

Circular Economy in Germany – Status quo and needs of female entrepreneurs

I. Status quo

Current legislative framework on circular economy in Germany:

- The Closed Substance Cycle Waste Management Act (Kreislaufwirtschaftsgesetz, KrWG) is the central federal law of German waste legislation. (First-time coming into force in 1996)
- The aim of the Closed Substance Cycle Waste Management Act is to reduce waste, in particular the waste to be landfilled. First and foremost is the avoidance of waste.
- With the amendment based on the EU Waste Framework Directive, the hierarchy of objectives for dealing with waste was added to the Closed Substance Cycle Waste Management Act. This results in the following hierarchy of objectives when dealing with waste:
 1. Avoidance
 2. Preparation for reuse
 3. Recycling (material recovery)
 4. Other recovery, especially energy recovery and backfilling
 5. Disposal
- The EU legislative package on circular economy, which came into force on 4 July 2018 has been integrated into the Germany Closed Substance Cycle Waste Management Act. It includes the Waste Framework Directive, which includes the Packaging Directive, the Waste Electrical and Electronic Equipment Directive, the Batteries Directive, the End-of-Life Vehicles Directive and the Landfill Directive.

Plans of the current German government regarding circular economy:

- Conviction that products must be durable, reusable, recyclable and, if possible, repairable
- Definition of clear goals
- Reviewing of waste management regulations
- Bundling of existing raw materials policy strategies in a national circular economy strategy; Based on this: advocating for EU-wide standards
- Strengthening of extended producer responsibility on European level
- Introduction of digital production passes
- Supporting businesses in the implementation and uphold the principle of data economy
- Strengthening waste prevention through legal targets and ecologically beneficial reusable, return and deposit systems as well as industry agreements

- Establishing an incentive system to dispose certain electrical appliances and hazardous lithium-ion batteries in an environmentally sound manner and to feed them into the circular economy
- Rewarding resource-saving and recycling-friendly packaging design as well as the use of recycled materials with a legally anchored fund model
- Introduction of a recycling-label
- Accelerating the development of quality standards for recyclates to create new high-quality material cycles
- Including chemical recycling as a recycling option in the Packaging Act

Status quo of German businesses on circular economy¹:

- Current employment figures (2020): > 310,000 skilled workers employed (+ 12 % compared to 2010) in approx. 10,700 in municipal and private companies
- Turnover (2017): 85 bn Euros (+18 % compared to 2010)
- Gross value added (2017): 28 bn Euro (+ 31 % compared to 2010)
- The German circular economy continues to be a growth industry. Steadily growing requirements for material and energy recovery, rising standards to produce secondary raw materials and the associated technical innovations are leading to a sustained positive development of the key economic indicators.
- The circular economy encompasses much more than the collection, transport and disposal of waste - the analyses show the economic importance that the upstream and downstream value-added stages of technology and trade also have for a functioning circular economy. Of the approximately 10,700 companies,
 - about 6,100 companies are in the classic market segments of "waste collection, transport and street cleaning" and "waste treatment and recycling".
 - Just under 1,300 companies are in the market segment "technology for waste management".
 - A further 3,300 companies are providing with the "wholesale of used materials" for the important cycle of collected and recycled materials from the waste management sector.
- For many years, the German environmental service branch has been an important player in the international trade in plants, machinery and secondary raw materials: On the one hand, there is a high demand for technologies and solutions in many countries of the world in order to be able to establish their own waste management structures. On the other hand, more and more secondary raw materials are needed for the development of national economies. Waste legislation in Germany led to technological innovations at an early stage, which today form a viable basis for successful export. The market segment "technology for waste management" alone has an export volume of 5.1 billion euros in 2018. The most important target markets in this area are still the United States, China and France. Secondary raw materials, such as metals or plastics, with a total volume of 9.5 billion euros, are mainly exported into Belgium, Italy and the Netherlands.

¹ https://statusbericht-kreislaufwirtschaft.de/wp-content/uploads/2020/11/2020_Statusbericht_mobil.pdf

- The technologically innovative industrial goods from the circular economy sector "Made in Germany" are still in great demand on the world market. Good examples are the company "ROWE": Europe's most modern lubricant plant (see below presentation, page 9ff) and "Mocci": recyclable e-bikes with digital drive made in Germany (see below presentation, page 15ff). Germany is number one in plant technology. A few years ago, Germany was still in third place behind the USA and Japan in terms of patent applications. In the meantime, China has passed Germany - a clear sign that Chinese competitors are catching up in the areas of innovative strength and quality. Global competition is increasing. If German suppliers want to maintain their leading world market position, they will have to make an even greater effort in future to survive in the innovation competition. This will be all the more important as increasingly complex recycling technologies are also needed internationally for the ever more complex products.
- The start-up scene within the circular economy has grown strongly in recent years and has also been specifically promoted.
 - Around 2,400 start-ups were founded in the German circular economy between 2010 and 2020. A great example for innovations in transportation is "Unleash Future Boats": electrical autonomous boats and ships with fully digital harbors and zero emission (see below presentation, page 5ff). Other great examples for start-ups are "The Future Living" in the area of services such as CO2 balancing and certification (see below presentation, page 27ff) and "BESONNEN WIRTSCHAFTEN" in building sustainability as a professional business competence (see below presentation, page 13ff).
 - Approx. 12 % of the above mentioned founded start-ups are based on digital business models (more than in plant production (6 %), automotive sector (5%) or water management (3 %)).
- The continuous number of start-ups within the circular economy is also based on an extensive funding landscape. Thus, in addition to the general funding initiatives of the federal government and the EU for start-ups and business start-ups, specific funding programmes or awards for start-ups from the circular economy have been developed in recent years (see Unleash Future Boats page 5ff).
- The below presentation shows, however, also companies in traditional fields of business which are dedicated to sustainability, such as "ABURY": a B Corp certified Fair Trade Accessory Fashion Label (see below presentation, page 21ff) and "Wandschutz NIELSEN": a nationwide company in the field of wall protection (see below presentation, page 23ff).

II. Conclusion

Circular economy in Germany is increasingly shaped by European legislation and rulings of the European Court of Justice. In addition to minimizing the adverse effects of waste generation and treatment on the environment, issues such as energy efficiency, resource resources and climate protection are increasingly moving to the foreground. In this context, the circular economy is increasingly connected with product and resource policy.

Additionally, it is an increasingly growing business sector, creating jobs and attracting start-ups. However, circular economy will only be successful if it is not only framed by useful legislative action but also accepted by the people in the way a society lives, works, consumes and uses products.

There is enormous potential for women-owned businesses in the green economy in Germany. However, women are still underrepresented in areas that are critical to whether we achieve the goals of the Paris Agreement: Both in STEM professions and in green entrepreneurship. Germany must take steps to strengthen female entrepreneurship overall and facilitate women's entrepreneurship and start-ups in the green economy. This includes, for example, better access to capital for female founders and entrepreneurs (see below presentation, page 33ff), equal participation in all areas of society, and better reconciliation of entrepreneurship and family.

Companies that promote gender equality at all levels often also operate more socially, ecologically and sustainably. Diversity must therefore also be given higher priority in the implementation of ESG (environment, social, governance) criteria for financial institutions and public and private companies.

III. Political demands:

- Awareness and acceptance campaigns for the society
- Maintaining and expanding the technological lead
- Further development of the European division of labour
- The public sector as a pioneer for the use of recycled products
- For businesses: Planning and investment security
- Strengthen and facilitate women's entrepreneurship and start-ups in the green economy
- Diversity must have higher priority in the implementation of ESG criteria

The following presentation shows role model female led enterprises in Germany active in the field of circular economy and sustainability, founded and/or managed by members of the German Association of Women Entrepreneurs VdU: <https://www.vdu.de>.



Verband deutscher
Unternehmerinnen



UNLEASH FUTURE
BOATS

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We develop an ecosystem around electrical autonomous boats and ships with fully digital harbors, shipyard, and joint ventures to rewrite the rulebook of maritime transportation. Completely zero emission we offer solutions for clean and sustainable mobility and logistics on the water.

Problems, we solve:

Emissions

3.7% of CO2 Emissions in the EU caused by maritime transportation.
Annual increase of 14%!

Increasing Traffic

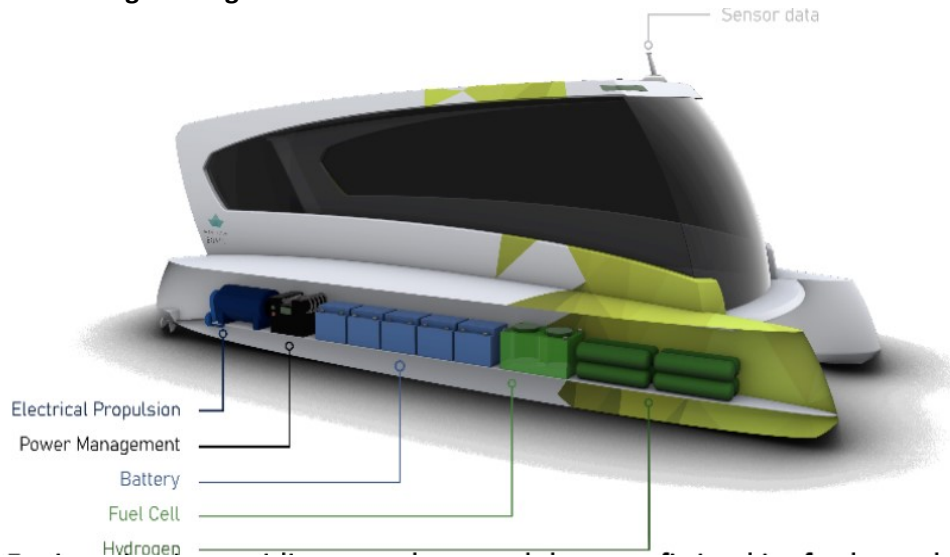
Carbon emissions from cities: 70%
Waterways are not used for individual traffic

Economic Pressure

Low water levels due to longer and intensified periods of drought
In 2018, German industry lost 5 billion Euro due to loss of inland shipping

Our Solution:

I. Green Boats Engineering



Maritime transport is responsible for 3.7% of CO₂ emissions in Europe!

New regulations require the conversion of hundreds of thousands of boats in just a few years - worldwide. Green Boats Engineering, an Unleash Future Boats company, offers retrofit kits. Simple. Safe. Secure. Powered with green hydrogen and fuel cells.

Green Boats Engineering is providing complete modular retrofitting kits for boats between 8 and 42 meters in three categories: Small, Medium, and Large. Because of low-voltage technology, large scale retrofitting can take place by any individual on B2B and B2C basis, whereby an economic value creation takes place locally in the respective country, enabling green growth economy. We initialize circular economy by reuse (second live) and recycling of the batteries. We will not sell our batteries; we will rent them and take them back for using the resources.

II. Innovative Sensor Technology

Autonomous shipping became possible because of our innovative sensor technology in 2019. Smart sensors with artificial intelligence (AI) enable autonomous systems on the water. With the world's first fully autonomous boat ZeroOne - receiving international registration and global insurance - we are among the global leaders.



Lars Engelhardt, Dr. Stephanie Engelhardt, **Dr. Robert Habeck** (Vice Chancellor and Federal Minister for Economic Affairs and Climate Action Germany)

Recognized by VIPs and politicians, the christening was documented by several TV Stations and broadcasted worldwide. Vice Chancellor and Federal Minister for Economic Affairs and Climate Action Dr. Robert Habeck signed our demonstrator. In addition, we also develop complete systems for mobility - FutureOne - and logistics - CargoOne.

III. Mobility-as-a-Service

FutureOne

FutureOne is like an Uber on the Water, providing intermodal and connected zero emission mobility for people. We can connect rural areas with cities and megacities, turning rivers and waterways to valuable infrastructure for the masses. Instead of expensive bridges to cross the banks, we gain valuable fully digital traffic space.



FutureOne

IV. Logistics-as-a-Service – CargoOne

With a collapse of waterway logistics in 2018, an economic loss of 5 billion Euro in Germany was caused. CargoOne is a cost-efficient and scalable logistics solution. The truck on the water for zero emission logistics can range up to 45 meters in length. It's like a taxi for containers, enabling inland shipping even in times of climate change.



CargoOne

To present all systems holistically, we are planning our own port, at the largest digital test field in Germany. Receiving several awards already. This is where the digital logistics of the future is being created. In 2022, Unleash Future Boats received the Innovation Award for the Regulatory Sandbox program promoted by the Federal Ministry of Economic Affairs and Climate Action. The 42km digital Test Field is developing into Europe's largest Test and Validation Center for maritime autonomous systems.

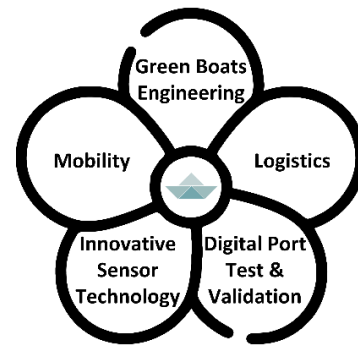


Reallabore
Testräume für Innovation
und Regulierung

And we are already planning multi-modal mobility hubs for megacities and urban areas.

In 2050, 68% of the world’s population will live in mega cities. Today, Mobility is causing 70% of overall CO2 emissions. To drastically reduce road traffic, new mobility is taking place both airborne and waterborne. Water mobility is currently under represented, yet many mega cities maintain waterways or enjoy coastal areas. Sustainable development goals (SDGs) – our key to success: All business activities are taking place in a holding structure of

Unleash Future Boats. In 2020, our activities and business plan have been reviewed by the United Nations in Bonn, Vienna and finally acknowledged with seven out of 17 SDGs by the office of the United Nations in New York.



ROWE[®]

Dr. Alexandra Kohlmann

ROWE MINERALÖLWERK GMBH

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ROWE has stood for innovative, high-quality lubricants "Made in Germany" since 1995. Sustainability has been an integral part of the company's philosophy since it was founded by Michael Zehe. His daughter Dr. Alexandra Kohlmann, who has been managing ROWE together with him since 2016, continues to drive the issue forward. We are characterized by a deep conviction to act sustainably. That's why, for example, we operate Europe's most modern plant in the lubricants sector and reduce the impact on people and the environment to an absolute minimum. We are committed to sustainability not because it is trendy, but because responsibility towards future generations forms the basis for sustainable growth and our own further development.

Europe's most modern lubricant plant

The main plant in Worms, completed in 2014, was designed and built with sustainability in mind. This can be seen, among other things, in the more than 65 km of pipelines. The "Dedicated Lines" are each used exclusively for a specific product - this saves the environment countless flushing of the pipes.



The boilers at the Worms plant are "indoor": waste heat is used to heat the halls and also for the production processes themselves. Waste heat from the grease plant is also utilized. This is so efficient that we do not need heating systems in our halls.

We generate a significant proportion of our electricity from renewable sources, for example via our own 4,000 m² photovoltaic system. In the near future, we will further increase this share by building two wind turbines with an output of 100 kW each.



The modern process control system as well as a completely CO₂-compensated production also characterize the ROWE plant. We compensate for all unavoidable emissions by supporting various sustainability projects that are certified according to the globally recognized Gold Standard. Our company is also certified according to the DIN EN ISO 14001 standard for environmental management and DIN EN ISO 50001 for energy management.

Diverse commitment to the environment

ROWE is a vertically integrated company. We are therefore able to act in a particularly sustainable manner when it comes to our containers, for example: At least around 20 percent of the containers manufactured by our subsidiary Palbo GmbH are made from recycled material, and the trend is rising. In addition, they are manufactured close to our production sites, eliminating long transport routes and the associated CO₂ emissions.



Another example is our wide range of lubricants developed in-house on the basis of renewable raw materials. They are biodegradable and are characterized by good compatibility and high occupational safety. Like all ROWE products, they come from fully CO₂-compensated production.

Award-winning company premises

ROWE has visibly ensured a significantly greater biodiversity of plants and insects on its own company grounds as part of the "Mehr Natur wagen" (Dare more nature) project. The measures implemented include a deadwood hedge, insect hotels and nesting aids, natural meadows and other sustainable plantings, and a large pond. In 2021, we were awarded the Worms Environmental Star for this nature-oriented design. In the future, we will continue to explore further opportunities to make our grounds even more sustainable.



Performance for customers

Thanks to in-house research and development, as well as state-of-the-art manufacturing technologies, we achieve the highest quality. ROWE offers a full range of products with high vertical integration, manufactured in audited, sustainable processes. The focus is on engine oils and winter chemicals for the automotive industry, but we also offer lubricants for a wide range of other applications. Numerous approvals and audits by renowned automotive manufacturers and other industrial companies prove that ROWE products exceed even the most demanding standards. Today, ROWE products are available in more than 80 countries worldwide and convince more people every day with their outstanding properties.



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„BESONNEN WIRTSCHAFTEN“ is a German sustainability consultancy with a focus on sustainability controlling and sustainability strategy development led by Andrea Engelen.

We support companies and organizations in building sustainability as a professional business competence.

Portfolio

- Workshops on the SDGs and general trends in sustainability
- Development of a sustainable mission statement (vision, mission, purpose)
- Materiality analyses
- Reporting according to GRI (Global Reporting Initiative) and support in the implementation of CSRD (Corporate Sustainability Reporting Directive).
- Determination of sustainability KPIs and anchoring in the controlling system
- Consulting for companies that have sustainability as a business model



Andrea Engelen

Certifications

- GRI Certified Sustainability Professional (GRI Universal Standards 2021)
- Certified accountant (IHK)
- Controllers Diploma (Controller Academy)



Internationaler
Controller Verein

EU-Taxonomie für Sustainable Finance

Die Rolle des Green Controllings bei der Umsetzung des
European Green Deals



Projects



- SDG Workshop with a German automotive supplier
- SDG Workshop (German Sustainability strategy) for the Technical University of Braunschweig
- Complete Sustainability strategy with GRI framework for a listed company
- CCF (Company Carbon Footprint) for a company working with silicone including definition of reduction measures
- Business plan and commercial consulting for companies which are producing alternative dog food to reduce the carbon footprint of dogs

Publications

- Whitepaper EU Taxonomie for the International Association of Controllers (ICV)
- HAUFE Verlag – Carbon Accounting

Lectures

- University of Emden-Leer – Carbon Accounting
- Bochum University of applied science – Sustainability and Controlling
- HTGF (High Tech Gründer Fonds) – Circular economy and sustainability



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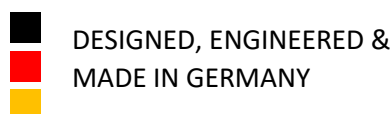
The work and cargo eBike of the future: Micro mobility rethought: With the Smart Pedal Vehicles (SPV), mocchi enables commercial mobility in urban areas on a completely new level: Digital, reliable, and sustainable. Thanks to innovative materials, mocchi combines a novel production approach from large-scale manufacturing paired with a completely new software and system architecture. In collaboration with renowned research and development partners from Germany, mocchi has revolutionized the concept of classic bicycles. All under the motto: We reinvent the wheel and thus make inner cities significantly more livable.

Fast, efficient, emission-free

mocchi is a neologism from Chinese and means “magic ride”. The Smart Pedal Vehicles offer a completely new driving experience: individually adaptable to the driver, safe, sustainable, and fully connected. The pedals of the mocchi Smart Pedal Vehicle drive a generator which generator that produces the energy for the electric motor in the rear wheel – without any chain or belt. or belt. Human energy is thus converted into eclectic energy when pedaling. Additional support is provided by the replaceable, high-performance battery.

Innovation made in Germany

For its Smart Pedal Vehicles, mocchi combines smart hardware with smart software and innovative materials. Instead of steel or aluminum, the frames of the Smart Pedal Vehicles are made of recyclable high-performance plastic. By using fewer components overall components and eliminating of mechanical power transmission, the result is a safe, low-maintenance system. All components are developed and produced sustainably in Germany.



Our contribution to a greener future

Sustainability management is anchored at the board level and integrated all throughout the mocchi journey. CIP Group has been a big player in solar energy for a long time, and anyone involved in renewable energy automatically thinks more about what can be invented that is new and groundbreaking. The main parts for bicycles are still shipped to Germany from Vietnam or China. It's unimaginable how many tons of CO2 that causes. The team at mocchi has been thinking about a way to manufacture bicycles that avoids these long journeys. Together with a technical university, we

came up with a special plastic that is recyclable and cost-effective. Combined with a smart software package, this creates a new class of vehicles: smart pedal vehicles.

The bicycle was rethought from the ground up

Instead of steel or aluminum frames, mocci relies on a plastic construction made from a recyclable composite creating 68% reduced Co2 during the production process. Most of the pedelecs' parts are manufactured using an injection molding process. For example, the front wheel consists of only one component. With around 40 % fewer bike parts than a classic pedelec, mocci SPVs significantly more durable and require less maintenance.

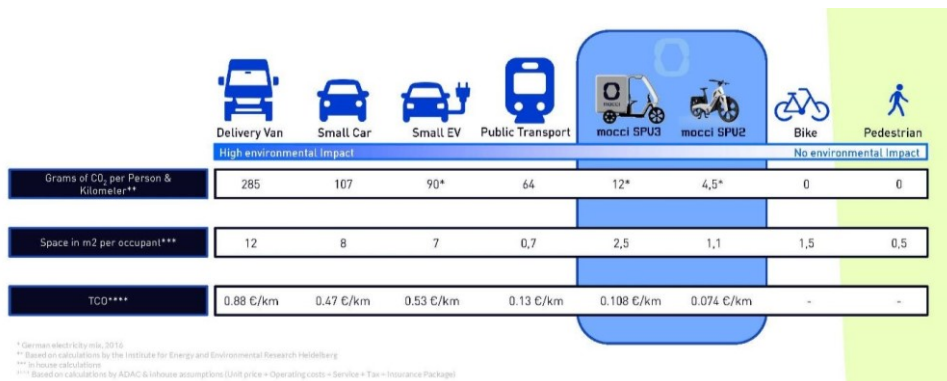
Holistic production and supply chains

With sustainability and maximum resource optimization in mind, we set up our series production in the German state of Saxony, where we manufacture our vehicles and systems for the German and European markets. With eco-friendly local assembly, we enable local job creation

Our goal is to establish a sustainable and leading research & development and production position in the field of micro eMobility in Germany. In doing so, we focus on efficient and conscious use of resources for the production location in Germany: Highly reduced co2 footprint within production process & supply chain, Energy efficient production facility

Mocci is a smart way of saving money & protecting the environment

In the load transport and business customer sector, a TCO (Total Cost of Ownership) consideration is often considered a decisive decision for a form of mobility.



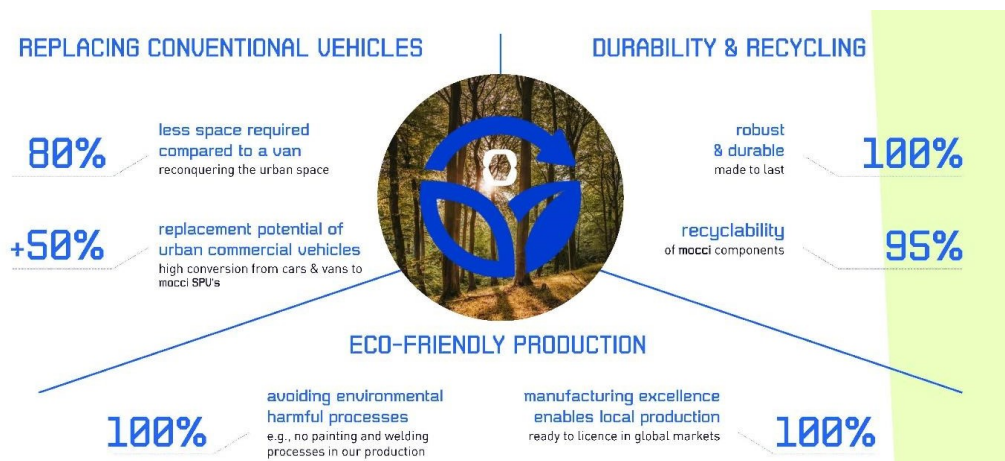
Made for climate protectors

mocci puts the environment, people and sustainability first. Greatest emphasis on meeting the highest ESG standards.



Reduce, reuse, recycle!

Sustainability means more to us than recycling: We not only want to identify and follow sustainability trends, but also drive them forward. In this way, we take an active role in shaping the future. For the first generation mocci, we are taking a completely new approach. We have developed a completely recyclable plastic wheel that is stable and consists of very few components. This allowed us to significantly reduce the total number of parts, integrate additional components into the design and implement a very efficient production with high scalability. Furthermore, the idea of a modular mobility concept has shaped the development. This means that the further development of further generations as well as closed-loop thinking has been considered right from the start.



The vision: Conscious use of materials, product adaptability

One of the best things about the mocci micro-mobility platform is the aspect of sustainability. Not only by relieving traffic congestion, but also by constructing the vehicle from modular components that allow for nearly 95 percent recycling. Cars can't compete with that, not even regular bikes can. Production of the mocci bikes is scalable while maintaining a high degree of localization. Production can be set up in any location without much effort.

Long-term relationships and the development of technologies with a societal benefit

We place the same high demands on our partners as we do on ourselves:

- Tool Manufacturer saves over 1.000 tons of CO2 annually using photovoltaic systems.
- Material Supplier is committed to economically, socially, and ecologically sustainable business activities and operates CO2-negative worldwide and at every location. Use of a biomass power plant.
- Production Partner is ISO 50001 certified which ensures efficient energy consumption and management. Uses large-scale photovoltaic (PV) systems for production and company cars.

To meet the high product and market requirements, mocci cooperates with leading experts in the field of materials and lightweight construction. A strategic partner here is also the Technical University of Chemnitz.

A special focus in the cooperation is on the fusion of material-specific manufacturing processes into integrated, large-scale technologies to produce lightweight structures. As a Competence Center of Extrusion (CCE), the TU Chemnitz also conducts research on modern recycling technologies. The use of hybrid technologies for SPVs enables improvements in terms of resource and energy efficiency.

In addition, mocci has found a leading global supplier for high-performance polyamides in the Swiss company EMS.

Outlook for a greener world – striving for a circular economy

Design

We are constantly working on making our product even leaner and lighter in order to operate as resource-efficiently as possible.

Vehicle Portfolio

Furthermore, we are working on expanding our vehicle portfolio with the addition of a three-wheeler to cover even more volume and thus create an attractive alternative to vans and cars for a variety of other businesses.

Cargo Solutions

We are currently in talks with Fraunhofer Institute with regards to the usage of recycled materials (e.g., mocci parts, fishing nets, wood) for:

Non-structural bike parts such as shells

Transport solutions: Boxes, Trailer frame, and lid

Safety

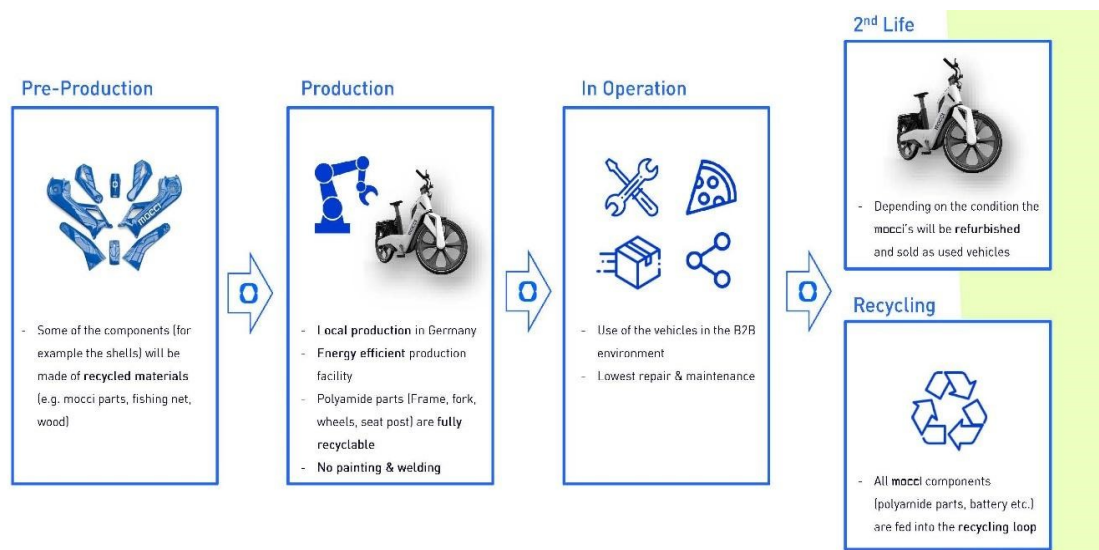
We would like to equip our vehicles with even more safety-relevant features in the future. In this context, we are considering the use of various sensors, such as radar to detect approaching cars. All with the aim of making the use of pedelecs a true alternative.

In addition to the continuous improvement of our internal processes and procedures, we are striving to meet and certify quality and sustainability standards by external institutions in the following areas in the coming years:

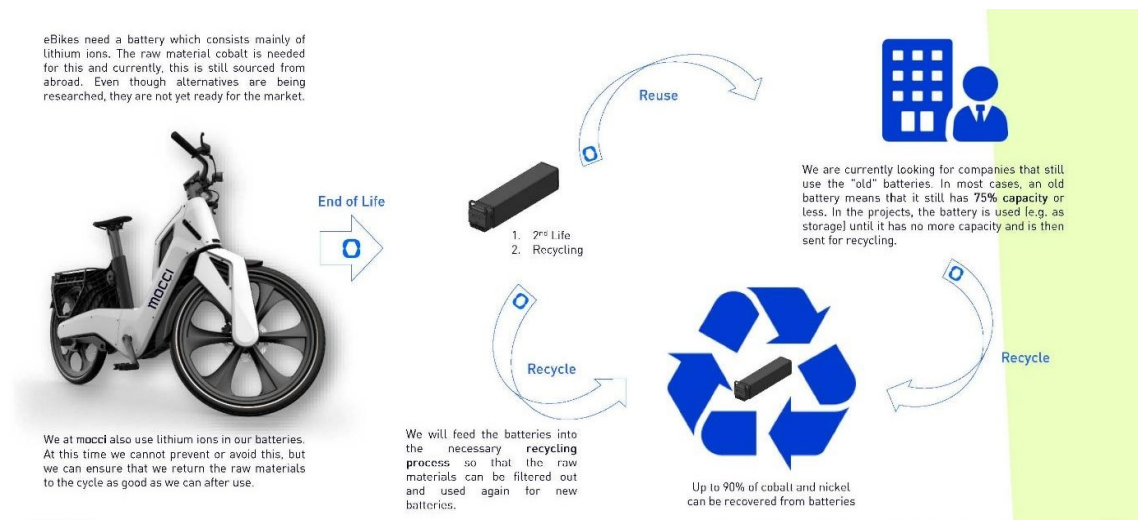
- Quality
- Carbon footprint & Climate Neutrality
- Sustainable Supply Chain
- Energy & Environment
- Social Standards

This applies both to us and to the partners we work with.

Our Sustainability & Recycling Approach



What happens with mocci batteries at the end of life



German Design Award

mocci receives "Special Mention" at German Design Award 2022

This "Special Mention" award of the German Design Award is given for particularly remarkable design achievements. "We are very proud of the award and pleased that the jury recognizes our holistic hardware and software approach to combine functionality, sustainability, and design," says Dimitrios Bachadakis, co-founder and CEO of mocci. "With our approach, we have advanced the bicycle further and professionalized production processes to a high degree."

– mocci receives the award "Special Mention" in the category "Excellent Product Design Bicycles" for its Smart Pedal Vehicles at the German Design Award 2022. Special Mention" in the category "Excellent Product Design Bicycles and E-Bikes"

– Digitally driven, fully networked, 100 % emission-free: The Smart Pedal Vehicles (SPV) from mocci set new standards in the field of steadily growing micro-mobility rethought: With the Smart Pedal Vehicles (SPV) mocci (mocci.com) enables mobility in urban areas on a completely new level. Digital, reliable, and sustainable.

About the German Design Award

The German Design Award is presented by the German Design Council and is one of the most prestigious awards in the design world. design landscape. Since 2012, a top-class international jury has honored groundbreaking design achievements with the award. design achievements. More at www.german-design-award.com.



ABURY

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ABURY is a Fair Trade Accessoire Fashion Label based in Berlin. ABURY designs, produces and sells handmade artisan products from around the world. The uniqueness of ABURY is defined by

- training the artisans to create better quality and designs directly
- teach them to use greener practices
- Re-investing parts of the profits in education projects for the women.

The company is B Corp certified since 2017. Andrea Bury is the founder of ABURY and the ABURY positive Impact Lab. She is trained B Leader. In the ABURY positive Impact Lab she gathers experienced sustainability professionals who work with businesses to measure what matters and develop communication strategies around it.



I. Examples for circularity projects:

A) Upcycled Cocktailbags from Malaysia - Leftover, not left out A limited edition of unique cocktail bags out of luxury waste! A collaboration of ABURY with the women cooperative Fugeelah and the high end fashion designer Khoon Hooi from Malaysia. A true upcycling treasure. Made from 100% leftover fabrics, which are from the production of the high-end fashion production of Khoon Hooi, giving underprivileged women in Malaysia work and meaning.



b) Tagua Bracelets – Organic Ivory from Ecuador Locally sourced from Ecuadorian palm trees, the tagua nut makes a wonderful material for organic bracelets. Every handmade bracelet is made with organic materials and natural dyes. Organic Tagua Jewelry is a very sustainable product: All left over Tagua material is used to feed livestock in the village where the jewelry is produced, and one of the biggest goals is the preservation of the amazon rainforest.



II. Sustainable Development Goals ABURY focusses on:

Skills training of women in Morocco, Ethiopia, Tanzania, Ecuador Trained around 500 women and helped them getting work in a cooperative. Literacy program for women and their children in the Atlas Mountains in Morocco since 2013 Created over 250.000 hours of education for women and children.



Nancy Nielsen

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We distribute, assemble and install wall protection, impact protection and handrail products in Germany. Our company consists of the following divisions:

- Production (assembly of material orders for customers throughout Germany on behalf of the material manufacturer)
- Assembly (nationwide installation of wall protection for our own customers)
- Online store (for private customers and small business customers)

Wall protection does what the name says, it protects walls. From dirt, scratches and destruction indoors. We work mainly in the health sector but also in all other public buildings where things or people have to pass walls. So also in schools, kindergartens, universities, zoos or offices and medical practices. Our products are designed to last at least 10 years.

We supply both B2B and B2C customers.

Most wall protection products are made of plastics such as PVC, PET-G or HDPE. There are also mixed materials such as HPL or non-flammable materials such as cement fiber.

The problem lies in the requirements regarding flammability and smoke and drip behavior that are imposed in Germany on all building products that are installed in public spaces. Plastic or wood products are basically combustible. Apart from glass, ceramics and stainless steel, there are no non-combustible materials. Plastics must therefore be made less combustible (flame retardant) by additives. But this has a very negative impact on recyclability. (The basic idea in Germany is to prevent fires by not having anything flammable. In the U.S., for example, they take a different approach and leave the building materials in their "natural" state and provide many interlocking extinguishing options, such as partial sprinkler systems).

So we are working with plastic products that in themselves consume petroleum in their manufacture and would in principle be recyclable, but get even more costly to recycle when fire protection additives are added.

At the same time, we ensure that buildings are protected for a long time against everyday damage, such as dirt from bags and shoes (school), wheelchair frames or walkers (nursing homes for the elderly, but of course also in any public space) or simply chair backs or table edges (waiting rooms, bed rooms, offices). In the using time on the average 5 times renovating and painting is saved, inclusive the materials necessary for it, usually likewise not ecologically harmless (color, plasters, plasterboard, etc.).

Our strategies to reduce our negative impact:

I have been concerned with our company's ecological footprint for a very long time. Not mathematically sophisticated, but as a thinking person and mother who constantly sees pictures of oceans and beaches polluted with plastic and knows that her product is also made of plastic.

For this reason, I have long since developed initial strategies and measures to keep our negative impact as low as possible:

I. Maximize material use

- Our main product is wall protection panels. These are 1.30 m x 3.00 m in size and only 1.5 mm thick, made of PET-G (the same basic material as beverage bottles, but less brittle due to the addition of G).
- In the health sector, heights of 650 mm to 900 mm are usually covered. So with different heights, there is always a lot of leftover. The very first steps to minimize waste were:
- **No gridding:** negotiate with the customer until he refrains from gridding (gridding means that the joints always have to be exactly one grid, e.g. every 1 m or 1.5 or every 2 m. This results in huge offcuts). We always assemble continuously. The cut for one wall surface is cut from a 3 m panel and the rest (at least 50 cm wide) is put on the next wall as a start and then the next cut is put on immediately. We have designed our joint pattern in such a way that the joints are hardly noticeable anyway and so there is the least amount of waste.
- **Cutting directly at the customer's construction site:** the method explained above, however, requires cutting at the customer's construction site. Only there can the individual use of material be determined by an experienced colleague. As a rule, we achieve less than 10% waste in this way.
- **Small leftovers to private customers:** I took over my business from my father and for a long time observed that we saved lots of leftover materials. These were many strips 3 m long, but just 50 cm high. Or pieces are 1.00 m x 1.30 m, because customers have insisted, for example, on grid of 2.00 m. (The amount of stock remnants resulted from working as a production service provider for the manufacturer of the material, i.e. the stock resulted not only our own orders, but also from orders on which we had no influence). These leftovers were not saleable in the healthcare sector. However, private customers understood very well how to use these leftovers. For this reason, I set up my first online store in 2015 to sell these leftovers. This works successfully due to the individual processing of orders by our trained staff.
- **Making useful things out of small scraps:** in order to make even more use of the colorful plate scraps in particular, I developed various design products together with my CNC router.

However, we were not able to sell them as we would have liked. What has remained, however, are individual customer gifts (coasters with logo blotches, cart stealers, shopping cart chips, ice scrapers) and of course color and material samples. The shopping cart chips, in particular, are an absolute success thanks to an idea from my CNC router. For the store customers, we have built a sales funnel that starts with ordering color sample chips. Normally, these "freebies" are digital and cost the creator nothing. We have to invest at least postage and packaging, as well as manufacturing. Therefore, at least the size and quantity of the samples should be within limits to still be able to send them in a DIN long envelope. The solution was 1 Euro sized material chips in the available colors which can also be used as shopping cart chips. This way the customers have the double benefit and don't have to throw the chips away.

II. Recycling

The recycling market lay fallow for many years. At first we had always recycled everything. Residual materials were bought up for good money. However, in the years between about 2016 and 2021, there was no more sales market. During this time, we could only throw away residual materials. Which only strengthened the desire for more use in our case.

Since 2022, at least free recycling is possible again and so we use this as well, as a part of our waste avoidance strategy.

III. Repair

Especially for private customers, we would like to introduce a repair article soon and also give guidance on how to repair wall panels that may have a small broken corner again.

But also the maintenance contract for business customers has been floating around in my head for some time. Unfortunately, the ecological idea has not yet caught on in healthcare, and repair must have a clear hard arithmetical advantage over new investment. The biggest problem here is the distances between us and the customer. "Getting there fast" costs quite a bit of money. Today more than ever.

IV. Reuse

Here, too, we are currently preparing a new offer. For some time now, there have been second-hand hardware stores that offer old building products granting used products a second life span.

The advantage of our material is that it is very robust and can be used in many different ways. Also in the outdoor area, for example as covers or for craft projects.

- **Give away leftovers:** the first idea would be to give away surplus leftovers there and make them available to a larger public.

- **Offer take-back:** the second idea would be to negotiate with these second-hand hardware stores and thus include the take-back as a fixed part of our offer at least in the online store.

V. Suggestion to use our material to save, for example, furniture from disposal:

The last point concerns the repair with wall panels. An example is furniture repair. There are two different categories. In one, the furniture is super solid and durable but visually no longer pretty. We can create a completely new impression by gluing over the surfaces (e.g. doors of a kitchen, or surfaces of chests of drawers spoiled by stickers or scratches) without having to dispose of the whole kitchen, which may survive a second generation. In the other category, the furniture is produced so cheaply and sparingly that small mistakes in the assembly process causes visible moldings to break. This is then not complainable, but you also do not want to have such a cabinet in the room, where you can see the broken strip. This can also be easily and quickly pasted over with a wall protection plate strip and thus repaired. Even set off in color, if desired.



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What we do

- CO2 balancing & certification
- Preparation of CO2 balances and derivation
- Reduction measures
- Preparation of environmental certifications
 - EMAS
 - ISO14001
 - B-Corp
- Support of idea factories & innovation think tanks
- Creation of innovation spaces and documentation of successful use cases
- Linking of
 - Research
 - Practice
 - Schools/Universities
- Scaling of participation processes & innovation management
- Develop digitally supported employee engagement processes.
- Components
 - As-is map
 - Idea management
 - Coordination tools

Pilot project with IHK - CO2 balance for SMEs

Allresist GmbH is part of the pilot project 'CO2-Balance in SME Brandenburg' together with the IHK Ostbrandenburg. The company from Strausberg is recognized worldwide for the production of resistors for microelectronics and is one of 5 companies that will be accompanied by The Future Living until the end of 2022 in the development of their CO2 balance sheet. So far, the company, similar to many others, lacks the appropriate format to find out if they are climate neutral with all their measures or what is still needed on the way there. In their pioneering role, all participating entrepreneurs are gathering knowledge on suitable formats for CO2 balancing so that they can use this knowledge to support many other companies in the region on their way to climate neutrality.

Summer of Solutions - developing sustainable innovation

At the Summer of Solutions, The Future Living brings issues from companies, ministries and municipalities together with international students from various disciplines. In the development of solutions, the project groups are supported by international experts and universities. The developed solutions flow into a constantly growing think tank for successful, sustainable transformation.



Dr. Anke Bytomski-Guerrier (TFL), Brigitte Schirmer (Allresist), Harry Biller (Allresist) and Charlotte Francke (TFL) from left to right. On the green/solar roof of the company Allresist



Charlotte Francke, Dr. Anke Bytomski-Guerrier, Sarah Hähnel (TFL) from left to right. Hybrid Kick Off Event / Summer of Solutions 2022.

Opportunities - at company level

- Awareness of the topic is often already present at management level
- Employees are often willing to get involved in the topic
- Employees can be reached through a clear reference to their living and community environment (regionality, local biodiversity, etc.)
- Depending on the industry, the company may (still) be able to play a pioneering role.
- Depending on the sector, the company may (still) be able to take on a pioneering role



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Hurdles - at company level

- Operational business very time-consuming in many companies
- Little room for sustainability issues
- Financing unclear - no business case
- No clear responsibility for the topic in the company
- Little experience with employee involvement in new projects
- Lack of CO2 literacy among employees
- Low predictability and transparency of legal regulations

Sustainable Finance Advisory Council of the German Government

The challenge of sustainable finance for SMEs – best practice in Germany

Small and medium-sized companies are the backbone of economies worldwide, including Germany. To achieve the goal of sustainably restructuring our economies, many SMEs need financial transformation support. This is, however, not easy to obtain. To successfully shape and finance the transformation in Germany in accordance with the EU Sustainable Finance Action Plan, transparent and clear information on the sustainability performance of companies is required for all stakeholders. The requirements for the reporting obligations are already now being passed on to SMEs in the value chain and will also apply directly to other companies from 2024. In particular SMEs struggle to keep up with the multitude of reporting standards.

The Federal Government of Germany has acknowledged this need and has established the first Sustainable Finance Advisory Council on June 06, 2019 to give guidance for all stakeholders.

The Sustainable Finance Advisory Council, with an equal participation of women and men with members from the real economy, the financial sector, civil society and academia, shall advise the German government and support it in developing Germany into a leading location for sustainable finance in line with the guiding principle of financial stability and sustainability.

The aim is to help the financial industry finance the necessary real economy activities to achieve the United Nations' Sustainable Development Goals and the goals of the Paris Climate Agreement.

On 10 June 2022, the new German Government appointed a new Council body, which will continue the work based on 31 recommendations of the previous legislative (see: Shifting the trillions for the transformation of the German economy with a sustainable financial system: <https://bit.ly/3DyTVFf>).

The chair of one of the country chapters and Committee member of the International Commission of the German Association of Women Entrepreneurs (VdU) Cornelia Jahnel was appointed to the new Sustainable Finance Advisory Council. She will support the German Government during the 20th legislative with a focus on female entrepreneurs and female investors as well as on sustainable business models for startups and the transformation process for SMEs.

One of the planned project approaches and formats of Cornelia Jahnel is to establish a test lab sustainable finance for SMEs to open up experimental spaces e.g. to develop, test and apply a sustainable performance measurement based on an ESG (environmental, social, and corporate governance) criteria catalog with SMEs and other stakeholders from the financial sector.

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