packaging Act has also been another factor here, since the new Act requires a greater focus on reusability and recyclability when designing packaging.

A systematic assessment of recyclability

In late 2018, Interseroh first analysed the level of recyclability offered by the current Bio-Zentrale packaging. Each piece of packaging is evaluated in three separate steps using an assessment standard developed jointly with the bifa environmental institute and audited by the Fraunhofer Institute for Process Engineering and Packaging IVV.

- 1. Collection:**
Is the consumer able to dispose of the packaging correctly?
- 2. Sorting:**
Can the packaging be properly sorted and its material(s) correctly identified?
- 3. Recycling:**
Can materials be recycled according to the latest technical standards and reprocessed into new products? The packaging design is then assigned a specific score from 0 to 20 points.

“We review our packaging design with an eye on improving recyclability at regular intervals.”

Johannes Mauss, Managing Director of Bio-Zentrale Naturprodukte GmbH

Designing packaging to conserve resources

Bio-Zentrale has been using the initial results to further improve the recyclability of its packaging. Mauss: “When we start to develop a new product, we already look at ways in which we can improve the mechanical recycling of the used packaging.” If packaging doesn’t yet meet these criteria, the company investigates further and considers alternative options for packaging designs. “We want to use only as much material as is actually needed, and switch to resource-friendly variants with optimum recyclability wherever possible,” says Mauss.

The company’s efforts have already been rewarded: in February 2019, Bio-Zentrale was the first recipient of Interseroh’s ‘Made for Recycling’ quality seal. “We award our quality seal to packaging that offers very good recyclability,” explains Julian Thielen, who is responsible for packaging optimisation work at Interseroh. “Specifically, this means that the packaging can be identified and disposed of easily by the consumer, sorted by machine and then mechanically recycled.” Bio-Zentrale views its high-scoring packaging as an incentive to pursue its successful strategy. Mauss: “Packaging optimisation is not a goal, but a process. If we discover a better option that makes our packaging even more environmentally compatible, we try to switch over to this as quickly as possible.”

MADE FOR RECYCLING – ADVANTAGES AT A GLANCE:

- ➔ **Scientifically-audited packaging analysis**
- ➔ **Optimisation for sustainability**
- ➔ **Recognised certificate**



“We apply a recognised assessment standard to help our customers design packaging with recyclability in mind.”

Julian Thielen, Packaging Engineer at Interseroh

WATCH INTERSEROH'S FILM ABOUT PACKAGING OPTIMISATION

www.interseroh.de/en/services/consulting/packaging-optimization/

A shared approach to packaging recycling

Once a year, Interseroh hosts the 'Future Resources' symposium with the German Packaging Institute (dvi), bringing together experts from retail, manufacturing and the recycling industry. Last year, around 120 delegates attended the event, entitled **'Packaging for Tomorrow'**, to discuss sustainable packaging solutions for the future. A key point of focus here was improved recyclability to ensure the end-to-end, closed-cycle management of materials. The panel discussion that closed the event once again highlighted how progress will depend on a shared change in perspective. This year, the packaging recyclability event will be held on 7 November in Frankfurt, Germany.



**FOR REGISTRATION AND FURTHER DETAILS,
PLEASE VISIT www.future-resources.de**

“We’re not waste processors – we’re resource suppliers.”

In Germany, sales packaging and plastic products end-up into a Yellow Bag, Yellow Bin or recyclables bin for collection. But what happens next? We visited Uwe Küber, who developed the sorting systems used at ALBA and Interseroh, to get a closer look at his ultramodern machinery.



One piece of packaging after another: we can see plastic wrap, PET bottles and ravioli cans on the conveyor belt. While a layperson might view this as useless rubbish, Uwe Küber sees the valuable materials instead. “It’s resources waiting to be used”, says the Managing Director of ALBA Recycling GmbH. “And our processes ensure that these materials can in fact be reused in new products.” For today’s average manufacturer, material costs make up over 45 percent of total company expenditure. This means that the reclamation of resources is now a decisive factor for the economy and can help to ensure security of supply for procurement.

Fraction by fraction

Uwe Küber manages all five sorting facilities for recyclables within the ALBA Group – to which the two brands ALBA and Interseroh belong. With an annual capacity totalling 805,000* tonnes, these plants handle a third of all packaging waste from German households. Küber: “Once we have

received the materials, they start their journey through our facility. The objective is to separate out the various waste fractions with the aim of being able to supply these to manufacturers as materials of the very highest purity.” No-one knows these complex processes better than Küber.

In the first step in this sorting process, the conveyor belt takes the materials through three drum sieves, which sort the materials by size. At the next stage, advanced and innovative technical devices then sort the materials into fractions: high-precision magnets, eddy current separators and near-infrared technology sort iron to iron, aluminium to aluminium and polyethylene to polyethylene. Some 400 conveyor belts are used to move the materials step by step around the huge building. Ultimately, they end up in individual, homogeneously separated fractions. The raw materials are then compressed into huge bales before being shipped off for use by manufacturing companies in Europe. “Some of these plastics will be processed into high-quality recyclates capable of meeting a wide range of market requirements in our own plant in Eisenhüttenstadt,” adds Küber.

Consumers must do their part

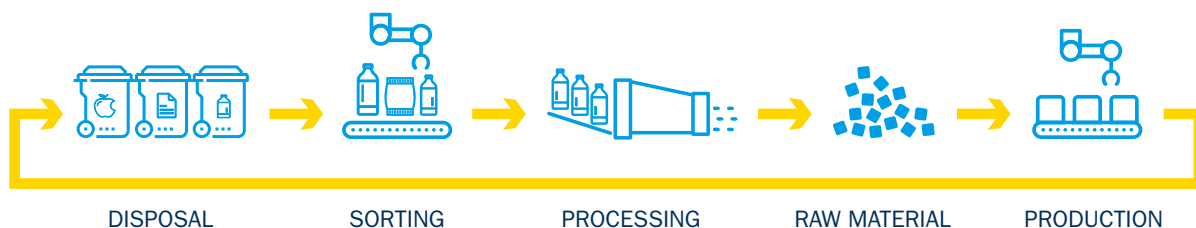
Not all of the materials that are delivered to Uwe Küber’s plants can actually be processed there, however. “Around 10 to 20 percent doesn’t belong here: this makes our job harder because we have to separate it out.” And Küber is quite clear about the reason for these ‘impurities’: the general population needs to be better educated about how to sort their waste.

Every year, the five plants run by ALBA Recycling sort

805,000

tonnes of material.*

* Due to damage sustained in a fire, one of the sorting plants with a capacity of 200,000 tonnes has been out of service since 24 April 2019.



ALBA Recycling GmbH isn't just a market leader for technically advanced sorting systems in Germany and Europe. "We're also very well prepared for the new German Packaging Act," says Küber. The new act requires 50 percent of all input to be mechanically recycled. From 2021, this figure will rise further to 55 percent. "We upgraded all of our systems last year to ensure that we can meet these requirements."

Continuous optimisation for resource security

Apart from changes in the law, there are several other reasons why his systems need continuous optimisation, as Küber explains: "The makeup of the materials we receive at our plants depends on patterns of consumption, raw material prices and how consumers actually dispose of their waste. So we analyse and audit our processes regularly to keep in step with current trends."

"Our plants combine ultramodern digital technology with over 50 years of ALBA Group know-how and are fully compliant with the new German Packaging Act."

Uwe Küber, Managing Director
of ALBA Recycling GmbH

He's also especially proud of the new, innovative technology that came online in the plants in 2018. "We're now operating cutting-edge sorting plants that also use sorting robots, for example." In the future, high-efficiency sorting plants will make greater use of these automated processes. But job security is also very important for Küber. "We're only as good as our employees. Everyone here works hard to keep our processes running smoothly," he says, approvingly. "And we need this kind of commitment to maintain our position as a market leader for material sorting."



In 2017,

48

percent

of all households worldwide
owned at least one computer.



PERSPECTIVES FOR

ELECTRONICS RECYCLING AND REUSE

While electrical devices are made from valuable materials, they also contain dangerous pollutants. To ensure no resources are wasted, we refurbish them or make sure that they are recycled safely. Together with strong partners, our services now increasingly have an international focus.





Promoting the international circular economy

The collection and refurbishment of waste electrical and electronic equipment is a global challenge. Interseroh Austria will be working together with a new strategic partner to address this problem systematically in Italy. And that's not all: the two companies also plan to develop additional markets.

From education and administration to business and home use: electronic devices are now an essential part of our daily lives. And their numbers and usage are rising rapidly as the digital society continues to evolve. The volume of waste is following suit: Every year, we currently produce around 44.7 million tonnes of electric waste worldwide – of which only 20 percent is documented and can therefore be properly collected and recycled.

Waste management efforts must also master some significant challenges that are being made worse by rising volumes. The devices contain valuable and rare metals such as gold and copper, which are lost if the waste management is not carried out correctly. In addition, the dangerous pollutants contained can also create environmental and health risks if wrongly handled. Minimising these impacts requires systematic taking back in conjunction with effective and safe recycling.

Working together to tackle global challenges

Interseroh is increasingly adopting an international strategy in this context. The environmental services provider intends to develop new markets while expanding its services beyond Germany. INTERSEROH Austria GmbH Managing Director Martin Ulke: "Because climate change is a global problem, the more extensive our global reach, the more opportunities we have to implement effective and sustainable strategies."

Crucially, this depends on working together with partners who have country-specific expertise. This is why Interseroh Austria recently joined forces with the Italian Consorzio REMEDIA – one of the leading collection systems for waste electrical equipment and batteries in Italy. Counting key industry players like Apple, Samsung, Siemens, Panasonic, Vodafone, Dell, Lenovo, Electrolux and Hitachi among its 2,300-strong customer base, the company collects and transports electrical devices for recycling or refurbishment and reuse.

Every year,
we produce some

44.7

million tonnes of electric
waste worldwide.



“We want to use this partnership to drive long-term promotion of the circular economy in the Italian market.”

Danilo Bonato, Managing Director of REMEDIA TSR

Remedia
PASSIONE PER L'AMBIENTE



From core business to more business

Together, the two companies want to utilise synergy effects and expand Remedia's existing services in order to achieve a circular economy revolution in the Italian market. One key point of focus here is Italy's handling of electronic waste. The use of recycled materials in production can reduce the use of resources in new equipment and reduce costs, thereby enabling companies to meet the customer's demand for responsible production.

The taking back of technical equipment is not the only area where Interseroh and the Consorzio REMEDIA want to break new ground. Interseroh and Remedia are also looking to market material recycling machinery, and to invest in and develop recycling plants for waste electrical equipment. “By combining Interseroh's experience with our network and our country-specific expertise, we can create important momentum on the Italian market,” explains Danilo Bonato, Managing Director of REMEDIA TSR, the Group's operating company. The partnership pools knowledge and experience not only in take-back systems and recycling, but also in the licensing and taking back of packaging. Ulke: “Securing resources doesn't stop at national borders. So we want to pursue our vision above and beyond Germany and Austria to achieve zero waste solutions at an international level.”

IT upgrade: secure and climate-friendly

Digital education is now increasingly part of classroom teaching in Germany. In Munich's schools, pupils already work with laptops, projectors and imaging cameras on a day-to-day basis. Interseroh's subsidiary ITL logistics GmbH has been commissioned to provide IT rollout support to Munich's 700+ schools by Computacenter, Europe's leading vendor-independent IT service provider: While ITL logistics stores, stages and pre-configures, and supplies this new equipment, the project also involves taking back some 40,000 items of legacy electrical equipment from the schools. If these devices can still be used after pickup, the logistics company then refurbishes them for a second life. This service includes data destruction as well as any cleaning, repairs or parts replacement work. If a second life is impossible, ITL logistics ensures the equipment's safe and certified waste management. “An order of this size is a gigantic contribution to climate protection,” comments Nicholas Strathern, Managing Director of ITL logistics.

Fit for a second life

Smartphones and tablets are now in use by everyone, everywhere. Interseroh refurbishes these devices to extend their useful life. The Fraunhofer Institute for Environmental, Safety and Energy Technology UMSICHT has identified this as an area of especially high potential for climate and resource protection.

In Germany, over 80 percent of the population now owns a smartphone. Often, these devices are replaced by new models offering newer technology and improved performance after less than three years. While the volume of electric waste is rising on the one hand, so too is the demand for resources to manufacture new devices. Extending the useful life of these devices with refurbishment can significantly reduce their impact on our environment.

Successful refurbishment

A study carried out by Fraunhofer Institute UMSICHT analysed the refurbishment service for smartphones and tablets offered by Interseroh. "Refurbishing used devices offers plenty of scope for achieving real resource savings – and has the potential to actually double the useful life of smartphones in some cases," explains Dr Ing Markus Hiebel, Head of Sustainability and Resources Management at Fraunhofer Institute UMSICHT.

14 ↓

kg of primary resources saved per smartphone and

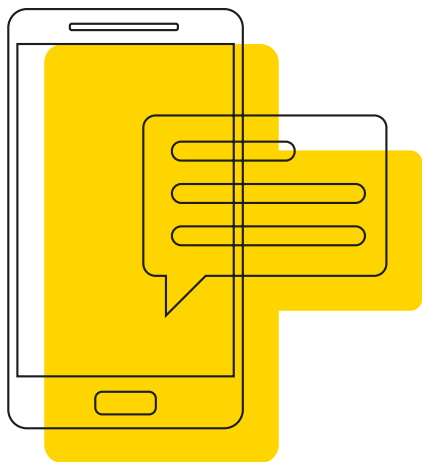
58 ↓

kg per tablet.

Turning old into new

Interseroh handles the refurbishment of used IT and communications equipment. After performing secure data destruction, the environmental services provider checks if devices are working properly and replaces batteries or displays as required. The devices are then given a final inspection before being resold on the market. If the smartphones or tablets can no longer be used, they are sent for professional recycling to ensure that their materials are returned to the loop.

Extending a smartphone's useful life saves around 14 kilogrammes of primary resources per smartphone. This includes valuable metals such as gold and copper and the overburden that would otherwise accumulate during metal extraction. In terms of tablets, the primary resource savings per device are as high as 58 kilogramme. This kind of refurbishment therefore offers significant added value for the environment and is a key step towards the circular economy in the sense of 'zero waste solutions'.



“Refurbishment can double the useful life of a smartphone.”

Dr Ing Markus Hiebel, Head of Sustainability and Resources Management, Fraunhofer Institute UMSICHT

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