

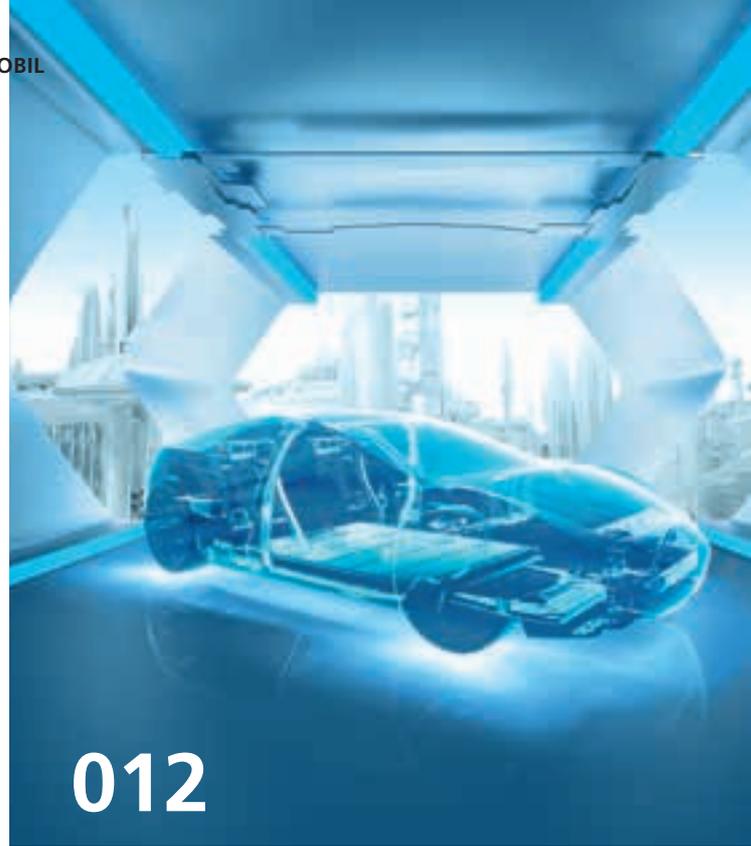
K>MOBIL

THE KIRCHHOFF GROUP MAGAZINE

FUTURE

25 YEARS

K>MOBIL



Impressum

K>MOBIL
the KIRCHHOFF Group magazine

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KIRCHHOFF DNA

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WE.MOVE.FUTURE.*

Dear Customers and Business Partners, Dear Readers,



This year we look back on 235 years of our family business. At the same time, we celebrate the 25th anniversary of the KIRCHHOFF Group magazine, our K>MOBIL, which we will also report about alongside the developments in our divisions.

We are experiencing a time of extremes: extreme weather fluctuations, extremely rapid changes in globalization and through the digital transformation, extremely low interest rates and increasing public debt.

The trade conflicts between China, USA and Europe and the Brexit, are slowing down the decades of prosperity in the world.

Geoscientists say that we have moved from the Holocene, the age in which human civilized life became possible, to the Anthropocene, the age of geological history influenced by humans. In a span of a lifetime, our humanity has become a geological force acting on the entire planet, with enormous effects on global warming, biodiversity, rainforests, ocean acidification and the consistency of the atmosphere. We experience how the Internet industry and the algorithms it creates are increasingly shaping our daily lives and how the dissemination of false truths—fake news—makes the ability to engage in democratic discourse more difficult. ▶

*Since 15 years the claim of KIRCHHOFF Automotive



Arndt G. Kirchhoff, Chairman of the
KIRCHHOFF Group Advisory Board

Many things either work together or not at all

We are challenged when it comes to freedom, economic development and social stability. We live in a world where many things can only work together or not at all; in climate protection, in world trade and on the financial markets. We are heading for a critical point when it comes to the cohesion of a population or a region such as Europe or the relationship with China, America, Russia and Africa. The pandemic has shown us that solutions can only be found worldwide, either jointly or with great difficulty. The world is now networked, not only through digitization, but also in commerce. In both areas, this development cannot be reversed, but calls for better cooperation.

When we in the Western world today still say that we are well-positioned, we should be clear about what has led to this and what we have to defend: our constitution, our federal structures, local self-government, decentralization, subsidiarity, solidarity and competition between regions, but also good education, in Germany in particular dual training and family businesses that pass from generation to generation.

As a result of the Corona virus crisis, we are experiencing a massive push towards modernization in the world of work. Video conferencing, mobile work and the digitalization of processes are changing the way we communicate, cooperate and produce. This is where the opportunity lies for us, not only to survive the crisis economically, but also to emerge from it stronger.

After almost 10 years of economic upswing and prosperity gains in many parts of the world, we are now literally being thrown back to the ground by the pandemic in the 'cooling phase'. We are using this break as an opportunity to focus on the important things that we have already successfully started to do at our companies in recent years.

Our "Visions and Values", which we have defined for the KIRCHHOFF Group in 2015 and which serve as a guideline for corporate social responsibility, have been further developed with the "Code of Conduct". The Code of Conduct defines our most important sustainability requirements, such as ethical and solid business relationships, fair and healthy working conditions and the sparing use of resources.

Actively managing change with the employees

With our Digital Agenda, we ensure that we use the opportunities offered by digitization in a structured and sustainable manner. The focus here is on ensuring improved competitiveness through innovative strength and meeting the demands of tomorrow's work. In particular, this also means that we must actively shape and change together with our employees. We can use technology in equal measure to meet the need for training and adaptation, and to make the workplace of the future as ergonomic and efficient as possible.

Securing the future with the next generation

The broad topic of 'New Work' is complemented by our Culture Life Initiative. It offers our employees and their families a program that ranges from cultural events and participatory activities such as painting, reading and music-making, to neighborhood assistance and tree planting activities.

In order to ensure that all this will continue to exist in the future and is bindingly developed by the next generation, we have drawn up a family constitution within the shareholder family. It is also the basis for the next generation to join our family business, which we will prepare together in the coming years.

Finally, I would like to draw attention to two forward-looking product developments, representative of the many innovations of the KIRCHHOFF Group, which are presented in this anniversary issue. Safety-relevant structures for vehicles with resource-saving lightweight materials have been the main drivers at KIRCHHOFF Automotive for years. Together with you, we are continuing to expand our market position and are also increasingly ensuring safety in the field of electromobility. At KIRCHHOFF Ecotec, we have developed emission-free, electrically powered, waste collection vehicles and sweepers to market readiness with BLUEPOWER. Equipped with hydrogen and fuel cells, they are the only ones on the market to offer the ranges required for efficient operation of municipal vehicles.

Dear customers and friends of our company, dear employees, the management would like to thank you for your loyalty, your great commitment and your active support. Together with this anniversary edition of K>MOBIL, let us look back on the past 25 years but also into the promising future of our group of companies.

We are looking forward to a continued and successful cooperation.

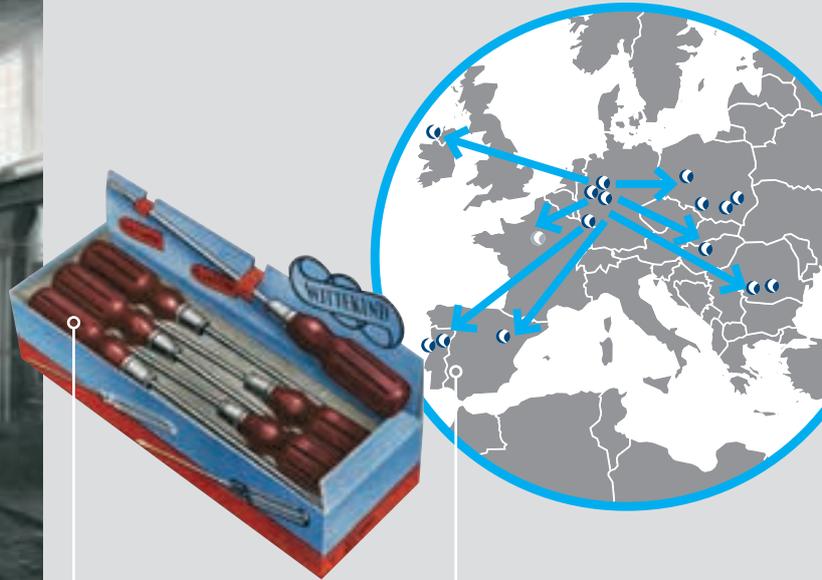
Wishing you the best of luck from my brothers and me



Yours
Arndt G. Kirchhoff

Everything began in 1785

KIRCHHOFF GROUP



1785

Foundation of a needle factory in Iserlohn, Westphalia

1894

Foundation of the first press plant in Iserlohn, first products for the automotive industry

1950

Production of hand tools. Today, WITTE Tools is one of the leading manufacturers in the premium segment

1984

Start of the worldwide expansion of KIRCHHOFF Automotive

235 years of KNOWLEDGE. VALUES. CHANGE.—The KIRCHHOFF Group is a prime example for a successful company with a long tradition in German medium-sized businesses. Through continuous improvement and renewal of the product programs and production processes, the company has repeatedly and successfully focused on changes in customer requirements in the global sales markets.



KIRCHHOFF GROUP

1994

The acquisition of FAUN Umwelttechnik AG (Nuremberg) marks the entry into the municipal vehicle sector

2005

Lifting and waste collection vehicle specialist ZÖLLER-KIPPER GmbH (Mainz) now complements the environmental division of KIRCHHOFF Ecotec

2006

Acquisition of the REHA Group, today KIRCHHOFF Mobility, the conversion specialist for vehicles for people with limited mobility

PRESENT AND FUTURE

CHANGE OF WORK

From mobile working, digital employee communication and adapting worlds to a special cultural program—we focus on people.



KIRCHHOFF GROUP



SAFE MOBILITY

We offer security. Crash-relevant structural components in hybrid design ensure optimum occupant protection—whether in a conventional internal combustion engine or an electric vehicle.

DIGITALIZATION

Smart waste management: Disposing of waste according to need with digital networking of garbage trucks.



SUSTAINABLY MOBILE

We drive with hydrogen. Emission-free on the road in waste disposal logistics and in freight distribution traffic.

The four divisions of the KIRCHHOFF Group

We make mobility safe!

KIRCHHOFF Automotive represents the largest business division of the KIRCHHOFF Group. As a full-range supplier of complex metal and hybrid structures for body-in-white and chassis, as well as crash management systems and dashboard carriers, we have a global presence. Our customers include major international automobile manufacturers. Products such as bumper systems, front end frames and cross members are assembled into a wide variety of components in JIT (just-in-time) plants in close proximity to the customer. Together with our customers, we develop innovative products for the vehicles of the future. The focus of our research and development work is on lightweight components with tailored component properties that ensure optimum crash behavior.

KIRCHHOFF GROUP

Automotive fact check:

- » With optimal material combinations of steel and aluminum we achieve weight savings of up to 20%.
- » In over 90% of all vehicles produced in Germany there is a product from us
- » We invest in the development of safety-relevant components for the special requirements of electric mobility: vehicles with our products are safer and lighter



We make mobility safe! KIRCHHOFF Automotive is a full-range supplier of complex metal and hybrid structures with tailor-made component properties that ensure optimum crash behavior.



Ecotec fact check:

- » Together, the Ecotec companies have 600 years of experience
- » We process 67,000 tons of steel annually
- » Our sweepers sweep an average of 6,600 km per year
- » Our vehicles dispose of 88 million m³ of waste per year

More than just trucks!

KIRCHHOFF Ecotec is the environmental technology division of the KIRCHHOFF Group. We know our way around refuse collection vehicles, road sweepers, lifting devices, IoT connections for fleet management systems and after sales service. We are at home in ten countries with 17 locations and are always in active dialogue with our customers. We are the first supplier in the world to have brought trucks with hydrogen fuel cell propulsion to the road ready for series production. Because our goal is a zero-emission transport sector. We are already working on digital networking and autonomous vehicle concepts. 6,000 enthusiastic employees do their utmost to ensure that the vehicle fleets of our customers all over the world meet the highest quality standards and are always in use. The following international brands belong to KIRCHHOFF Ecotec: FAUN, ZOELLER, HIDRO-MAK, Superior-Pak, STUMMER, Contena-Ochsner, SEMAT, EKOCEL, PB Environnement and FARID. ►





Perfection under control. WITTE Tools specializes in the production of screwdrivers, bits and special tools and is one of the leading manufacturers of screwdrivers in the premium tier.

Fact check WITTE Tools:

- » We supply our products to 57 countries
- » More than 5000 different articles are part of the delivery program
- » 75% of products are produced for other worldwide known tool brands
- » Decades of partnership with 80% of our customers



Perfection under control.

WITTE Tools is the division with the longest tradition. From the company's beginnings with the production of needles made of local wire, the production of screwdriver blades developed from 1950 onwards. Today, WITTE Tools specializes in the production of screwdrivers, bits and special tools and is one of the leading manufacturers of screwdrivers in the premium tier. The tool specialist supplies its products worldwide to partners in trade, commerce and industry with all sales-promoting elements such as individual and set packaging, counter displays and pallet displays. A special feature of the hand tools are a specifically developed ergonomic handle design that prevents slipping off the handle and thus enables a higher power transmission when screwing.

Your car made to measure—our passion.

KIRCHHOFF Mobility equips production vehicles with versatile, user-friendly mobility aids. People who are no longer able to use a normal motor vehicle due to a mobility restriction—whether from illness, age or accident—benefit from the individual all-round service with a nationwide mobility guarantee. From a simple knob for the steering wheel to complex body work in close cooperation with vehicle manufacturers, we offer individual conversion solutions. We also equip commercial and public vehicles with lifting platforms, flexible drive-on ramps, system floors and swivel seats for safe passenger transport. With a total of 9 locations in Germany, Austria and Switzerland, a broad service and sales network is available to our customers. ■

Mobility fact check:

- » Every year more than 3,500 converted vehicles leave our facilities
- » We advise up to 12,000 customers annually
- » Every fifth vehicle converted in Germany for persons with reduced mobility is from us
- » Our most frequently installed product is the Rear Entrance



Your car made to measure. KIRCHHOFF Mobility equips production vehicles with versatile, user-friendly mobility aids.

OLD HANDS AND YOUNG BLOOD

KIRCHHOFF DNA

More and more, especially long-established companies, are handing over the Management of their life's work in whole or in part to managers outside the family. A step that proves to be challenging on both sides. The Shareholders of the KIRCHHOFF Group have accepted this responsibility years ago and also prepared their next generation for it. As an example for the group, three managing director vitae of KIRCHHOFF Ecotec describe the interaction between internal and external Managers.

AUTHOR—CLAUDIA SCHAUE, MARKETING & COMMUNICATIONS MANAGER FAUN & ZOELLER



Dr. Johannes F. Kirchhoff,
CEO KIRCHHOFF Ecotec



BURKARD OPPMANN

- » 58 years old
- » bodywork factory Voll Würzburg, Germany
- » Edelhoff Polytechnik, Germany
- » Since 1995 FAUN Umwelttechnik GmbH & Co. KG, Germany
- » Manager Service Centre Germany
- » Head of Sales Germany
- » 1997 authorised signatory
- » Since 2008 Managing Director FAUN Services GmbH
- » Since 2020 Managing Director FAUN Group

It is not easy to leave your life's work in the hands of others. 235 years in family hands with risks, successes, setbacks, sleepless nights, social turmoil and passion. You can't just hand that over. But with a size such as the KIRCHHOFF Group, which now has four business divisions and 13,500 employees on five continents, it is inevitable that you have to be able to give it up. While some family businesses place the technical expertise with external managers and their own junior staff tend to focus on social skills and entrepreneurial activity the shareholders of the KIRCHHOFF Group want their management team to have emotional intelligence in addition to professional know-how. "Our managers should make their own decisions, living social values and assuming responsibility," says Dr. Johannes F. Kirchhoff, who has been working for more than 25 years at the top of KIRCHHOFF Ecotec with 6,000 employees. Until a few years ago the Entrepreneur still actively involved in the management of the company. Now he sees his role more as a source of inspiration and vigilant shareholder, who places the greatest possible trust in his managers and the teams as he does with his children.

"Burkard Oppmann is the person I have been working with Burkard Oppmann the longest. His very high level of commitment to our corporate family is outstanding and I look forward to seeing him continue to work in his new function. The combination of his experiences with the curiosity of the young generation is the basis for our growth."

DR. JOHANNES F. KIRCHHOFF

The entrepreneurial family in the fifth generation lives a canon of values that the deceased Senior partner Dr. Jochen F. Kirchhoff was one of the initiators: "You can't let your children, when they are still small in a race to the bottom, but must always make sure that they do not envy each other. Then it also works with the succession". According to this motto, all four Kirchhoffs and their children grew up and this maxim is also noticeable in the companies. According to their abilities and talents, the Next Generation on their entrepreneurial and social development responsibility is prepared. A modern entrepreneurship within the group of companies. You earn your spurs in other companies, proves itself and if then there is the desire to enter the family business, then where it makes sense and on Management level. Dr. Johannes F. Kirchhoff, passionate creator and leader: "I am firmly convinced that people who want and are able to achieve something and have a passion for their work should simply be allowed to do it." This degree of freedom conveys the 63-year-old to his management team. Besides old hands, like Burkard Oppmann, since September as CSO FAUN Germany in the management of FAUN Umwelttechnik GmbH & Co. KG appointed, also come young savages, like Malte Sonnenburg and Markus Dautermann, at the wheel. "As shareholder you must also be able to let

it go. Our task is to communicate entrepreneurship in the company and decisions on a broad basis". Burkard Oppmann knows not only the waste disposal business, but also the Kirchhoff family and they know him: "I have been working with Burkard Oppmann the longest. His very high level of commitment to our corporate family is outstanding and I am delighted, to see him continue to work in his new function. The combination of his experiences with the curiosity of the young generation is the basis for our growth," says Dr. Johannes F. Kirchhoff, assessing Oppmann's position.

Dautermann and Sonnenburg both hold managing director positions within KIRCHHOFF Ecotec. What do the representatives of Generation Y think about the topic of external management? What attracts them to work in a company with a 235-year history? "It has now become very rare for a global company to have the basic virtues of a typical medium-sized family business, but it does within the KIRCHHOFF group. Properties and values such as stability, loyalty and trust are of particularly high status". This sustainable sense of unity describes Markus Dautermann, Chief Operating Officer (COO) of the ZOELLER Group since January. ►

Dautermann joined the ZOELLER team in 2008. As quality manager and later as plant manager, he worked his way into all areas of ZÖLLER-KIPPER GmbH and learned the business from the tip of the pin. As COO of the ZOELLER Lifter factory in the Czech Republic, the 39-year-old joined the management and since this year has been responsible for all production plants of the traditional Mainz-based company. "I am fortunate to have enjoyed full confidence from the very beginning since I started working for ZOELLER 12 years ago. I do not take this for granted. This is also one of the main reasons why I have been able to unfold absolutely freely and also develop personally".



KIRCHHOFF DNA

MARKUS DAUTERMANN

- » 39 years
- » Bachelor of Arts in Business Administration
- » Married
- » Endurance sportsmen and hobby winemakers
- » With the ZOELLER Group since 2008
- » Plant Manager
- » Since 2019 COO ZOELLER Systems in Czech Republic
- » Since 2020 CEO ZOELLER Systems and COO of the ZOELLER Group

MALTE SONNENBURG

- » 33 years
- » Master in Finance & Controlling
- » Married, 2 children
- » Hobby soccer player and golfer
- » Since 2006 at FAUN Umwelttechnik GmbH & Co. KG, Germany
- » Since 2013 Head of internal sales department
- » Since 2020 Managing Director FAUN Services GmbH and KOCO Deutschland GmbH

External managers bring more power and additional know-how to the management and represent new, non-family views and positions. Family and external managers can thus complement each other perfectly. Malte Sonnenburg is not just an external manager, but also an inherent part of the FAUN Group. "I have been part of the FAUN team for 14 years. My father, who worked for FAUN for 39 years, taught me a lot about the team at a very early age. When I think that we have grown from a manufacturer of municipal vehicles in the centre of Osterholz-Scharmbeck to a leading company in this field, it is simply fantastic."

"Being a manager in a family business is a special challenge for me. You start, so to speak, with a leap of faith. As a rule to manage a business developed by the family and lived for many decades and to

advance it with their own ideas. In my experience, we all enjoy the full support of our entrepreneurial family. The close exchange between management and the Kirchhoff family makes the KIRCHHOFF Group a special employer for me," said Sonnenburg. Markus Dautermann sees opportunities in third-party management: "The entrepreneurial family gains objectivity, which may not always be so easy with one's own offspring. Likewise, the pressure on the next generation is not quite as strong when it comes to choosing a career. Personal development can be more free and individual. In the best case, the next generation can acquire strengths and skills through professional experience in an external, independent environment, which will then help them to find their way back into the family business." ■

Shaping change, having confidence in skills and people, being able to let go and having the will to keep going.

LIVED VALUES

Long before the three letters CSR (Corporate Social Responsibility) appeared in every image brochure of a well-positioned company, social responsibility was already being lived at the first plant of today's KIRCHHOFF Group without a term for it.

As early as 1855, the great-grandfather of J. Wolfgang Kirchhoff, provided for his employees and their relatives, a company health insurance fund, before the German Reich under Chancellor Bismarck introduced general social security. The names of the first foundations "For the poor and needy", "For war widows and their relatives" seem strange from today's perspective and outdated but they too were founded by the Kirchhoff family of entrepreneurs to serve the local people, just like today's non-profit Dr. Kirchhoff Foundation, which is dedicated to the promotion of education and training, culture, sports and social welfare. The managing partner and CEO, J. Wolfgang Kirchhoff, together with his father, Dr. Jochen Kirchhoff, who passed away last year, have been in charge of the foundation since 2008. Today, he is the chairman of the foundation board. ▶

AUTHOR—ANDREAS HEINE, GLOBAL EVP COMMUNICATION & MARKETING KIRCHHOFF AUTOMOTIVE



J. Wolfgang Kirchoff,
CEO KIRCHHOFF Automotive

KIRCHHOFF DNA



KIRCHHOFF DNA

Dr.-Ing. Jochen F. Kirchhoff remained loyal to his favorite football sports club throughout his life.

"WE BELIEVE THAT A COMPANY IS NOT AN END IN ITSELF; A COMPANY IS NOT JUST THERE TO EARN MONEY FOR THE SHAREHOLDERS."

Andreas Heine: Why do companies need such foundations?

J. Wolfgang Kirchhoff: In our society, the state is not responsible for everything. We now live in a social market economy, which my brothers and I defend very strongly. Of course, the state provides internal and external security and a proper social system. Nevertheless, we need foundations to support and promote things that the state is not responsible for or is not able to do here and there. An example of this are community foundations, which take over tasks that would be too much for the state. In the case of our foundation the areas we try to focus on are: Education, culture and sport.

Andreas Heine: Why do you and your brothers, Arndt and Johannes, believe that a company should take on these tasks?

J. Wolfgang Kirchhoff: We believe that a company is not an end in itself; a company is not just there to earn money for the shareholders. Rather it has, as they say in modern German, several stakeholders. And apart from the shareholders, these are in particular the employees, but also the local authorities and communities where the company is located and where it literally lives. In addition, there are also the customers and suppliers. Of course, we also want to be a role model for our own employees so that they are committed to society beyond their professional activities.

Andreas Heine: One focus of the foundation's work is the promotion of youth, especially youth sports. Why is sport so important to you?

J. Wolfgang Kirchhoff: Team sports are particularly important to us because team spirit conveys certain character traits, such as reliability and discipline. This includes learning to win together and to enjoy it, but also learning to lose. Unfortunately, it is not always possible to win in life.

Andreas Heine: It is known about your father that he was passionately connected with his favorite football club Schalke 04. The basketball club Iserlohn Kangaroos, where KIRCHHOFF Automotive is the main sponsor, was also very close to his heart. In addition to the football clubs SV04 Attendorn and FC Iserlohn, the largest football club in South Westphalia, they have been sponsoring the hockey team Iserlohn Roosters for decades. At the DEL Ice Hockey Club from Iserlohn you are also a shareholder. Are the Roosters for you what Schalke was for your father?

J. Wolfgang Kirchhoff: First of all, apart from our sister, the whole family, including most of the children, are Schalke fans. And with that, we were more like my father. Ice hockey is of course an incredibly competitive and also a very emotional sport. I still remember the—in my opinion—glorious times of sporting to be in the mid-1980s, when we had world-class players here, such as Jaroslav Pouzar. Those were already very intense games and experiences back then, and that is still the case today. The Roosters have been a beacon for the whole of South Westphalia for 20 years, including our employees. That is one of the reasons why we are involved in this sport as well as in basketball and football. And I believe our employees appreciate greatly the fact that we are involved in these popular clubs. ▶

Andreas Heine: A few years ago you founded the KIRCHHOFF Culture Live initiative for your employees, which goes far beyond the usual local location and culture development, even organizing company concerts. Why dedicate this effort?

J. Wolfgang Kirchhoff: The idea came to me together with our cousin Thomas. Initially, the aim was to give our employees a balance to their work with music and literature, as they usually do with sports. But very quickly we expanded this and made it more versatile. The fine arts were added, where it's not only about painting or sculpture, but also cooking. Altogether, we have a very diverse program. We are very pleased that KIRCHHOFF Culture Live and its events are well received by our employees. With a new campaign, we want to set an example of sustainability and green environmental impact by planting many trees in places around the world.

Andreas Heine: Getting employees worldwide excited about CSR issues across all cultures is certainly a major task. How do you succeed in this?

J. Wolfgang Kirchhoff: A few years ago, we wrote down our thoughts, our visions and our values in a small introduction and distributed it to our employees at all our sites, each in their local language. This was important to us because our visions and values are not just on paper, but are expressed in many different actions. For example here in Germany, where we have been helping to integrate refugees through internships since 2015. By working at the company, supported by language courses, we were able to help some of them kick-start their careers. At the same time, we motivate our employees at our foreign locations to take on the topic of CSR (Corporate Social Responsibility) with a wide variety of projects. Examples include the renovation of a kindergarten in Romania, and how we have taken care of children in-need and youth people in Poland. Similar projects take place in Mexico and at many other locations. And we are particularly pleased that we have succeeded in motivating our employees globally to take the initiative on themselves.



Left: Promotion of the International Guitar Symposium by the Dr. Kirchhoff Foundation. **Right:** One action for the world: at all KIRCHHOFF Group locations we plant trees together with our employees. One of the first tree planting campaigns, with which we set an example for sustainability and the preservation of our environment, started on the largest KIRCHHOFF Automotive site in Gliwice, Poland.



KIRCHHOFF DNA

The cultural program "Culture Life" is intended to shape the corporate culture at KIRCHHOFF Automotive in the best sense. Here at common drums.

Andreas Heine: Will this view of living social responsibility as an entrepreneur be able to endure, even if you and your brothers are no longer managing directors?

J. Wolfgang Kirchhoff: I am quite sure of it. Because our families and the non-family members of the management, agree with us that we should carry this movement into the future. And the same applies to our next generation, the generation of our children. Why am I convinced of this? For about ten years now, we have been meeting with our children on a regular basis. First of all, we communicate what we do at the company, which changes from year to year, but of course also our visions and values. In the end, this has led us to formulate a family constitution together in which exactly such things are discussed and laid down.

Andreas Heine: Mr. Kirchhoff many thanks for the interview. ■

"Is this really about the company?"



KIRCHHOFF DNA

Yes and in a way, no. It's about the company. But not just any company: it's about our family business and its future viability. And as the term suggests, this is also about family.

W

e have developed our very own answer to this question in twelve moderated workshops. The result is our family constitution. Unlike the social contract, the constitution is not legally binding. Many renowned research institutes and consulting firms therefore also refer to it as the "family codex" or "family strategy". ►



KIRCHHOFF DNA

Jana Mariam Kirchoff, Eva-Maria Kirchoff, Eva Barbara Kirchoff, Hanns August Kirchoff, Julia Hesse, Kristina Hesse, J. Wolfgang Kirchoff, Senta Julia Kirchoff, Karl-Friedrich Kirchoff, Kim Klaudia Höhne, Arndt G. Kirchoff, Dr. Johannes F. Kirchoff—Circle of Shareholders of KIRCHHOFF Automotive

AUTHOR—KIM KLAUDIA HÖHNE, MEMBER OF THE CIRCLE OF SHAREHOLDERS



Growing up in an entrepreneurial family is special in many ways. Working out the rules and values that are lived there, discussing them openly and writing them down, is a real challenge for all family members involved. Three generations of Kirchhoff and more than twelve people at one table is what we are referring to with "family". The Kirchhoff family meets often and, in comparison to many other entrepreneurial families of our size, maintains numerous common traditions and activities. To work on a set of rules for the future of the "company" as roles begin to change and at eye level was something we first had to learn.

"We had to get to know each other in a new role, because this type of communication did not take place as a family in private, but as a family in the company."

Jana Mariam Kirchhoff

We laughed so much and for so long, that the session had to be interrupted by the moderator. But we also had heated discussions, spoke loudly and had to take emotional breaks. After all, it was intensive discussions about topics like: Requirements for cooperation, marriage contracts and wills, composition of the advisory board, distribution policy, communication rules, privileges and duties. Since our basic principle of decision-making is consensus, the process could sometimes take longer than actually planned and desired. At times patience was required.

We have learned that family businesses have very special rules for success. Provided that a mature age and more than one successful generational transition has been achieved. This form of entrepreneurship fails less often due to market-related events than to family quarrels.

By drawing up our family constitution, we have not only got to know each other much better, but have also laid the foundation for our new social contract. In addition, since then, even more meetings have taken place, which help to educate and bridge our family generations so we can grow into the owner roles.. As the fifth generation, we benefit particularly from this. One example is the development program for shareholder competence, which takes place four times a year in the shareholder circle. Participation is mandatory.

"You can trust and build on what we have achieved, because the common ground has been laid."

Hanns August Kirchhoff

The KIRCHHOFF GROUP has grown with the transfer of some shares from the fourth to the fifth generation. The sixth generation is already in the world. Still small, but certainly in time, a candidate for a position at the wheel. Because we immediately agreed on one thing: the KIRCHHOFF GROUP should continue to be run as a family business in the next generations.

5G



We organize our 5G (Fifth Generation) meetings once a year. In addition to teambuilding measures, the weekend program includes joint leisure activities and the development of social skills.

KIRCHHOFF DNA

Our goals:

- » Preservation of the company as a family business
- » Cohesion as an entrepreneurial family
- » Engagement of the family either in the model of the operative family or as an active owner family (shareholder)
- » Possibility of working in corresponding committees (management or supervisory board/advisory board) only if you have the appropriate qualifications

As the fifth generation, we would like to express special thanks to our indestructible moderator Prof. Dr. Tom Arne Rösen from the Witten Institute for Family Business. Our thanks also extend to our parents and grandparents.

We are proud to be part of it and to be allowed to actively shape the future. ■



Experience
Feel well
Listen
Participate

KIRCHHOFF DNA

AUTHOR—PROF. THOMAS F. KIRCHHOFF, CULTURAL REPRESENTATIVE OF THE KIRCHHOFF GROUP



—All this is KIRCHHOFF Culture Life (KCL). What began in 2017 with a visit to the documenta soon picked up speed in 2018. "Culture Attack" in Attendorn, Germany, was the first major cultural afternoon with nearly 400 participants. Many small and large events followed throughout Europe.



Culture Life

"A well-rounded affair with heart

and soul. It was really fun."

voice of a guest



The program for employees and their families, offer something for every taste. Painting events, competitions, visits to concerts and exhibitions, live readings, hands-on musical offerings and much more, were combined in the coming years to form a multifaceted cultural program. "Culture Life" is intended to shape the corporate culture at KIRCHHOFF Automotive in the best sense of the word. "Feel good, be amazed, listen, enjoy and participate," is how J. Wolfgang Kirchhoff, Chairman of the Management Board of KIRCHHOFF Automotive and co-initiator of this program, structure "Culture Life". The participants agree with him: "a well-rounded affair with heart and soul. It was really fun," "An extraordinary exhibition that I would never have driven to on my own," were the voices of individual guests.

After the pandemic broke out, planned events had to be cancelled. But KIRCHHOFF Culture Life has many fans in the company, who were there with different ideas and energy. Together with the Communication & Marketing Department, a livestream series was set up. The program included a combination of interviews, musical guests, cultural tips and competitions. "We wanted to show that we don't leave our employees alone," explains Thomas F. Kirchhoff, Cultural representative of the KIRCHHOFF Group.

A new KCL campaign is currently going around the world: 1785 trees (the number refers to the year the company was founded) are to be planted at all KIRCHHOFF Group locations. It start in Europe September in Gliwice, Poland, and following in November, in Attendorn and Iserlohn, Germany. Employees can take over sponsorship and care of a tree in order to continue the idea of sustainability. "The campaign shows that anyone can do good for the environment with small gestures," explains J. Wolfgang Kirchhoff. ■

Genuine solidarity

In the often fast moving business life, this is not a matter of course—especially not in the sports business. "Perhaps we South Westphalians tick differently," says Wolfgang Brück, lawyer and managing partner of the Iserlohn Roosters.

KIRCHHOFF DNA

Wolfgang Brück challenges: "What would we be without the long-term partnerships, supported by people who enrich our lives with their experience and commitment, who give us the chance to develop personally or succeed at passion projects thanks to them?"

AUTHORS—MIRCO HEINTZ FOR THE ISERLOHN ROOSTERS AND DOMINIK MÖLLER FOR THE ISERLOHN KANGAROOS





For many years the KIRCHHOFF Group has supported the sport of ice hockey in the Sauerland, Germany. Especially distinguished is the personal commitment that the self-confessed ice hockey fan J. Wolfgang Kirchhoff, brings to the club at the Seilersee as a partner and advisor. That is why the Roosters carry the name of the KIRCHHOFF Group with particular pride in their jerseys.

KIRCHHOFF-DNA

"Anyone who manages to express his love for his own homeland in this way can justifiably be called a sincere partner with a special bond."

Wolfgang Brück

When asked about the on-going KIRCHHOFF Group sponsorship, which has been supporting ice hockey in the Sauerland for so many years, he makes it clear: "Of course it helps when with J. Wolfgang Kirchhoff and the KIRCHHOFF Group a big player in the automotive industry supports you as a sports club. But perhaps even more important is the personal commitment that comes with it," Brück continues and thinks of the work that the self-confessed ice hockey fan J. Wolfgang Kirchhoff brings to the club at Seilersee as a partner and advisor.

Fascinated by the sport of ice hockey since the 1970s, a regular guest in the stands, J. Wolfgang Kirchhoff experienced the great successes. But he has also not forgotten the moments that left no positive emotions behind. As a mid-sized company, firmly rooted in the region, he always knew that it was not about the high advertising budgets that would ensure the long-term preservation of the number one sport, but the actions of those who really care about the Roosters.

"Here, Wolfgang has left his mark on the Seilersee to this day. He has always dedicated himself to branding and has made the promotion of the youngsters, the Young Roosters, his priority. And he has never forgotten that his commitment is not only important for the club, but also for his own company and the region," Brück shares. "Anyone who manages to express his love for his own homeland in this way can justifiably be called a sincere partner with a special bond," Brück adds.

This is why the Roosters carry the name of the KIRCHHOFF Group of Companies with particular pride in the first division stadiums throughout Germany on their jerseys.





WIN AS ONE—The basketball team, the Iserlohn Kangaroos, focuses on team spirit on and off the court. With the support and great commitment of the many volunteers—from U10 players to pensioners—the team made it into the 2nd ProB basketball league.

KIRCHHOFF DNA

From the region. For the region

"In recent years we have been able to do a lot with our sport here in the region. We can only achieve this with a lot of passion and because we have partners who support us. That's why we would like to express our very special thanks to KIRCHHOFF Automotive, our main sponsor. Above all, we will always remember the great commitment of Dr. Jochen F. Kirchhoff with gratitude," says Kangaroos Managing Director Michael Dahmen. ►



"We are like one big family. We support each other—even when things are not going so well. Our cooperation is based on trust, understanding and mutual respect. Values that also characterize our long-standing partnership with KIRCHHOFF Automotive."

Michael Dahmen

In the past years, the Iserlohn Kangaroos have become an image and symbol for the city of Iserlohn and the region. Their dedication to fans, sponsors and partners as well as their commitment to the community and family, truly distinguish the Kangaroos.

Michael Dahmen describes it as follows: "We are like one big family. We support each other—even when things are not going so well. Our cooperation is based on trust, understanding and mutual respect. Values that also characterize our long-standing partnership with KIRCHHOFF Automotive." ■

A photograph of two men standing on a rooftop in New York City. The man on the left is wearing a green t-shirt and holding a Mexican flag. The man on the right is wearing a grey and white hoodie and holding a German flag. The background shows the city skyline with the Empire State Building on the left. The text 'ONE OF US' is overlaid in large white letters across the middle of the image.

ONE OF US

WHAT CONNECTS PEOPLE

Erick Angeles (left) from Querétaro, Mexico, and Christian Arens from Attendorn, Germany, both work at KIRCHHOFF Automotive, but did not know about each other until the summer 2016. At that time, we reported on our intranet about special employee hobbies. It was through this article that Erick Angeles learned about Christian Arens' hobby and his participation in the New York Marathon. **"I was thrilled that a colleague would be there as well. I imagined what a joy it would be to run across the finish line together."** 51,000 runners from all over the world took part in the 2016 New York Marathon - including Christian and Erick. Christian will not forget that day: **"It was very nice to meet Erick in New York. And we noticed that runners from different countries and continents were going through the same thing."**

THE FUTURE

AUTHOR—DR KEVIN BERK, DIGITAL INFORMATION MANAGER
KIRCHHOFF AUTOMOTIVE

KIRCHHOFF FUTURE



IS DIGITAL

"Digitalization is coming"—In fact it has already arrived. And it will change tomorrow's society, people, everyday life and work. At KIRCHHOFF Automotive, we have set ourselves the goal of using the opportunities offered by digitization not as an end in itself, but in a sustainable and value-adding manner so that our employees, our customers and our company benefit equally from it.



"The first completed projects inspire our employees. The motivation is enormous to accelerate digitization once again in the coming year."

STEFAN LEITZGEN
GLOBAL COO KIRCHHOFF AUTOMOTIVE

KIRCHHOFF FUTURE

As people and as a company, we are regularly confronted with uncertainties. The common goal: we want to make the right decisions. Digitization can help us do this but the knowledge is hidden in a huge digital data mountain that is growing rapidly and already contains more information than we can process.

The art lies in filtering and evaluating the data that is important for our processes. At our company, we have drawn up a digitization roadmap to navigate through the data. The first step is to collect and understand all data that is generated by our production. A **"Digital Manufacturing Platform"** collects the data from machines, devices, ERP* and MES* systems for review, in order to then select and use it profitably in various applications.

*ERP (Enterprise Resource Planning): System for controlling business processes, including production planning

*MES (Manufacturing Execution System): Production management system to control and monitor production in real time



On the digital manufacturing platform for example, we are developing an app that supports maintenance staff in troubleshooting machine failures. We are also developing a "launch app" that provides the set-up personnel with all relevant information during the start-up process of a new system in order to optimize machine settings and part quality. We develop all systems 'platform-independent' which means that our employees can decide whether they prefer a touchscreen, laptop, tablet or smartphone for use.



Together with the Middle Class 4.0-Competence Center Siegen we have developed a Smartwatch-App that supports our employees during the changeover of machines. This is done in Lean Production workshops where checklists are displayed. The employees can record the individual steps chronologically and add comments.



KIRCHHOFF FUTURE

The efficient and effective handling of data ensures that we can remain competitive in the long term. An important component of it all is our global self-service Business Intelligence (BI) tool "QlikSense". Here, a large part of the business-relevant information is gathered on an aggregated level—known as "Key Performance Indicators (KPIs)". This enables us to have an up-to-date view of the most important production key figures from the factory to the machine. Many other applications with important key figures from various areas are in the works as well. ►



An app installed on a smartphone or tablet, enables regular audits by employees to be digital directly. The results and recommendations for action are sent directly via push message or email to the colleagues involved and are available globally for evaluation.

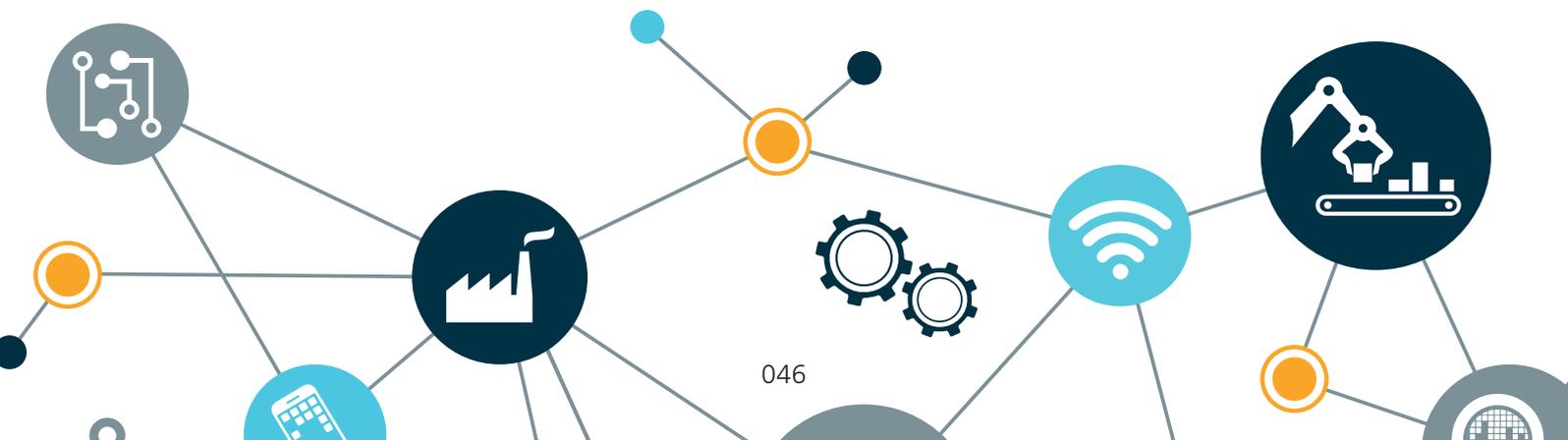
KIRCHHOFF FUTURE

Another focus of our digitization roadmap is on **supporting technologies**. For example, we have introduced a mobile app that allows our employees to perform regular audits directly from their smartphone or tablet. This gives them the opportunity to document important findings directly by photo and to share them with other colleagues. Through approximately 19,000 audits per year, which are now no longer documented on paper, we are also protecting the environment through the process.

In another project, colleagues are testing Smartwatches to support the make-ready process on presses. In this project, the two set-up technicians are sent specific coordinated recommendations for action, on the clock, to ensure the correct sequence of operations.

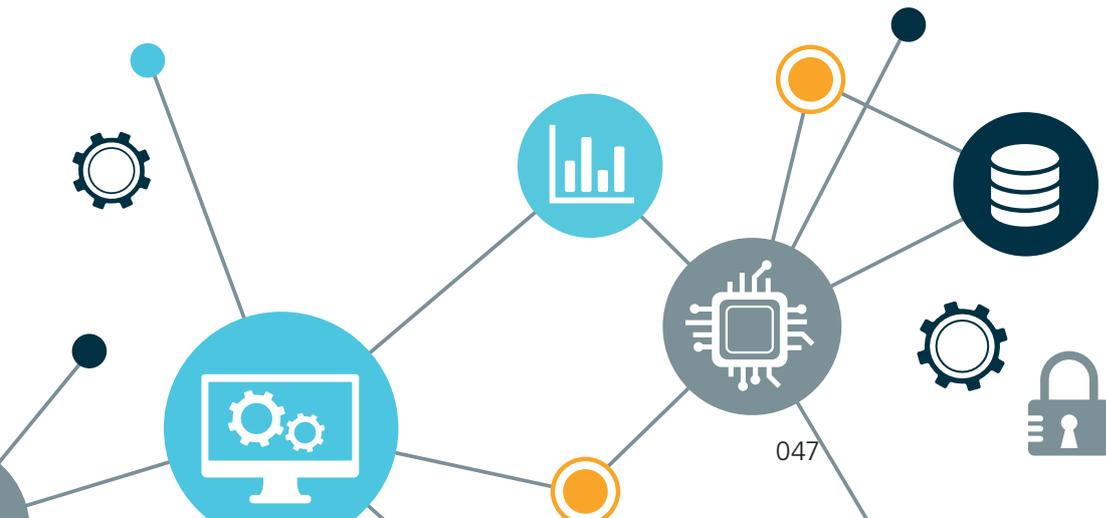
This year we have also successfully implemented a pilot project to digitize our Shop Floor Management (SFM) meetings. SFM meetings are the backbone of our production and have so far been held in person and with paper-based information. In order to protect our employees during the COVID-19 pandemic and to comply with the physical distancing rules, we have had to digitize the meetings abruptly—including automating data acquisition from the various production areas. Automation is another pillar of our digitization roadmap.

We will gradually automate monotonous and repetitive processes, while striving to give our employees room for new, more creative activities. ■





The so-called "Launch App" provides machine setters with important information on mechanical settings during the commissioning of a new system.





DISPOSE OF WASTE AS NEEDED WITH SMART WASTE COLLECTION

AUTHOR—MALTE SONNENBURG, MANAGING DIRECTOR KOCO SOLUTIONS, GERMANY

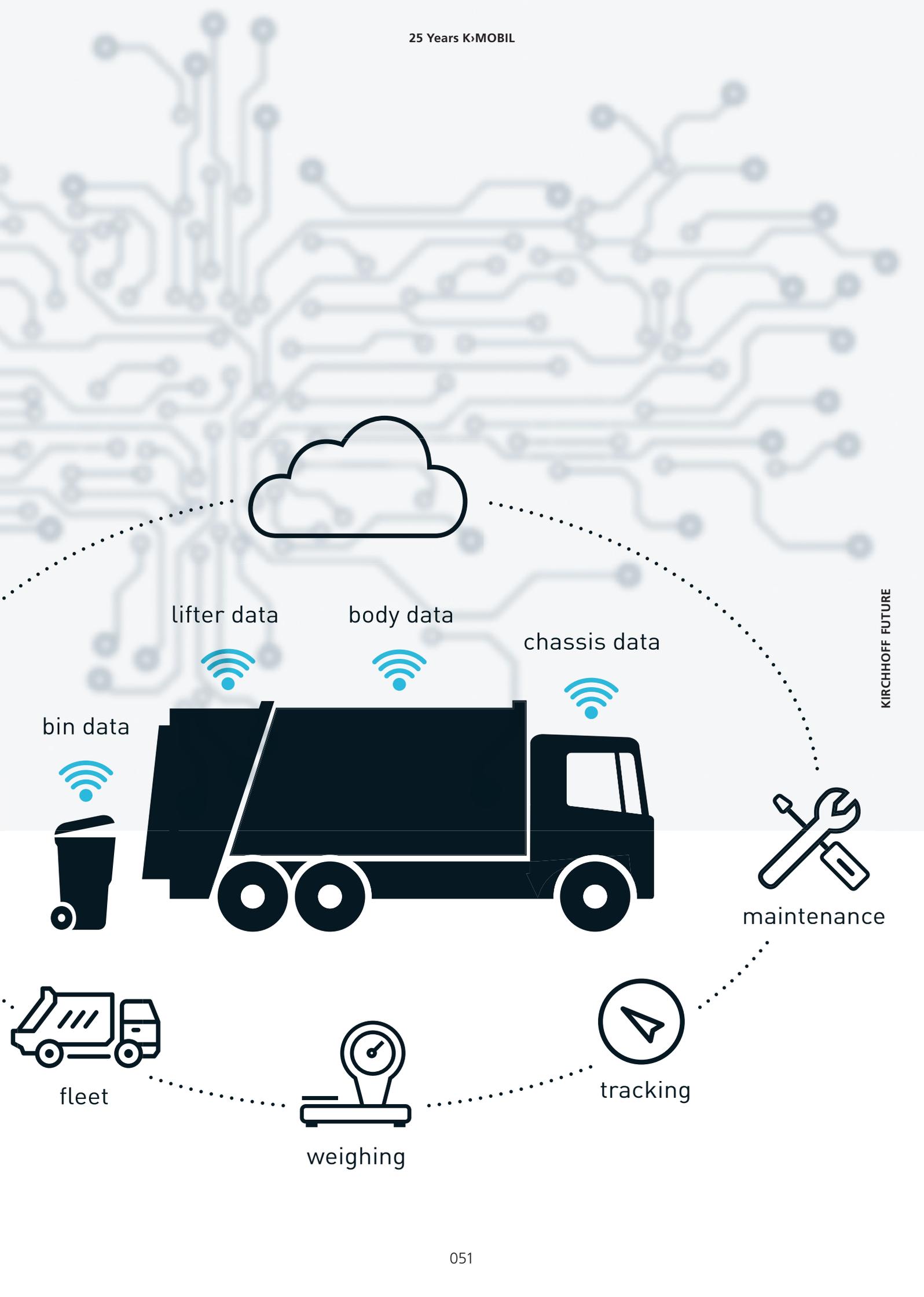
Like clockwork, the garbage trucks roll off the disposal company's yard. On defined routes, they make their way through the villages and streets. They empty containers and dustbins, regardless of whether they are full or only half full. Sometimes empty trips and thus unnecessary CO₂ emissions released. Is this sustainable and efficient? How can digitalization help waste management?

The basis is the networking of different technologies for waste disposal. It enables optimized route planning and as-needed waste collection. This enables us to make waste management more efficient and more ecological. The KOCO Solutions companies, which are members of KIRCHHOFF Ecotec, developed the so-called KOCO Telematics Systems for the waste collection vehicles of the FAUN and ZOELLER Groups. Digitally networked waste collection vehicles and data exchange with the central office, can improve the fleet management of many waste disposal logistics companies. For example, waste collection vehicles are equipped with GPS trackers which record information on the current location, stopping points, locations of garbage can emptying and picked up containers, as well as driving data such as speed, kilometers driven, and route times.

The combination of automatically collected and manually entered data, is transmitted in real time and can be accessed from an Internet platform or via an app on a mobile device. This way, the employees in the dispatch department know where a vehicle is at any given time and can use it flexibly. In other words, if a new emptying is scheduled, it is now possible to check which vehicle is in the immediate vicinity and can take over the order, or route planning for the next day can be adjusted. ►



reporting



KIRCHHOFF FUTURE



"IoT solutions and predictive maintenance are key issues for the industry. We offer our customers modern solutions, to operate their vehicle fleets or resources in a forward-looking and cost-saving manner".

RENATO HEINIGER

MANAGING DIRECTOR KOCO SOLUTIONS & CONTENNA-OCHSNER

Another way of tailoring waste disposal to direct requirements, is to optimize routes based on the data history. Using the data collected by the GPS tracker, it can be determined whether the currently planned routes are still efficient or whether an adjustment is necessary. Changes in the traffic situation, such as long-term road work or changed speed limits, as well as changes in order planning in the form of cancelled or new orders, also have an effect on efficient route planning.

Even the weighing data required for order invoicing helps to improve fleet management. Load cells are integrated into the lift, body or crane scales of waste collection vehicles. These are sensors that record either the gross and net weight of the waste or the weight of the payload. This data is also bundled on an Internet platform. Based on the weighing data history, a fill-level prognosis is generated. This can be used to determine whether the route planning needs to be optimized. Are there load peaks on public holidays? Or is the payload of a garbage truck, for example,

not fully utilized due to half-full garbage cans? From there, routes can be extended by additional emptying or planned so that the container is only emptied until a certain expected fill-level is reached.

In the Swiss cities of Geneva and Basel, this forecasting tool is already used for underfloor containers; these are containers embedded in the ground. So far, the accuracy of the weighing technology is 95%.

The KOCO telematics systems contain various modules that include all these functions for networking waste collection vehicles with the control center. At FAUN and ZOELLER, they are installed directly or can be integrated later. The data exchange takes place securely and in real time via the Internet portal www.koco.online or the KOCO App. With the help of the collected information, the employees can comfortably and easily optimize order and route planning or locate the vehicles in order to adapt their deployment plan accordingly. ■

THE FUTURE WITH VISUAL SUPPORT

From 2020 FAUN supports customers digitally in the repair and maintenance of waste collection vehicles using data glasses. When the next maintenance is due or if a problem arises with a vehicle, the customer's mechanic can request a digital service appointment with FAUN. All that is needed are data glasses equipped with a camera and display. With the camera the "problem" is recorded on site and transmitted online. FAUN support can easily see on the screen quickly what support is needed, and by using the body number, the necessary vehicle data can be retrieved. The information, drawings and markings can be shown on the display of the glasses to instruct the mechanic.

If the customer does not have data glasses, the digital service can also be carried out using the FAUN Visual Support App and mobile phone. However, the data glasses offer a number of advantages. The mechanic has both hands free for maintenance and repairs and ambient noise, such as a running engine is eliminated for the FAUN support employee, so that undisturbed communication with the mechanic is possible.



VISUAL SUPPORT

Networked: The FAUN support employee on the screen and the mechanic on site with the data glasses. This is the future of the digital garage.

AUTHOR – PETER KNÜFERMANN, MANAGER TECHNICAL SALES & SUPPORT
FAUN UMWELTECHNIK

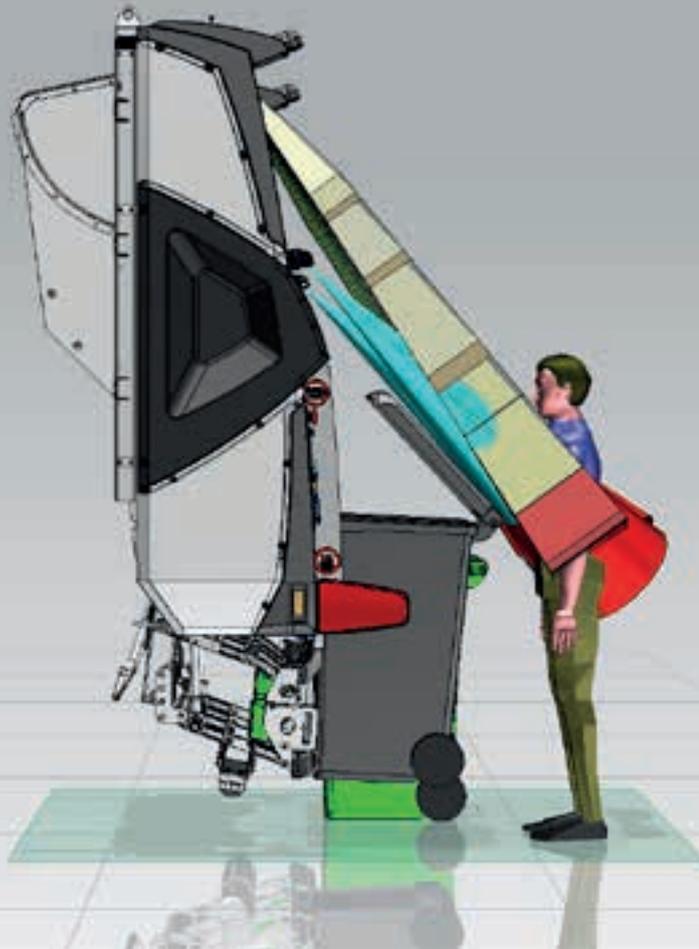


figure 3

BETTER SAFE THAN SORRY

In everyday waste disposal, every waste collection bin counts. Depending on the district, a lifting device can tip up to 1,800 bins per day. This performance not only demands a lot from the technology, but also a lot of attention from the operator. In everyday routine, however, it can happen that the loader gets stuck on the bin during a quick, checking glance, because the bin is already in upward motion. When fetching the next bin, the loader gets into the working area of the lifting device, which is currently lifting a bin. Dangerous situations which are not only unpleasant, but above all avoidable. In order to protect operators or persons in the vicinity of the lift area the engineers of the ZÖLLER-KIPPER GmbH has created a Worker Protection System (WPS) II. WPS II is an assistance protection system, which in dangerous situations the automatic mode tilting process automatically stops. The positive health impact being operators avoid contact with pollutants as they must keep their distance.



figure 1



figure 2

AUTHOR – ULRICH MOCEK, DIRECTOR ENGINEERING & DESIGN ZÖLLER-KIPPER

"Our task is to provide the teams at the front with modern and safe equipment. We actively support them with the latest technology so that they can work in a protected and clean environment".

THOMAS SCHMITZ
CEO ZOELLER GROUP



Operation of the system

- » Start automatic cycle
- » If the WPS II detects an "obstacle" above or behind the bin, the "lifting" speed is reduced until the danger zone is clear, then is accelerated to the regular speed
- » Dangerous situation persists:
Lift movement stops
- » The tilting cycle can then be continued manually
- » Retrofittable & low maintenance

Components

- » A multi-beam LED scanner (LIDAR sensor) (Fig. 1)
- » Two lateral ultrasonic sensors (Fig. 2) that monitor the area above and behind the containers (Fig. 3)

Requirements

- » WPS II is only in AUTOMATIC mode with 2-wheel AWB (recyclable waste container) effective

CONSIDERED GOOD

TÜV Rheinland Kraftfahrt GmbH evaluates WPS II as follows: "The function and effectiveness of WPS II could be comprehensively proven. (...) The WPS II is to be seen as an independent assistance system which is only active during the bin emptying process. In all scenarios the WPS II was able to fulfil its function. The fault messages were shown on the display on the right-hand side". ■



MORE ON WPS II

<https://www.zoeller-kipper.de/en/produkte/worker-protection-system-ii-wps-ii/>



THE CHALLENGE OF ELECTRO- MOBILITY

AUTHOR—PROF. CHRISTOPH WAGENER, VP RESEARCH & PRODUCT DEVELOPMENT
KIRCHHOFF AUTOMOTIVE

In the future, the bodies of electric vehicles will have a fundamentally new architecture and structure. KIRCHHOFF Automotive is working intensively on the development of resource-saving, lightweight, structural body parts for the future.

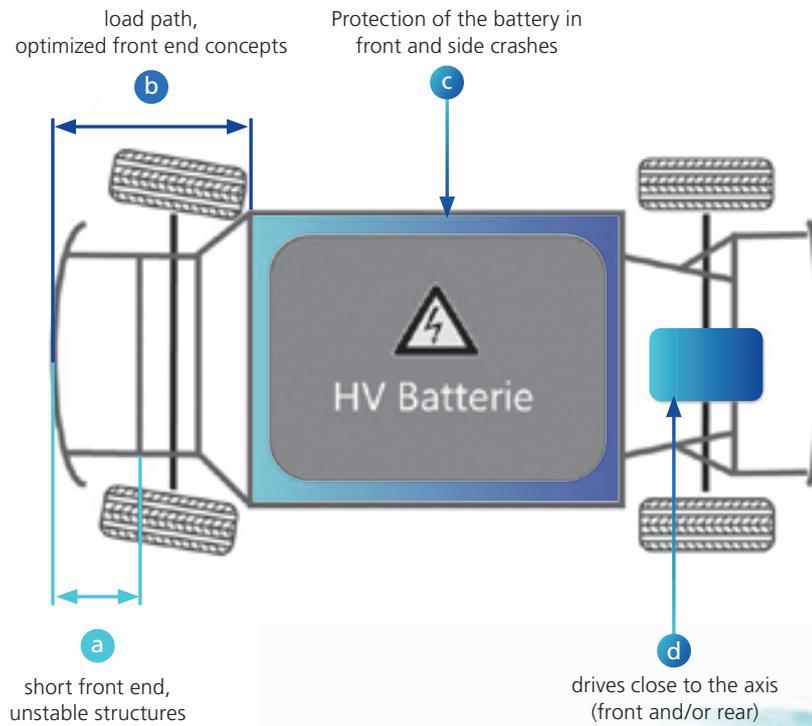
In November 2016, the German government adopted the Climate Protection Plan 2050. The basis for this is the Paris UN climate agreement to limit the global rise in temperature to a maximum of 1.5 degrees Celsius; compared with the pre-industrial age. The goal is to reduce greenhouse gas emissions by 80 to 95% compared to 1990.

The climate protection plan is intended to pave the way for Germany to become an emission-free society and industry. For the "transport" sector, this means targeting the emission of greenhouse gases and the associated major challenges, for the automotive industry. In 2021, 95g of CO₂ per kilometer, must not exceed the average emissions of manufacturer's newly registered vehicles. If the European Commission has its way, this value is to be reduced by a further 50% by 2030. The automotive industry can achieve these targets—if at all—only by significantly increasing the proportion of vehicles with alternative drive systems. The question remains to be answered, which is the right drive? For all the technological advances that are offered, the majority of alternative passenger cars seems to be vehicles with battery electric drives (BEV for short). The following aspects, among others, speak to this trend: ▶

PATCHED B-PILLAR: LIGHT,
RESOURCE-SAVING, SAFE.



PACKAGE
BATTERY ELECTRIC VEHICLES



KIRCHHOFF FUTURE

- » Battery electric drives are by far the most efficient.
- » Even today, electric cars are already more environmentally friendly than all other types of drive in the relatively bad German electricity mix.
- » The share of renewable energy sources is growing strong. In addition to the usage phase, the CO₂ pollution caused by battery production will therefore also be minimal well before 2030.
- » There are now BEVs with ranges of up to 800 km and more.
- » Charging times are shortening dramatically. In 2030, batteries will be able to be charged in 10 minutes for well over 300 km.
- » BEVs have a very low complexity, are very reliable and hardly need any repairs.
- » BEVs mean more driving fun and offer much more comfort.
- » The total operating costs per kilometer are already lower than those of combustion engines or even fuel cell vehicles. Since the cost of batteries will also continue to fall, electric cars will also be cheaper than internal combustion engines in the near future.

"The clear and also necessary trend towards electric mobility offers us new order and sales opportunities through "BEV" specific products without reducing our existing product range,"

DR. THORSTEN GAITZSCH

GLOBAL CTO KIRCHHOFF AUTOMOTIVE



KIRCHHOFF FUTURE

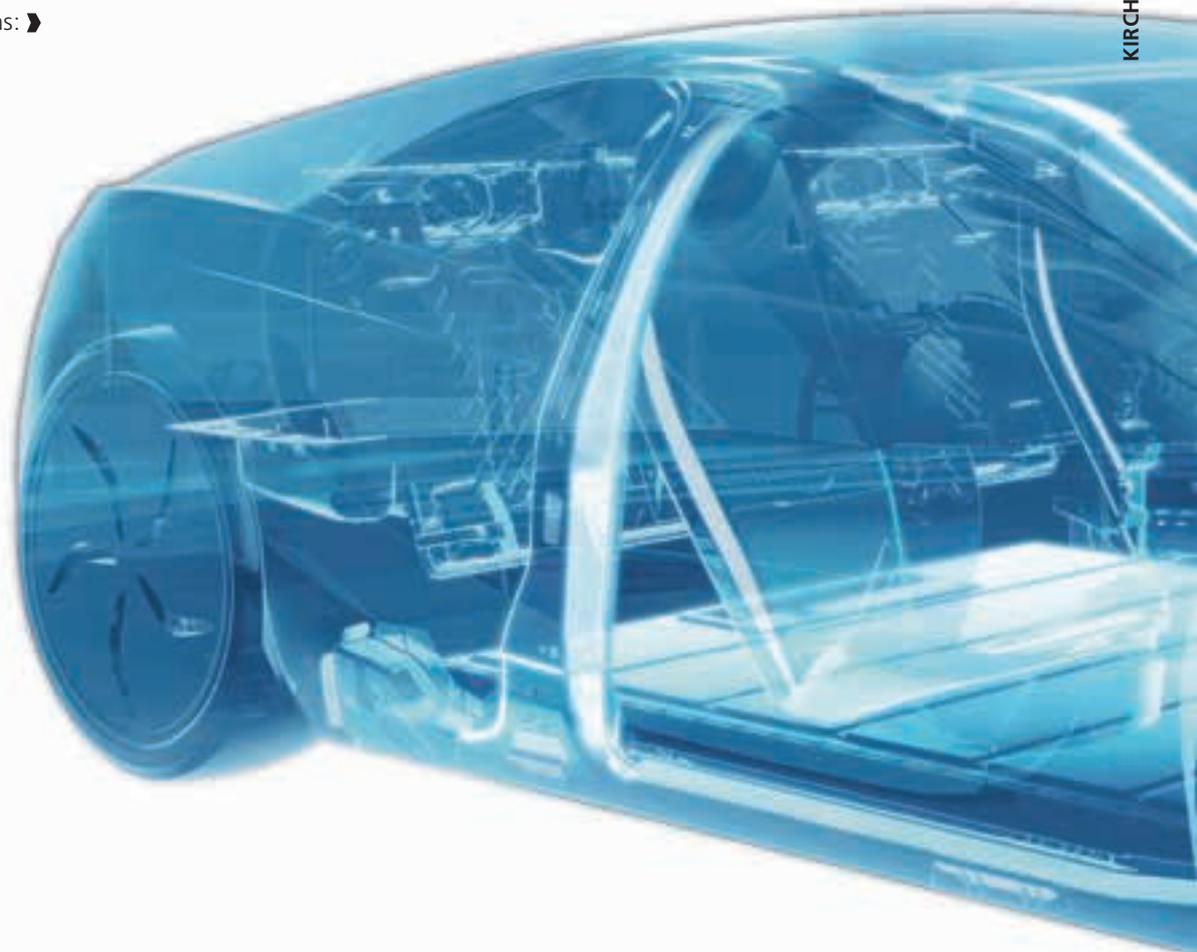
Battery electric drives have a major influence on the vehicle concept, the package and also the design. In the next generations of vehicles, we will see significant changes in both the interior and exterior. When asked whether electric cars need to be visually different from cars with traditional drive systems, Adrian von Hooydonk, chief designer at BMW, said in an interview: "We at BMW have said that this is an opportunity because such a major change only occurs every 100 years. And why not seize the opportunity and develop a new design language or a powerful push of modernity?"

The car bodies will receive fundamentally new architecture and structure. If, for example, the large engine block in the front end of the vehicle, as is usually the case in conventionally driven vehicles, is replaced by axle drives in electrically driven vehicles, this will result in a significant change in the vehicle concept and package. On the one hand, the lack of an internal combustion engine means that there is more free crash length available which can be used to dissipate energy, while on the other hand this increases the risk of instability due to lateral forces. The resulting change in crash behavior, but also new requirements, for example the protection of the batteries positioned in the vehicle floor, call for new solutions for the vehicle structure.

Concepts for safe battery accommodation, crash management systems that ensure sufficient deceleration in the event of an accident, and the further development of the technologies required to implement these new types of product solutions, are among the main focuses of our development activities.

In electrically powered vehicles, mass has a much smaller influence on energy consumption and thus on CO₂ emissions during the 'use' phase than in conventionally powered cars. This is not, as is often assumed, primarily due to the greater recuperation of electric drives, but rather to the significantly better efficiency. Even if this means that one of the decisive drivers for lightweight construction is no longer applicable, it is still sensible and necessary for the following reasons: ►

- » A larger mass requires more energy to move.
- » Less material usage means saving resources.
- » Driving performance, handling and comfort are influenced by mass.
- » Minimization of wheel and axle loads
- » The greater the vehicle mass, the more energy must be dissipated in a crash.



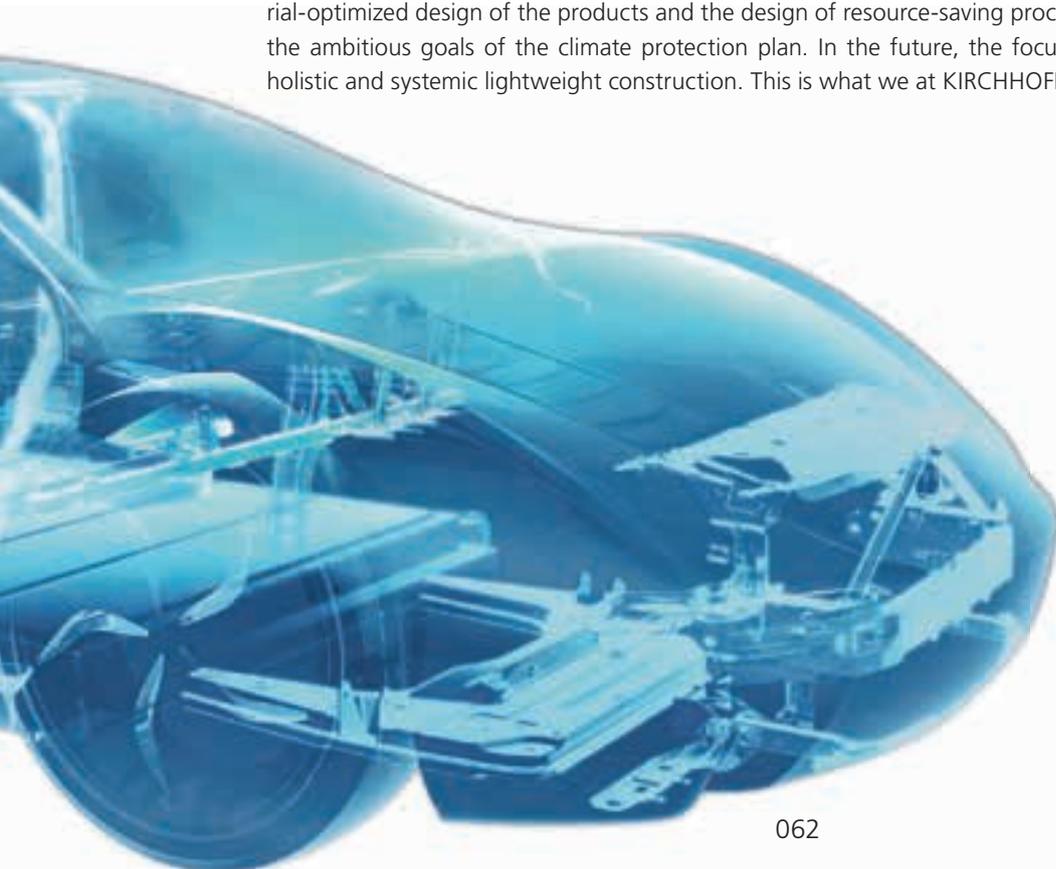
CENTER FRONT PILE TEST:



Protection of the battery comes by rigidity or flexible crash management systems for the greatest possible delay in a crash. Which variant is used, depends on the load path concept, i.e. the design of the body-in-white structure with regard to passive safety.

We are therefore continuing to work intensively on lightweight construction solutions that, despite their lower mass, have outstanding properties. For example, a lightweight alternative solution for crash behavior would make a significant contribution to passive safety. Another example is with the development of press hardening technologies for the production of patched body components with different ductile areas. We are using the example of a weight-optimized B-pillar to demonstrate how lightweight design can be economically implemented for volume production. Here, different material alloys with finished part strengths of 1000 MPa or 1500 MPa in the B-pillar, are combined with alloys with 2000 MPa in the reinforcement (patch) area. In addition, soft areas can be created for joints.

With electric drives, one does not only drive with fewer pollutants but also more energy-efficient. The material-optimized design of the products and the design of resource-saving processes, also contribute to achieving the ambitious goals of the climate protection plan. In the future, the focus will push further cost-effective, holistic and systemic lightweight construction. This is what we at KIRCHHOFF Automotive are working on! ■



ONE OF US

EXCELLENCE

Selina Qi is logistics manager at KIRCHHOFF Automotive in Suzhou, China. In 2018 she received the Excellence Award, which honors selected employees at the Company for outstanding performance. **"In 2017, Selina dedicated herself entirely to the rebuilding of the logistics system at the Shenyang plant, which supplies BMW with front-ends for our customers. And with an outstanding result in the end,"** says Wen Leyendecker, Managing Director Administration in Suzhou. Customers and colleagues alike appreciate Selina Qi for her helpfulness and commitment.



KIRCHHOFF FUTURE

AUTHOR—CLAUDIA SCHAUE, MARKETING & COMMUNICATIONS MANAGER FAUN & ZOELLER



KIRCHHOFF FUTURE

STEP ON HYDROGEN!



KIRCHHOFF FUTURE

Hydrogen is en vogue. With its National Hydrogen Strategy, the German Federal Government created the ideal framework conditions and triggered a boom that should not be missed. Industry, politics and society are doing their utmost to achieve the climate targets for 2030. By 2050, Germany even wants to be almost climate-neutral. To reduce greenhouse gas emissions, the transport sector is increasingly turning to hydrogen as an energy source.



"By 2025, half of all supplied refuse collection vehicles will run on hydrogen. The climate debate enables us to actively shape the energy revolution. The infrastructure for hydrogen filling stations is being steadily expanded. It is not a "chicken-and-egg question", but one thing goes hand in hand with another".

PATRICK HERMANSPANN
CEO FAUN GROUP

KIRCHHOFF FUTURE



When in 2006 the pollutant class Euro 4 was in force, FAUN already had developed a refuse vehicle with hybrid drive. Recuperative braking, Supercaps, battery drive, all these experiences were collected and now recycled. In 2014 Georg Sandkühler (Senior Expert Alternative Drive Trains) and his team realistically thought about hydrogen as an energy supply for waste trucks. There were six more years before the first refuse truck with battery or hydrogen propulsion could go into operation. Since August 2020, a FAUN ROTOPRESS BLUEPOWER is running in Bremen (Germany) for a long-term test operation. The first, cautious results are optimistic, the battery/hydrogen drive works and electric driving pleasure is guaranteed for the operators. Currently 20 of the BLUEPOWER trucks will be manufactured and 2021 will start the serial production.

BY 2025, HALF OF ALL WASTE TRUCKS SUPPLIED WILL RUN ON HYDROGEN

The climate debate enables us to actively shape the energy revolution. The infrastructure for hydrogen filling stations is being steadily expanded. It is not a "chicken-and-egg question", but one thing goes hand in hand with another. Many federal states are promoting the use of the chemical element with regional hydrogen strategies.

GREY, GREEN OR COLOURED

Hydrogen is gaseous, non-toxic and very volatile. Production by conventional means is very energy-intensive and is fed by fossil fuels. But there is another way. Green hydrogen can be produced using solar, wind or biomass. Time will determine the choice of means. In order to secure the ramp-up of the hydrogen economy, openness to technology will be at the centre of considerations.

A CALCULATION EXAMPLE:

A vehicle runs on a battery with a capacity of about 300 kWh (sufficient for the daily output). In fact, only 80%, i.e. 240 kWh, are actually used in this example. Should this energy be used with a typical charger (22 kW average charging power) are recharged, this requires almost eleven hours of charging time. For a single vehicle certainly no problem. However, if a depot uses 50 vehicles, the charging capacity to be installed is already 1.1 MW, which in many places the existing infrastructure is not readily available or only after extensive retrofitting can do.

PURE ELECTRIC MOBILITY IS A ONE-WAY ROAD

A refuse collection vehicle usually collects ten tons of recyclables in one tour in Germany. With at least two collection tours per day around 20 tonnes waste are transported to the processing plant. This will create the framework conditions for alternative drives set. A three-axle machine may be used for 27 tonnes gross vehicle weight one empty weight in running order of 17 tonnes, even better 16 tonnes, in no case exceed including all energy storage and the necessary conversion systems. From our point of view, these requirements can only be met with purely battery electric solutions in the fewest cases. This is the case when the transport distances are short and there is the possibility of using a quick charger during the lunch break to charge the batteries for the second tour. An example of these applications is given in Bremerhaven (Germany). A purely battery electric vehicle (BEV) has been in daily use there since October 2019. In other cases, very large and heavy batteries would have to be installed to achieve the daily output, which severely limits the payload. This is not the only disadvantage of large batteries. In order to charge them, appropriate infrastructure is needed and this is feasible for depots with a few BEVs, but it becomes more critical with larger vehicle fleets. ►

HYDROGEN PRODUCTION PROCESS

GREEN HYDROGEN

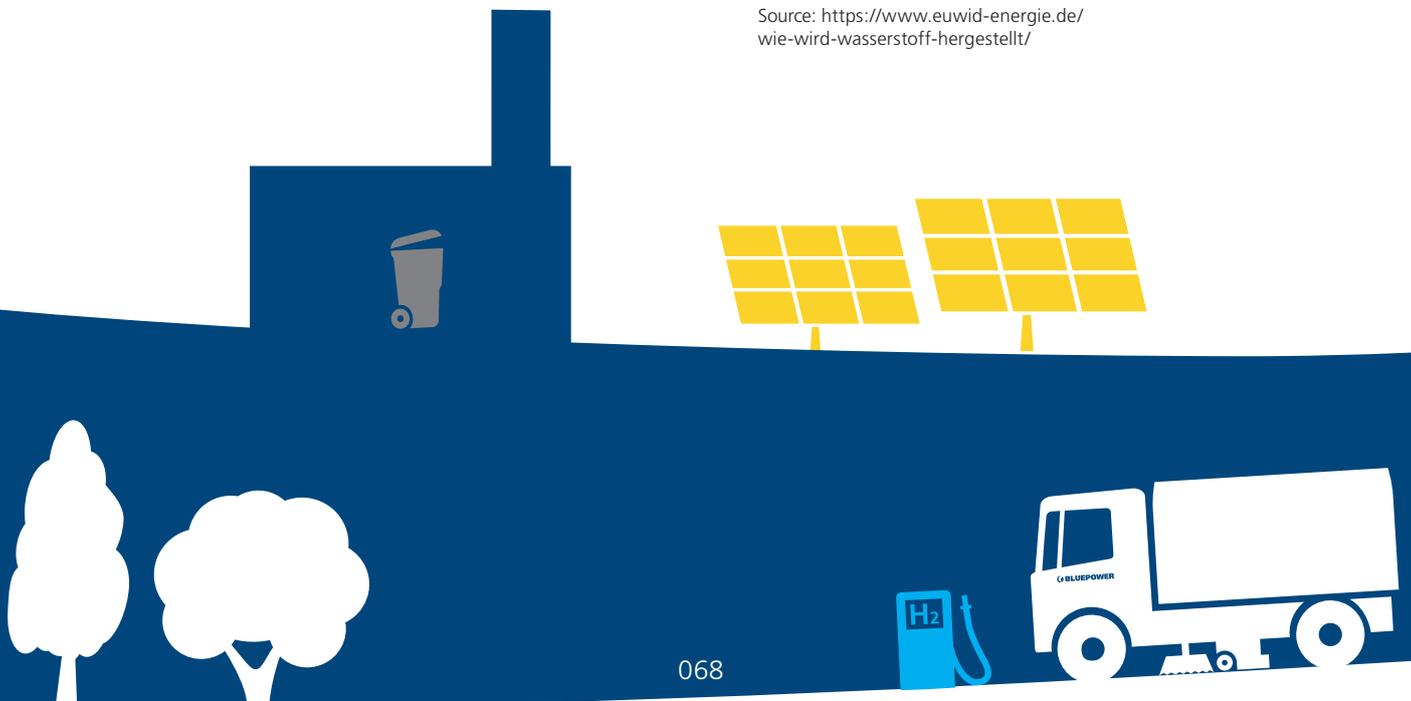
Does the electricity for the electrolysis come from renewable energies like wind or sun, so-called green energies, in which case hydrogen can be decorated with the 'Green' label. Will it be in this way hydrogen is CO₂ free and a blessing for the environment and climate, because during its production no harmful greenhouse gases are produced. The process is also known as Power-to-Gas and it's a so-called Power-to-X technologies (PtX technologies). Power-to-X uses electricity to convert energy into a form that is more useful for certain applications—for example, to produce gases (power-to-gas), heat (power-to-heat) or to produce liquid energy sources (power-to-liquid). PtX technologies are regarded as important solutions for achieving climate targets and reducing greenhouse gas emissions.

Source: <https://www.bmwi-energiewende.de/EWD/Redaktion/Newsletter/2020/07/Meldung/direkt-erklaert.html>

ELECTROLYSIS:

In water electrolysis, with the help of electrical electricity water in hydrogen and oxygen are disassembled. There are three methods of water electrolysis, which are of importance: The alkaline electrolysis (AEL) has already proven its worth for many years. Plants built so far have been developed on the basis of the continuously required power mostly in the proximity of large power plants. The Proton Exchange Membrane electrolysis (PEM), has its origins in fuel cell technology. It is based on the reverse process in a fuel cell and is more suitable than alkaline electrolysis for the dynamic operation. The high temperature Electrolysis (HTES) is based on the reverse reactions the solid oxide fuel cell (Solid Oxide Electrolysis, SOEL). In this form of electrolysis a part the fission energy that is generated during the separation of oxygen and hydrogen is required, by high temperature heat (approx. 850 to 1000°C) is provided. Compared to the other two electrolysis moulding can increase the cell voltage by more than 0.5 V to below 1 V and high current-related efficiencies can be achieved.

Source: <https://www.euwid-energie.de/wie-wird-wasserstoff-hergestellt/>





METHANE PLASMA ANALYSIS:

In this process the (bio)methane is decarbonised and split into its molecular components, hydrogen and solid carbon. The hydrogen can be used in CHPs or fuel cells. Solid carbon acts as a raw material for industry. If biomethane is used for plasma analysis, a CO₂ sink is even created.

Source: <https://www.graforce.com/technologien/methan-plasmalyse>

PLASMA ANALYSIS:

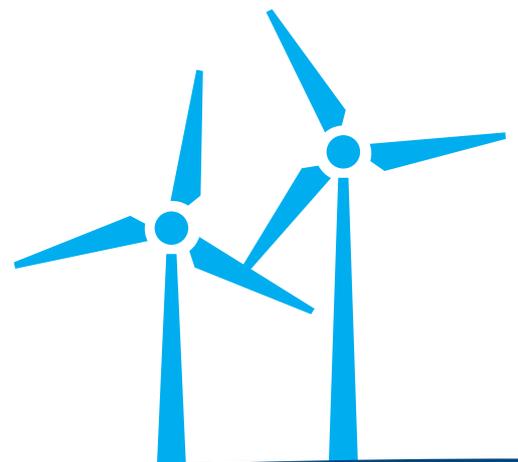
A new way of producing hydrogen is plasma analysis. The method can be applied to various starting materials. This one process, waste water, e.g. from sewage treatment plants. The nitrogen compounds it contains are treated with regenerative electricity in nitrogen, oxygen and hydrogen. What remains is the purified water that returns to the natural cycle which can be traced back. The water, acid and nitrogen is fed into gas membranes and sorted there. What remains is the hydrogen, which is filled into the tanks. The acid and nitrogen is then transferred to the air is emitted. The waste products are purified water and oxygen. Plasma analysis also comes off better in a cost comparison with other hydrogen production processes. Hydrogen production costs only three euros per kilogram, compared with six to eight euros per kilogram for conventional processes.

Source: <https://www.internationales-verkehrswesen.de/plasmalyse-kraftstoff-aus-abwasser/>

PYROLYSE:

The pyrolysis of natural gas to produce carbon (thermal soot) is a process known for decades, which has been technically realised in several processes. In recent years, the production of hydrogen as the target product of this process has become a focus of research. If the solid carbon then formed as a by-product is used as a material or sequestered, hydrogen can be obtained from a fossil energy source with a low CO₂ footprint. Research is also currently being conducted in the field of biomethane pyrolysis. By expanding research, it may soon be possible to produce hydrogen from regenerative biomass using pyrolysis.

Source: <https://onlinelibrary.wiley.com/doi/full/10.1002/cite.202000021>



HYDROGEN AS PROPULSION FOR FREIGHT DISTRIBUTION

So why do we rely on hydrogen? It takes about five to ten minutes to refuel a vehicle. The hydrogen can be provided by our own production by electrolysis or by delivery from the known gas suppliers. The very short refuelling time, comparable to refuelling a diesel truck, even opens up the possibility of using our hydrogen vehicles in several shifts. During the development of this new generation of vehicles, strict attention was paid to ensuring that the accustomed freedom for the body was retained without restriction. In other words: a body that fits on a comparable chassis with a 3,900 mm wheelbase today will also fit on BLUEPOWER chassis in the future. New possibilities for various application scenarios, include goods distribution and transportation.

BLUEPOWER can be configured to fit exactly, depending on the application. If the BEV is not sufficient, one to four hydrogen tanks can be installed to provide ranges of up to 240 km (WHVC, previously only simulated). In addition, one to three fuel cells are offered to provide energy with outputs of 30, 60 or 90 kW. In addition, each vehicle is equipped with a DC quick charging system and optionally equipped with an AC onboard charger. All options can be retrofitted.

KIRCHHOFF Ecotec gives the transport sector a sustainable, safe and clean drive train. Vehicles which can be used in an ecologically and economically sensible way. Clean climate for our children. ■



ONE OF US

OUR MOTIVATION: SAVING LIVES

Two SEMAT employees Aurélien Ederle (left) and Michael Coquard have been committed as volunteer firefighters for many years. In an emergency, they must extinguish fires, secure accident sites and save human lives. The daily routine of firefighters includes maintenance and repair of the fire trucks. Here Michael Coquard benefits from his skills as a truck technician at SEMAT. Aurélien Ederle uses his experience in customer service and as a technical trainer to help train the next generation of firefighters, the Jeunes Sapeurs-Pompiers. When asked what he appreciates about this voluntary work, Aurélien answers enthusiastically: "The team spirit and social cohesion in the fire brigade."

Strategic Use of Our Own Know-how

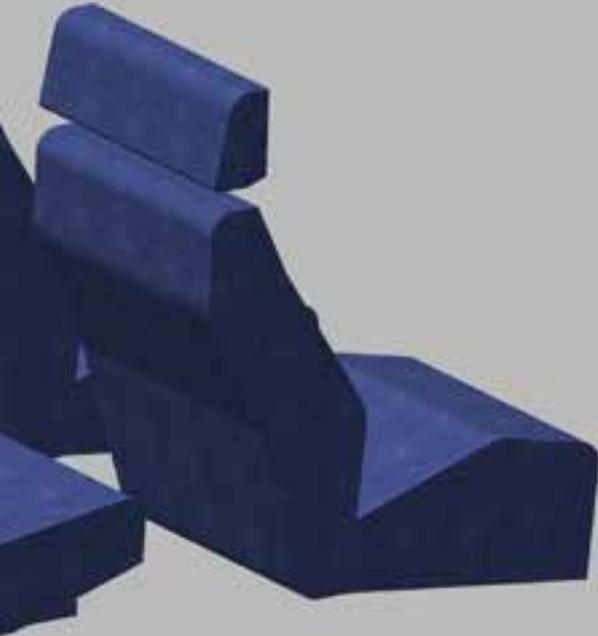
KIRCHHOFF FUTURE



Based on the experience gained during the construction of the Nivo rear cut-out kit, KIRCHHOFF Mobility has developed a modular system that covers the majority of current volume models.

With the market launch of the high roof station wagon models, such as the new Opel Combo Life in 2019 and the new Volkswagen Caddy 5 in autumn 2020, new opportunities arose for KIRCHHOFF Mobility to incorporate its own know-how into the development of special conversion solutions.

AUTHORS—ALEXANDRA BRABENDER, MARKETING AND HOLGER PAPE, MANAGING DIRECTOR KIRCHHOFF MOBILITY



One of the core products of KIRCHHOFF Mobility: The NIVO rear cut-out kit, displayed here in the VW Caddy. Disability-access conversions for various high roof station wagon models are based on this kit.

Up to now, the supplier specializing in the conversion of vehicles for the disabled has purchased conversion units in addition to its own product developments. In the future, KIRCHHOFF Mobility will increasingly rely on its own products to further expand its market potential.

The Nivo rear cut-out kit is already one of the core products of KIRCHHOFF Mobility. A fold-out ramp allows the wheelchair user to comfortably reach the rear of the vehicle, where his wheelchair can be securely fixed on a rail system provided for this purpose—thus avoiding strenuous moving.

Based on the experience gained during the design of the Nivo rear cut-out kit, KIRCHHOFF Mobility has developed a modular system that covers the majority of current volume models and at the same time creates the basis for retrofitting future vehicle models. For example, the development team led by branch manager Holger Heller, worked closely with the OEM to develop a conversion kit for the new Caddy 5, which was launched in October 2020. Ergonomics, use of materials, and production processes were optimized with this latest model.

Kits developed in-house offer several advantages: Customer wishes can be fulfilled in a more targeted and individualized manner, quality standards can be raised and the positive development of the company can be sustainably promoted. "Through these strategic measures, we reduce our dependency on system suppliers and can efficiently contribute and rely on our own know-how," says Holger Pape, Managing Director of KIRCHHOFF Mobility. "In addition, the focus is on technological progress and customer needs. The goal is to offer a product that meets our own and our customers' high quality standards. We have a strong team that combines ideas, competence and stamina to implement this project in a strongly price-driven market," he adds. ■



360°

MAXX PLUS

GRIP
OPTIMIERT
OPTIMIZED
GRIP

PIONEER AND TRENDSETTER IN ERGONOMIC SCREWDRIVERS

For WITTE Tools, the design of the handle is a fundamental component in the development of new screwdrivers. "Ergonomics" derives from the Greek word -ergon (work) and -nomos (science, teaching)—the magic word when it comes to the design of a handle suitable for the user because power transmission, screwing speed and strain on the hand muscles are significantly influenced by the handle.

The design of the handle shape was and is a philosophical question for Witte Tools. In 1967, collaboration with the Slany Design Team, provided the first set of handle solutions. The TOP 10 screwdriver series **was created as the first product line with a triangular cross-section—the first ergonomically designed screwdriver was born.** This scientifically thought-out basic geometry, combines the advantages of the largest possible contact surface with an ideal hand rotation angle of 120°. The user only needs to grasp the screwdriver 3 times per rotation. **The grip was further optimized and finally the 3-edges were rounded. Derived from this idea, the TRIAX-Ergo-Grips were developed later.** They were also comfortable in the hand and delivered optimal working results. ▶

AUTHOR—ALEXANDER HINGST, DIRECTOR SALES & MARKETING WITTE TOOLS



The IGR Institut für Gesundheit und Ergonomie e.V. (IGR Institute for Health and Ergonomics), tested the MAXX series in 2019 and confirmed its ergonomic properties.

is required and the smaller and rounder the handle should be. In other words, the larger the blade, the more torque is required and the larger and rounder the handle should be.

The MAXXPRO concept includes 4 different handle sizes. The handle sizes were not scaled, but individually designed in contour and center of gravity. The curved lengthwise contour enables the build-up of a high contact pressure to prevent the cam-out effect while at the same time requiring little force. This concept is unique and offers maximum ergonomics.

As a supplement to the MAXXPRO, the PROTOPII was introduced in 2008. This line is also based on the well-proven triangular handle, but has been rounded off much more to offer an alternative for less power-intensive applications. Both screwdriver series, MAXXPRO and PROTOP II were very successful and have sold millions.

These bestsellers were seamlessly replaced by two new screwdriver families. MAXX and PRO have been in the product range since 2016 and are characterized by optical and manufacturing improvements. The designs have also been adapted to meet contemporary demands.

Almost 30 years, this proven handle shape was further developed. **Based on a scientific study and new production possibilities in plastic injection molding, the PROTOP series with a slightly convex shape in the handle axis was created in the mid-1990s.** This increased the force with which the screwdriver tip can be pressed into the screw head. In addition, the introduction of the 2-component handles greatly improved the comfort of screw-driving. The hard and impact-resistant plastic around the blade gives the tool stability. The relatively soft plastic on the edges optimizes the padding of the palms and increases the slip resistance.

In 2003 WITTE Tools presented the next generation of their design. This series of handles, called MAXXPRO, is based on the principle: as much ergonomics as possible, as much power transmission as necessary. Findings from occupational science and studies, have proven the necessity to adapt the handles more to the application and the blade size. The smaller the blade, the less torque

1967

The IGR Institut für Gesundheit und Ergonomie e.V. (IGR Institute for Health and Ergonomics), tested the MAXX series in 2019 and confirmed its ergonomic properties—along with it, the production of ergonomic tools that has lasted for more than 50 years.

Whatever possibilities technical progress will bring in the future, WITTE Tools will continue to develop the best, innovative, user-adapted and application-optimized screwdrivers. ■



2020

New Work

Mobile, flexible and sustainable

AUTHOR— PAUL DILWORTH, GLOBAL EVP HUMAN
RESOURCES KIRCHHOFF AUTOMOTIVE

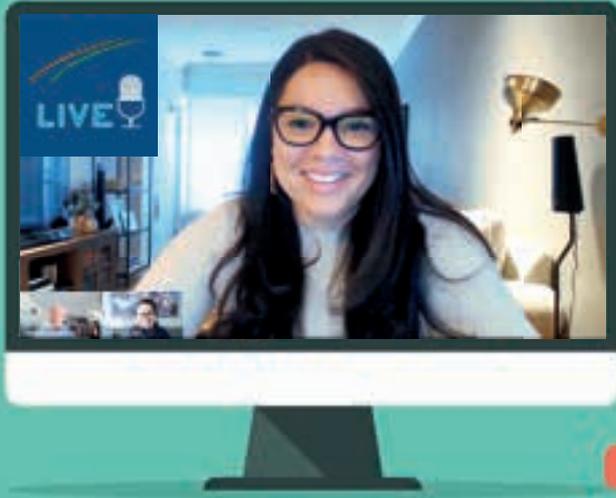
KIRCHHOFF FUTURE



A shared commitment to sustainability and technological progress translates into every area of the business at KIRCHHOFF Automotive. As it pertains to Human Resources, a progressive approach to keeping up with digitalization and the new era of remote working has propelled our company to adapt in many innovative ways.



Long before the COVID-19 pandemic began, we realized the need for mobile working for two reasons: when attracting new employees, alternative, flexible work solutions are the new expectation of workplaces; and also as another benefit in the work-life balance of our current employees. We tested a **new mobile work policy** to varying degrees in two areas of the business with a goal to understand what the new work environment would look like. We discovered that these new policies had no negative effect on the business nor on employee output. Once the COVID-19 crisis began showing its repercussions in the work place, we were relatively prepared for the expansion of the work from home. Our IT and all our business processes experienced a smooth transition. Even with the progression into full time work from home, we observed no drop in employee productivity—a sign that we were properly prepared from a technological and cooperative aspect. ►



Our colleague Nathalia Abreu and our cultural officer Prof. Thomas F. Kirchhoff, guide you through the KIRCHHOFF Culture LIVE Stream. Questions and comments in the online chat are answered by our colleague Sherry Lay.

KIRCHHOFF FUTURE

"Good employee communication forms the basis for successful, sustainable employee satisfaction. In times of digitalization and flexible working models, it is particularly important."



HAGEN RECK
GLOBAL CFO KIRCHHOFF AUTOMOTIVE

On every company computer there is direct access to e-learning modules via a software called Quick Access, indicated by an orange symbol.

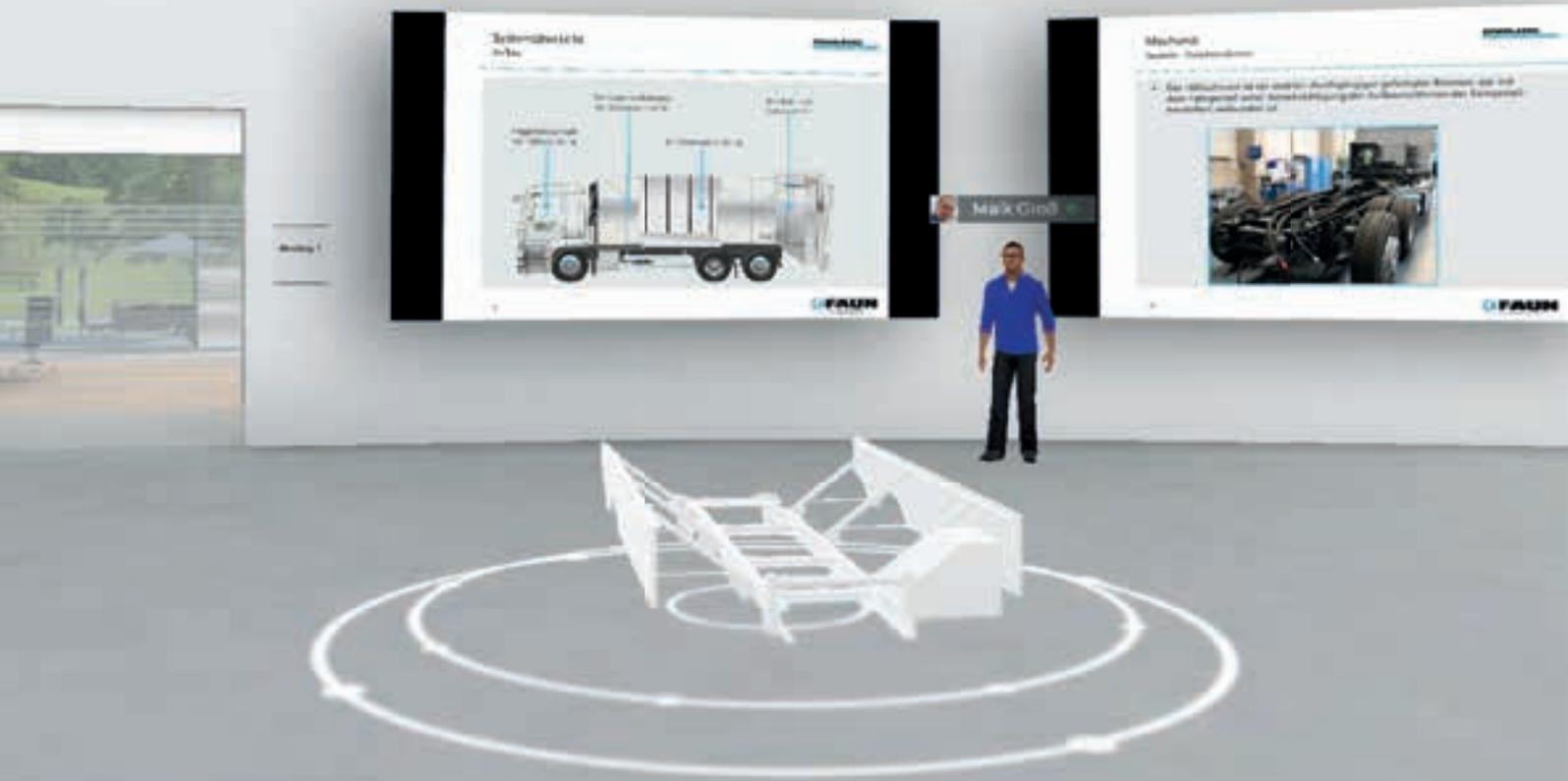


Crises often offer the chance to try out new ways of doing things. When we had to temporarily close many of our sites in the spring, within a few days we lost the line of communication to our employees. This happened at a time when in-person meetings and exchange would have been so important, however with it came an opportunity to create a new, entirely tailored medium of communication to reach our employees in their new work space—their homes. It was when our Communications Department launched **KIRCHHOFF Culture LIVE**, a new online livestream format that combined culture entertainment, with guests from our management teams that would, in an informal setting, keep employees informed about the business during the crisis. Despite a few technical challenges and different time zones, this format created a feeling of support, a sense of togetherness. And it couldn't have been more successful, KCL has now become a staple of our internal communication, starting with a new and more advanced format by the beginning of 2021.

When it comes to technological advancements in the Human Resources area, one of the most innovative projects for KIRCHHOFF Automotive has been the **launch and implementation of a new e-learning module** that assists with internal knowledge transfer.

This tool fulfills our purposes in two ways: through our Learning Management System K>People, we can track the learning successes of our employees; and through Quick Access installed on every computer, employees have immediate access to e-learning tools, specific support on software and internal processes. So far, there are 558 available e-learning modules, created by 55 authors who have made their own knowledge available to their colleagues.

As part of our commitment to sustainability and in terms of **employee development**, the KATE (KIRCHHOFF Automotive Talent Education) program serves to identify talent within our organization that can support specific departmental needs and provide individuals with the fundamentals of leadership. Considered a precursor for succession planning, this unique 3-year program presents both standardized group training sessions and individual professional and social development activities. With frequent guidance from management at various levels along with support from HR, participants develop important professional skills continuing to support our goal of growing our own from within. Although we cannot say that every promotion happened because of KATE alone, we can certainly say that we are selecting the right people because they are being promoted. ■



AN AVATAR IN THE DIGITAL LEARNING WORLD

AUTHOR—MAIK GROß, HEAD OF TECHNICAL TRAINING
FAUN UMWELTECHNIK

FAUN OFFERS CUSTOMERS AND EMPLOYEES A SPECIAL KIND OF DIGITAL TRAINING:

As an avatar you enter a virtual world that looks like the real one. A building with reception, auditorium, meeting and technical rooms, was digitally constructed. Trainers present learning content on screens as avatars. In the technical room, components of waste collection vehicles rotate in 3D. Group work also takes place virtually here with a media wall as a way to share methodology and present results. Everything digital: that's the focus. The auditorium for a maximum of 24 avatars is similar to a lecture hall and is used for teaching theoretical content. To avoid getting lost in anonymity, participants can, for example, display their photo next to their avatar. The break can

be enjoyed together in the virtual garden. "Of course, this does not replace real social interaction," says Burkard Oppmann, Managing Director of FAUN Group, **"But many advantages are obvious: The "room rent" for this digital world is manageable. The participants save costs and time, and training is faster and more efficient."** Maik Groß, head of technical training, explains: "Certainly, an 8-hour training session in front of the screen is exhausting, which we limit the time to 4 hours. Sometimes however, you can't avoid a practical part on site." Finally, a stable Internet connection is of course necessary, and you only have to bring your own coffee. ■

ONE OF US

A MATTER OF HEART

In addition to his family and FAUN, the Naturschutzbund Deutschland e.V. (Nature and Biodiversity Conservation Union - NABU) is the heart and soul of Karl-Heinz Kabbeck. The occupational safety officer at FAUN has been involved for more than 50 years at NABU. Therefore, he was immediately hooked on the idea of setting up nesting boxes for native bird species on the 100,000 m² FAUN factory premise. 30 bird houses for Starling bird, common Chiffchaff & Co. have been hanging in trees and hedges on the field sanctuary since June 2020. **"Active environmental protection concerns us all," says the avid bird watcher Kabbeck. At FAUN, he has been able to inspire trainees for the green projects.** When Karl-Heinz Kabbeck goes into passive retirement next year, he will be thinking about his own bee colonies and FAUN honey.



KIRCHHOFF FUTURE

TOGETHER FOR A GOOD CAUSE

INTERVIEW—ALEXANDRA BRABENDER, MARKETING KIRCHHOFF MOBILITY

KIRCHHOFF Mobility and the DRK* are working closely together in the area of passenger transportation with vehicle conversions suitable for the disabled. The interview with Henrik Töpfer and Thorsten Gorski from the DRK, provides insights into the work of the DRK and how KIRCHHOFF Mobility supports them.

*The German Red Cross saves people, helps in emergencies, offers people a community, stands by the poor and needy, and watches over international humanitarian law—in Germany and around the world.



Left: An aluminum ramp was installed especially for the DRK. This offers a safe and at the same time cost effective solution to transport the wheelchair into the vehicle. **Right:** Thorsten Gorski (left in picture) and Henrik Töpfer talk about their work at the DRK in an interview.

We support you especially in the area of driving services. How many converted KIRCHHOFF Mobility vehicles does the DRK own?

Thorsten Gorski: Currently we have already had 10 school vehicles converted or extended with wheelchair conversions and 4 special rental vehicles. Only recently, KIRCHHOFF Mobility provided us with fast and competent support when we needed a new vehicle with a very special conversion for wheelchair accessibility. In addition to the implementation of our wishes, the KIRCHHOFF professionals have even improved the results considerably with their suggestions and ideas for improvement. In a very short time, we have obtained an extremely high quality vehicle at a very good price-performance ratio. And the feedback from our colleagues as well as from our passengers, is still solely positive.

What are the conversions used for?

Henrik Töpfer: We use different vehicles for different tasks. In the area of student transportation, we need specially converted vehicles in addition to the standardized 9-seater buses. These are vehicles that require the transportation of one or more wheelchairs or even an additional carrying chair. Furthermore, our vehicles are equipped with ramps or lifts. Special steps and railings at the entrance height of the school-children make it easier for them to get in and out. In the area of patient transport, the requirements and equipment are again completely different. Here a stretcher like in an ambulance or a carrying chair are standard equipment. ►



The carrying chair allows patients to be transported in a sitting position. This facilitates the daily work of the DRK team.

To what extent does the conversion make daily work easier?

Thorsten Gorski: The great advantage of the conversions are the unique and above all, modular design. With the help of aluminum system floors or special rail systems, we can quickly and efficiently adapt the equipment of our vehicles to the respective task and order. This is beneficial from an economic point of view and gives us a good feeling because it enables us to respond quickly to the needs of our customers at all times.

How does the importance of your work impact children and passengers in patient transport?

Henrik Töpfer: Our passengers, whether young or old, need accompaniment, care or support in most everyday life situations. Whether it's transportation to school or kindergarten, a trip to the doctor or a trip to relatives. Our customers are grateful for our services. Because we can offer them security and at the same time give them back a bit of quality of life. ■

ONE OF US

A PROFESSION THAT MAKES YOU HAPPY!

Anastasiya Kovalova shows the customer Sacha Kengelbacher the functionalities of his vehicle, which has been handicapped accessible converted by KIRCHHOFF Mobility. "We help people with physical disabilities to achieve greater mobility. This is a huge success that fascinates me time and time again. **I am impressed by the stories of our customers and they often give me goose bumps and great respect. I see their successes, their vitality and their will to go through life. It is my personal success to be allowed to help them to any extent.** A spark of happiness shines in people's eyes when they regain a piece of mobility. A success that leads to deep feelings of happiness," says Anastasiya Kovalova. A recent 26-year-old graduate in social sciences; she joined KIRCHHOFF Mobility more than five years ago. Today, she is head of the internal sales department.

AUTHOR—ALEXANDER HINGST, DIRECTOR SALES & MARKETING WITTE TOOLS

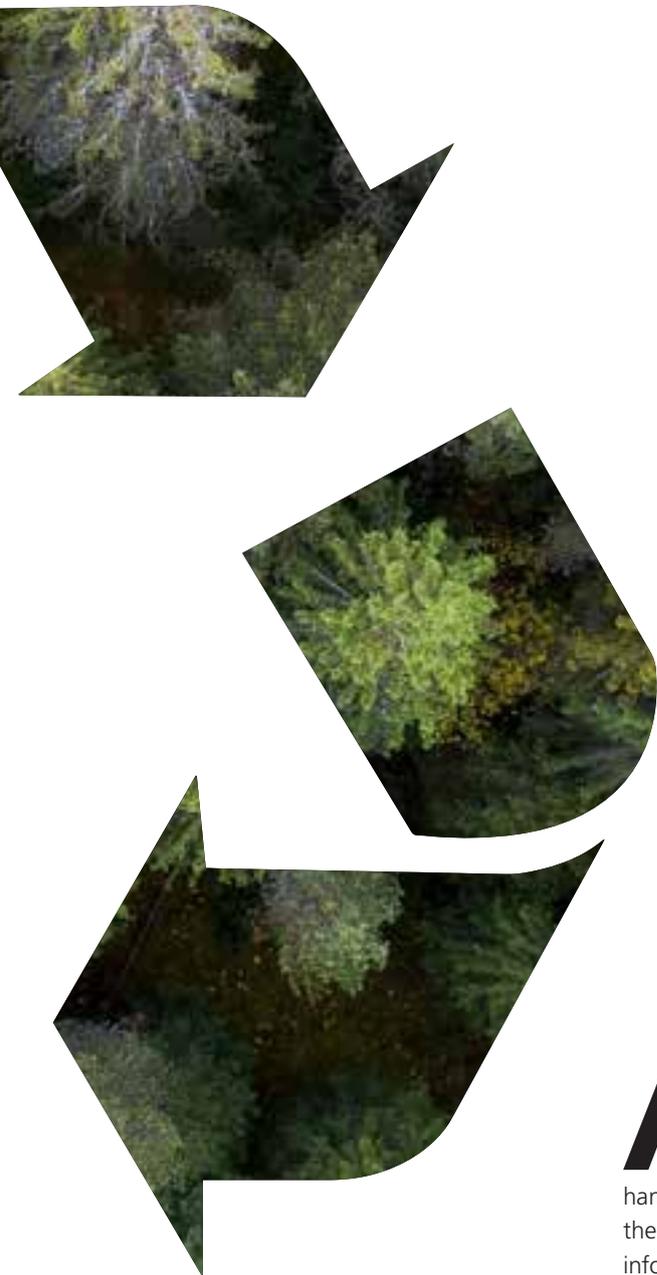
In the distribution of consumer goods, packaging can play a decisive sales-promoting role. Therefore, the design of optimal packaging is an essential part of product development. Since 2020, WITTE Tools has been using only reusable materials. The use of composite materials is taboo.

ON THE WAY TO ENVIRON- MENTALLY FRIENDLY PACKAGING

KIRCHHOFF FUTURE



WITTRON PACKAGING TODAY



As a manufacturer of high-quality screw driving tools, we have a special obligation in the production and distribution of consumer goods. A premium product packaging should fulfil various functions. On the one hand it should protect the product and make theft more difficult. At the same time, the product should be presented in an attractive and informative way for the customer. The design of an optimal packaging is therefore a central task in product development. At an early stage, it is decided which requirements the packaging should meet and which materials are best used. In the past, decisions have been made solely on the basis of visual and economic criteria.

Today, WITTE Tools selects and designs packaging primarily according to its environmental properties. Cardboard packaging is currently the clear favourite. Recyclable plastic packaging will continue to be available in the future—but it is important to WITTE Tools that only reusable materials are used and that no composites are used. This intention is now easier to realize, as the amount of dispensable plastics in packaging is being systematically and gradually reduced, not only to prevent the negative environmental effects of plastic materials, but also to save resources during production and recycling. ►

OUR MOST IMPORTANT GOALS IN THIS RESPECT ARE:



OPTIMIZATION OF THE PACKAGING IN TERMS OF SIZE AND WEIGHT



INCREASED USE OF SINGLE-COMPONENT MATERIALS



AVOIDANCE OF PLASTICS



DESIGN SUITABLE FOR RECYCLING

WITTE is also aware of the responsibility in the supply chain of private labels and wants to work alongside private label customers to improve the sustainability of their packaging. A first success has already been achieved with the redesign of a set packaging for the North American customer MATCO Tools. Since this year, the company has completely dispensed with plastic, while still providing excellent packaging and presentation of the product. The cardboard packaging with two viewing windows was presented at the San Diego trade fair in February and received a lot of approval from the dealers. ■

KIRCHHOFF FUTURE



WITTRON PACKAGING EARLIER

ONE OF US

COMMON VALUES

WITTE Tools and the Dutch commercial agency RURO, have a long history dating back to 1990. **"We are proud to represent WITTE Tools, because the WITTE product range perfectly matches our range of German A-brands,"** says Wim Stam (right side of the picture), owner of RURO, the Dutch commercial agency of WITTE Tools. "But just as important for us is that WITTE is a family business, just like us. Together we strive for a long-term approach rather than a quick turnover." He is particularly pleased that his son Sem, also puts all his energy into the further development of the company.

25 YEARS



Ladies and Gentlemen, Dear Employees,

This is the 1st issue of "WIR" (WIR translates to WE), our new newspaper produced in-house. Its name is intended to express a spirit of community and togetherness. It should convey self-confidence and confidence that the challenges of the future can be mastered if each of us makes his or her contribution.

With this newspaper, which will appear several times a year in the future, the management would like to satisfy your need for information, provoke your interest in working together, sometimes simply satisfy your curiosity, but perhaps also give you a form of entertainment from time to time.

So many new things have happened and old things have changed in the last few years, and we will have to continue to adapt to such a rapid change; making it necessary to report about it regularly from now on. The real turning point in time began in 1989 with the fall of the Berlin Wall. Since then, the world has changed. The division into East and West, into two great power blocs that maintained a balance of terror, is over. Since then our borders have been open, not only to the West to the duty-free European Union, but also to the East to the new hungry competitors in Poland, the Czech Republic and Hungary.

They say we now have "Hong Kong" on our doorstep. In fact, for us this means much more, not only lower prices, but also shorter distances and usually very good quality, produced by qualified specialists from traditional

European industrial and commercial regions.

We now have to accept this globally intensified competition and counter it with our strengths: quick reaction to the new requirements, full commitment of all men and women, excellent qualified employees, and not least - progressive entrepreneurs who are willing to take risks and at the same time stabilize the political framework in Germany.

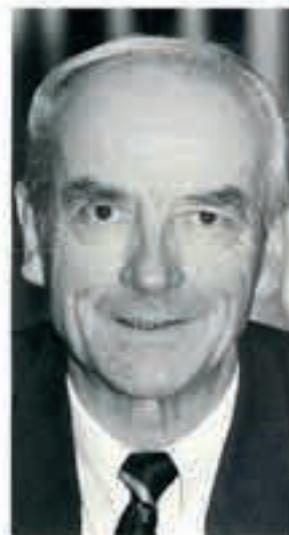
You will now rightly ask: What has our management done to meet the challenges?

My answer:

Together we have built up three strong business segments:

- 1. Pressed parts, welded assemblies and components for the automotive industry and special vehicle construction*
- 2. Screw driving tools for industry, craftsmen and do-it-yourselfers*
- 3. Vehicles, systems and components for environmental technology and waste management.*

Our activities in the first two business fields are largely known. However, completely new in area 1 is a cooperation and license agreement for the development and production of a very promising catalyst for combustion engines ready for series production. Today I would



Dr.-Ing. Jochen F. Kirchhoff

like to emphasize in particular the recent acquisition of FAUN Umwelttechnik AG. This company is the European market leader for waste trucks, dishwashers and suction vehicles, street sweepers, containers and systems for municipal and commercial waste management.

We will thus make a great leap into this forward-looking field, which we entered several years ago in cooperation with Edelhoff AG & Co.

Dear employees, I am confident that we have set the right course for the journey into the future and wish you and your families a blessed Christmas, good health and a successful year 1995.

With a hearty good luck I am yours,

OF COMPANY HISTORY ON 2950 PAGES

With the "WIR" newspaper, the company started a new era of employee and customer information at the end of 1994. Much of what the founder and publisher of the WIR Zeitung and later K>MOBIL, Dr.-Ing. Jochen F. Kirchhoff, writes in the editorial of the first WIR issue about his motivation to create such a magazine is still valid today.

The first issue was printed in daily newspaper format and was expressly aimed at "employees and friends of the Kirchhoff Group". One and a half years later, in May 1996, the magazine appeared for the first time in DIN A4 portrait format. Since the first issues of WIR, the foreword has been written alternately by one of the partners of the KIRCHHOFF Group. In 1998 color comes into play, the magazine gets a new look—the front page becomes colorful with a large-format picture as an "eye-catcher". This too, has not changed until today. ▶

AUTHOR—SABINE BOEHLE, COMMUNICATON & MARKETING MANAGER
KIRCHHOFF AUTOMOTIVE

Nevertheless: over the years the layout of the magazine has been continuously developed and adapted to the contemporary style. In the process, it is also possible that some design elements do not establish themselves. For example, the last issue of the millennium was entitled "Progress into the Next Millennium" and featured images of employees on every page under the WIR title - the conclusion was that the magazine was too unsettled.

In the summer of 2004, after almost 10 years, the KIRCHHOFF Group's company magazine will have a facelift and a new name: WE becomes K>MOBIL. The external impression has hardly changed since then. But the "inner values" have increased. The group of companies has grown year after year and with it the manifold information in the K>MOBIL. »

KIRCHHOFF FUTURE

UNTIL 2003: "WIR"-JOURNAL





Dear Mr Kirchhoff,

my thanks for sending the magazine to your group. You won't feel any different from me, in our days you are provided with glossy brochures, which however are mostly unread, at most quickly leafed through, disposed of. In your case it is the "crass" opposite.

I regard your magazine as a stimulating, informative masterpiece of communication, both internally and externally. You read about interesting technical developments, which is very enlightening, but also reflects the dynamics of your company.

I congratulate you very warmly on all visible and not so visible successes.

With a binding greeting from Wolfsburg

By letter from Prof. Dr. Dr. h. c. mult. Carl H. Hahn, on June 30, 2015

2012 ADAPTATION TO THE NEW CORPORATE DESIGN OF THE KIRCHHOFF GROUP

KIRCHHOFF FUTURE



In order to be able to continue to offer the readers of K>MOBIL selected interesting topics about the KIRCHHOFF Group and to provide the employees of the individual KIRCHHOFF divisions with more internal information, K>MOBIL is getting a spin-off: In December 2012, the first pure employee newspaper K>NEWS will be published. Since then, K>MOBIL is primarily aimed at customers and friends of the group and will receive its last design update in the summer of 2016.

25 years of K>MOBIL are also 25 years of company history, which the individual copies of this magazine tell. K>MOBIL will also be available in the future, maybe in a new look, in any case also digitally. You—dear readers—can be curious about what is still to come. We are looking forward to the next 25 years of K>MOBIL. ■

"Dear friends of our company magazine. As the publisher of the K>MOBIL, I would like to express my gratitude for your loyalty—certainly also in the name of my father and founder of this magazine, Dr. Jochen F. Kirchhoff who died last year. This thanks also goes to our many internal authors, who have always provided us with highly interesting stories for this magazine."

Arndt G. Kirchhoff,
Chairman of the Advisory Board
of the KIRCHHOFF Group.

Please continue to work at the high level, I especially appreciate the low PR (self-praise) level.

Feedback of a reader

Always find the information in your catalog informal and knowledge-enhancing from a customer perspective. Gladly keep this format. Is positively outstanding in our supplier world.

Feedback of a reader



KIRCHHOFF FUTURE

2016 DESIGN-RELAUNCH

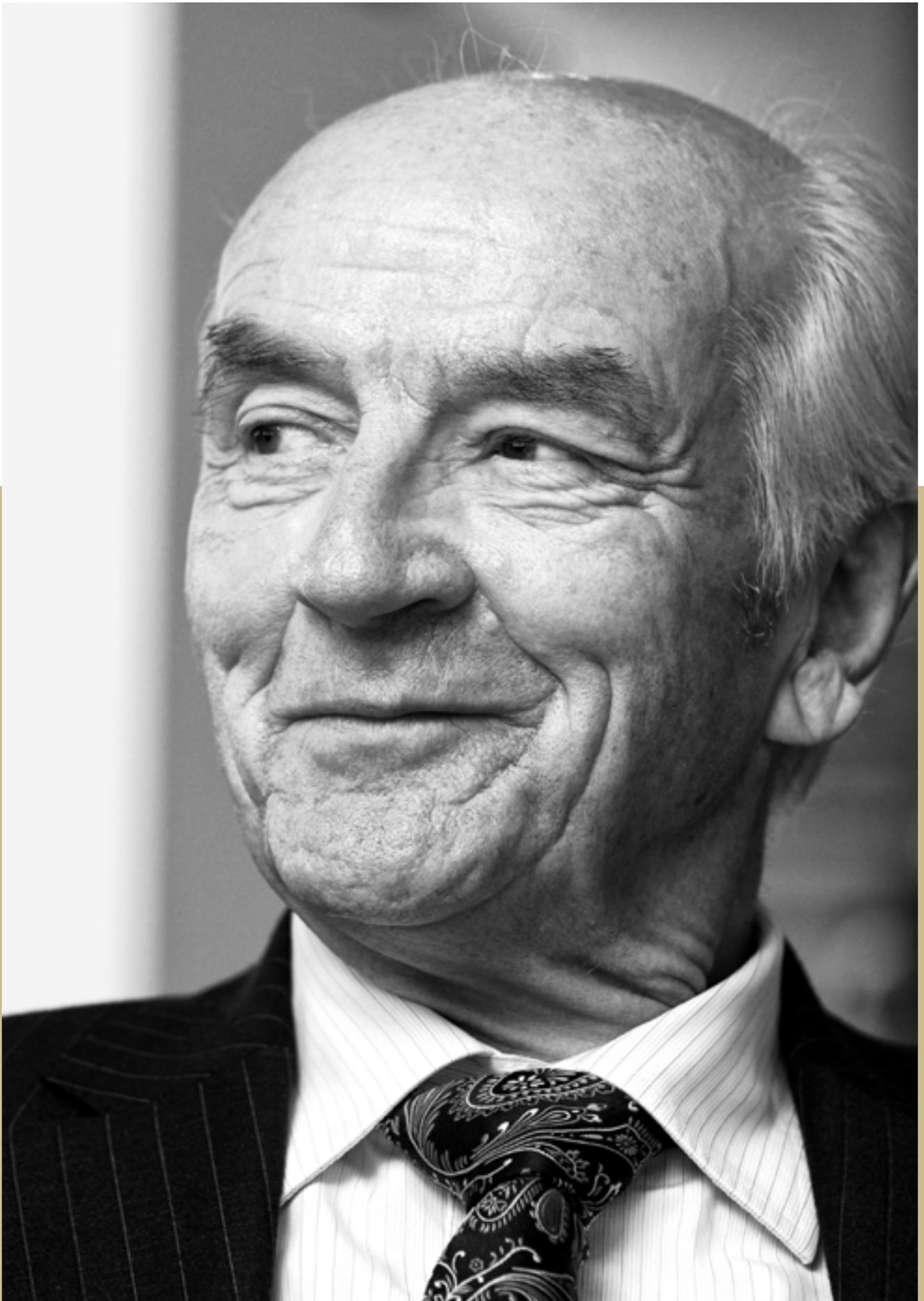
A SPECIAL PERSON, AN EXTRAORDINARY ENTREPRENEUR

Dr. Jochen F. Kirchhoff passed away on December 18, 2019, at the age of 92. More than 900 people attended his memorial service. In addition to family members, over 200 managers and employees of the KIRCHHOFF Group from many European locations, attended the memorial service. Among the numerous guests from society, politics and culture, were members of the North Rhine-Westphalian state government as well as the presidents of the German employers' and metalworkers' associations.

They all wanted to say goodbye. To pay their last respects to Dr. Jochen F. Kirchhoff in this way was a matter close to their hearts. Many of those who met him in the course of his fulfilled life, felt friendship with him. Even at over 90 years of age, Dr. Jochen F. Kirchhoff was still in the midst of life, always curious and open to everything new, and able to inspire himself and others. He was in many ways, a special entrepreneur and an exceptional person. His life was characterized by creative power, determination, sportsmanship, love of music, solidarity with people and especially love for his family.

Dr. Jochen F. Kirchhoff gained his first professional experience after the war as a miner underground. The internship lasting three quarters of a year was a prerequisite for studying mining at the TU Clausthal Zellerfeld. Here, he learned a wide variety of trades. The hard work was an important experience for his later management tasks: "Above all, I learned what physical work and stress can and cannot be expected of a person." Because of the war, he had completed a shortened high school diploma, was the youngest student in the entire university and now had to catch up on some areas such as chemistry. ▶

AUTHOR—ANDREAS HEINE, GLOBAL EVP COMMUNICATION & MARKETING KIRCHHOFF AUTOMOTIVE





CURRICULUM:

Dr. Jochen F. Kirchhoff was Chairman of the Management Board of the KIRCHHOFF Group from 1993 to 2006, whose Advisory Board and Shareholders' Circle he chaired since 2007. He was awarded the Grand Cross of Merit with Star of the Order of Merit of the Federal Republic of Germany, the Order of Merit of the State of North Rhine-Westphalia, the Grand Decoration of Honour of the Austrian Order of Merit and the Order of the Marian Cross of the Republic of Estonia. In addition to his entrepreneurial activities, Dr. Jochen F. Kirchhoff was a member of economic committees and associations in a leading position. For example, from 1973 and 1980 respectively, he was a member of the presidia of the Federation of German Industry and the Confederation of German Employers' Associations for many years. From 1983 to 2004, he served as President of the North Rhine-Westphalia Employers' Association and from 1983 to 1997 as President of the North Rhine-Westphalia Metal and Electrical Industry Association, then as Honorary President of both associations.

In self-study he acquired the necessary knowledge in a few months by reading technical literature. A key experience. Even after completing his studies in business administration in Cologne during his first years of work at Deutsche Babcock AG in Oberhausen, was his evening reading of specialized books that he used to acquire knowledge about lean processes in companies in order to then successfully apply it paired with practical experience. After only 7 years with Deutsche Babcock AG, he became director for all manufacturing operations in 1960, and after a total of 10 years with the company he was appointed member of the board of management of Deutsche Babcock AG, Oberhausen in 1963. At 35 years of age he was the youngest member of the company's board of management. He fulfilled his contract and in 1968 finally followed his 78-year-old father into the family business in Iserlohn, which would otherwise have had to be sold without a successor.

In the years to come, Dr. Jochen F. Kirchhoff impressively demonstrated that he also had the instinct and courage of a successful family entrepreneur. If necessary, he reinvented the company. He sold the electrical division with night storage ovens and the first microwave ovens in the early eighties. He had recognized early on that the division would not be able to hold its own against the market-leading groups despite good products. Instead, he invested in the production of car body parts, built a new plant in Iserlohn Sümmern and bought the Kutsch company in Attendorn in the 1980s. In doing so, he laid the foundation for KIRCHHOFF Automotive, by far the largest division in the KIRCHHOFF Group today. His motto: "To dare new things in good time, to constantly work on innovations and to invest in modernization. Above all, not to shy away from entering new markets.". This was especially true for the entry into the waste disposal market, where, with the support of his second oldest son Johannes, he first took over FAUN in 1994 and later ZOELLER in 2005. Today, the KIRCHHOFF Ecotec division headed by Dr. Johannes F. Kirchhoff, with numerous major brands, is a leading manufacturer of waste collection vehicles, sweepers and lift systems with production plants from Europe to Australia.

FOR DR. JOCHEN F. KIRCHHOFF,
MANAGING A FAMILY BUSINESS HAS
ALWAYS BEEN THE MOST APPEALING
JOB HE COULD IMAGINE. FOR HIM, IT
MEANT SOLVING TASKS AND SETTING
GOALS INDEPENDENTLY AND ON HIS
OWN RESPONSIBILITY WITH THE FAMILY
IN ORDER TO LEAD THE COMPANY
PERMANENTLY AND SUCCESSFULLY.
"IN DOING SO, I FEEL PASSION AND
JOY IN BEING ABLE TO WORK WITH
THE PEOPLE IN THE COMPANY AND
BEYOND FOR THE SOCIETY IN
THE REGION."

As a successful entrepreneur, Dr. Jochen F. Kirchhoff always felt a responsibility to do something for society: "A company is not a private event. It has a social obligation." He has received many awards for his voluntary commitment to the interests of the economy and the social market economy. His charitable foundation in his name still supports many clubs and projects in Iserlohn today, from art, culture to local sports. His love for professional sports has been with German football club Schalke 04 since childhood, and his enthusiasm for basketball has flared up again in recent years. With him KIRCHHOFF Automotive became the main sponsor of the Iserlohn Kangaroos, whose home games he rarely missed. He always considered the commitment to the employees to be the most important task of a successful entrepreneur. "To create sustainable competitive jobs and then to improve the working conditions for the employees accordingly—that is the main task. We want our employees to enjoy their work and be proud of what they have achieved. Our actions do not dictate shareholder value and absolute levels of return, but long-term goals, values and strategies." ■

THIS IS HOW ALL EMPLOYEES OF THE KIRCHHOFF GROUP WILL REMEMBER HIM.

