

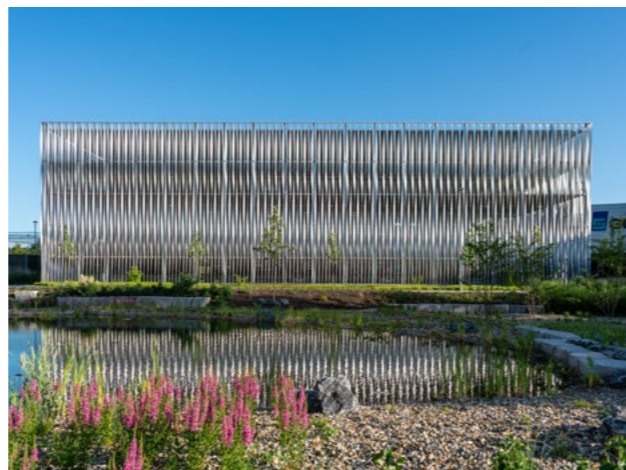
A modern, multi-story office building with a facade of dark, vertical slats and large glass windows. The building is surrounded by a lush green roof with various plants, including tall grasses and leafy greens. A set of concrete steps leads up to the building. The sky is blue with some clouds.

SUSTAINABILITY REPORT 2021/22

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In conversation



Jörg-Uwe Goldbeck
Managing Partner

Jan-Hendrik Goldbeck
Managing Partner

Jörg-Uwe Goldbeck: Dear readers, we are currently living through uncertain times. The pandemic refuses to go away, the Ukraine war has reminded us all that the sense of security we are used to cannot be taken for granted, and the effects of climate change are being felt ever more keenly. However, the history of the world – and that of our own company, too – shows us that times of crisis also bring new beginnings. We stand for humanity, responsibility and a passion for performance. And here at GOLDBECK, we want to act and play our part in helping the world to overcome these daunting challenges.

Jan-Hendrik Goldbeck: So we have been engaged in matters beyond the scope of our normal business, and we have used these rough times as a creative spark for self-improvement. The fact that we have been able to do this is thanks in no small part to our employees, who are never afraid to question the status quo, forge new paths, and work with us to help our company systematically and comprehensively evolve. We see the latest technologies as a way of laying the groundwork for this development – with their help, we can change the construction industry and make an even greater impact, especially in terms of climate protection. Because one thing is now clear: sustainable solutions are no longer simply 'nice to have'. They are an absolute necessity – the minimum that is now expected.

JUG: But there is even more to it than that. The ESG criteria are an issue very close to our hearts. Perhaps critically assessing your own actions is a natural instinct when you run a family-owned company – be that in economic, environmental or social terms. One thing's for sure: our system makes us far more sustainable than many other companies, but our progress has to be even faster. Our most recent successes include calculating a carbon footprint for our entire company, the certification of our environmental management system, and the foundation of our Group Sustainability department.

JHG: Yes, we've laid the foundations – but the real work is just beginning. That goes for both the company level and for our products and services. What a lot of people forget is that we can only move forward if people actually buy sustainable products. That means they need to be economically efficient – otherwise they will be nothing more than ideological prototypes, never gaining widespread acceptance. And another thing that's very important to me: when efficient ways of working help us to reduce costs, there's a good chance they could offer environmental and social benefits if applied elsewhere. Impact investing needs to be our watchword.

JUG: At the same time, we hope that the government will put legislation in place to create incentives and remove bureaucratic hurdles, so sustainability improves throughout the construction industry. If we get nothing but one-size-fits-all solutions, that could lead to new problems and hamper progress, as with the use of recycled concrete, for example. Wood is another good example: everyone knows that it's a good CO₂ store during the use phase – but can we take all the wood we need from our forests without severely impacting the environment? And what happens to construction wood that's no longer needed? It has often been treated with glues, pesticides and adhesives that preclude its use elsewhere. At the same time, there are alternatives out there that are being held back by regulatory barriers. Insulation materials and sustainable concrete are just two examples of this. Politicians need to be careful not to stumble naively into the latest trends, plump for what seems to be the simple solution and then walk away with a smile on their face – and the same goes for us, too. We need to take into account the entire life cycle of each property and its components. That takes a lot of thought and effort. But the good news is: it pays off!

JHG: That's another reason why this first Sustainability Report is so important for us – it gives us a clear idea of where we stand and what still needs to be done. Our agile sustainability organisation enables us to manage the objectives that arise from the report in a focused way and implement our solutions pragmatically. This is no trivial matter. Maybe we'll need to try not to be too hard on ourselves at times – after all, what's cutting-edge today might be obsolete tomorrow. But just sitting around and waiting isn't an option. Our systemised and industrialised approach to building has made us pioneers in the construction industry. Now, we want to do the same thing in terms of sustainability.

JUG: The days and years to come will be a exciting time of intense activity during which we will shape both our industry and the future. This won't be possible without the support of our strong, interdisciplinary team of GOLDBECKers. After all, implementing the sustainable transformation of our company is both a team sport and a trial of endurance.

JHG: And with that in mind, dear readers, we'd like to warmly invite you all to get involved and play your part. We hope you enjoy reading this fascinating report!

Warmest regards,
Jörg-Uwe Goldbeck & Jan-Hendrik Goldbeck

This is GOLDBECK



From the right idea to the matching business model – GOLDBECK's success is built on its systematic approach. 10,000 employees work together at more than 100 locations throughout Europe to cover the entire life cycle of a property. Rooted in the German region of East Westphalia, with connections all the way to Silicon Valley, the family-run company in the second generation is now primarily pursuing the issues of sustainability and digitalisation.

A rich dynasty of pioneers

"I was actually meant to go into the family locksmith business," Ortwin Goldbeck recalls. But despite completing his locksmith's training, Ortwin had other plans. After obtaining a degree in engineering, he founded the company in 1969 – underwritten by his wife, Hildegard. He wanted to rethink construction from the ground up, and make it more systematic and efficient. Inspired by private prefabricated house construction – a novelty at the time – he developed the first commercial construction system: a construction kit full of flexible system components that could be assembled to make turnkey warehouses and factory buildings. The idea revolutionised the construction industry. Industrial prefabrication used fewer resources than conventional construction techniques, guaranteed more consistent quality and led to shorter construction periods, making building with GOLDBECK a much more economically efficient choice for the company's clients. The logical next step was to apply this principle to other types of building, too: multi-storey car parks, office buildings, school buildings and, most recently, residential buildings. Even now, the company is still evolving, and the pioneering spirit has been passed down to the family's second generation. Ortwin Goldbeck's sons, Jörg-Uwe and Jan-Hendrik, picked up the baton in 2007 and have been continuing their father's success story ever since. Their goal is an ambitious one: to develop the systematic construction approach further with respect to sustainability issues and set the ball rolling on a comprehensive sustainability strategy for all the company's sites throughout Europe.

GOLDBECK – Growth throughout Europe

Upon taking the reins at GOLDBECK, the brothers opened more local branches both in Germany and abroad, and invested in expanding the company's production plants. "There's no doubt about it: in-house production is part of our company's identity," emphasises Jörg-Uwe. Jan-Hendrik manages the company's internationalisation and services. With the purchase of French construction company GSE in 2019 and the Danish company DS Gruppen in 2022, GOLDBECK has strengthened its geographical presence throughout Europe. The latest development is the foundation of GOLDBECK Sustainability Consulting – GSC for short – which advises portfolio owners on the sustainable transformation of their real estate portfolios.

1969

is when Ortwin Goldbeck founded the family-run company, which is now managed by its second generation.

5 bn.

euros was GOLDBECK's total turnover for the 2021/22 financial year.

Throughout the company, the Executive and Management Board is laying the groundwork for a digital, more environmentally friendly future. Moreover, the brothers share the passion for systemisation that inspired the company's founding. They are driving the use of new technology in construction and the digitalisation of the company by investing in innovative ideas, collaborating with universities and research facilities, and entering into partnerships with start-ups all around the world. Their stated mission is to utilise the potential of the company's economic success for ecological and social betterment.

Utilising the scope for sustainability

"Using resources efficiently is about more than just cost – it is also inextricably linked to ecological responsibility," says Jörg-Uwe Goldbeck. The business studies graduate believes that products need to cover a lot of bases in order to become more sustainable: they need to be functional – i.e., to fulfil their intended purpose – while also causing zero or very little damage to the environment and catering to social sustainability criteria. It doesn't matter whether you're dealing with the temperature of a building, its acoustics, the quality of its interior and exterior design, or the lighting conditions – it needs to be a place where people will feel comfortable and at home. "We believe the greatest impact on sustainability lies in our products themselves, which is why our efforts so far have focused on this area." Now, however, the company's decentralised, interdisciplinary sustainability organisation is going through every part of the company with a fine-tooth comb to unlock potential for sustainability and kick-start changes – some of which even extend beyond the company itself. The Goldbecks and their company are involved in a variety of associations and initiatives, including Stiftung KlimaWirtschaft – German CEO Alliance for Climate and Economy, ReAct, and Deutschlands Zukunftsweisen, an interactive group of economic and scientific decision-makers who are working to bring about a systemic shift in perspective on sustainability in Germany. Yet in all the company's efforts to bring about the necessary transformation, one thing remains clear at GOLDBECK: economic viability is the touchstone when it comes to deciding which sustainable solutions are actually implemented.

Who we are, what we do

GOLDBECK is, and will remain, a family company. Our decision-making paths are short; we have a strong sense of togetherness and we practice an agile approach to our work. The task we face is to maintain the open and direct communication style valued by so many even as the company continues to grow, and to foster it with consideration for the diversity within our company.

"Since our foundation, we've grown from seven employees in Bielefeld to become a European company with 10,000," states Jürgen Eggers, who has been in charge of GOLDBECK's Human Resources unit for 14 years, thus shaping continuous change. He does see some clear constants, however: a culture that is characterized by humanity, responsibility and passion for performance, and is based on trust. It also forms the foundation for international teamwork and the company's new sustainability organisation, which builds on the expertise and structures in various units. "It defines how we do what we do." Company founder Ortwin Goldbeck himself was a firm believer in the idea that performance comes from work that is done on one's own responsibility and that brings joy. The opportunity for continuous development is just as much a part of this as sharing in the company's successes. Since 1984, that participation has been possible in the form of share certificates. "Maintaining this togetherness amidst our rapid growth is one of the most important tasks we face," says Jürgen Eggers.

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Our culture involves continuous technological development and an inspiring environment. With people who are both professional and friendly. This is more than just a job.

Michal Šulc

Head of Production in Vrdy, Czech Republic



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“Communication here is open and honest, which allows for solution-oriented teamwork. It doesn't matter who you're speaking to – we always treat one another as equals.”

Steffen Manthey

Business Unit Controller in Bielefeld, Germany



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“As an employee, credit is really given where credit is due. Working at GOLDBECK means realizing projects as part of a great, young team.”

Melanie Evers

Team Assistant in Arnhem, Netherlands



The 360° approach



Even companies that are already operating sustainably are now being called upon to pick up the pace and do more. Some are rethinking their business models, while others are focusing on compliance to meet minimum legal requirements. GOLDBECK's vision and the idea behind its foundation strive for more: to make construction more efficient – and thus more sustainable. We have already achieved a lot, but there is still plenty to improve.

The starting point: sustainable products

For decades, GOLDBECK has been doing its utmost to realize buildings in a very sustainable way throughout their entire life cycle. This is one of the reasons why the company sees buildings as products, divides construction conceptually into systemised processes, and uses industrial techniques to prefabricate the majority of the construction components it requires. We conduct extensive research and development to make sure that our system solutions strike the perfect balance in terms of environmental, social, functional and economic considerations. This approach enables GOLDBECK to significantly reduce its consumption of materials, saving around 25 percent on CO₂ emissions compared to conventional construction techniques for the average office building. In addition to this, it also reduces noise pollution at the construction site.

Targeted development of sustainability in our organisation

But for our company, that isn't enough. GOLDBECK is systematically and strategically pressing for more sustainability in its own value chain – not just at the product and project level, but throughout the company as a whole. Our goals are nothing if not ambitious. The task GOLDBECK has set itself is nothing less than becoming “best in class” in terms of sustainability, and using its vision and innovations to shape the industry. We want to demonstrably reduce resource consumption even further at every stage of our products' life cycles, and from the 2023/24 financial year onwards GOLDBECK also wants to be carbon-neutral in its business operations at the company level.

We have used the last financial year to take thorough stock of our current situation. GOLDBECK brought in an external auditor to carry out a sustainability rating for the company and kicked off the reporting process with a sustainability consultation. With the awarding of ISO 14001 certification for its environmental management system at all its locations within Germany, the company has already checked off one important milestone. The great depth of its value creation and the company's decentralised structure are strengths from which the entire organisation benefits. Each unit brings its own unique wealth of experience to the table, so they all push and learn from each other.

In order to drive our emerging sustainability strategy forward and help us achieve the goals we have set ourselves even sooner than planned, GOLDBECK began professionalising and expanding its in-house sustainability organisation in 2022. The new “Group Sustainability” department, which is headed up by a Chief Sustainability Officer, reports

directly to the Executive Board. The department will organize cross-company activities in agile teams – including Sustainable Products, Sustainable Production, Sustainable Projects and Sustainable Real Estate Services – and align them with the overall strategy. After all, one thing is clear at GOLDBECK: the process of transforming our company into a sustainable business in all respects is a team job.

Turn to page 36 for more information on GOLDBECK's sustainability management.



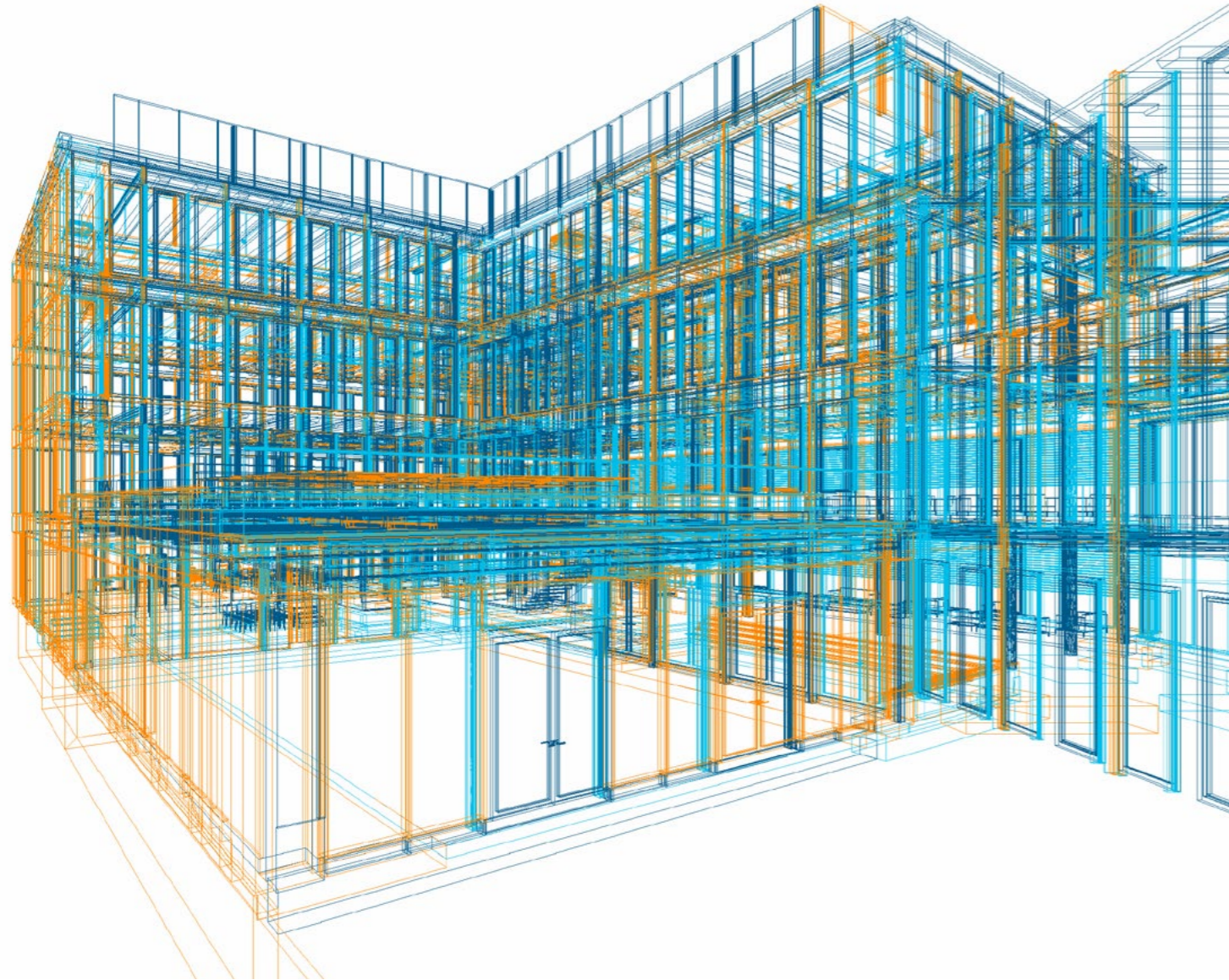
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Only by treating sustainability as an integral part of our company culture and all our business activities will we be able to achieve our goals.

Dr Michael Six

Chief Sustainability Officer, Managing Director of GOLDBECK Deutschland GmbH and Member of the Management Board

Scalable solutions across the board



From virtual walkthroughs to robotics and artificial intelligence – when it comes to digitalisation, GOLDBECK is leading the way on many fronts and pursuing research with top international institutes. We spoke to Chief Digital Officer, Maximilian Schütz, and Fabian Lenz, Head of the Innovation, Products & Systems unit, to find out what is already possible and what is still in the pipeline.

GOLDBECK has been working with building information modelling (BIM) since 2011. What does that mean for the products?

Fabian Lenz: Requirements in real estate are getting more and more complex. Properties need to be the perfect fit for the current needs of their users, while also offering scope for flexible repurposing. They need to be more than just shells that provide shelter – they need to respond intelligently to circumstances both inside and outside the building. They also need to offer low resource consumption, which means optimising the use of raw materials during construction and ensuring the building is operated in an energy-efficient manner. BIM is a digital planning technique that enables us to cater to all these different requirements.

Maximilian Schütz: All the different trades involved draw up a digital model for the perfect property. This ensures that the dependencies and consequences are visible at all times, the sources of errors are kept to a minimum, and the opportunities for optimisation are increased. It also gives us an underlying set of data on the basis of which we can collect all the information and put it in a useful form over the entire lifetime of the building – from the construction process to operation.

And how does BIM help with issues relating to real estate sustainability in particular?

MS: The BIM model allows us to run through a huge number of simulations while we're still in the planning phase. We can use different sources of energy generation, compare energy consumption scenarios and run analyses of solar energy levels. It also enables us to forecast the building's carbon footprint over its entire life cycle, and to work out and compare a variety of options for improving its sustainability.

FL: It also means that we can keep on optimising the building while it's in operation, based on the actual habits of its users. For example, occupation data helps me to calculate how often certain areas are used – and if they're not used often, the intelligent building automation system that's linked to the BIM model makes sure they aren't heated as much. At the same time, we can use the information we receive to decide where it might be better to repurpose certain areas, or whether extensions are required.

How do you collect this data?

FL: If you want to map out a property digitally, either predictively during the design phase or analytically in the management phase, you need a huge amount of data and information. In traditional construction contexts, where everything tends to be fragmented, there are countless

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Digitalisation enables us to precisely measure the sustainability of our real estate and systematically improve it.

Maximilian Schütz
Chief Digital Officer

people involved in planning and processing, and they're all using different software solutions and tools. This leads to data silos that are impossible to merge together again at a later date – and incidentally, the physical elements often don't mesh together well on the construction site, either. Our high depth of value creation – which starts with integrated design systematically carried out with BIM and involves comprehensive coordination of everyone involved in realizing the project – enables us to create a holistic data platform.

We then use this platform to link together all the relevant project data for the design, implementation and operation of buildings. We can create 3D models – but we can also do more than that. Construction elements have delivery deadlines, prices and a carbon footprint. MEP equipment components have KPIs, maintenance intervals and instructions, and spare parts information. We can even save information on the weather at the construction site at the assembly time.

In simulations, people often talk about “digital twins”. What does that mean?

MS: “Digital twin” has become something of a buzzword. As a result, we've divided our value creation stages into three types of models: the “BIM as planned” model, the “BIM as built” model and the “BIM operation” model. The latter is what other companies refer to as the digital twin. But that's still one for the future as far as the industry as a whole is concerned. Right now we're working on a full BIM as built, which will mean we can completely do away with hard-copy review documents. We've still got a long way to go with this, too, though. We're not looking to create flagship projects for conference slideshows – what we want to do is provide scalable solutions that can be implemented across the board, in all our projects.



The construction site of the future: robots being pilot tested at a Mannheim construction site.

What role does the Innovation, Products and Systems department (IPS) play in this?

FL: There's a lot of overlap between our units. IPS handles product design – construction systems, construction materials and the technical building equipment. As indicated a moment ago, this is an area that's becoming increasingly complex. This is leading to a higher volume of maintenance work, though the BIM model and the live data from the building help us again here. All the MEP equipment is interlinked via the automation system – like a nervous system for the building, if you like. Combining this data with BIM opens the door to a lot of exciting possibilities. We can compare the running time of different devices, schedule maintenance cycles, and set up IF/THEN relationships between them.

MS: Exactly! AI-based forecasts and machine-based learning – that's where it gets really exciting. To give you a practical example: if the sensor system detects a high volume of people at a door at certain times of the day, the AI can use this information to change the way the door opens. Instead of opening and closing four times, it stays open automatically at those busy times of day. This also means the door might last up to four times as long as it would otherwise. That allows us to develop a digitally assisted and predictive maintenance structure.

Where else is artificial intelligence used?

FL: We're currently working on a way of aggregating the live data generated in the building so we can expand the BIM as built model for the management phase, thus creating a BIM operation model. This involves a huge number of data points from a very wide range of devices. In order to optimise the way we process this data, we're currently setting up a dedicated department that will specialise in software development and cybersecurity.

MS: And in order for all that to work out, the BIM model needs to contain accurate information on what has actually been installed in the building. If we ran into supply issues and needed to find a substitute part at short notice that fulfils the same function as the component in the original design, it's still quite hard for us to keep track of those kinds of changes. And then a technician might be called out for maintenance on a certain heat pump in a property, for example, and once they get there, they realise it's actually been supplied by a different manufacturer. We'll be able to avoid a lot of those unnecessary journeys and excursions – and in turn, that will be good for the carbon footprint of the property.

So the crucial point is the construction site, which is where the data has to be fed in for the BIM as built?

MS: And we're working on that. One possible solution would be to set up 360° cameras so we can use robotics to check what has been installed in the building before the walls and ceilings are sealed up. Once we've got that information, an AI would be able to detect and report what brand has been installed. It would be even better, though, if we could get the devices to register themselves via Bluetooth.

FL: We've already got a lot of positive examples from our in-house Product Development, too – like our prefabricated modular energy centre. We asked ourselves: if every office building and industrial building has similar energy requirements, why can't we incorporate that into our thinking in advance and prefabricate accordingly? Now, we can transfer the energy centre and all its devices into our BIM as planned, so it turns up exactly the same on the construction site as well. We've already got it set up on a small scale – we just need to extend it to the bigger picture.

What's your vision for these digital assistance systems?

FL: Imagine a building that can carry out its own checks. If we can get a building up and running quickly and safely, that saves a lot of energy in the first year alone. Is the equipment registering the right performance curves? Has the building reached the right temperature? From there, the second step would be efficient and sustainable building management that only requires input from us when something needs doing. We wouldn't be carrying out maintenance at certain intervals just because that's what's been prescribed – instead, we'd only do it when the system shows us it needs doing soon. The third step would be truly autonomous building management. The system would suggest optimisations itself – and ideally, carry out its own repairs, too! (Laughs) But that really is something to come back to in the future.

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Our goal is to provide scalable solutions that improve the carbon footprint of our properties and at the same time facilitate our colleagues' work.

Fabian Lenz

Head of Innovation, Products & Systems

Resource efficiency is built in



GOLDBECK's ability to deliver construction projects on time and on budget is also due to the company's in-house production facilities. At each of the 13 GOLDBECK plants across Europe, cost-effectiveness and sustainability go hand in hand. From recycled construction materials to in-house solar electricity and automation solutions – Dr Wulf Härtel and Michael Mues know what production will be like at GOLDBECK in the future.

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Efficiency and economising resources are inherent parts of our production processes. And we're helped by the latest technology, a lean philosophy that's been embraced on every level, and our cooperative team culture.

Dr Wulf Härtel

Managing Director, GOLDBECK Bauelemente Bielefeld GmbH
Managing Director, GOLDBECK Bauelemente Treuen GmbH

Both more cost-effective and more sustainable

At GOLDBECK, systemisation isn't just about ensuring maximum economic efficiency – it's also a driver of sustainability throughout the company, even at our plants. “We develop our construction elements to meet our clients' requirements, while also ensuring that they are quick to manufacture, competitive and cost-effective – all in a low-resource-consumption setting,” emphasises Dr Wulf Härtel, who heads up Production at in Bielefeld and Treuen. This development follows an iterative process between the finished product and procedural production to allow for continuous tweaks and optimisation. “If each of our system components were different, we wouldn't be able to be this sustainable. Our focus is always on series production,” explains Michael Mues, Head of the Technology department at GOLDBECK Produktions GmbH.

Economising on resources – an ongoing process

The company's sustainability philosophy permeates every stage of the production process. “We make our production as sustainable as possible. For example, we fit our plants with photovoltaics, build energy-efficient systems, and switch to electric forklifts wherever possible,” Dr Wulf Härtel continues. And the plants are tapping into new potential in terms of process management, too. “LEAN@GOLDBECK brings together our variety of methods for optimising pro-

duction, administration and planning and for streamlining our processes. It gives us a huge toolbox of techniques, which we're adapting all the time,” Michael Mues explains. GOLDBECK is using these tools to drive its improvement process at every level of its series production. The plants analyse their value streams and optimise their materials processing as an ongoing process. “We don't just optimise how much concrete we're using or what class of cement – we assess each system component on a case-by-case basis.”

Optimised down to the detail

One example of this is the company's two-part, rejuvenated concrete columns. In addition to using less material, they also save on weight and space – an advantage in terms of transport, which also counts towards resource efficiency. Michael Mues also points out the benefits of the company's locations in this regard: “Because we have plants all over Europe, we can produce close to the construction site and reduce our transport distances.” “We are also constantly reassessing our products and working to systemise more construction elements and put them into industrial prefabrication,” Dr Wulf Härtel adds. The company's most recent developments here are a range of ready-made bathroom modules ranging from sanitary appliances to towel racks that are prefabricated entirely at the plant – once they reach the construction site, all that's left to do is to install them. This greatly reduces the number of trips to the site that would otherwise be made by a whole host of different tradespeople, and it reduces the time required significantly.

Automatically sustainable

All these production processes are increasingly becoming automated. This makes them more precise and faster, and it saves on resources – not to mention providing an attractive work environment for the team. “For our welding work, we use easily programmable co-robots operated by our staff. These have now become very popular workplaces,” notes Dr Wulf Härtel. “Nevertheless, finding skilled workers remains difficult,” he adds. “That's one of the reasons our Training unit is so important, and why we always aim to offer our apprentices permanent positions once they've completed their training.” This is another part of being sustainable, Härtel says.



Our Bielefeld steel construction plant alone manufactured more than 22,000 system trusses in the last financial year.

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At the end of the day, everything goes hand in hand: what construction elements we design, how we design them, what we use to manufacture them and where we do it all plays a role in how they can be transported and ultimately assembled.

Michael Mues

Head of the Technology department
at GOLDBECK Produktions GmbH



Green alternatives for construction materials

GOLDBECK is not coasting on past success and the processes that work for it at the moment. “Right now, a large amount of the steel we use is secondary steel and our aim is to successively increase it. That’s something we’re working on,” Härtel is keen to point out. “We want to use more green steel. Normally, carbon is blown into this steel in the blast furnace. But in future, we want to use hydrogen produced using green electricity for this process,” he continues. We will have to be patient on this front, however, as this alternative won’t be widely available for another five to six years. A more accessible solution right now is new types of concrete. The use of low-clinker cements drastically reduces the material’s CO₂ emissions. “We’re hoping to complete our in-depth tests using these materials at our plants by the end of this year.”

Talking strategy and optimisation

The list of ideas and completed projects in the field of sustainability is getting longer by the day. Requirements are getting more demanding, impact is increasing – and the same goes for our expertise and the number of proposals being made. In order to channel these proposals, we have set up feedback teams to foster discussion between employees and the Management Board. These have been a great success. “We provide information on future strategies, new projects and current issues, and in return we get direct feedback from our workforce. This leads to new projects at every level – resulting in an open, participative culture. It’s good for both team spirit and the future viability of our company,” says Head of Department Mues.

Carbon neutrality goes coastal



In the far north of Germany, GOLDBECK is currently building a very special pilot project in the framework of a public-private partnership: one of the Federal Government's first climate-neutral buildings. If GOLDBECK's draft in Brunsbüttel is to become a successful reality, the subcontractors will have a crucial role to play. But getting them on board isn't always easy. We visited the construction site to find out more.

On an expansive plot in Brunsbüttel, northern Germany, a red excavator is shovelling soil. This is to be the site for a new facility for the Kiel Canal Waterways and Shipping Authority (Wasserstraßen- und Schifffahrtsamt Nord-Ostseekanal): an office building with administration workspace. The Federal Government has commissioned GOLDBECK here for a life cycle project – meaning that the operation and maintenance of the facility will remain in the hands of the construction and service company for a further 25 years once its design and construction are complete. The standards are high: the client wants the building to be certified according to the national Assessment System for Sustainable Building (BNB), and carbon-neutral in its operations. This raises the bar in terms of what is expected – both in terms of design and construction as well as documentation. All the work, materials, and all the specifications and requirements of the tender are inspected regularly by an external auditor.

The plan is to achieve carbon neutrality in operations primarily through the use of photovoltaic systems and regenerative district heating. There's just one catch: the Kiel Canal is the busiest artificial shipping route in the world. The fault alarm control systems and servers required for its operation consume an extraordinary amount of energy. This is supplied in the form of green electricity in order to ensure climate neutrality – but it isn't included in the carbon-neutral pilot project, which focuses exclusively on the administrative building.

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We're using our life-cycle-oriented overall concept to document full carbon neutrality for our building operations and office use.

Dominik Klare

Project Manager at GOLDBECK Public Partner

During the peak phase, up to 30 different crews will be working on the construction site at once; currently, those handling the civil engineering and shell are the only tradespeople involved. And at this stage, the only evidence of how well the red clinker building will fit in with the surrounding urban development is provided by the visualisation. The fact that the building will contribute to a sense of identity makes the project particularly attractive to local providers. The contract awarded by the Federal Government stipulates that at least 60 percent of the building work and 70 percent of the operational labour must be procured from local small-to-medium-sized subcontractors, reports Project Manager Dominik Klare. It is also GOLDBECK's standing policy to procure from local providers due to the many benefits this approach offers, from short journeys to the site to short-notice availability when required. The subcontractors' interests are therefore aligned with those of GOLDBECK and the client.

Yet despite this, tying up contracts proved anything but child's play, as Marc Ostermann confirms. As a project manager, he knows that projects involving a lot of documentation can scare off master electricians and locksmiths who aren't struggling for work. This counts for double in the current climate, where interruptions to supply chains and a scarcity of materials are making business even harder. As a result, he spent most of the tendering phase glued to his phone, trying to get ahead of the game by dispelling reservations the moment they arose. The assurance that the site management would be on site providing advice and assistance was enough to convince many of the subcontractors to take the contract. The sense of partnership in these “temporary teams”, as project managers like to call them, was cultivated outside of working hours as well. Barbecue parties were thrown when milestones were reached, and weekly meetings were held in a relaxed, jovial atmosphere. The fruits of this approach to teamwork can be seen in the many long-standing partnerships GOLDBECK maintains throughout Europe, some of which have been in place for more than 20 years.

The greatest potential is in the portfolio



Michaela Föller,
Head of Department, GOLDBECK Sustainability Consulting

GOLDBECK wants to help its clients with the transformation, which is why the company founded GOLDBECK Sustainability Consulting as a dedicated, in-house agency. Engineer Michaela Föller is in charge of the team, and has experienced more than 14 years of life cycle analyses at GOLDBECK. We spoke to her to find out what the key areas of focus are right now and what clients can expect.

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We work together to identify sustainability goals, hone them regularly as new requirements come into effect, and of course help our clients achieve them using concrete implementation strategies and measures when requested to do so.

Michaela Föller

Head of Department, GOLDBECK Sustainability Consulting

April 2022 saw the founding of the new business unit, GOLDBECK Sustainability Consulting (GSC). What's the idea behind this new endeavour?

The real estate sector is aware of its responsibility in helping us all reach the European climate targets. However, defining goals and measures now while there is still no regulatory framework in place is proving a challenge. This year alone, we are expecting three changes to the relevant legislation – including a new German Energy in Buildings Act based on the EU's Energy Performance of Buildings Directive. Things are also changing fast in the relevant scoring models, and the Corporate Sustainability Reporting Directive will lead to the introduction of new reporting obligations from 2026, if not earlier. If we want to meet our climate targets, we can't sit around waiting for all these changes to come into effect. We need to act now – but doing so is extremely complicated for real estate owners. That's where GOLDBECK Sustainability Consulting comes in – we want to help portfolio owners in the real estate sector transform their portfolios and make them sustainable. We work together to identify sustainability goals, hone them regularly as new requirements come into effect, and of course help our clients achieve them using concrete implementation strategies and measures when requested to do so.

How does GSC's approach to consulting work?

We start with a structural survey of the properties. This can also factor in the requirements for a conformity inspection for taxonomy purposes, if that's what the client wants. We can also tailor the consultation with specific scoring models in mind, such as ECORE or GRESB. Once we've got all the basics, that's when our consulting approach kicks in. Based on their current portfolio, we work with the client to define ESG goals for them. Do they want to set up a fund listed in accordance with Article 9? Is a sale being lined up? Those things also impact on a company's goals. If a client has signed up to the 1.5-degree target, we need to develop their real estate with that in mind, too. Once we've done all that, we draw up a long-term plan of action that runs all the way to 2045, which we can monitor and support if the client wants us to.

Could you give us an example of a quick, simple measure that might be included in this plan?

Companies can achieve quite a lot with relatively little investment. The first step is professional operation of their properties. Optimising the energy management alone can reduce a building's consumption by up to 15 percent. That allows the company to take a huge step towards their savings targets without impacting user satisfaction at all.

And what area would you say offers the greatest potential in helping achieve climate protection goals?

Their portfolio – no doubt about it. It has been clearly stated that renovation rates in certain asset classes need to be quadrupled in order to reach the targets set in the EU's Green Deal. That means portfolio owners need to work at a very brisk pace! And the speed of implementation is currently the issue that presents the greatest risk of failure. The lack of clarity with regard to the framework conditions and the reductions in returns that result from the investments often required for such undertakings are currently putting a lot of portfolio owners off taking action.

From your point of view, what needs to happen in order to really get the ball rolling?

We can expect government intervention at some point – tightening the regulatory framework and making conditions stricter. In the Netherlands, for example, a rental ban will be coming into effect in 2023 for properties in specific asset classes that don't meet a certain standard in terms of energy efficiency. There's been no indication of similar measures in Germany yet, but it goes to show that there certainly are stricter requirements elsewhere in Europe. One approach that's already been discussed could be to establish a new way of measuring returns – using CO₂ equivalents or ESG ratings in addition to euros, for example. At the same time, there needs to be an in-depth analysis of the transitory and physical risks involved in every transaction, in order to provide transparency on where the "ESG pain points" are. On this basis, the financial resources needed for the transformation can then be accounted for in a company's returns calculations. In years to come, this risk analysis could increasingly be required as a matter of course, not just by the authorities but by financiers, too.

How has GOLDBECK's experience in designing, building and operating real estate helped with this venture?

Within our company, we possess the combined expertise of thousands of colleagues in the fields of engineering, architecture, energy consulting and facility management. This enables us to provide comprehensive consultation for even the most complex of projects. Where other consulting firms would need to bring in experts from outside, we can answer a lot of questions simply by walking down the hall and knocking on the door of the next office along. However, it's also important to stress that GOLDBECK Sustainability Consulting operates as an independent agency. Of course, our clients can choose to contract GOLDBECK to implement the construction or operational measures we've drawn up with them – but they're under no obligation to do so.

As we all know, real change starts at home. How do you live up to your responsibility at GOLDBECK?

We're in a good position. We can help portfolio owners to achieve their goals and step up in the way that society – and their financiers – expect them to. In addition to this, we're also going to continue working with the other units at GOLDBECK Services to make sure GOLDBECK remains in a position to do the same things we're recommending to our Sustainability Consulting clients. That's the only way we can gain the full advantage of our USP. Sustainability is an issue that's being pursued in every unit right now, from Product Development and Production to Construction and Renovation. GOLDBECK Services is also working hard to make its services greener. GOLDBECK Sustainability Consulting complements this range of life cycle services vis-à-vis clients and will likewise provide in-house consultation.

Looking to the future, how would you like to see GSC grow?

We want to position ourselves on the market as a consultancy with solution and implementation expertise that wins over its clients with clear, bespoke concepts. We also want to make sure that portfolio owners can get answers to all their questions regarding ESG and the sustainability transformation of their real estate from the various units at GOLDBECK Services. For now, we're focusing on private portfolio owners, but in the medium term we also want to become a partner to public-sector clients, if the demand is there.

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In addition to this, of course, we're also going to be working on ourselves to make sure GOLDBECK Services is in a position to do the same things we're recommending to our Sustainability Consulting clients.

Michaela Föllner

Head of Department, GOLDBECK Sustainability Consulting



As a partner for the entire life cycle, GOLDBECK also supports customers in the utilization phase of their properties.

Committed to the future



GOLDBECK plans ahead – both in its business and beyond. Following the concept of future viability, the Goldbeck family is involved in a wide range of initiatives, both personally and through the foundation of the same name. The focus of these ventures ranges from environmental and climate protection to innovation, technology and education. As a company, GOLDBECK wants to encourage others to found businesses and is very active in the start-up ecosystem.

“For family-owned companies like ours, it is particularly important to keep an eye on long-term developments and help to instigate them,” says company founder Ortwin Goldbeck. On the occasion of his 70th birthday, the former head of the company unveiled a new, independent foundation to serve as an umbrella for all of his community work. The foundation was set up jointly by Ortwin and his three sons. Drive is always the watchword at GOLDBECK, and this was demonstrated once more when the company won the local OWL CSR Award 2022 for its consistent and strategic efforts to ensure greater sustainability in its core business. The foundation, on the other hand, focuses on science, research, art and culture, as well as education and social issues.

A forum for art and the start-up scene

One of the foundation’s most visible projects, especially in the Bielefeld area, is the Ortwin Goldbeck Forum. Housed in the classical building that formerly quartered the Chamber of Trade and Commerce, it is home to the Hermann Stenner Art Forum, which puts on an ever-changing roster of exhibitions on classical modernity. The tenant of the new-build attached to the forum is the Founders Foundation – a Bertelsmann Foundation initiative and lively node point of the start-up ecosystem in the East Westphalia-Lippe region. The building is designed as a place for entrepreneurs, start-up owners and medium-sized companies to meet and discuss important issues – especially those relating to digitalisation.

Financing professorships and scholarships

Education also plays a big role for the Goldbeck family. The GOLDBECK Foundation finances the “Management of Family-Owned Companies” professorship at the University of Bielefeld, while GOLDBECK as a company has also funded the “Digital Engineering and Construction” professorship at the Karlsruhe Institute of Technology and a “Digital Construction” professorship at the Management University of East Westphalia-Lippe, the latter together with Schüco. The foundation is also currently funding ten scholarships as a sponsor of the Studienfonds OWL Foundation.

Encouraging young people to found businesses

But the GOLDBECK Foundation doesn’t stop at universities – it also invests in children and teenagers. It funds associations that fight for equality in education and cultivates partnerships with schools. Since 2021, Jan-Hendrik Goldbeck has also been a partner at STARTUP TEENS, a non-profit organisation that aims to provide schoolchildren with knowledge on how to found a business. After all, “You’re never too young to get started,” he says. Together with the other partners, Jan-Hendrik Goldbeck offers up his experience and networks to open doors for budding entrepreneurs and encourage them in their endeavours.



Company founder Ortwin Goldbeck established the GOLDBECK Foundation on the occasion of his 70th birthday.

Transforming the economy – With ideas and concrete action

The foundation also aims to stimulate discussion within society. During the first Covid-19 lockdown, Jan-Hendrik Goldbeck joined up with the Werte-Stiftung foundation to found the ReAct initiative, which is short for “Responsibility and Action”. The initiative provides a forum where scientists and decision-makers in business can discuss their efforts to drive the transformation of our economy forward at the European level. ReAct’s first publication was a twelve-point plan for climate neutrality. The pan-industrial plan highlights concrete strategies that can be followed in order to make decarbonisation a success in Germany and Europe. To help encourage progress in this area, the GOLDBECK Foundation’s management has also joined Stiftung KlimaWirtschaft – German CEO Alliance for Climate and Economy. For Jan-Hendrik Goldbeck, the reasoning behind this decision was simple: “If we want to achieve climate neutrality, we all need to work together”.

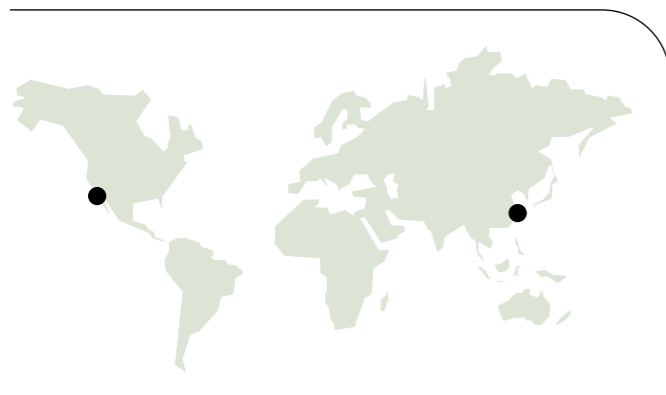
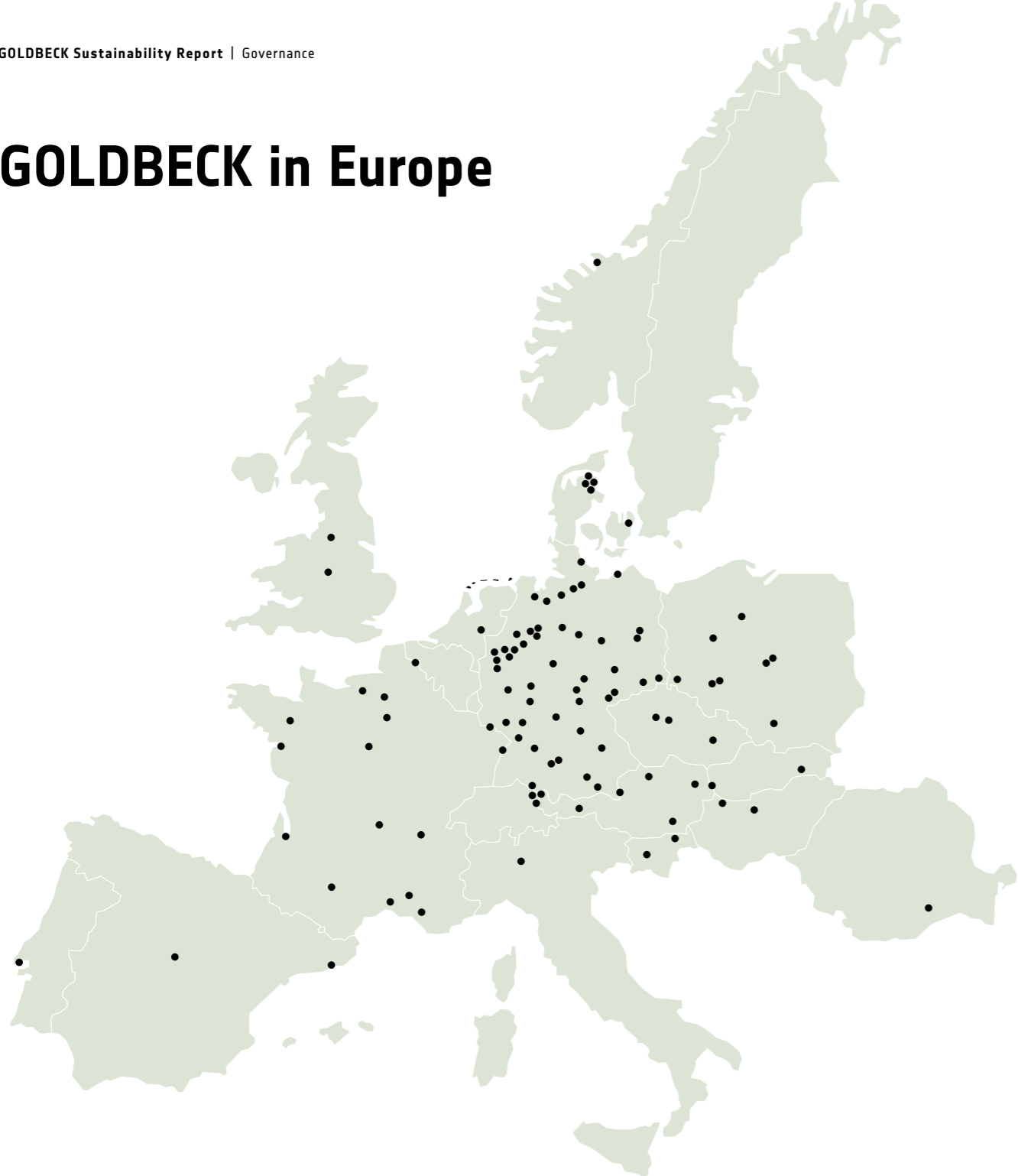
Governance

GOLDBECK is a family-run construction and real estate company with a focus on long-term success. Our core values are humanity, responsibility and passion for performance. We strive to constantly improve the sustainability of our work – in economic, environmental and social terms. This has been our aim ever since our company was founded in 1969.



The Executive Board of GOLDBECK GmbH (from left): Oliver Schele, Jan Hendrik Goldbeck, Jörg-Uwe Goldbeck, Hans-Jörg Frieauff.

GOLDBECK in Europe



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locations across Europe

We construct warehouses and factory buildings, office buildings, multi-storey car parks, school buildings, sports halls and residential buildings all over Europe. In addition to this, we also renovate existing buildings. Our service companies cater to and manage more than 1,980 properties. Our guiding principle is “building excellence”. We build real estate quickly, reliably and cost-effectively – and always in line with our clients’ specific requirements. Sustainability is one aspect of our all-round expertise, and a principle we apply to everything from building design to the industrial prefabrication of building components and the use of new technology. In keeping with our core values – humanity, responsibility and passion for performance – our interactions with one another are defined by trust over control, responsibility over paternalism, and a local presence over centralisation.

After all, those in construction need to be familiar with the regional conditions and know how to deal with any local construction regulations. That is why we have regional branches and more than 100 locations across Europe (more than 90 during the reporting period). Each local branch acts as our company’s ‘eyes on the ground’, coordinating all the steps involved in the construction process – from draft planning to project leadership. And with 13 proprietary plants in Germany and abroad (ten in the reporting period), we ensure that our construction sites can be efficiently supplied with the primary materials they need. Our headquarters are located in Bielefeld, Germany.

GOLDBECK GmbH is managed by the Executive Board. The Managing Partners Jörg-Uwe and Jan-Hendrik Goldbeck hold a majority interest in the company. The Executive Board defines the company’s values and mission statement, develop strategies and guidelines, and set operative objectives. They are assisted in their work by steering groups made up of other directors, heads of department and GOLDBECK specialists. The steering groups coordinate important issues for the company’s further development.

The decentralised structure of the company’s core business is supported by central functions at GOLDBECK GmbH. This ensures the necessary transparency within the company and with regard to all areas of responsibility, thus providing the conditions required for coordinated teamwork.

Risk management

In the reporting year, a systematic yet pragmatic and comprehensive risk-screening system was introduced for the company. This method takes into account the key risks, i.e., those classified as “critical” or “highly critical” by the Executive and Management Board. Preventive and reactive measures are drawn up and developed further as part of the risk management process. To that end, responsibilities and contacts have been established for each risk. The staff in these positions are in charge of the preventive measures for reducing the probability of occurrence, and for containment measures in case of occurrence. The process is coordinated by the Corporate Development department. As well as defining and implementing adequate measures, the risk-screening system aims to foster awareness of the various risks – including those that seem abstract and improbable at first glance. Risk screening is due to be conducted on an annual basis in the future.

Consequences of climate change

In terms of risks arising as a consequence of climate change, water and wastewater are among the relevant issues for GOLDBECK. Increases in heavy rainfall events represent a hazard for site and building drainage. Our design teams are therefore working together on an interdisciplinary basis to assess existing properties and draw up plans for extensions and new-builds, using integrative testing for a variety of scenarios to develop suitable solutions. Our design specialists and our Maintenance unit play a significant role in this process.

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proprietary plants in Germany and abroad supply our construction sites with construction components.

Compliance

[GRI 205, GRI 206, GRI 419]

Compliance is an integral part of GOLDBECK's company culture and thus a responsibility shared by all of the company's employees. Line managers reflect this attitude in their management style and ensure that the staff in their respective areas of responsibility are familiar with our Compliance Guidelines. All our employees receive a copy of these guidelines when they start working at Goldbeck, and they complete a corresponding online training course. With in-person meetings and organisational measures, we ensure that everyone involved always has a high awareness of compliance issues. In order to strengthen long-term awareness of such issues, we are currently putting together a refresher training course which employees will need to take every 24 months.

Our Compliance Guidelines are based on the GOLDBECK Corporate Guidelines, which define our culture, vision, mission and values. In addition to this, they also cover topics such as anti-corruption, fair competition, data protection regulations, and correct conduct when interacting with one another or business partners. All our staff have clauses in their employment contracts that obligate them to observe these regulations. During our day-to-day work, we pay particular attention to the following principles:

1. We comply with national and international laws and are committed to ethical conduct. Rather than simply adhering to the letter of the law, we go one step further and endeavour to follow the general principles of integrity and upstanding conduct.
2. We do not tolerate corruption, bribery or money laundering. It is not permissible for anyone within our Group to demand, accept, offer or pay bribes, whether directly or indirectly.
3. We do not tolerate prohibited agreements. GOLDBECK is committed to fair competition. We reject agreements that place constraints on competition.
4. We do not tolerate illegal employment or undeclared work. We do what we can to ensure that our subcontractors' employees are employed and compensated on the basis of fair and lawful employment contracts.

Compliance organisation

In legal matters relating to German law, our Legal department acts as the central authority for providing assistance to all the GOLDBECK Group's business units. When handling legal matters at our overseas sites, we cooperate with established legal consultants from outside the company. Our anti-corruption measures also fall under the responsibility of our Legal unit, which provides the Executive and Management Board with regular updates on potential risks and any actual suspected cases of corruption.

At present, our locations and processes are not subjected to proactive inspections in this regard. Our Compliance Regulations state that employees must report any suspected case of corruption to their line managers or the head of the Legal department. In addition to this, we also have a whistle-blower system in place for anonymous tips.

GOLDBECK makes explicit reference to its Compliance Guidelines in all our contracts with our clients, subcontractors and suppliers. All forms of anti-competitive conduct are strictly forbidden under our Corporate Guidelines and Compliance Guidelines. Cases of anti-competitive conduct, especially those involving public tendering processes, would have adverse consequences, up to and including expulsion. There have been no legal proceedings brought against GOLDBECK as a result of anti-competitive conduct or the formation of cartels or monopolies in recent years. Furthermore, no cases of corruption have come to light in the last ten years.

Data protection [GRI 418]

During the course of our business, we process personal data belonging to both potential and existing clients. We take the protection of this personal data very seriously, and conscientiously comply with our duties as per the EU GDPR and the German Data Protection Act (BDSG). The regulations of the EU GDPR are supplemented by internal instructions and guidelines for the handling of all types of personal data (including client data). Project-related data is subject to the same security requirements as personal data (rights concepts, access restrictions, etc.), both during the construction phase and beyond.

An internal Group Data Protection Officer provides GOLDBECK with advice and support. This officer monitors compliance with the aforementioned legal regulations pertaining to data protection. The Group Data Protection Officer's contact details are available to the public.

Compliance with the latest legal requirements with regard to data protection is coordinated internally at regular intervals, and any necessary measures are discussed. Where necessary, specialist consultants from outside the company are also involved in these discussions, and our Data Protection team receive regular training. This pro-active approach has proven effective in preventing potential issues.

Cyclical inspections and reviews of our established measures are on our agenda in order to ensure that we provide a high level of data protection. This examination forms the basis for the Executive and Management Board decisions on measures for improvement. Employees and business partners alike are encouraged to use our established whistle-blower system to confidentially report any misconduct.

GOLDBECK's internal data protection management concept ensures that all the legally required data protection measures are implemented. Of course, at GOLDBECK – as at many other companies – data protection is closely connected to IT security. Through consultations with IT, we take preventative action against cyber-risks.

Training courses (both refresher and first-time courses) in the field of data protection and IT security have been carried out for GOLDBECK employees. The concept of our needs-based training sessions generally creates an awareness of the relevant issues among our employees when they are handling personal data. It also has a preventative effect, helping us to recognise and avoid data-processing behaviour that does not comply with the regulations.

All questions pertaining to data protection law and the protection of client data that arose during the reporting period were assessed and processed in a timely manner. As in previous years, we received no well-founded complaints relating to breaches in client data protection in the reporting year.

Information security

As the developments of Industry 3.0 and 4.0 continue to unfold, networking between systems is on the rise. This opens the door to new commercial opportunities, but also to increased IT risks. GOLDBECK therefore has a strong IT Security team that assesses the legal requirements and works closely with the Executive and Management Board to define comprehensive countermeasures.

In order to strengthen IT security within the company, we have introduced a range of standards based on ISO 27001. Employees receive regular training on IT security issues. In addition to this, we carry out active attacks such as phishing campaigns and pen tests to ensure that our employees remain aware of such issues during their day-to-day work.

100%

of GOLDBECK employees complete a compliance training course when they start working for the company.

Sustainability management

Acting responsibly requires a clear plan and focus on one's goals. This applies not only to our core business, but also to the work we do to help our fellow human beings and the environment. GOLDBECK is currently developing a sustainability strategy that contains clear objectives for the company. Our first-ever sustainability report establishes the framework that will enable us to report on our status quo and future ambitions in a structured manner. At the same time, it also acts as a basis for us when discussing these issues with our stakeholders.

Reporting

In order to identify the topics material to GOLDBECK's first sustainability report, in spring 2022 we conducted a materiality analysis in accordance with the latest standards issued by the Global Reporting Initiative (GRI). We started this process by drawing up a list of the sustainability issues that are relevant to the construction and real estate sector, then worked with experts from outside the company to prioritise the items on the list.

One of the key aspects in determining the materiality of each sustainability issue was the positive and negative impact GOLDBECK could potentially have on the environment and society as a result of it. This impact perspective was rated using an online survey.

Once this stage was complete, a workshop was held with representatives of the Executive and Management Board in order to present the results of the online survey and assess the relevance of the issues in question to the success of the company's business.

Issues were defined as material if they possessed a medium or high impact and high relevance to the company's business. Three topics were deemed to be the most relevant to our business and to have the greatest potential impact:

1. **Energy and emissions**
2. **Materials and circular economy**
3. **Sustainable product life cycle**

These will therefore be sustainability issues on which GOLDBECK focuses. A number of other topics were also identified:

4. **Diversity and equal opportunities**
5. **Occupational health and safety**
6. **Employee development**
7. **Social and ecological requirements for suppliers and subcontractors**

These material topics will guide our sustainability efforts and form the basis for us to develop effective solutions. Specifically, this will affect the following core teams:

Core Business: Project Sustainability, Product Sustainability, Sustainable Production, Sustainable Real Estate Services

Stakeholder Management: Research & Development, Regulation & Stakeholder Dialogue, Communication

Corporate Level: Corporate Sustainability, Corporate Social Responsibility

Family Office: Impact Investments

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material topics with a medium or high impact plus high relevance to our business have been identified.

Contribution to SDGs

We examined our seven material topics to determine which of the United Nations' Sustainable Development Goals (SDGs) they contribute to, and identified the following six SDGs:



Our new sustainability strategy will define priorities, coordinate activities and make resources available for each area of action. In order to do this, we will also need to set up a professional Sustainability Management team to assign responsibilities and bring together the various sustainability dimensions to create focus areas. In organisational terms, we will furthermore need to steer the sustainability strategy by setting targets, measures and KPIs for the entire Group. Our new Group Sustainability department, which was set up in 2022, will work with our company's local sustainability organisations to carry this task forward. Our overarching goal is to achieve carbon-neutral operation at company level starting from the 2023/24 financial year. Unavoidable emissions will be compensated for through high-quality initiatives.

Stakeholder management

As part of our nascent sustainability strategy, GOLDBECK is intensifying its relationships with its stakeholders. We will develop regular dialogue formats for the various topics involved in environmental, social and governance – or ESG for short. Our most important stakeholders include our employees, business partners, suppliers, state institutions, regulatory authorities and banks. We are aware that such an ambitious sustainability agenda can only succeed if we meet the expectations of our most important stakeholders in terms of ESG factors.

We are already engaged in active stakeholder management extending beyond our own business activities and hold regular talks with representatives from the industry, specialist experts, regional partners, family-owned companies and people starting new businesses. In addition to this, we are actively involved in the following organisations:

- Deutschlands Zukunftsweisen
- Stiftung KlimaWirtschaft – German CEO Alliance for Climate and Economy
- STARTUP TEENS
- Founders Foundation & Hinterland Alliance
- The German Property Federation (ZIA)
- Hauptverband der Deutschen Bauindustrie (HDB – Central Federation of the German Construction Industry) – Ausschuss großer Unternehmen (AGU – Major Enterprises Committee)
- The Chamber of Commerce and Industry Ostwestfalen zu Bielefeld (IHK)
- IHC Industrie- und Handelsclub Ostwestfalen e.V. (East Westphalia Trade and Industry Club)
- Bündnis OWL (East Westphalia Alliance)
- CSR-Club OWL
- The Werte-Stiftung foundation & the ReAct initiative
- Stiftung Familienunternehmen – The Foundation for Family Businesses in Germany and Europe

Tax payments

[GRI 207]

Taxes are a key component of government regulation, and essential to good conditions in areas such as infrastructure, education and social benefits. We adhere strictly to the legal taxation requirements and consistently meet our obligations. We see this as an important part of a functioning corporate governance system. This is also the reason why we do not compile a consolidated tax rate according to which our tax burden is assessed. This means that GOLDBECK does not possess a dedicated tax optimisation strategy – indeed, ensuring that we pay our taxes as required and intended by law is one of the Executive and Management Board key focuses.

Our central Tax department shares with other central departments the responsibility for our national taxes, and reports to our Commercial Management team. Where necessary, consultants from outside the company are enlisted to help with tax issues on the national level. Within our decentralised structure, each of our international subsidiaries is responsible for handling their own taxes. External consultants are brought on board within these units to ensure that they comply with their duties in this regard.

GOLDBECK fulfils its national and international tax obligations responsibly and in accordance with the applicable legal requirements. The Group pays its taxes in accordance with the location of its respective normal business activities. Payments within the Group are made in accordance with VAT regulations and the arm's length principle.

We do not use any artificial structures or shell corporations to save on taxes. We monitor all national and international developments in the field of tax law, procuring advice from specialists outside the Group where necessary. The implementation of new regulations is our responsibility.

GOLDBECK maintains a cooperative and close relationship with the financial authorities in each of the countries in which it operates. This reduces tax-related risks and increases the security of the selected tax positions. Throughout our Group, we work to maintain positive relationships with the relevant tax authorities, and welcome constructive debate on tax policy. We follow tax policy in all the relevant states as a proactive measure to ensure that we can comply with potential changes to tax law in the future. GOLDBECK does not actively influence legislation.

Our employees and external stakeholders can report potential tax offenses directly and anonymously using the whistle-blower platform we have set up, which is linked to our Legal department.

Our Legal department identifies tax risks and eliminates them where possible. Any cases relating to suspected tax risks are based on complaints raised during our tax audit or enquiries made by colleagues. In both cases, our Tax department responds by introducing measures to rule out or minimise the tax risks in question. Our Tax department consults on such matters with the divisions or central departments in question and, where necessary, with the Executive and Management Board of either the location in question or our parent company.



The Central Purchasing department brings together GOLDBECK's procurement activities and concludes long-term framework and cooperation agreements with partners throughout Europe.

GOLDBECK – Who we are

The days in which we were simply a construction firm have long since passed – we are now very much a technology company as well. At GOLDBECK, talented young team members and experienced experts are working together to revolutionise the industry. In order to remain innovative and competitive, we need to ensure that we have expert staff in all our divisions. To this end, we are systematically strengthening retention and development efforts at our company.

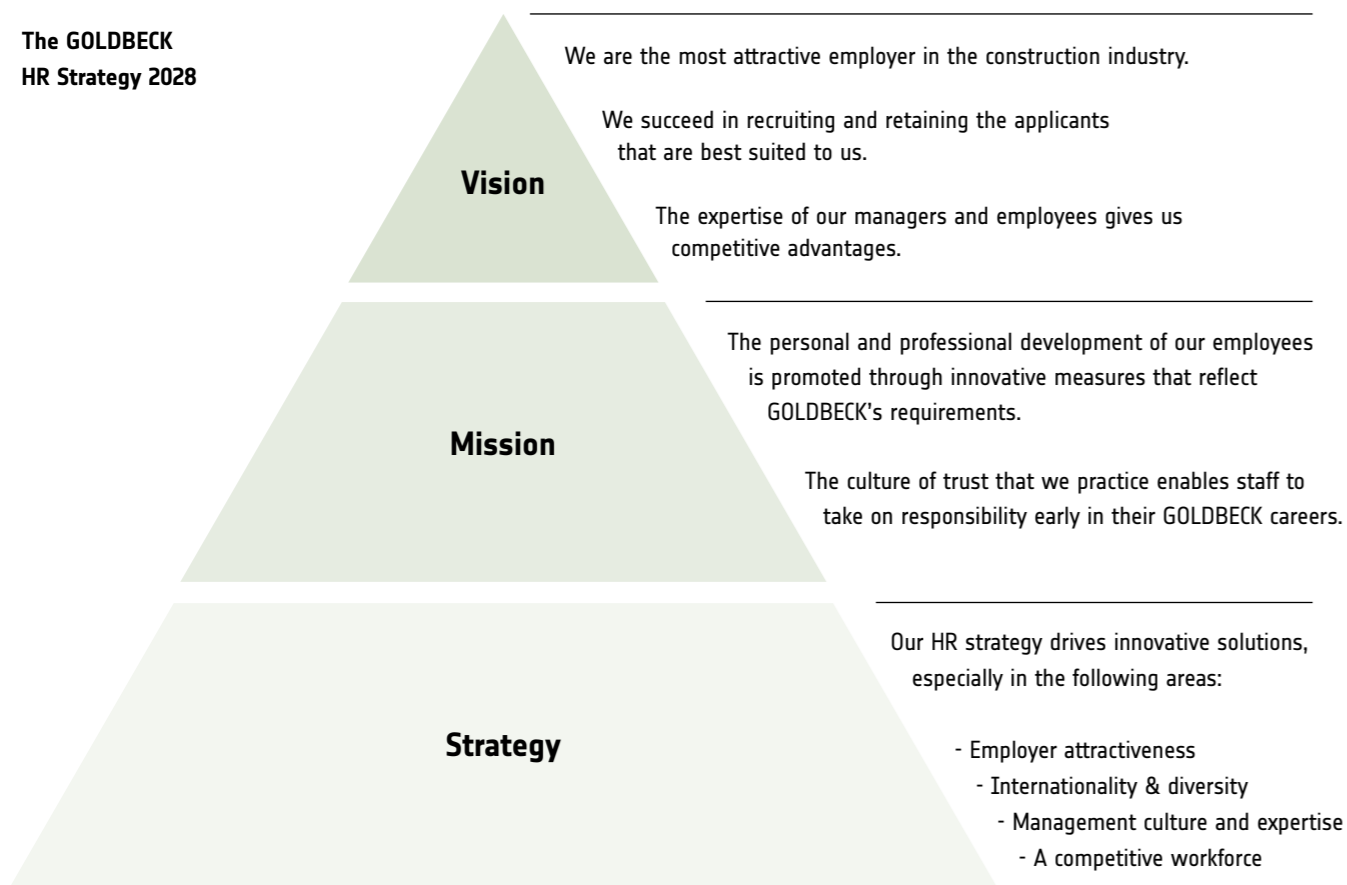


A values-based company culture

[GRI 401]

The way we interact with one another at GOLDBECK is rooted in humanity, responsibility and passion for performance. These values also provide the foundation for our GOLDBECK 2028 strategy. We want to remain the most attractive employer in our industry for many years to come, so that we can attract the best talent on the job market.

The GOLDBECK HR Strategy 2028



Our company values

Humanity,
responsibility and
passion for performance

Employee retention and compensation

As a family-owned company, it is very important to us to ensure that our colleagues feel at home at GOLDBECK. Our management culture is designed with this principle in mind, and we offer our employees both material and non-material incentives. These include:

- A company culture that values them
- Enabling them to share in the company's success and financial stability
- Opportunities for geographical, professional and personal development
- Flexible working hours models for a healthy work/life balance

We want our employees to receive fair compensation for their performance in line with market standards. In addition to our basic salary, which is increased every autumn in line with the average inflation over the past twelve months, we also offer a variable, performance-based compensation and a profit bonus.

Alongside this, our employees can also purchase silent shares in the company. Interest on the shares is double the company's returns. GOLDBECK also supports employee share purchases with up to 300 euros per year. In addition to this, we have a wide range of compensation modules for aspects such as our pension programme and subsidies for public transport tickets.

Communication with employees

Our Executive and Management Board and Works Council enjoy a trusting working relationship. Our Group Economic Committee keeps the Group Works Council regularly and comprehensively informed of the economic situation and our business activities and proactively provides updates at short notice where necessary. The strength of this collaboration was proven in the way the company successfully navigated the Covid-19 pandemic.

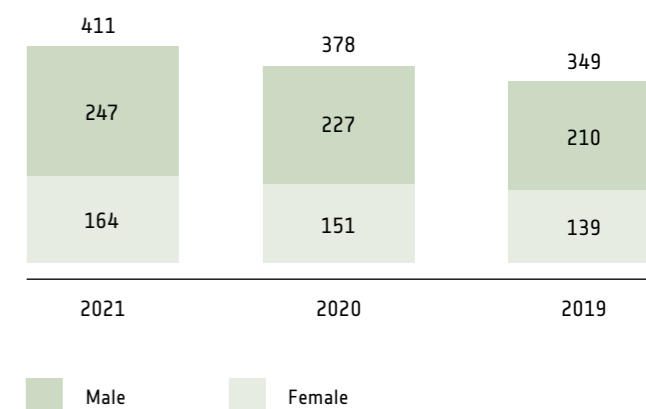
GOLDBECK is not bound by collective agreements, so our framework conditions supplement individual employment contracts. Our works agreements provide legal orientation and clarity across the board. One example of this is the agreement made between our Executive Board and Works Council in March 2022, whereby the annual leave for full-time workers (40 hours per week) was increased from 30 to 32 days. Our full-time-plus model has also been adjusted to make just 40 hours per week the rule instead of 43 as of September 2022, without any adjustment to salary.

The managing family provides employees with several updates per year on business development and provides an outlook on future projects and initiatives. Since the start of the Covid-19 pandemic, and due to the increasing internationalisation of the company, these updates are now conducted via video conference. The relevant key figures for the business are also communicated during these calls. In addition to this, we also keep our employees informed by means of regular discussions with their respective managers, updates on our intranet, the GOLDBECK podcast, our in-house magazine team, and notice boards and monitors at our plants.

Parental leave

Encouraging a healthy work/life balance is an important factor when it comes to promoting equal opportunities and offering our employees a modern work environment. In addition to flexible working hours, we also approve of parental leave and support our employees when the time comes to return to work.

Number of employees taking parental leave^{1,2}

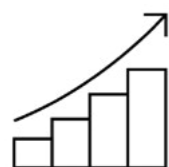


¹ The GOLDBECK Group's workforce in Germany is made up of approx. 40% women and 60% men
² Return rate: 99.9%

Modern HR work

With our activities on the applicant market, we have pressed forward with the hiring of new recruiters in the reporting year. These experts use traditional marketing formats such as job portals, adverts and education fairs, and also contact candidates directly via social media channels.

We follow the "human experience management" (HXM) approach in our HR work. In addition to carrying out traditional personnel activities, this also means that we make a greater effort to take our employees' needs and motivations into account, rather than viewing them as "human resources".



Attracting attention:
Anyone who sees what we do and how we work together will want to be part of the team!



Recruiting:
We talk respectfully with one another and give immediate feedback!



Onboarding:
Everyone's first day at work will be great and unforgettable!



Development:
We nurture professional and personal development and seize opportunities together!



Retention:
Our successes are shared successes. We stand up for one another – even when things get tough!



Leaving:
We want to know why those who leave us are moving on, so we can be better!



Alumni:
We are convinced that our journey together can continue, and we keep in touch with those who have moved on!

Training and continuing education

[GRI 404]

The world of work is in a state of constant flux. In the construction and real estate industry, digitalisation and modern technologies are changing the way we do our day-to-day work. Training and education are key elements of the company culture at GOLDBECK. They represent the only means of enabling our employees to acquire new knowledge, follow technological developments and implement projects using state-of-the-art techniques and standards.

GOLDBECK has been growing continuously ever since its foundation in 1969 and has always seen itself as an organisation that learns. This is part of our vision for the company and our fundamental values: growth creates space for our employees' individual development.

In the reporting year, there were 188 apprentices and work-study students at GOLDBECK in Germany, plus 17 trainees in commercial, technical and business fields. As a general principle, we would like to retain all of our talented young workers on permanent contracts. With this in mind, we regularly assess our training results and training-to-hiring rates with the relevant parties involved, such as the Executive and Management Board and the Works Council.

In addition to this, further training and life-long learning are one of the cornerstones of innovation, and a key driver for company growth. In the 2021/22 financial year, employees at GOLDBECK Germany completed a total of 17,410 days of continuing education and training. In addition to introductory-level and specialist seminars, which accounted for a large portion of this figure, plus health and safety training sessions, the over 63,500 participations were distributed across a variety of technique and management training programmes, as well as language and IT courses. The continuing education and training courses offered at the "GOLDBECK Campus" are directed at all employees across every level of the company's hierarchy. On average, each person at the company completed around 2.5 days of further training in the 2021/22 financial year – equivalent to around 20 hours.

Regular and structured employee appraisal meetings help us to determine what qualification courses are required. We can use bespoke career plans to provide targeted development for employees with specific talents. During the reporting year, around 60 percent of our employees took part in such meetings.

The continuous development of our digital teaching formats is one of our key strategic objectives in terms of our HR work. We have developed our digital learning media in recent years and are increasingly utilising it as part of blended learning curricula. Combining in-person and online sessions and offering 24/7 availability aids employees who prefer self-guided learning. Up to 80 percent of our seminars are held by experts from divisions within our company, who also receive didactic training before taking on their teaching roles. We are also offering more qualification measures in multiple languages in order to facilitate a decentralised approach to learning and reduce the number of business trips taken.

Furthermore, the past two years have seen us transition the majority of our onboarding seminars and technique training courses to digital formats.

Our digitalised courses also enabled us to keep our management qualification programmes running during the Covid-19 pandemic. This includes project work groups, management conferences and our special TANDEM mentoring programme for female employees at GOLDBECK.

Our Campus Committee analyses our key training figures at regular intervals and defines Group-wide targets. The Committee is made up of representatives from all our organisational units.

Continuing education and training in figures

	2021/22
Total measures	63,564
thereof male	47,902
thereof female	15,662
Total hours	139,271
thereof male	96,740
thereof female	42,531
Total seminar days	17,410
Seminar days per employee	2.49

Diversity and equal opportunities

[GRI 405]

We firmly believe that a diverse workforce makes better decisions and is a driving force for innovation. But we don't view diversity, inclusion and equal opportunities merely as a means of achieving commercial success – they are also a logical consequence of the pursuit of one of our core company values: humanity. GOLDBECK signed the "Charta der Vielfalt" diversity charter in 2009. As laid down in the Corporate Guidelines, we are committed to respectful, fair and loyal treatment of one another. We reject all forms of discrimination. No one may be discriminated against or harassed on the basis of their race, gender, sexual orientation, religion or worldview, disability or age. That is why diversity is an integral component of GOLDBECK's strategy for 2028.

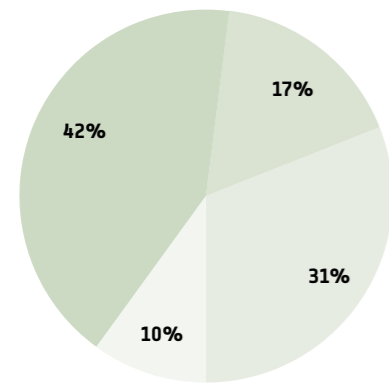
We want to increase our diversity by 2025, particularly among our salaried employees. Our initial areas of focus will be on gender and nationality. Beyond this, we are striving to significantly increase the proportion of women employed at our management

level through a number of measures, including internal training and mentoring programmes. We also have the express desire to increase the number of women in leadership positions at our company and have concrete plans in place to do so.

In the reporting year, we founded the Diversity Steering Committee to manage the relevant key figures on diversity. The Committee comprises members of the Executive and Management Board and those responsible for diversity within our Human Resources division. The Diversity Steering Committee is developing a wide range of measures to anchor diversity and inclusion in our company and make them a routine part of life at GOLDBECK for every single one of our employees. One example of this is the representative pulse survey that the Steering Committee carried out on the topic of "Career opportunities for women at GOLDBECK". The key findings from this survey are shown below:

Do you aspire to a specialist or managerial career (or a higher management position than your current role), or have you held such aspirations in the past?

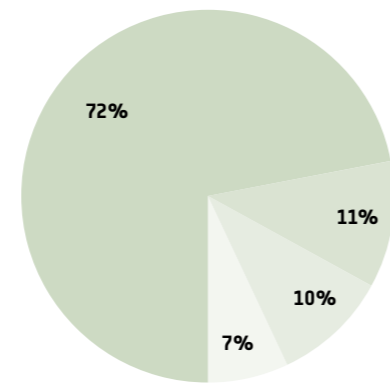
Summary: Of those surveyed, more than one in two women aspire to a specialist or managerial career.



- Yes, a management role
- Yes, a specialist career
- Maybe
- No

Who helped you/could help you with this?

Summary: Line managers play the most important role in career development.



- Line manager
- Another manager
- My network at GOLDBECK
- Other

Our GOLDBECK Ladies' Network is a network open to and created for all women at GOLDBECK. It was founded in Bielefeld in 2014, now has chapters throughout Germany, and is increasingly reaching our international colleagues as well. In addition to this, we are also making sure that at least 20 percent of the participants in our young managers fast-track programme are female. In terms of continuing education and training, our "Diversity" module has been part of our management training courses since 2021. The topic is also covered in the "How to handle interviews professionally" training course.

Diversity at GOLDBECK Germany*

	Female	Male
	%	%
Employees	28.5	71.5
Employees in management	17.9	82.1
Employees in upper management	6.0	94.0
Employees in top management	2.8	97.2

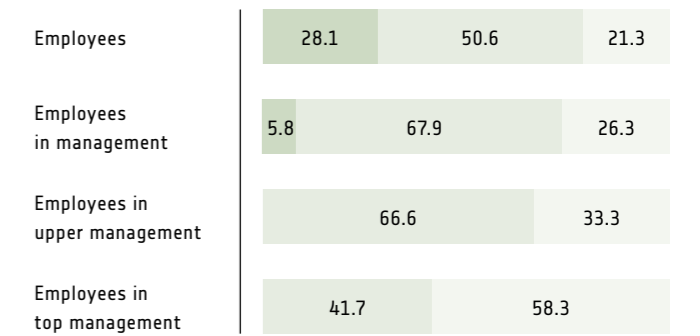
* Includes business and commercial salaried staff and trainees – work placement students, interns and temporary staff not included. Figures do not include DS Gruppen. Figures accurate as of: 31/03/2022.

Diversity at GOLDBECK International*

	Female	Male
	%	%
Employees	20.8	79.2
Employees in top management	0	100

* Includes business and commercial salaried staff and trainees – work placement students, interns and temporary staff not included. Figures do not include Germany or acquisition of DS Gruppen. Figures accurate as of: 31/03/2022.

Age structure at GOLDBECK Germany in percent*



- Aged under 30
- Aged 30 – 49
- Aged 50 or over

* Includes business and commercial salaried staff and trainees – work placement students, interns and temporary staff not included. Figures do not include DS Gruppen. Figures accurate as of: 31/03/2022.

Occupational health and safety

[GRI 403]

A safe workplace with healthy employees provides the foundation for motivated and successful work. In order to ensure the safety of both our employees and our external partners at GOLDBECK, we have introduced company-wide safety standards.

In Germany and at our Łódź plant, our occupational health and safety structure follows a non-certified management system based on ILO-OSH 2001. In addition, our East and North-East regional branches are certified in accordance with the internationally recognised ISO 45001 standard. We plan to integrate all our other business units into this certification system in the future.

The responsibilities of our individual hierarchy levels and operative tasks are clearly defined. In addition to this, occupational health and safety forms an integral part of risk management at GOLDBECK. We also have an “Occupational health and safety at construction sites” to-do list, which defines various safety measures and processes.



Occupational health and safety for suppliers and at construction sites

GOLDBECK's standard of occupational health and safety applies to all our external service providers and subcontractors when they are at our construction sites and in our Production units. This is part of the contract agreement and is intended to protect employees both at GOLDBECK and at the subcontracting companies. Occupational health and safety at our construction sites is coordinated by site management, while external coordinators take on this task at our plants.

Hazard identification and risk assessment

We have carried out hazard assessments for all our workplaces and formulated suitable directives to deal with any hazards we have found. We use a standardised process to analyse accidents at work. We record a wide range of incidents, such as near-accidents and hazardous situations, using standardised management software. We conduct regular analyses and use the results to draw up new requirements. We also regularly check hazard assessments to ensure they are effective and up to date, and the Works Council is always involved in any changes that need to be made. Our occupational health and safety management is evaluated regularly by the health and safety stakeholders.

We involve employees in our health and safety processes regularly in order to improve occupational health and safety at GOLDBECK. In addition to direct consultations, we also involve our managers, Works Council, external partners and the employees responsible in such conversations as a matter of course. We also provide information and ensure participation in a number of other ways, including:

- Occupational Health and Safety Committees
- Information boards and shop-floor conversations in our Production units
- Intranet (GBnet) and newsletter articles

All of our relevant occupational health and safety documents can be viewed in the workplace using an online tool.

All of our employees have automated access to relevant training courses set for them on an individual basis via an occupational health and safety computer program. This software also keeps track of each employee's training status to ensure that qualifications match the current state of knowledge. New employees are always given initial training when they first start working at the company. This is followed by further online sessions over the course of their employment, plus a supplementary annual occupational health and safety meeting.

These numerous measures have enabled us to continuously improve our occupational health and safety over the years.

Promoting health

We ensure safe and ergonomic working conditions in our plants and at PC workplaces. To this end, our employees are given height-adjustable desks where required; these desks are already installed as standard in our newer buildings. Where possible and in accordance with safety standards, we use anti-fatigue mats in our plants. Thanks to our collaborations with health insurance companies, all our employees have access to services such as health coaching and fitness programmes. Some GOLDBECK locations offer free health screenings conducted by our company physicians. We also offer a programme of advice and preventive measures relating to addiction and stress. Employees can find a list of all our activities in the field of health promotion at work on our intranet.

Medical consultation services are available to employees at all our locations. In addition to this, we also implement regular screening measures to prevent the hazards uncovered by our hazard assessments. Company medical staff always sit in on our occupational health and safety meetings and accompany regular walkthroughs of our facilities. They also help us to detect potential hazards and risks to health and to select suitable preventive measures for them. We have trained first-aiders to guarantee our employees suitable care in case of an emergency.

In addition to this, GOLDBECK promotes sports activities as an active and preventive health measure. In this reporting year, for instance, we opened a new sports hall for fitness and team sports such as football, handball, volleyball, basketball and badminton at our Bielefeld location. The sports hall has an area of around 500 m². There is also an additional, 75 m² course room for yoga and circuit training classes, plus a separate room for massage appointments. We also offer sports activities at our Hirschberg location in the in-house “fitness garage”.

Work-related injuries*

	2021/22	2020/21
Accidents at work (AAW)	92 (13.25 AAW per 1,000 employees)	111 (18.05 AAW per 1,000 employees)
Accident severity rate	1,797 days lost (19.5 per accident)	3,150 days lost (28.4 per accident)
Fatalities	0	0
Documentable work-related injuries	750 (108.0 per 1,000 employees)	700 (113.9 per 1,000 employees)

* Figures currently cover 6,944 employees and refer to all plants in Germany plus our plant in Łódź. Figures for other plants and companies are not currently recorded at Group level. Subcontractor accidents not included.

500 m²

is available for fitness and team sports activities at the sports hall of our Bielefeld location, which was opened during the reporting year.

Our employees in figures

[GRI 2-7/8, GRI 401-1]

The rising overall year-on-year figures are in keeping with the company's high growth rate. The large increase in temporary workers (TW) compared to the previous year is primarily due to the fact that this was the first year in which GOLDBECK Montage GmbH was included in the figures, as this company has been recording TWs in its systems since November. 95 percent of all TWs work in our commercial units, in both Production and Assembly.

Number of employees in Germany

	31/03/2022	31/03/2021	31/03/2020
Total employees	6,730	5,940	5,510
thereof female	1,807	1,579	1,424
thereof male	4,923	4,361	4,086
On fixed-term contracts*	581	517	444
thereof female	106	106	70
thereof male	475	411	374
On full-time contracts	5,781	5,159	4,810
thereof female	1,211	1,049	911
thereof male	4,570	4,110	3,899
On part-time contracts	949	953	891
thereof female	725	626	600
thereof male	224	327	291
Temporary workers	212	156	111
thereof female	11	10	15
thereof male	201	146	96

* Not including apprentices

New hires and terminations in 2021/2022

	Total	Aged under 30	Aged 30 – 49	Aged 50 or over	Female	Male
Hires	1,382	564	660	158	376	1,006
Terminations	734	179	372	183	152	582

39

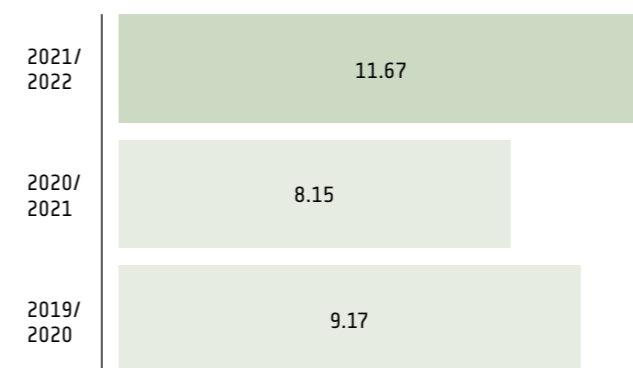
is the average age of our employees

7

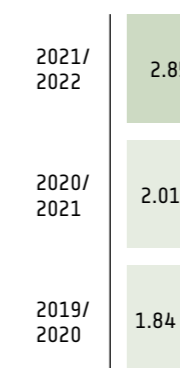
years is the average time a GOLDBECK employee spends at the company

Turnover by gender and age as a percentage

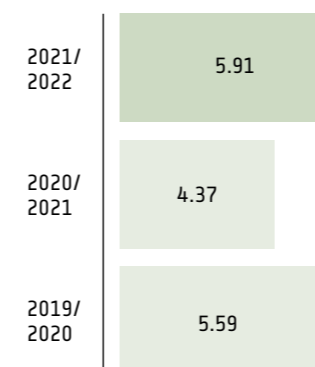
Total



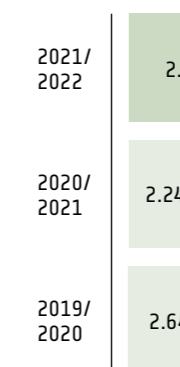
Aged under 30



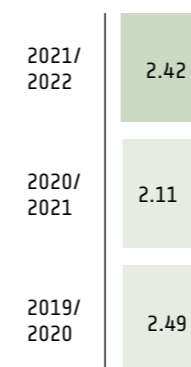
Aged 30 – 49



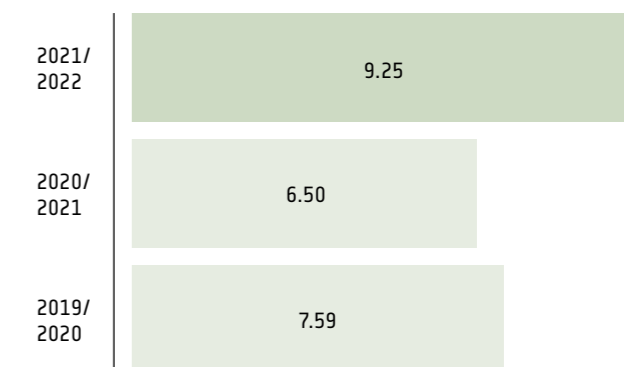
Aged 50 or over



Female



Male



Our partners and production

We take care to ensure that we procure our raw materials in the most environmentally friendly way possible – for example by arranging short transport routes and always opting for certified materials. In both our purchasing and the implementation of our projects, we rely on a network of supplier and subcontracting partners. We adhere to high quality requirements during both our in-house production and the design phase and always treat resource efficiency as a priority.



Our partner network

[GRI 204, GRI 308, GRI 414]

GOLDBECK is a partner to medium-sized businesses, large companies, investors, developers and public-sector clients alike.

Our business activities have traditionally focused on Central and Northern Europe – with locations in Poland, the Czech Republic, Slovakia, Hungary, Austria, Switzerland, the Netherlands and the United Kingdom. Since 2019, we have also been active in the south-western European markets. With the acquisition of French industrial and logistics general contractor GSE, locations in France, Spain, Portugal, Italy, Romania and even a branch in Shanghai (China) were added. The GSE units are not included in this Sustainability Report, though they do publish their own ESG information.

We work with suppliers and subcontractors from all over Europe to implement our projects. This allows all our clients to benefit from our decentralised network of local branches, which enables us to cater more effectively to local conditions and more easily follow the relevant building regulations. Each local branch acts as our company's 'eyes on the ground', coordinating all the steps involved in the construction process – from draft planning to project leadership.

GOLDBECK has a hybrid Purchasing organisation that comprises a central department together with several decentralised Purchasing departments at the relevant plants, regional branches and local branches. Around 90 percent of our direct purchasing volume is handled by (local) national suppliers and subcontractors.

These long-term, successful partnerships are rooted in collaboration over a period of many years and are based on the principles of trust, openness, integrity and fairness. Here are some of the key factors in the success of such partnerships:

- A strategic focus on suppliers by means of framework and partnership agreements
- Strategic development alliances with our partners
- Being open with one another and treating each other as true partners
- Communication

We comply with a wide range of requirements, regulations and specifications for the construction industry when procuring materials and services. We also use a contract award report to regulate our subcontractors' work. For example, we require all our subcontractors to declare their compliance with the applicable minimum wage requirements, and to renew this declaration on a regular basis. The key document in this regard, both for ourselves and for our business partners, is the terms and conditions of our Compliance Guidelines. More information on compliance can be found starting on page 32 of this report.

As a bare minimum, we expect our suppliers and subcontractors to adhere to the legal regulations and the social and environmental standards for the countries in which they operate. In addition to this, we value trusting partnerships and open and fair communication.

We do not currently systematically audit our suppliers or subcontractors to ensure their adherence to social and environmental standards. Despite this, we consider the risk of violations to be low, as the majority of our suppliers operate within Germany and the EU and are thus subject to strict legal regulations and monitoring.

Our supplier structure is highly varied: we place orders with very small companies of fewer than ten employees as well as global corporations with tens of thousands of staff. More than 18,000 companies work as subcontractors for GOLDBECK. This represents a challenge for us when it comes to implementing legal requirements for supply chain management.

New contracts are awarded based on a number of factors, including quality, cost and delivery reliability. Our existing suppliers are also audited regularly to ensure that they meet our expectations in this regard. If we notice that one of our suppliers has engaged in unlawful behaviour or is not delivering the standard of work required, they may be given the chance to rectify the issue depending on its severity. If we do not see any improvement, the supplier in question will not be considered for future contracts. No violations of social or environmental standards were reported via GOLDBECK's whistle-blower system in the reporting year.

GOLDBECK is currently in the process of overhauling its supplier management structure and is paying particular attention to ensuring compliance with Germany's Supply Chain Act (Lieferkettensorgfaltspflichtengesetz). We plan to release a separate Supplier Codex in 2023.

Materials

[GRI 301]

Construction is one of the most resource-intensive industries in the world. This is why we have spent the past 53 years working on optimising construction elements and processes. Nevertheless, the potential for reducing resource and energy consumption remains high. In order to consistently professionalise resource efficiency while continuing to grow as a company, we have developed the strategic approach LEAN@GOLDBECK (see p. 66 for details). In addition to providing us with economic benefits, this also contributes to our environmental goals.

Our Purchasing unit works with other intersecting units, such as Innovation, Products and Systems (IPS) or the Design and Technology unit, to procure standardised components and materials so that we can guarantee affordable prices and efficient delivery. There are parts of the industry where the use of hazardous and damaging materials, (construction) products and compounds remains common practice. We take care to avoid such materials wherever possible, or at least to reduce their use, in order to improve indoor air quality alongside other benefits. Our review documents provide clients with detailed information on which materials have been used within the construction – and where. Our Quality Assurance team clarifies any deficiencies during the construction phase, takes responsibility for resolving them properly and professionally, and ensures that maintenance is cost-optimised.



Responsible together

Ever since the company was first founded, GOLDBECK has pursued a vision of creating functional, attractive and architecturally sophisticated products that are both cost-effective and environmentally friendly. That's why we provide our clients with in-depth advice on the social and environmental impact of the various design choices they make.

Responsible resource procurement

We use certified construction materials in order to comply with environmental standards in our supply chain and promote more sustainable construction. Our aim is to use certification to make our building designs more environmentally friendly by drawing on measurable, and thus comparable, criteria. In particular, we focus on the following materials:

Concrete: The Concrete Sustainability Council (CSC) promotes transparency in the concrete supply chain and assesses the impact of this material in social and environmental terms. Our plants in Hamm and Ulm use only CSC concrete. All the suppliers who serve our concrete plants in Germany are CSC-certified. We are also gradually transitioning our fresh concrete production process over to CEM 2, which uses granulated slag to reduce cement consumption. The fact that this fresh concrete can be transported at temperatures of between 25 and 27 degrees also significantly reduces our CO₂ emissions.

Natural stone: Recognised standards for the processing of natural stone improve working conditions in quarries and downstream operations in developing and newly industrialised countries. We currently exclusively use certified natural stone in our buildings when the objective of the tender is to construct a DGNB (German Sustainable Building Council)-certified building.

Wood: The use of certified wood and timber materials encourages sustainable management and retention of forests. We currently use only certified wood, i.e., wood that has been approved by the Forest Stewardship Council (FSC), when the objective of the tender is to construct a DGNB (German Sustainable Building Council)-certified building. In certain projects, we also strive to attain the Seal of Quality for Sustainable Buildings (QNG), which is awarded by the German Federal Ministry for Construction via accredited certification bodies.

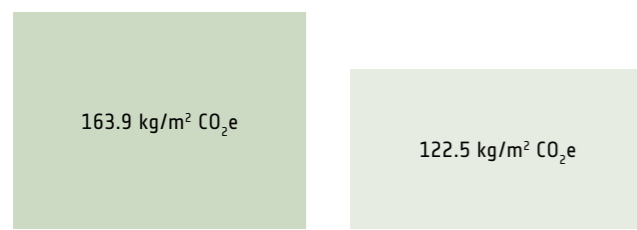
Optimised construction elements

Our prefabricated system components are optimised for their intended purposes. That means we can build more intricate and sophisticated constructions than we could if we used site concrete, and smaller volumes of materials are used. Manufacturing at our own plants under optimum environmental conditions enables us to keep additives to a minimum. Overall, we can reduce CO₂ emissions by up to 25 percent when constructing the shell of an office building in comparison with conventional construction techniques.

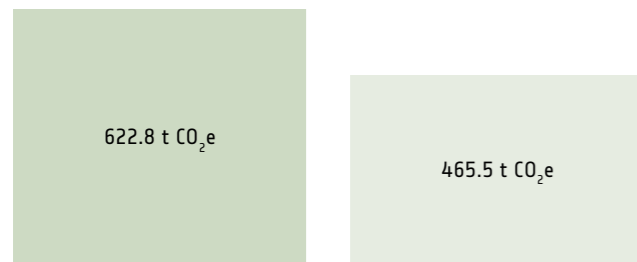
Combined manufacturing and dismantling footprint for CO₂ emissions by construction method

Study project: The 'Cube' in Engen, Lake Constance, Germany: six levels, 3,800 m² – a typical GOLDBECK building

-25.3%



Manufacturing and deconstruction footprint per area



Total manufacturing and dismantling footprint

■ Conventional reinforced concrete construction method
 ■ GOLDBECK construction method

When using site concrete, for instance, columns are manufactured with the same cross section throughout their entire length. Our industrial prefabrication enables us to make the columns thinner halfway up. Their performance is the same, but the amount of material saved is considerable, and it makes transporting them much more efficient. Dual functionality also helps to improve efficiency. For example, our multi-storey car park slabs are load-bearing and can be used without the plastic coating common elsewhere in the industry. This is representative of how many of our other dual-function system components work.

The custom concrete we have developed is made using a special manufacturing method: we cast the concrete slabs at our plant using special vibrating tables. The vibration compacts the concrete, making it especially dense at the base. This base is then placed topside when it is installed in the multi-storey car park, and it is resistant to temperature changes, frost, de-icing salts and oils without needing any other coating.

Recyclability and the principle of re-use

Sustainability can only be assessed realistically by taking the entire life cycle of a material into account, from its creation to its reuse and the recycling of leftover material.

The key determining factor in whether a material can be reused is its purity. This is why we avoid using composite materials, bonding agents and fillers wherever possible. Instead, we use mechanical connectors for our system components so that they can be detached easily during the dismantling of a building. Façade elements and steel columns are easy to detach from one another, and any sealed-in connections can be removed using a normal prying tool. This means that even concrete components can be separated from one another.

The steel and aluminium can then be melted down – both are almost 100 percent recyclable and don't lose any of their properties during this process. Depending on what combination of energy sources is used, recycling secondary aluminium can produce up to 95 percent fewer CO₂ emissions than the production of primary aluminium. The results are similar for recycled steel.

Low-emission construction materials

Some construction materials pollute the soil, air and water, thus posing a risk to humans, animals and the environment. Shells are increasingly being manufactured using compacted material in order to improve their energy efficiency. However, this also reduces their natural air circulation. As a result, the concentration of harmful substances inside them can increase considerably, so the choice of construction materials is key to ensuring a healthy indoor environment. Low-emission construction materials add to a building's sustainability credentials without compromising on quality. We use building certifications to make sure that only low-emission construction materials are used in our buildings. These materials meet the highest quality standards (level 4) of the DGNB (German Sustainable Building Council).

Our designers take their lead from a regularly updated database of certified low-emission construction materials. Their corresponding product specifications, technical data sheets, safety data sheets, environmental product declarations and manufacturer's declarations are compiled in a separate system. The database currently contains entries for over 800 low-emission construction materials. We include specific requirements regarding materials in our tender specifications to ensure that our subcontractors also use only low-emission construction materials for projects involving DGNB (German Sustainable Building Council) certification.

By agreeing to these terms, the subcontractors commit to following the set quality requirements and declaring all their construction products and materials. To prove that they are adhering to the specifications, the subcontractors submit data sheets regarding all of their construction materials for GOLDBECK to check. The Sustainability team at the regional branch in question checks the materials accordingly. Only once they have given authorisation may the low-emission construction materials be used. If a material doesn't meet level 4 quality standards, an alternative product will be recommended.

Carbon concrete

Multi-storey car park slabs made from carbon concrete are the latest development from our Materials Research team. These system components forego the usual steel reinforcement in favour of a carbon fibre mesh that makes the construction elements slimmer and more lightweight, saving 20 percent in materials. The lower material consumption keeps our carbon footprint down during both manufacturing and transport. In 2019, GOLDBECK implemented a pilot project in which we replaced steel with carbon in the load-bearing reinforcement of our employee multi-storey car park in Hirschberg. We are currently still working to attain national technical approval (abZ) from

the German Institute for Construction Technology (Deutsches Institut für Bautechnik – DIBt) so that we can begin volume production of this construction element. Work on a second carbon multi-storey car park in Bielefeld will begin in autumn 2022.

Timber

As a renewable raw material, timber is very well-suited to use in sustainable construction. It stores CO₂ during its use phase and is incredibly versatile. As a general rule, however, pure natural wood is not used in industrial construction. Only under a fifth of a conventional wood frame construction is made from the natural material itself. The rest of the construction elements – some 80 per cent – is made from plaster, sealants and adhesives, which cannot be completely separated from one another during the dismantling of a building. We believe that construction materials should be separable and thus allow for a transparent accounting of the net impact on the environment. In terms of ecological impact, functionality and cost-effectiveness, wood therefore needs to be on par with steel and concrete.

Wood can be a useful material for fire protection reasons. It may be flammable, but it burns slowly and, most importantly, evenly. Burning wood develops a charred surface, providing an extra layer of protection that slows down the burning. This makes the structural integrity of wooden construction elements easy to predict in fire scenarios.

It is thus important to select the right construction materials for each project. That's why we offer timber as an optional material that clients can choose for their roof load-bearing structure in industrial buildings and as part of their façade. We source the trusses from certified and audited manufacturers who have been carefully selected for the job at hand, maintaining our system parameters, such as grid, bay width and roof pitch. These projects also act as pilots for us, enabling us to gather experience on the opportunities and limitations of the material.

95%

is the reduction in CO₂ emissions when recycling secondary aluminium instead of producing primary aluminium.

Production

We produce the majority of our system components ourselves in Germany, Poland and the Czech Republic, because in-house production guarantees reliable product quality, flexibility and an enrichment of our technical expertise.

We produce system components for steel load-bearing structures and aluminium components at our own plants in Bielefeld, Treuen and Łódź. We also have six plants for precast concrete parts in Hamm, Ulm, Kutná Hora, Tovačov, Rakowice Male and Toruń.

All environmental matters at our plants are managed by our Health, Safety, Environment & Quality (HSEQ) unit, which reports regularly to the Executive and Management Board. Our goals are based on GOLDBECK's company policy on environmental protection. Key aspects of this were implemented in 2021/22 with the introduction and certification of our environmental management system in accordance with ISO 14001 in all our German business units. GOLDBECK is committed to continuously improving its environmental protection and performance beyond the official requirements, laws and regulations. We subject ourselves to regular internal and external audits in order to continually assess our impact on the environment. As part of these audits, the targets we have set ourselves are routinely reviewed and updated as new knowledge becomes available.



Use of renewable energy

- All our German locations have been using green electricity since 1 January 2021
- We have had framework agreements for construction sites with green electricity in place since 1 April 2022
- We are gradually expanding our e-mobility services and charging infrastructure

Climate and resource protection

[GRI 302, GRI 305]

Constructing and operating buildings requires not only large volumes of material resources, but a large amount of energy as well. The construction and real estate industry is currently responsible for a significant portion of the world's greenhouse gas emissions. In light of the increasingly severe consequences of climate change, we support the objectives that have been set at the international level, such as the 1.5-degree target defined by the Paris Climate Agreement and the European Union's Green Deal. We are also committed to the goal of helping to make Germany climate-neutral by 2045, a target ratified by the federal government.

All of the above are reasons why climate protection is one of the fundamental values of our environmental policy. At the GOLDBECK Group, we are striving to become carbon-neutral in our operations at the company level by the 2023/24 financial year. Initially, we will only be able to achieve this through high-value compensation. However, we are also implementing a wide range of measures to reduce our energy consumption and increase our energy efficiency. In addition to this, we are placing a greater focus on producing and procuring regenerative energy, and we continue to work on making our products more sustainable. Since 2022, our Group Sustainability unit has been responsible for managing all our fundamental climate strategy initiatives.

In order to ensure that our assessment of our environmental impact remains objective, we take the entire life cycle of our products and the components we install into account. Our overarching company objectives in terms of environmental protection are:

- To become carbon-neutral (incl. compensation) in our operations at company level throughout the entire GOLDBECK Group by the 2023/2024 financial year
- To reduce our consumption of finite resources in all life cycle phases
- To avoid or reduce the use of all hazardous and damaging materials, (construction) products and compounds
- To use more low-emission construction materials by incorporating sustainability aspects into tenders and contract awards
- To incorporate sustainability aspects into our quality assurance processes
- To create low-waste, low-dust, low-noise construction sites
- To improve ground and water protection at our construction sites

We are working on defining concrete performance indicators and suitable measures for all these objectives.

In addition to this, we are involved in a number of climate protection initiatives, such as Stiftung KlimaWirtschaft – German CEO Alliance for Climate and Economy, ReAct and Deutschlands Zukunftsweisen, with the aim of driving change throughout the economy and, for example, supporting solutions within our industry.

Energy and emissions

Our Energy Management and HSEQ units are jointly responsible for driving progress on energy issues. In terms of energy requirements within our value chain, we use electricity and gas in our production processes, while electricity, heat and energy are used for logistics at our construction sites.

Due to the rapid growth of our Group, significant expansions to our operations and larger-scale production lines are required at our production sites. The processes at our four German production sites are particularly energy-intensive. Energy management at all our plants is audited regularly in accordance with DIN EN 16247-1 and adapted where necessary. In order to facilitate discussion on energy consumption across all our locations, we use suitable monitoring software for GOLDBECK.

Energy consumption in MWh

	2021/22 financial year
GOLDBECK Group	146,881
Electricity	54,353
Gas	41,379
Diesel	50,088
Petrol	1,061
Vehicle fleet	51,201
Electricity	52
Diesel	50,088
Petrol	1,061
Local branches	4,752
Electricity	2,214
Gas	2,538
Construction sites	28,565
Electricity	28,565
Production	62,362
Electricity	23,521
Gas	38,841

We utilise a variety of energy-efficiency measures to reduce our energy requirements, such as energy-saving machinery and switching to LED lighting.

By continuously setting up new photovoltaic systems, we are not only improving the GOLDBECK Group's efficiency and the reliability of its power supply – we are also reducing our emissions.

In-house electricity generated by PV systems in MWh

	2021/22 financial year
Total	1,624
Bielefeld	514
Treuen	213
Hamm	623
Hirschberg	126
Thörey	56
Vrды	92



DGNB Gold for Treuen

Spring 2023 will see the completion of a new, 7,000 m² industrial building for automated thin sheet metal production at our Treuen location, plus a 1,200 m² office extension. As in our client projects, we are aiming for a gold certification from the DGNB (German Sustainable Building Council) for the new GOLDBECK building.

While the shell meets efficient housing standard EG40 and offers reduced heating energy requirements, the building's heating will be provided by air/water heat pumps. These can also be used to cool the building using natural coolants in summer. The various measures open the door to a number of possibilities, including heat recuperation, the use of rain tanks, natural lighting concepts and photovoltaic systems. Once the building is complete, we will be planting 2,000 m² of native shrubs and 32 deciduous trees around the site. Nesting boxes will also be set up for birds.

Calculating emissions

In order to better manage and target our measures, we brought an external partner on board to help us calculate our carbon footprint in Germany for the first time in the 2020/2021 financial year. In the 2021/2022 financial year, we also incorporated our overseas locations into the calculation for the first time. The newly acquired DS Gruppen is not yet included. Based on the extended carbon footprint, we are formulating concrete targets for reduction and prevention.

The calculation was carried out in accordance with the requirements of the ISO 14064-1 standard and the principles of the Greenhouse Gas Protocol (GHG). In order to keep things simple for the purposes of this report, we will only use the terms "CO₂ emissions" and "carbon footprint". Despite this, all the figures shown here include all the greenhouse gases as defined in the Kyoto Protocol (CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, NF₃), and are specified accordingly in CO₂ equivalents (CO₂e).

Relevant Scope-1 emissions sources

- Energy consumption through heating (natural gas)
- On-site electricity generation (photovoltaics)
- Coolant leakage from in-house air-conditioning systems
- Business trips using private vehicles

Relevant Scope-2 emissions sources

- Electricity consumption for lighting and electrical devices
- Heating (district heating)
- Business trips using private electric vehicles

The figures in the table below refer to business-related emissions sources at the company level. These figures do not include project or product-specific emissions sources such as construction materials, transport to and from construction sites, or electricity consumption on construction sites.

Our total direct emissions arising from the consumption of fossil fuels is around 28,735 t CO₂e. That means direct emissions (Scope 1) account for around 53 percent of our carbon footprint. Our total indirect emissions are around 7,456 t CO₂e according to the market-based method. These emissions (Scope 2) therefore account for 14 percent of our carbon footprint.

Other indirect emissions arising from our business operations totalled around 18,321 t CO₂e (previous year: 6,788 t CO₂e for GOLDBECK Germany). The other indirect emissions therefore account for around 33 percent of our total carbon footprint.

Direct and indirect company emissions in t CO₂e

	2021/22 (Group)	2021/22 (Germany)	2020/21 (Germany)
Total	54,512	26,590	25,210
Scope 1	28,735	17,888	15,749
Scope 2 (market-based)	7,456	307	2,673
Scope 3	18,321	8,395	6,788

The majority of our company Scope 3 emissions can be traced back to our energy supply (8,266 t CO₂e) and were produced by heating use (natural gas), electricity consumption and our business trips. The energy supply figure includes emissions produced during the generation and transport of energy (e.g., energy consumption for the transport of types of energy, SF₆ emissions in the electrical distribution grid).

Waste-related emissions accounted for 4,949 t CO₂e – around 27 percent of our company's Scope 3 emissions. In addition to this, the Scope 3 emissions also include business trips, including those involving non-company vehicles, and hotel bookings. These accounted for 3,506 t CO₂e in the year 2021/22.

Smaller portions of our Scope 3 emissions were attributable to consumables (paper and wooden crates, 669 t CO₂e), chemicals (403 t CO₂e), purchased machinery (18 t CO₂e), water consumption (90 t CO₂e) and the extension of our Łódź plant (420 t CO₂e).

Specific efficiency indicators should help us realistically illustrate the effectiveness of our carbon management/decarbonisation in accordance with our business development. However, any such assessment would be inconclusive at the present time due to the small sample size and the effect of unusual events such as the Covid-19 pandemic.

Company Scope 3 emissions in t CO₂e

	2021/22 (Group)
Total	18,321
Purchased machinery	18
Energy supply	8,266
Waste	4,949
Business trips	3,506
Consumables	669
Chemicals	403
Other (water, plant extension)	510

Promoting biodiversity [GRI 304 Biodiversity]

Biodiversity is one of the cornerstones of all life on this planet – including human life. Animals, plants, fungi and micro-organisms all help to keep our water clean, our air fresh, our climate pleasant and our soil fertile for healthy foods. Loss of habitat due to pollution, the sealing of soil, and climate change both now and in the future pose a huge threat to this biodiversity.

The construction of new buildings seals the surfaces of the land. However, we offer our clients intelligent measures to accompany their buildings that reduce their impact on the local flora and fauna to a minimum, such as green roofs. We also create green zones of comfort for people – both as part of projects carried out for our clients and at our own locations. We make sure that these locations are not built in the vicinity of protected areas.

Within our company, there are several different divisions responsible for biodiversity at different stages of the value chain or the life cycle of a property:

- Civil Engineering Open-space planning for biodiverse outside facilities
- GOLDBECK local branches: Subcontractor management during the construction phase
- Facility Management: Management during the operating phase

In addition to this, planning permission is awarded in conjunction with required compensation measures. Biodiversity is a voluntary objective in this context. Measures used to increase floral biodiversity include wildflower meadows, species-rich hedgerows, and various forms of ground coverage such as grass and shrub plantings. Measures used to increase biotope diversity include semi-natural ponds, rock filling, nesting sites and the construction of dry-stone walls.

However, GOLDBECK has only a limited influence on the size of the area required for any given project, as the clients and owners are the ones who purchase plots in line with their own requirements, and many of the details of the implementation are already set in the terms of the contract award.

Water and wastewater [GRI 303]

As a result of climate change, water is starting to be seen as a dwindling resource even in some parts of Germany. Not only that, but it is also leading to an increase in heavy rainfall and storms. Heavy rainfall in particular can overload sewer networks, leading to urban flash-flooding that threatens plant facilities. On the other hand, long periods of drought could also threaten the reliability of supply chains and thus production.

Our Health, Safety, Environment & Quality (HSEQ) department is in charge of water and wastewater matters for our plants. Since 2021, we have been managing these issues in Germany in accordance with the ISO 14001 standard.

HSEQ appoints Water Officers for each of our plants. In addition to maintaining our environmental policy, these Water Officers also ensure compliance with all the relevant drainage bylaws, planning permission requirements and water legislation.

The fresh water at our plants is used primarily as potable water and for our sanitary appliances, while our concrete plants also use it to produce fresh concrete. All the water we use to make concrete is collected in recycling basins and fed back into the manufacturing process.

There is potential for impact on wastewater due to the use of operating materials and hazardous substances and the risk of leak incidents. In addition to this, there is always a risk of injury when handling hazardous substances. We prevent these risks by carrying out hazard assessments and implementing works instructions. Our employees receive regular training and instruction on how to handle hazardous substances. In addition to this, our hazardous substances are stored in suitable hazardous substances rooms and dispensed by qualified specialist personnel. We only keep the quantities required for daily use in our workspaces. We subject ourselves to regular internal and external audits in order to continually assess our impact on the environment. As part of these regular audits, the defined targets are reviewed and updated as necessary.



Measures to boost biodiversity

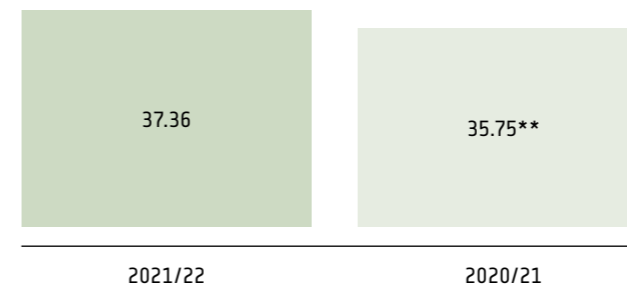
Roof greening: Can be implemented for an entire project or office extensions, ancillary buildings and bicycle shelters

Façade greening: In sub-areas such as ancillary buildings, bicycle shelters or the industrial building façade

Green outdoor areas/substitute habitat: Plants and seating in the outdoor area, as well as the installation of beehives, insect hotels, bird houses or ponds

Rainwater: Rainwater French drains using retention basins or tanks for harvesting rainwater to use for outdoor irrigation

Water draw-off in millions of litres*



* Data provided applies to our plants in Germany and our plant in Łódź, Poland.
 ** Since we do not have any 2020 water figures for Um, we have used the 2021 figures to allow better comparison.

It was not possible to calculate the volume of water consumption and drainage in the reporting year, as there was no reliable data due to technical defects and renovation work on our water meters.

Waste [GRI 306]

Waste is generated by production at our plants and the construction and installation at the various construction sites for our projects, which number about 500 per year. The regulations and laws on waste disposal vary depending on the location of the site; in Germany, the Waste Management Act (Kreislaufwirtschaftsgesetz) is of particular importance. Our Health, Safety, Environment & Quality (HSEQ) department is in charge of waste matters for our plants and appoints officers to deal with such issues at each of our locations. The officers monitor all our processes, from production to recycling or disposal. They are also constantly working to introduce processes and products that are as environmentally friendly and low-waste as possible, so that our materials can be re-used, recycled or disposed of in an environmentally compatible manner. Ever since 2022, our environmental management in Germany – and thus the way we handle waste – has been certified in accordance with international standard ISO 14001. We currently pursue waste reduction targets at plant level in order to better account for the differences in production patterns from one location to the next.

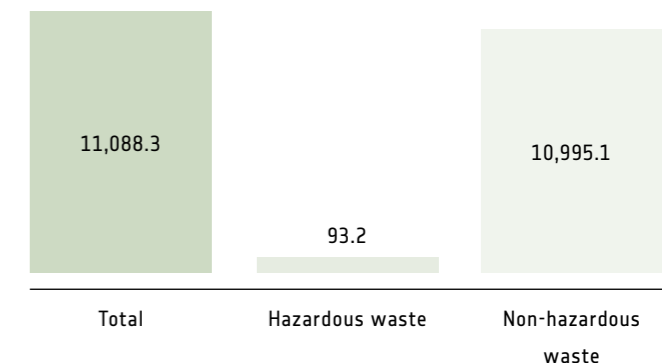
Relevant waste at our plants comes from the coating powders we use and the scrap produced when processing steel. We also generate packaging waste, paint and coating waste, wood, glass and domestic waste, machine, gear and lubrication oils, and lab chemicals, insulation materials and mixed municipal waste. At our construction sites, the bulk of our waste comes from the delivery of small parts and hazardous substances such as spray cans, plus the corresponding cardboard or plastic film packaging.

In our production, as elsewhere in our company, we strive to avoid producing waste and to re-use raw materials. An internal guideline therefore regulates our processes for the implementation of our waste management system. This is designed to facilitate a continuous optimisation of our waste disposal processes in line with the law. It also regulates instruction courses for our Waste Management unit and the collection and evaluation of waste-related key figures.

The volumes of waste produced at our local branches and construction sites are not currently recorded. This data will be reported regularly starting from 2023. The following waste figures refer to our four German plants, plus our plant in Łódź, Poland.

Total weight of waste generated in t

Data applies to the following period:
 1 January 2021 – 31 December 2021



All disposal is carried out by external, professional disposal providers. We check the validity of these providers' licenses by reviewing the relevant certificates and by conducting spot-check site visits.

Our products

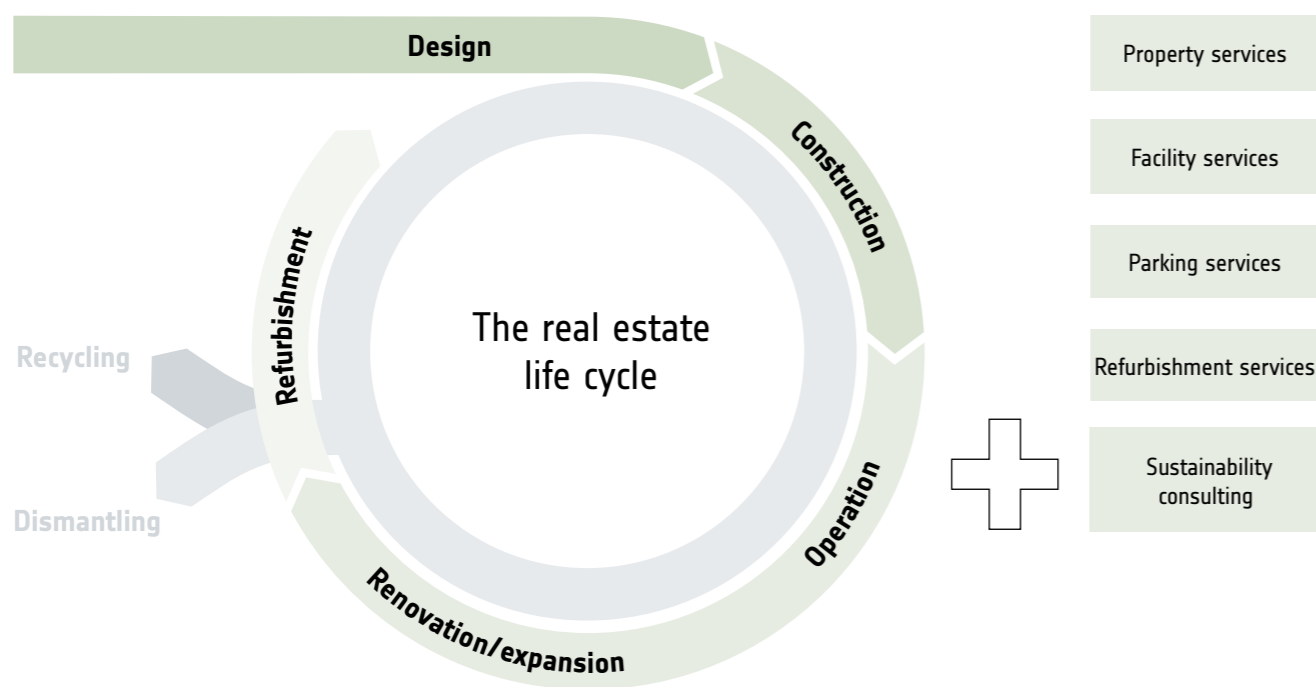
Infrastructure – and buildings in particular – are the foundations of modern life and economic activity. But creating these structures requires substantial resources. In addition to the various materials, buildings consume a great deal of energy in every phase of their life cycle – from construction to operation and their eventual demolition – and thus cause substantial greenhouse gas emissions. At the same time, there is huge potential in the industry for reducing consumption and thus aiding climate protection.



Our portfolio

Here at GOLDBECK, we see buildings as our products, embedded in a service ecosystem. We provide not just the real estate itself – we also act as a one-stop shop for everything from the design and construction to related services.

Our product-service ecosystem



We develop all our property projects in partnership with our clients from small and medium-sized businesses, major companies, investors, developers and public clients. These are the individual products we offer:

Construction systems for warehouses and factory buildings (pre-certified at Gold level by the DGNB: German Sustainable Building Council): We build industrial buildings for all industries, uses and sizes – single-bay or multi-bay, single or double-storey, and stand-alone or with an attached office unit. In areas where space requirements are tight and the type of use changes, we offer business parks that can be flexibly adapted to suit individual requirements. As with all our products, we offer a wide range of elements for sustainable implementation, including photovoltaic systems on the roof, green façades, electric charging stations for cars and bicycles, and tanks for rainwater utilisation.

Office building systems (pre-certified at Gold level by the DGNB: German Sustainable Building Council): Our office buildings comprise a material-efficient construction system that reduces overall CO₂ emissions by an average of 25 percent compared to solid-structure buildings. Their room modules offer a flexible range of combinations, and we also offer our clients several different comfort levels. Our energy-efficient, modern construction elements and technical efficiency enable us to make our office buildings distinct in character, comfortable and sustainable.

Multi-storey car parks: The key construction component in our multi-storey car parks is our uncoated concrete ceiling panels. With our in-house production technology, we can produce these in thicknesses of just 10 cm, which saves on resources. The panels are also more environmentally friendly, as they do not have a chemical coating that requires renewal.

School buildings: As places of public life and education for future generations, school buildings are expected to meet exemplary standards with respect to their design and functionality. In addition to using energy-optimised shells, we also ensure that our school buildings have green roofs, efficient mechanical and electrical equipment, and energy generation systems on their façades. We also provide scope for flexible repurposing and semi-natural outside facilities.

Residential buildings: Our element-based series construction techniques help to provide more affordable living space. Our residential buildings meet the high demands placed on multi-storey residential construction projects today, featuring accessible layouts, a high energy standard and user-optimised technical building equipment. They combine economical construction processes with a high degree of architectural sophistication.

Services and consulting: As a general contractor, we design, construct and maintain commercial properties. We offer a wide range of services for the use phase, including property services (administration, rental and marketing), facility services (commissioning, management and optimisation), parking services (operation, technical maintenance, mobility concepts), and refurbishment services (potential analyses; planning and implementation of technical, energy and architectural renovations). In addition to this, in April 2022 we also founded the "GOLDBECK Sustainability Consulting" business unit to provide our clients with consulting services in light of the ever-stricter regulatory requirements.

Existing building refurbishments: Existing building refurbishments reduce further space usage, as conversions and partial and structural renovation extend the life cycle of existing properties. The continued use of existing building fabric and the recycling of suitable construction materials reduces resource consumption. Improved insulation, new mechanical and electrical equipment and renewable energy also lead to lower energy demand. This enables us to turn older buildings into economically efficient real estate with a contemporary approach to energy, architecture and functionality. In addition to this, GOLDBECK also handles services such as system design, redesigns and demolition and dismantling work – even when the building is still in operation, if necessary. We strive to find the right solutions to ensure that as much of the existing structure as possible can be retained and, where necessary, renovated.

Interdisciplinary innovation

The central development department at GOLDBECK is called "Innovation, Products and Systems" (IPS). In addition to traditional product and system development and innovation and trend scouting, IPS is currently working on the following major areas of development:

- Closer integration of construction and operation
- Sustainability of our products
- Further development of products for the European markets
- Preparation of our products for automated design, construction and production processes

IPS manages these tasks across all our units via a series of alternating project teams. The department also closely coordinates with colleagues from GOLDBECK Services, GOLDBECK Germany and Europe, and the entire Production and Assembly units.

Digital project process

GOLDBECK uses the digital design technique Building Information Modelling (BIM) in all of its projects. This enables our design specialists to be agile and keep in touch so that they can minimise inefficiencies during the design phase, thus preventing larger problems further down the line. These technical models are also used on the construction site via the "BIM 360" software. With staff able to access models and plans anytime, anywhere, queries can be solved straightaway and the details passed on to subcontractors. The software assists Site Management with their day-to-day project management, helping them to analyse data and digitalising most of their paper-based work. These transparent processes, some of which take place simultaneously, significantly reduce the correction workload and resource utilisation in both the construction and the design phases. For more information, turn to the Scalable solutions across the board section of this report, on page 12.

The lean work principle

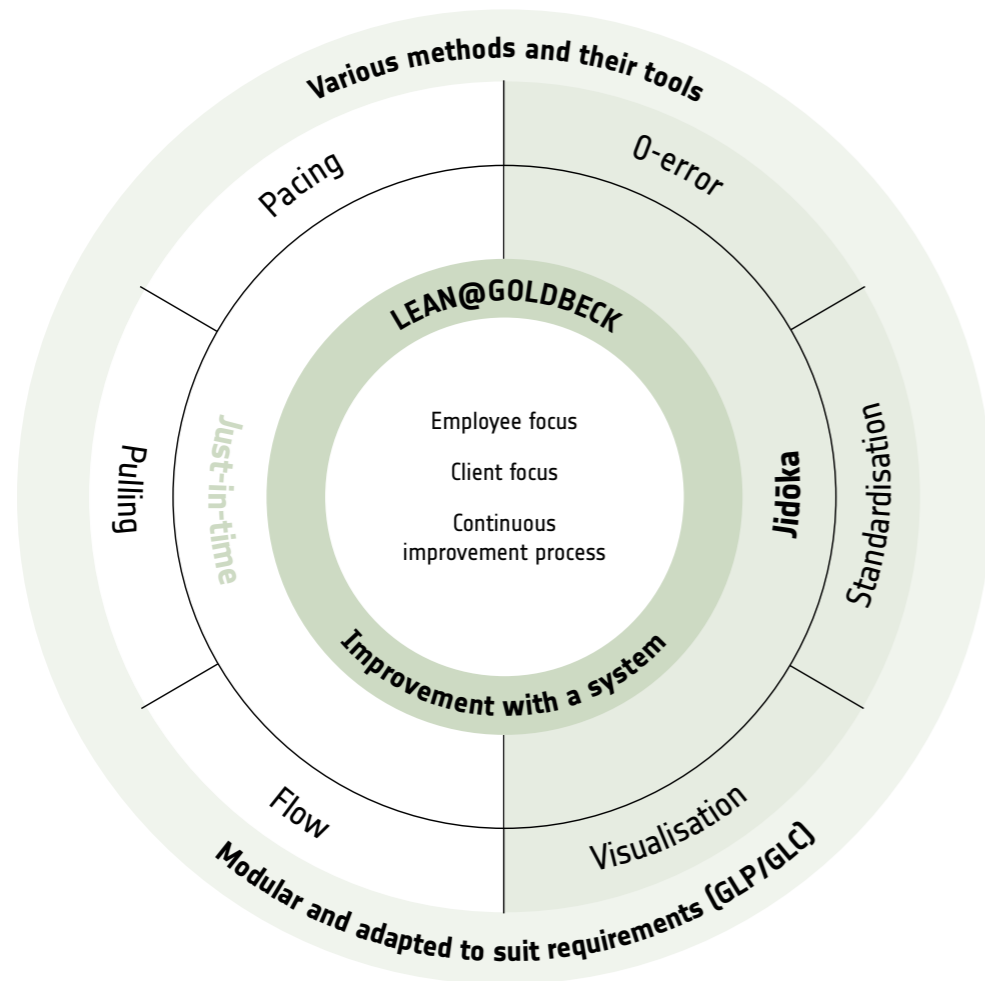
We see buildings as complex products, think in terms of processes and, as a technological company, use a smart construction system. We use the principles of sufficiency and efficiency as our main levers for improving sustainability: We focus only on what is necessary and implement streamlined processes that consume the minimum of resources in order to achieve maximum functionality for our products.

Right from the design stage, we take into account the different phases of a building's life cycle, such as operation, dismantling and material recycling. Construction with a system enables us to factor in a wide range of environmental and social criteria, even in the

face of increasing complexity. At the same time, it also puts us in a position to guarantee outstanding economic efficiency for both our business and our clients.

We have been pursuing this vision ever since our company was first founded and have now set it out in writing as the LEAN@ GOLDBECK strategic concept. We encourage a common effort across all our departments to anchor LEAN management throughout our company – holistically and sustainably. We use LEAN methods to continuously structure, optimise and integrate our processes in order to keep our workflows efficient and safe, making "improvement with a system" our guiding tenet.

LEAN in focus



Standardising construction processes, workflows and construction elements forms part of the lean principle of 'Jidōka' ('automated quality assurance'). The aim of this approach is to detect errors and discrepancies quickly in order to ensure quality and prevent unplanned follow-up work, extra transport, duplication of work and material wastage. A standardised project process helps us here, as do tools such as an agile Kanban board. We have already successfully put the second definitive lean principle, 'Just in Time', into action at some of our construction sites with the aid of the 'Cycle Planning and Management' method. The subcontractors' work packages are coordinated, making for a smooth, seamless construction process at the construction site from one Takt zone to the next.

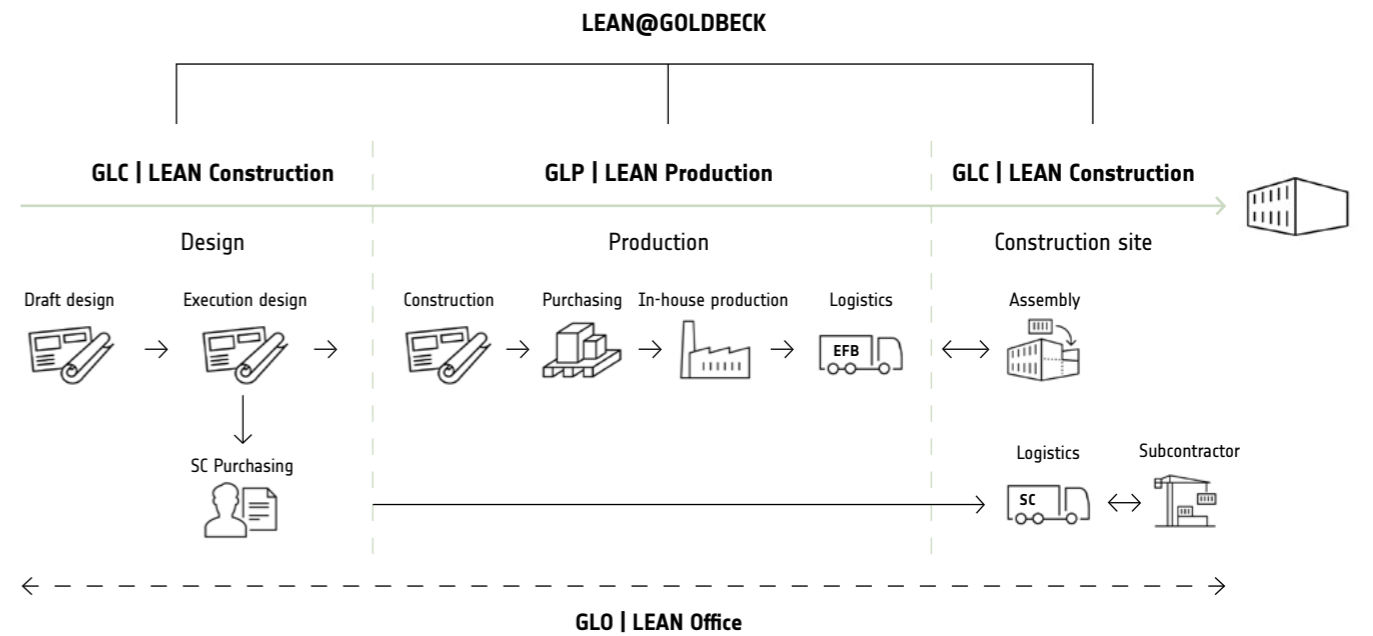
Our strategy covers three areas of application: 'Lean Construction' (construction site and project work), 'Lean Production' (production at our plants) and 'Lean Office' (administrative units). The implementation of this strategy is defined by an unwavering focus on our clients, employee engagement and continual efforts to improve.

We lay the key groundwork for a building project during its draft and design stage. This initial phase of the project at GOLDBECK re-

sults in an individual, functional and sustainable building concept. This is why we attach great importance to analysing our clients' needs and wishes systematically, in detail and at an early stage. Our team of engineers work with them to flesh out their vision and then translate it into architectural specifications for the execution design.

Experts from our Energy and Sustainability teams are included in the integrated design process at GOLDBECK. They ensure that sustainability and energy efficiency are embedded in the design process. They draw up concepts that take into account the entire life cycle of a building and incorporate all of the key factors:

- Operation simulation
- User costs forecast
- Profitability calculations
- KfW (Kreditanstalt für Wiederaufbau) financial support advice
- Compliance with the German Buildings Energy Act (GEG)
- In-house power supply
- Carbon neutrality
- Sustainability certificates
- Biodiversity



2019

is the year in which GOLDBECK founded its LEAN network in order to firmly embed the philosophy in the company.

Prevention of waste

As we employ pre-fabrication in accordance with the lean principle, there is relatively little waste at our plants and construction sites. We use resources efficiently and avoid waste. Our methods range from shop floor management to process standardisation and cover many practical aspects. For instance, we take waste metal generated during production and use it to create attachment solutions. And thanks to series production, we re-use our formwork over and over instead of discarding it after one use. For more information, turn to the section "Our partners and production" on page 50.

Quality management

Quality is harder to quantify in construction projects than for simple products. And where it can be quantified, it usually reflects properties such as load-bearing capacity, durability and colour fidelity. These criteria are subject to very exacting regulation in the construction industry, in the form of various DIN standards and other documents. One type of quality that is relatively subjective by comparison is client satisfaction.

Here at GOLDBECK, quality management is a combined effort on the part of our regional branches and production and installation companies. It is achieved with the aid of a variety of applications, such as the Incoming Goods app for construction elements produced at our plants and BIM 360-Field for quality and defect management at our construction sites.

Site Management is responsible for quality control and implementation. While the project team can also determine when a problem is going to lead to delays or increases in costs, defects in quality at the construction site are often identified by Site Management. Familiarising oneself with the quality assurance concept at an early stage is thus essential.

In addition to the various guidelines and manuals on quality assurance, crew checklists are also available on the construction site in BIM 360-Field so that the construction and project leadership can go through the most important checks for each individual crew. These checks form the basis of the handing over with subcontractors, experts, authorities and, ultimately, to our clients.

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Responsible for content

GOLDBECK GmbH
Group Sustainability, Marketing & Communications
sustainability@goldbeck.de

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