

*Acting for tomorrow, today*  
OUR RESPONSIBILITY, OUR PLANS

# 21

*Sustainability Report*

MTU AERO ENGINES AG  
BUSINESS YEAR 2021

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FOREWORD BY REINER WINKLER, CHIEF EXECUTIVE OFFICER OF MTU AERO ENGINES AG

## Acting for tomorrow, today.

Dear readers,

The theme of our latest Sustainability Report is “Acting for tomorrow, today.” We are in the midst of a complex transformation that affects not only society, but also the industry as a whole and MTU as a company. We want to actively shape and drive this transformation to safeguard a viable future—both for current and future generations and for MTU’s long-term success. This is a part of our responsibility. “We shape the future of aviation” is a claim embedded in the MTU Principles. Its most important meaning to us is to provide safe and sustainable mobility solutions that play a key role in our society and the global economy.

We successfully navigated the 2021 business year, the challenges of which were due in no small part to the effects of the coronavirus pandemic. We are looking at positive financial figures, which was made possible by our strong network of sites around the world, a committed MTU team, and a complex and close-knit supply chain. This is also underpinned by important future projects that we made progress on: our Clean Air Engine (Claire) agenda for emissions-free flight, our ecoRoadmap for climate action in production, and our Innovative Culture initiative for developing our corporate culture.

## Our ideas make the difference.

Emissions-free flight is a vision shared by MTU and the entire sector. It is a long-term goal that is also in line with the Paris Agreement aim of limiting global warming to 1.5 degrees Celsius. We are fully committed to doing our part here: to developing ideas and innovations that make the difference, and mustering the courage to forge new paths. By realigning our Claire agenda, we want to bring products to market before 2050 that enable emissions-free flight. We are pursuing a variety of concepts to ensure we cover the full spectrum of mobility needs –from short- to long-haul routes. Our engines of the future will differ radically from existing solutions: we are working hard to prepare for the first flight of a prototype of a hydrogen-powered fuel cell. To this end, in 2021 we strengthened our collaboration with the German Aerospace Center (DLR). For long-haul routes, we are pursuing a truly revolutionary concept: a propulsion system that employs a heat exchanger to use the energy from the engine's exhaust gas stream. The first basic tests for condensation were completed in collaboration with the University of Stuttgart.

## The transformation begins at MTU.

As one of the aviation industry's leading engine manufacturers, we have big plans. But these alone are not enough. Sustainable aviation fuels (SAFs) will soon play a crucial role in efforts to achieve climate neutrality. We support the use of SAFs to reduce emissions that have an effect on the climate—and to do so as quickly as possible. After all, SAFs can already be used to power conventional engines within existing infrastructure. We should tap into this potential, which is why MTU supports several projects to set up production facilities and this year began using SAFs in maintenance test runs for some customers.

By using SAFs on our test stands, we can reduce our sites' climate footprint. That's how the transformation is beginning at MTU. Last year, we drew up our ecoRoadmap, an operational climate action strategy designed to make our production and maintenance operations carbon-neutral in the long term. By beginning with our main site in Munich, we are transitioning toward a sustainable future in a place that is at the heart of a tradition going back almost a hundred years. At the end of 2021, our oldest site was also our first site to achieve climate neutrality. Our next step will be to add further sites as we build an MTU Green Europe.

## We make responsibility visible.

To take a holistic approach to sustainability, last year we defined six fields of action, which are mirrored in the structure of this report. Each field of action has its goals, which together form our Sustainability Program 2025+. The 2021 business year is the first time that MTU Executive Board members' variable compensation reflects non-financial performance indicators relating to climate action and employee satisfaction. This means that we are measuring our performance not only in terms of financial success, but now also increasingly by activities and progress in the area of sustainability. Moreover, we have established clear responsibility for these topics in the Executive Board by naming Lars Wagner as our Chief Sustainability Officer.

## We look to the future with confidence.

The coronavirus pandemic demanded much of us in 2021 as well. Once again, we demonstrated how flexible and adaptable MTU is, and how resilient we are in times of crisis. Together, we developed solutions and actions for keeping our employees safe in the workplace and for the good of the company. We pooled our efforts to get an unprecedented vaccination campaign up and running. Another major factor in getting through the pandemic was increasing remote working.

We intend to maintain this new level of flexibility and are making hybrid forms of collaboration a permanent option. This is closely connected to our recently launched MTU-wide Innovative Culture initiative. Hybrid working is a key area of focus along with enhancing our diversity and internationality, encouraging entrepreneurial behavior at all levels, and accelerating digitalization and connectivity.

We look to the future with confidence and will act for tomorrow, today. You can discover how we are living up to this responsibility, seizing opportunities, and shaping the transformation by reading through this Sustainability Report. We hope you will join us on this path!

I hope it makes for a stimulating read,



Reiner Winkler  
Chief Executive Officer  
MTU Aero Engines AG

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## Services & tools

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[ONLINE SURVEY ABOUT SUSTAINABILITY@MTU](#)

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**GRI:** [102-14](#)

**UNGC:** [1-10](#)

## SUCCESSFUL 2021 BUSINESS YEAR

## MTU Aero Engines

MTU Aero Engines AG is Germany's leading engine manufacturer. The Group offers solutions for the entire aircraft engine lifecycle—from development to production to maintenance. All MTU's products and services are characterized by innovative and sometimes unique approaches.

## MTU'S HISTORY

88 years

of MTU; its predecessor BMW Flugmotoren GmbH was founded in Munich in 1934. Since then, it has established itself as a key partner in the engine industry.

## REVENUE



4.2

billion euros were recorded by MTU for the 2021 business year, another year marked by the coronavirus pandemic.

## MTU WORLDWIDE



16

sites give MTU a presence in important markets and regions. It is headquartered in Munich, Germany.

## THE MTU FAMILY

10,508

employees were working at MTU's fully consolidated sites around the world at the end of 2021.

MTU Aero Engines is Germany's leading engine manufacturer and an established global player in the industry. We design, develop, manufacture, market and support commercial and military aircraft engines in all thrust and power categories and stationary gas turbines. Operating affiliates all over the world, MTU has a local presence in major regions and markets and is headquartered in Munich, Germany.

In the commercial engine business, we have content in all thrust and power categories, from propulsion systems for business jets and engines for narrowbody aircraft with geared turbofan technology to the world's most powerful engines. The company is a valued and trusted partner to all of the big players in the industry: GE, Pratt & Whitney and Rolls-Royce..

In the maintenance business, MTU Maintenance is the world's largest independent provider of commercial engine MRO (maintenance, repair and overhaul) services in terms of sales. The primary focus is on providing support for engines in which we are a risk- and revenue-sharing partner. We are the leading global provider of maintenance and repair services for the V2500, the engine powering the current Airbus A320 family of aircraft. MTU Maintenance also offers repair solutions for a wide variety of different engine types.

In the military arena, MTU is Germany's industrial lead company for practically all engines flown by the country's military. We deliver the enabling technologies, develop and manufacture engines and engine components, and provide logistics support.

MTU's OEM (original equipment manufacturer) segment covers new commercial engines, including spare parts, and the whole of the military sector. The MRO (maintenance, repair and overhaul) segment comprises all commercial maintenance activities

[WWW.MTU.DE](http://WWW.MTU.DE)

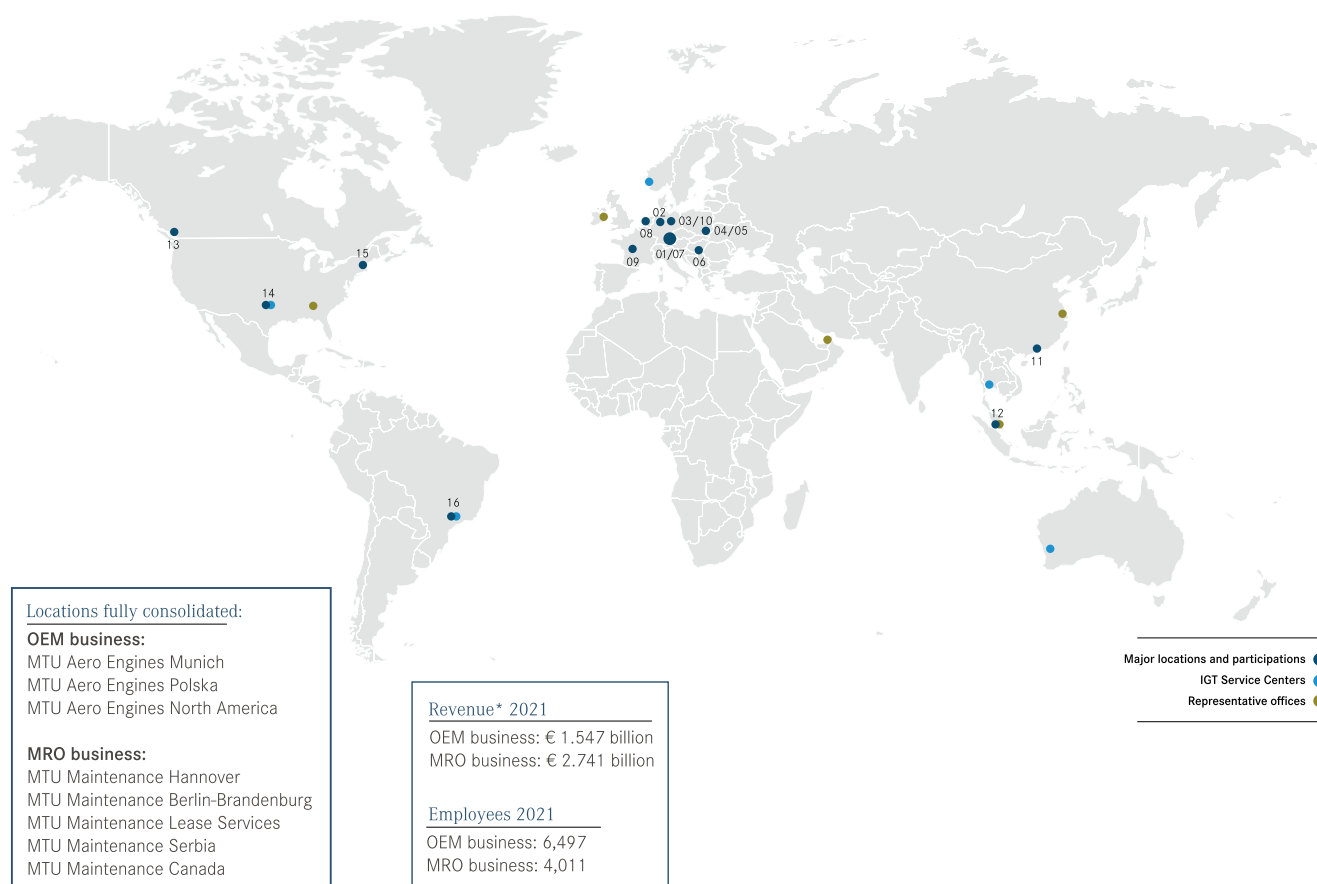
## MTU Aero Engines worldwide

- 13 MTU Maintenance Canada  
14 MTU Maintenance Dallas  
15 MTU Aero Engines North America  
16 MTU Maintenance do Brasil

- 01 MTU Aero Engines, Headquarters  
02 MTU Maintenance Hannover  
03 MTU Maintenance Berlin-Brandenburg  
04 MTU Aero Engines Polska

- 05 EME Aero  
06 MTU Maintenance Serbia  
07 Aerospace Embedded Solutions  
08 MTU Maintenance Lease Services

- 09 Ceramic Coating Center  
10 P&WC Customer Service Centre Europe GmbH  
11 MTU Maintenance Zhuhai  
12 Airfoil Services



GRI 102-7: This report covers all of MTU's fully consolidated locations. The company has a presence in global markets through other subsidiaries and maintains joint ventures with partners in Asia, for example Airfoil Services in Malaysia, a joint venture with Lufthansa Technik for airfoil repair, and MTU Maintenance Zhuhai with China Southern Air as a joint maintenance shop. (\*Revenue by business segment before consolidation)





## MTU's business performance in 2021

In 2021, MTU once again demonstrated its resilience in times of crisis. Despite the ongoing coronavirus pandemic, the company can look back on a successful business year. Revenue totaled EUR 4.2 billion, compared with just under EUR 4 billion in the previous year, and operating profit (EBIT adjusted) amounted to EUR 468 million (2020: EUR 416 million). Net income (adjusted earnings after tax) came to EUR 342 million (2020: EUR 294 million). Order backlog reached a new record high of EUR 22.2 billion at the end of 2021, following EUR 18.6 billion the year before. This further underlines MTU's future viability. Most of the orders are for the V2500 program and the geared turbofan engines of the PW1000G family, in particular the PW1100G-JM.

The geared turbofan engine is an important propulsion concept in our sustainable product development.

SPOTLIGHT ON CLIMATE ACTION

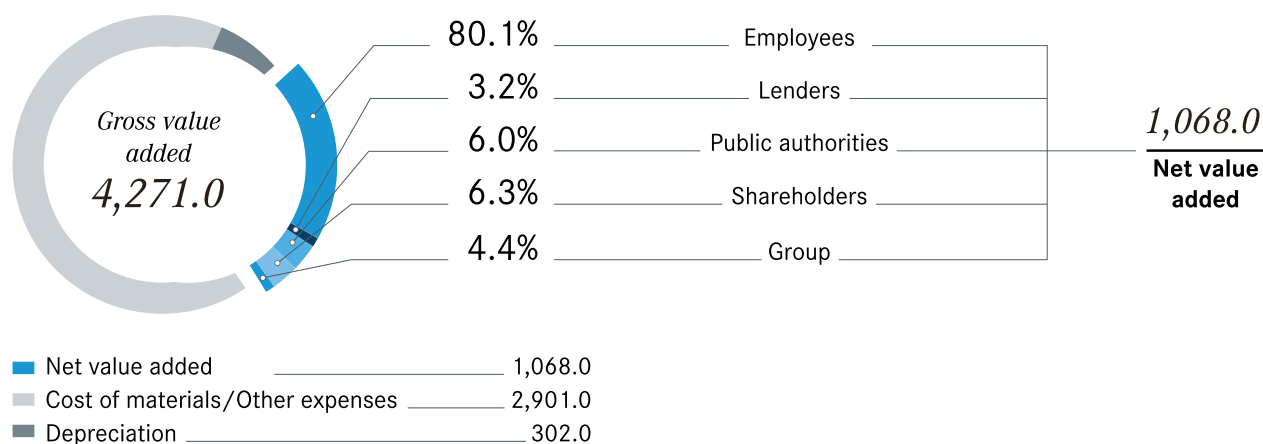
**Key financial data (in EUR m)**[> GRI 201-1](#)

	2021	2020	2019
Revenue	4,188	3,977	4,628
Earnings before interest and tax (EBIT, adjusted)	468	416	757
Income taxes	84	48	178
Earnings after tax (adjusted)	342	294	538
Capital expenditure on property, plant and equipment and intangible assets	384	327	479

We take a long-term approach to our company's success and our goal is to steadily increase shareholder value. Our commercial success generates added value for our stakeholders and contributes to society's prosperity and the economic development of the communities where our business activities are located. We offer attractive jobs in a high-tech industry and professional training as part of Germany's dual-track system. At the end of 2021, the MTU Group employed 10,508 people at fully consolidated locations around the world, with 349 young apprentices training. We are a major employer in the region at all major international locations. In Serbia, we are establishing a new repair site, at which we will provide specialist aviation training based on Germany's dual-track system. We pay our employees attractive salaries and offer a broad range of perks. As a local investor and patron, we promote education and the academic landscape, for example by maintaining close ties to universities and colleges, especially in the regions where our sites are located. We invest in our locations and are continuing to expand our plants in Munich and Hannover. Through our innovative capabilities, we create upstream value chains and jobs in the supply chain. We work with around 5,900 suppliers, mainly in Europe, and have defined mandatory sustainability standards for our cooperation with them.

We act as a responsible global corporate taxpayer and comply with applicable tax laws and regulations, enabling us to make a significant contribution to society at our sites in Germany and elsewhere. A binding Code of Conduct supports systematic compliance with legal and regulatory requirements throughout the Group. We promote ethical and transparent business practices and, in particular, do not use tax avoidance measures, such as the establishment of companies solely for this purpose. We have adopted a Group tax policy that establishes our principles, tax strategy and tax risk management in the company and defines our responsibilities. We report regularly in accordance with applicable regulations and requirements (e.g. IFRS, CbCR), thereby transparently disclosing our tax position.

## Value added 2021 (in EUR m)



GRI 201-1: Gross value added = revenue and other income

The value added statement shows that MTU's corporate performance amounts to a gross value added of EUR 4.271 billion for 2021. After deducting the cost of materials, depreciation, amortization and other expenses, net value added came to EUR 1.068 billion. The lion's share of that (80.1%) went to our employees in the form of wages, salaries and other benefits, while the Group retained 4.4% for future investments. The proportion allocated to pay taxes levied by public authorities accounted for 6%. MTU shareholders benefitted from the company's good result by receiving a dividend of EUR 2.10 per share. Our employees have the opportunity to share in MTU's success through the company's annual employee share program.

## Services & tools

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**GRI:** 102-1, 102-2, 102-3, 102-5, 102-7, 103-2, 103-3, 201-1, 207-1, 207-2

## WE TAKE RESPONSIBILITY

## Sustainably strategy and organization

As an engine manufacturer and key player in the sector, we want to actively shape the transformation of aviation. Our efforts are focused on climate action, driven by our vision of emissions-free flight. Moreover, as a manufacturing company and employer of some 10,000 people, we strive to act responsibly in all sustainability topics.

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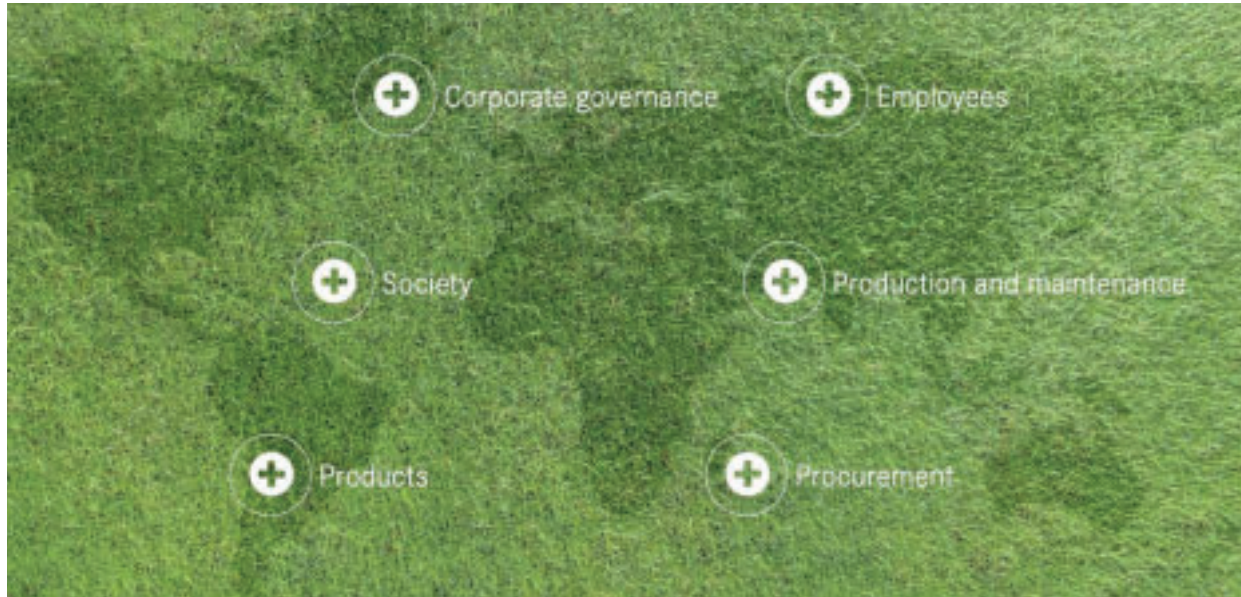
MTU feels a responsibility to act sustainably in all key areas. In pursuit of its vision of emissions-free flight, the company is playing a major part in creating a sustainable future for aviation.

Shouldering responsibility is embedded in our corporate identity. Sustainability means that this sense of responsibility permeates every area of our business and extends to the entire value chain. We embrace the principle of bringing sustainability, economics, ecology and social responsibility into harmony. Our commitment is based on the observance of statutory regulations and internal standards—essentially, those enshrined in the MTU Code of Conduct—and the ten principles of the UN Global Compact, to which we have signed up. Our guiding principle “We shape the future of aviation” reflects our sustainable approach.

## Our commitment to corporate responsibility (CR)

As a technology leader, we play a decisive role in making aviation sustainable and achieving emissions-free flight through innovative propulsion solutions. In doing so, we stand for responsible and environmentally friendly production, maintenance and procurement and offer a safe and attractive working environment.

## Our goals and fields of action



MTU'S SUSTAINABILITY PROGRAM 2025+



# UN Global Compact & Sustainable Development Goals



The UN Global Compact is a unique sustainability initiative that we joined in 2011. As a signatory, we are committed to upholding the [ten principles](#) for respecting human rights, ensuring fair working conditions, protecting the environment and preventing corruption. We consider them important guidelines for responsible corporate governance. We strive to continuously improve the way in which we implement the principles. And through our [Code of Conduct](#) we transfer them to the supply chain. This Sustainability Report also serves as a Communication on Progress in line with the UNGC. Cross-references of the statements published here to the UNGC principles can be found [here](#).

As a signatory to the UN Global Compact, we also want to contribute to the UN's 2030 Agenda, which is founded upon 17 sustainable development goals (SDGs). These goals embrace the three dimensions of sustainability—economy, environment and society—in equal measure. We support the implementation of the SDGs and have identified eight that are particularly relevant for MTU:



This was the result of a workshop in which the CR team considered all 17 SDGs and assessed their significance for MTU. In the process, the eight stated goals were prioritized. Our efforts for a sustainable future also have an impact on other SDGs, where we can make an indirect positive contribution, such as to SDG 10 "Reduced inequalities."

→ [Learn more about our contribution to the SDGs](#)

## Standards and guidelines that we follow:

- [UN Universal Declaration of Human Rights](#)
- [Principles of the UN Global Compact](#)
- [The UN's 2030 Agenda](#) and [Sustainable Development Goals \(SDGs\)](#)
- [Core labor standards of the International Labour Organization \(ILO\)](#)
- [German Corporate Governance Code](#)

## Climate action is a key concern

MTU is committed to the goal of limiting global warming preferably to 1.5 degrees Celsius, as set out in the Paris Agreement. We are pursuing our long-term goal of zero-emission aviation through our Clean Air Engine (Claire) technology agenda. Through Claire, we are developing innovative propulsion concepts that meet the high safety standards of aviation, greatly improve energy and emissions footprints and fulfill all future noise emissions limits. We firmly believe that taking a sustainable approach to our business will allow us to remain competitive and successful in the long term. Because stakeholder expectations are clear: The players in the aviation industry, and especially aircraft and engine manufacturers, must find answers and solutions to make the emissions produced by flying as low as possible in the future. [For more about aligning our product stewardship with the Paris Agreement, see the chapter Climate impact of aircraft engines.](#)

We also want to implement concepts for our own business activities, in production and maintenance at our plants, that reduce our carbon footprint and go as far as achieving climate neutrality. [For more information, see Energy management and climate action](#)

Governments around the world are working on incorporating the goals of the Paris Agreement into national legislation. The European Commission has set itself the goal of climate neutrality by 2050 with the European Green Deal. Furthermore, through the new EU taxonomy established as part of the action plan on financing sustainable growth, the European Commission calls on companies to classify their business activities according to sustainability criteria. The taxonomy provisions first became effective for the environmental goals of climate action and adaptation to climate change for the 2021 financial year. [MTU furnishes EU taxonomy information in the non-financial statement of the Annual Report \(p. 105ff.\)](#) Moreover, investors are increasingly evaluating companies and their business models according to ESG (environmental, social, governance) criteria.

## ESG goals at MTU

To strengthen sustainability and make progress more measurable, we have introduced non-financial KPIs for environmental, social and governance performance (ESG) for the 2021 financial year, which are factored into the variable compensation of the Executive Board. The goals are drawn from climate action at our sites and employee satisfaction.

For climate action, the annual progress is taken from the new ecoRoadmap, which was launched in 2021. The “CO<sub>2</sub> emissions related to production hours” indicator for the Munich site is incorporated into the variable compensation of the Executive Board as an ESG-relevant KPI. [Detailed presentation of the ecoRoadmap and goal attainment in 2021](#)

In the employee category, the ESG goal is derived from the results of the regular PulseCheck surveys and goal attainment is determined based on the index value from the feedback of employees to the subject areas of commitment and leadership. [More about PulseCheck and goal attainment in 2021](#)

# Organization and management of sustainability

## Chief Sustainability Officer appointed to Executive Board

We have integrated sustainability into organizational structures and established sustainability management throughout the MTU Group. Through the corporate responsibility (CR) management system, we monitor our sustainability strategy, performance and goals.

A CR Board is responsible for the implementation of CR management on behalf of the Executive Board. At Executive Board level, Chief Operating Officer Lars Wagner was appointed as Chief Sustainability Officer (CSO), making him the MTU's first representative for sustainability. He is primarily responsible for defining the positioning of MTU and the sustainability strategy and objectives. As CSO, moreover, he monitors goal attainment and ensures that CR organization at MTU is suitably aligned with the requirements and successfully rooted in the company. In fulfilling these responsibilities, the CSO works closely together with the CR Board. The CR Board acts in cooperation with the CSO as the highest decision-making body and draws its members from the tier-1 senior management team. It is responsible for driving sustainability forward at MTU, controlling CR activities and adopting CR actions and initiatives. The CR Board reports directly to the CSO as well as reporting regularly to the Executive Board and the Supervisory Board.

## Interview with new Chief Sustainability Officer at MTU, Lars Wagner

IN OUR SPOTLIGHT ON RESPONSIBILITY

The CR Board meets regularly and as required. If necessary, representatives from further operational functions are invited to the meetings. A central CR coordination team manages Group-wide sustainability activities, overall CR management, communication with stakeholders about CR topics, and reporting on CR issues. It also works with an interdisciplinary CR team to continuously develop CR management.



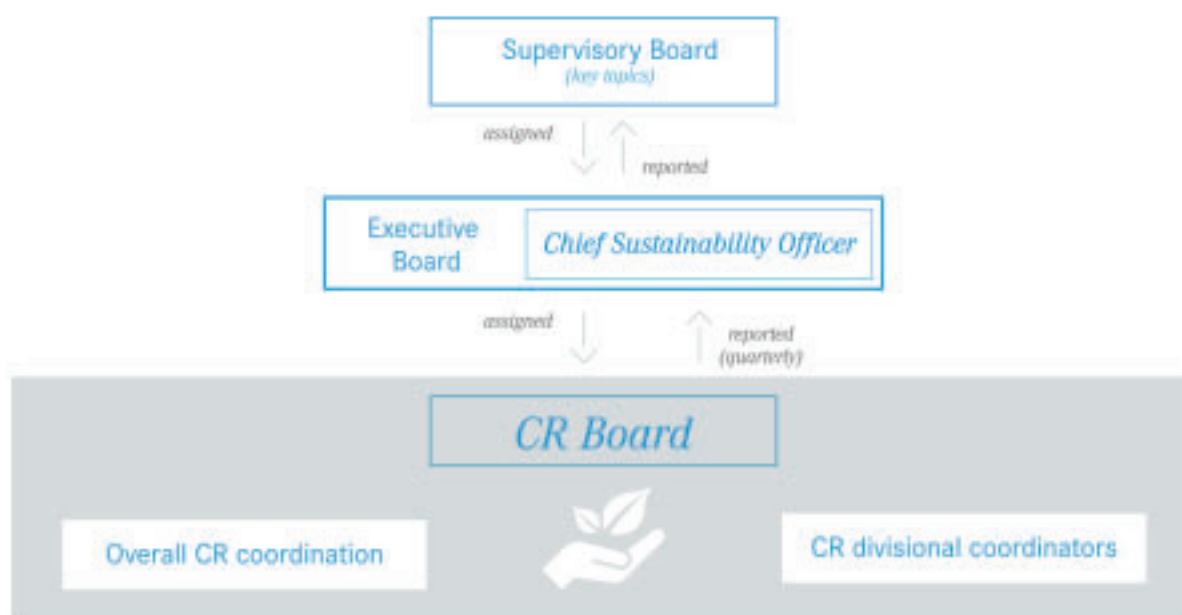
## CR Board mission statement

We take responsibility for social and environmental issues in accordance with economic imperatives.

- We actively expand our Group-wide sustainability strategy.
- We promote interdisciplinary cooperation on CR projects within the company and in CR networks beyond the company gates.
- To this end, we work with the Executive Board and further decision-makers to devise measurable objectives for realizing the MTU sustainability strategy.

At the heart of the interdisciplinary CR team are the CR divisional coordinators. They play an important part in operational implementation, working with experts in their disciplines to develop goals and measures, implement them, and take responsibility for monitoring their progress. In collaboration with the representatives in the business areas, the divisional coordinators are heavily involved in shaping the strategic focus of their respective CR goals and developing these goals over time. CR management officers at the sites support the CR divisional coordinators and the overall CR coordination team. The CR team also jointly conducts the annual materiality analysis for the sustainability topics. By implementing this organizational structure, we ensure that sustainability is embedded throughout the entire company for all relevant topics.

### CR management at MTU



We steer our sustainability strategy through the CR management system, while the CR Board acts as the decision-making body in conjunction with the Chief Sustainability Officer. A central CR coordination team manages Group-wide sustainability activities and overall CR management, and CR divisional coordinators are responsible for goals and actions in their disciplines.

# Risk management

We integrate sustainability risks into our internal control system, and map and evaluate them using defined processes. MTU has established a Group-wide integrated risk management and control system, based on the leading international COSO II ERM Framework standard, with which it manages risks and opportunities for its business. The system also takes into account non-financial risks. For the topic of compliance, MTU has established a separate risk assessment and a separate reporting line, which the Compliance Officer coordinates.

Building on these processes, the company conducts a quarterly risk survey for all sustainability topics, which records the effects of our business activity on the environment and society over defined time horizons. Using a risk register, the risk is identified and possible effects and probabilities of occurrence are evaluated. In consultation with their upper management, the CR divisional coordinators conduct the survey according to standardized criteria using a multistage scale. The results of the risk assessment are reviewed quarterly by the CR Board. Should significant sustainability risks be identified for third parties, the Board passes the report on to the risk management team and, if appropriate, to the Executive Board.

The risk assessment for the 2021 financial year identified no material risks in relation to the topics of our CR strategy. Material risks are those that are very likely and have a severe negative impact.

## Materiality analysis: Strategic process for sustainability topics

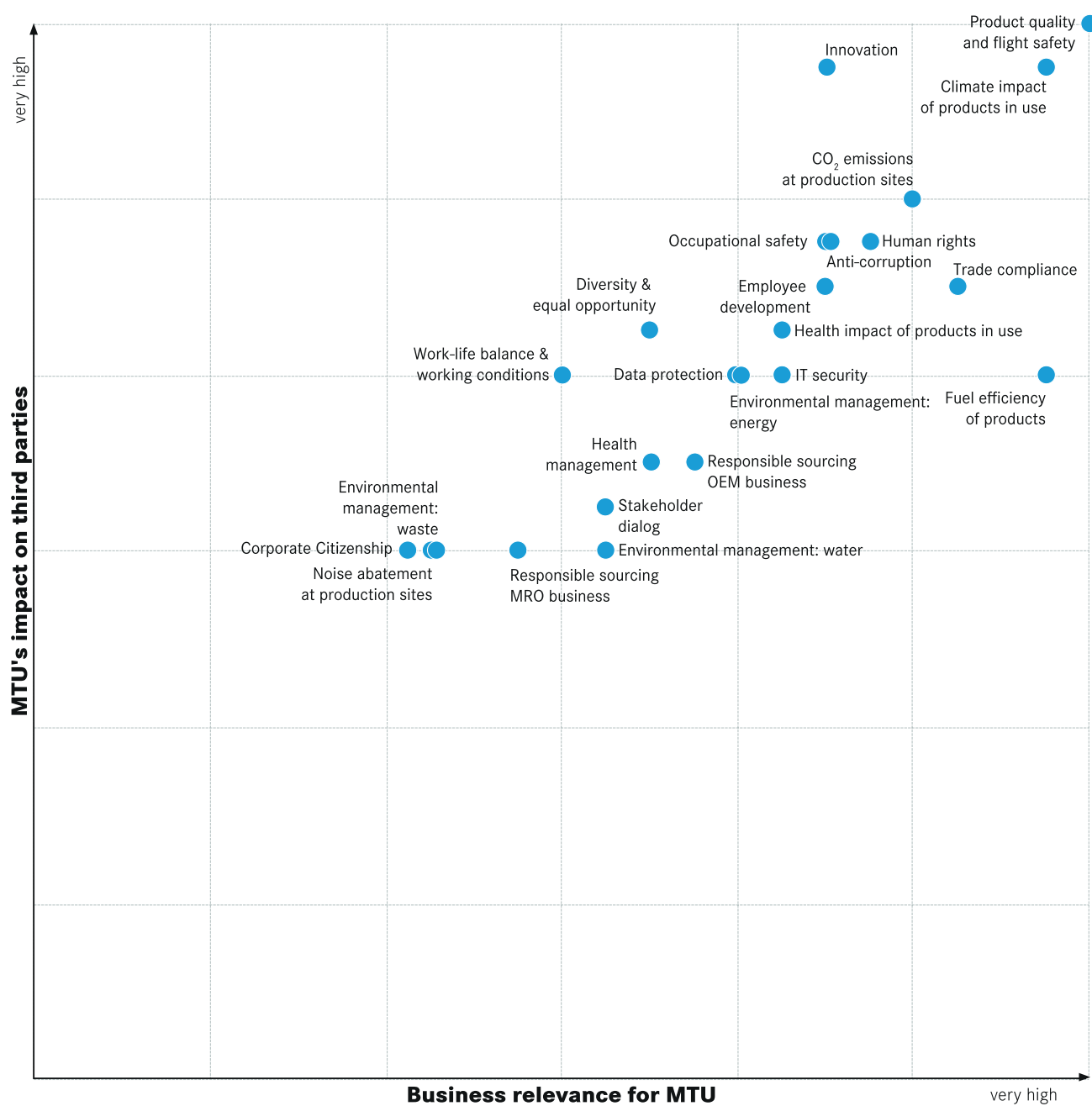
We review our sustainability strategy annually to reflect recent changes and developments, refining our priorities in the process. This allows us to recognize opportunities and risks for our business in good time and to honor our claim of being a company that acts in a sustainable manner. In this materiality analysis, we evaluate the topics using defined criteria. These criteria correspond to each topic's significance for our business activities and how they affect society and the environment. Criteria for our social and environmental effects include statutory regulations, a positive or negative impact from MTU business activity, and the demands of stakeholder groups; criteria for business relevance include possible effects on the reputation of the company or on its profit and loss account. The criteria are incorporated into the evaluation according to a defined weighting scheme. For the 2021 financial year, we weighted the positive contribution that MTU can make with a topic more strongly than before. The analysis covers all our key business areas and fully consolidated locations as well as information gathered from our dialogue with internal and external stakeholders, which helps us address societal expectations and requirements. → [More information about stakeholder dialogue](#) We present the results for the respective financial year in our materiality matrix.

## Results for 2021

### Carbon emissions and energy management at our sites are becoming even more important

The determination of materiality for the 2021 financial year led to changes in some of the 24 topics. All of these changes involved ratings going up, with no instances of ratings going down compared to the previous year. The biggest changes compared to the previous year related to climate action and energy management at our production sites, along with stakeholder dialogue (each of which went up by 2 on a scale to 24). Carbon emissions in production and maintenance acquired a higher rating as regards business relevance for MTU on account of the new EU taxonomy, the EU Green Deal and its incorporation into the variable compensation of the Executive Board as an ESG goal. The energy management rating likewise went up, as carbon emissions are a result of energy consumption in the facilities. As for stakeholder dialogue, the importance of this category gained in importance on account of increasing requirements in cooperation with customers and partners with regard to sustainability performance and assessments. The work-life balance category was expanded to include working conditions and increased in importance over the course of the coronavirus pandemic.

## Materiality matrix: Important sustainability topics for MTU



GRI 102-46: Evaluation of topics for the financial year 2021 adopts the definition of materiality set out in the German CSR Directive Implementation Act (CSR-RUG).

# Report structure and cross-references of sustainability topics to the SDGs

All the topics we have identified as relevant to our sustainability strategy are covered in this report. They are cross-referenced to the six sustainability fields of action at MTU into which this report is structured: Corporate governance – Products – Production & maintenance – Employees – Procurement – Society.

## Field of action: Corporate governance

Material topics	Chapter in the report	Relevance for MTU along the value chain		
		Upstream activities (e.g. supply chain)	Activities within the MTU group	Downstream activities (e.g. flights operated by airlines)
Trade compliance	Compliance	significant	significant	significant
Anti-corruption	Compliance	significant	significant	significant
Stakeholder dialogue	Stakeholder dialogue	significant	significant	significant
IT security	Compliance	significant	significant	significant
Data protection	Compliance	significant	significant	significant

## Field of action: Products

Material topics	Chapter in the report	Relevance for MTU along the value chain		
		Upstream activities (e.g. supply chain)	Activities within the MTU group	Downstream activities (e.g. flights operated by airlines)
Product quality and flight safety	Product quality and flight safety	significant	significant	significant
Innovation	Research & development	significant	significant	significant
Climate impact in operation	Climate impact of aircraft engines		significant	significant

Fuel efficiency of products	Climate impact of aircraft engines	significant	significant
Health impact in operation	Health impact of aircraft engines	significant	significant

## Field of action: Production &amp; maintenance



Material topics	Chapter in the report	Relevance for MTU along the value chain		
		Upstream activities (e.g. supply chain)	Activities within the MTU group	Downstream activities (e.g. flights operated by airlines)
CO <sub>2</sub> emissions at production sites	Energy and climate protection		significant	
Environmental management: water	Conservation of resources		significant	
Environmental management: energy	Energy and climate protection		significant	
Noise abatement at production sites	Environmental management		significant	
Environmental management: waste	Conservation of resources		significant	

## Field of action: Employees



Material topics	Chapter in the report	Relevance for MTU along the value chain		
		Upstream activities (e.g. supply chain)	Activities within the MTU group	Downstream activities (e.g. flights operated by airlines)
Human Rights	Human Rights		significant	
Employee development	Employee development		significant	significant
Occupational safety	Occupational health and safety	significant	significant	significant
Diversity and equality of opportunity	Diversity and inclusion		significant	

Health management	Occupational health and safety	significant
Work-life balance and working conditions	Collaboration and leadership	significant

## Field of action: Procurement



Material topics	Chapter in the report	Relevance for MTU along the value chain		
		Upstream activities (e.g. supply chain)	Activities within the MTU group	Downstream activities (e.g. flights operated by airlines)
Human Rights	Human Rights in the supply chain	significant		
Responsible Sourcing OEM	Responsible Sourcing OEM	significant	significant	significant
Responsible Sourcing MRO	Responsible Sourcing MRO	significant	significant	significant

## Field of action: Society



Material topics	Chapter in the report	Relevance for MTU along the value chain		
		Upstream activities (e.g. supply chain)	Activities within the MTU group	Downstream activities (e.g. flights operated by airlines)
Corporate Citizenship	Corporate social responsibility		significant	

## Sustainability ratings and rankings

MTU's performance in relation to non-financial indicators is regularly assessed by capital-market analysts and independent experts. The company is currently listed in the following sustainability indexes and rankings:

### ISS ESG



MTU Aero Engines is rated Prime Status (C+) in the overall rating.

[www.oekom-research.com](http://www.oekom-research.com)

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### CDP



In this global carbon accounting of the annual climate footprint, we received a score of B- in 2021.

[www.cdp.net](http://www.cdp.net)

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### MSCI ESG Research

MTU Aero Engines is rated AA.

[www.msci.com/esg-ratings](http://www.msci.com/esg-ratings)

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# Outlook

We want to further expand our sustainability strategy and will extend the ESG indicator CO<sub>2</sub> emissions for compensation of Executive Board to all European production locations as of 2022 in the course of implementing the ecoRoadmap.

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**GRI:** 103-2, 103-3

**UNGC:** 1-10



## MTU'S SUSTAINABILITY PROGRAM

## Our goals 2025+

## Corporate governance

## Goals 2025

**Comprehensive sustainability management**

MTU's forward-looking corporate responsibility strategy is implemented in the MTU strategy, and the fields of action are synchronized across all departments, with the goals integrated into MTU's processes.

A Group-wide climate strategy has been adopted.

Change mindset sustainability in the Group is being strengthened.

MTU is perceived as a company that operates sustainably and carries out impressive sustainability activities.

**Ensuring the security of information and systems**

Consistent refinements to existing processes and regulations continue to ensure ongoing compliance with applicable legal requirements and the security of our data, information and systems in all areas of the company.

**Protecting personal data in all areas of the company**

These take into account regulatory changes as well as technical developments.

**Compliance as part of the corporate culture**

MTU's Code of Conduct, the rules and regulations derived from them, and the "Tone from the Top" continue to help anchor compliance as part of MTU's corporate culture.

**Active commitment to combating corruption in all business areas**

Raising employee awareness through MTU's training program, reviewing relevant business processes through regular audits, and a zero-tolerance policy will continue to complement this compliance approach at MTU in the future.

**Ensuring adherence to embargo and export guidelines****Regular and open dialogue with all stakeholder groups**

More transparent reporting and improvement in ratings and stakeholder dialogue through a material increase in sustainability management.

MTU is taking up current formats for the sustainability dialogue with its employees and stakeholders.

Product			
	Goals 2025		
<b>Highest priority for product quality and flight safety</b>	<p>Our vision is “Zero Defects.” In this, we stand for future-oriented quality management:            Implementation of innovative and at the same time recognized standards            Commitment to refining state-of-the-art standards            High degree of employee training and support with current enablers such as digitalization            Recognized and standardized methods for systematic defect prevention, analysis and sustainable remediation</p>		
	Goals 2030	Goals 2040	Goals 2050
<b>Improve fuel efficiency and reduce CO<sub>2</sub> emissions of products</b>	-10% fuel consumption and CO <sub>2</sub> emissions with the 2nd generation geared turbofan (compared with 1st generation)	-15% fuel consumption through revolutionary gas turbine concepts (compared with 2nd generation GTF)	Complete avoidance of CO <sub>2</sub> by using hydrogen in fuel cells on short-haul routes
	Carbon-neutral operation through the use of sustainable aviation fuels	Complete avoidance of CO <sub>2</sub> emissions by using sustainable aviation fuels	Carbon-neutral revolutionary gas turbine concepts on long-haul routes
		Complete avoidance of CO <sub>2</sub> by using hydrogen in fuel cells for regional air travel applications	Complete avoidance of CO <sub>2</sub> emissions by using sustainable aviation fuels
<b>Reduce the climate impact of products</b>	-10% fuel consumption and CO <sub>2</sub> emissions with the 2nd generation geared turbofan (compared with 1st generation)	-15% direct CO <sub>2</sub> emissions through revolutionary gas turbine concepts (compared with 2nd generation GTF)	Complete avoidance of CO <sub>2</sub> and NOx emissions by using hydrogen in fuel cells on short-haul routes
	Significant reduction in contrail formation through the use of sustainable aviation fuels	-80% NOx emissions	Climate-neutral revolutionary gas turbine concepts for use on long-haul routes
		Significant reduction in contrail formation through revolutionary gas turbine concepts and large-scale use of sustainable aviation fuels	Large-scale use of sustainable aviation fuels and hydrogen
		Complete avoidance of CO <sub>2</sub> emissions by using hydrogen	
		Complete avoidance of CO <sub>2</sub> by using hydrogen in fuel cells for regional air travel applications	

<b>Minimize the health effects of product use (exhaust and noise emissions)</b>	-10 EPNdB noise (cumulative) compared with 1st generation GTF	Further reduction of noise	Reduction of noise through having fewer noise sources (fuel cell) and intelligent integration
	Reduction in particulate emissions through the use of sustainable aviation fuels	-80% NOx emissions	Avoidance of CO, UHC and particulate emissions by using hydrogen
		Reduction in particulate emissions through the use of sustainable aviation fuels and revolutionary gas turbine concepts	Avoidance of (fuel cell) or significant reduction in (revolutionary gas turbine concepts) NOx emissions

NOx=Nitrogen oxides, CO=Carbon monoxide, UHC=unburned hydrocarbons, EPNdB=Effective Perceived Noise Decibels

## Procurement practices

### Goals 2025

**Human and employee rights are central components of our business relationships. In our cooperation with suppliers, we pay attention to a resource- and environment-friendly value chain**

The new CR requirements for the supply chain resulting from Germany's Due Diligence Act are consistently implemented

The Code of Conduct reflects the contents of the Due Diligence Act, is a binding part of the contract, and compliance with it is regularly reviewed.

Risk management is implemented in our processes.

Supporting IT systems are implemented.

**CR is embedded in our contracts and sourcing decisions. In this way, we ensure social and ecological standards**

CR assessments of suppliers are incorporated into sourcing decisions.

Our employees have been trained in CR and suppliers' awareness has been raised.

**Responsible handling of conflict minerals is ensured.**

Automated queries ensure compliance with and verification of contractual requirements.

## Manufacturing and maintenance

	Goals 2025	Goals 2030
<b>Reduce CO<sub>2</sub> emissions at all production sites (Scope 1&amp;2)</b>	Reduction of CO <sub>2</sub> emissions at Munich site (Scope 1&2) with the aim of carbon-neutral production in line with the ecoRoadmap by end of 2021	The long-term goal is carbon-neutral production at all sites.
<b>Continuously improve resource efficiency</b>	Continuous improvement of resource efficiency (e.g. energy, water, raw materials, and consumables and supplies), specifications by site managers	
<b>Efficient management processes have been established.</b>	Efficient management processes have been established at the sites to reduce adverse environmental impact	
<b>Advanced procedures in site and plant operations.</b>	Improvements in climate protection achieved through advanced procedures in site and plant operations.	
<b>Raising employee awareness of climate protection in production</b>	Regular external and internal communication as well as raising of employees' awareness	

## Employees

	Goals 2025
<b>Ensure compliance with human rights at our own sites</b>	Human rights continue to be fully respected at all of our own sites
<b>Provide active and targeted employee development at all hierarchical levels</b>	Employees find a framework in which they can develop and contribute in a meaningful way.
<b>Promote ongoing diversity &amp; equality of opportunity for the workforce</b>	Diversity and equality of opportunity are perceived as added value and promoted.
<b>Enable a work-life balance for all employees</b>	It is possible for all employees to achieve a work-life balance.
<b>Ensure a high level of health and safety in the workplace</b>	Accident figures are well below the industry average, awareness-raising measures are in place, and the TOP principle is applied.

<b>Promote mutual employer/employee dialogue</b>	The dialogue between employees and employers is open and constructive.
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<b>Continuously increase internal and external employer attractiveness</b>	The working environment (rooms, tools, job security, ergonomics) and conditions (remuneration, social benefits, working time flexibility, participation, personal responsibility) are oriented to the needs of the employees and are attractive.
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<b>Trust-based leadership</b>	Leadership is valued for its confident handling of new forms of collaboration and employee diversity.
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<b>Ensure a high level of employee satisfaction</b>	Employees are highly committed due to their high level of satisfaction.
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## Society

### Goals 2025

<b>Research collaborations for joint knowledge building</b>	Our research collaborations play a significant part in the further development of technology for aviation and beyond.
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MTU uses its collaborations to promote young scientists.

Through research collaborations and participation in European research programs, we are shaping propulsion technologies in line with the goals of the Paris Agreement on climate action.

<b>Corporate citizenship: MTU is part of society and a good neighbor</b>	MTU enters into targeted partnerships within the industry and at its locations in order to jointly achieve further sustainability goals.
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MTU's established donations policy provides targeted support for sustainability projects with a local connection or thematic link to its business.

<b>Employees use the knowledge they have acquired at MTU to play a responsible role in society</b>	MTU raises its employees' awareness of sustainability issues beyond the boundaries of the plant.
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## Services and tools

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**UNGC:** [1-10](#)

## UN 2030 AGENDA

## Sustainable Development Goals

*At a United Nations summit held in September 2015, the international community of states adopted the 2030 Agenda for Sustainable Development. Thus making it clear that the current global challenges can be effectively addressed in a joint effort only. The agenda aims to make sure that economic progress goes hand in hand with social justice and ecological responsibility. Industry is also called upon to do its part. MTU meets this responsibility.*

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# We are committed to the Sustainable Development Goals and can help achieve eight goals in particular

At the core of the 2030 Agenda are 17 goals for sustainable development, or SDGs for short. These goals embrace the three dimensions of sustainability—economy, environment and society. We support the implementation of the SDGs and have identified eight goals to which we can directly contribute and that are therefore relevant for MTU:



We can promote the SDGs in a concrete way with a broad range of projects and activities. How we can influence progress toward the SDGs and what our contribution was in 2020:

## SDG 4: Quality education



**Offering good educational opportunities:** MTU is committed to high-quality education and training, both at its various locations and within the framework of partnerships in the area of education. We support centers of competence in the aviation sector jointly set up with universities and research institutions, because our industry is in particular need of highly qualified and well trained employees. We offer all employees at our company locations a wide range of training and continued training programs to ensure a high level of education in the regions. By providing dual-track training for young people, we lay an important foundation for their future professional success. More information about our commitment to education under → [Employee development](#) and → [Corporate social responsibility](#)

### This is how we contributed to the SDG in 2021:

- EUR 4.2 million invested in training for the qualification of our employees
- 2.0 training days per employee
- 349 apprentices, making up 3.3% of MTU's workforce
- Apprenticeship established based on Germany's dual-track system at the new site in Serbia



## SDG 5: Gender equality



**Promoting diversity and inclusion:** MTU advocates diversity and equality of opportunity. Diversity is part of our human resources strategy. An important focus here is on the promotion of women, which is also anchored in the company's corporate objectives. What we consider particularly important is to promote female talent to get more women into management positions. In addition, we offer a variety of work taster and job entry opportunities for girls and women to encourage them to pursue technical professions. More information about our commitment to diversity under → [Diversity and inclusion](#)

**This is how we contributed to the SDG in 2021:**

- 15.6% female employees at MTU (proportion higher than in previous years)
- 20.5% of new hires were women (above the current share of women in the workforce)

## SDG 8: Decent work and economic growth

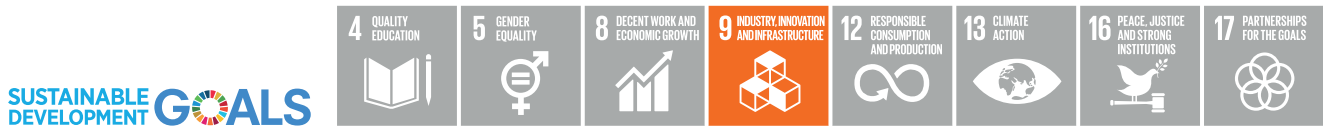


**Maintaining fair working conditions:** Decent working conditions are a top priority at MTU. We do not tolerate forced or child labor and maintain high occupational health and safety standards in compliance with the applicable national regulations, which we consider to constitute the minimum requirements. Moreover, we offer our employees additional services at our locations under our company health management scheme. The principles of our social responsibility have been laid down in our Code of Conduct. In addition, a Supplier Code of Conduct has been developed that governs cooperation with our supplier base. More information under → [Occupational safety & health protection](#) → [Human rights](#) → [Supplier management](#)

**This is how we contributed to the SDG in 2021:**

- 3 accidents per 1,000 employees (well below industry average)
- Health rate of 94.9% (Germany)
- No incidents or substantiated complaints regarding discrimination at MTU
- No reports of suppliers violating the Code of Conduct regarding human rights

## SDG 9: Industry, innovation and infrastructure



**Advancing sustainable aviation:** MTU makes major contributions to industry, innovation and infrastructure beyond national boundaries. Aviation connects countries and continents the world over. Through the continuous development of ever better technologies, we help conserve resources and substantially improve the eco-efficiency of aircraft engines. We want to achieve the goal of virtually emissions-free flight by way of completely new propulsion concepts. We operate a global network of facilities, in particular with our joint venture partners, to be close to and optimally serve our customers worldwide. Thus, we improve the infrastructure in the respective countries and support sustainable industrialization. More information about our commitment to climate action and environmental protection under → [Product stewardship](#) and → [Production & maintenance](#)

**This is how we contributed to the SDG in 2021:**

- EUR 230.0 million invested in research and development
- Installation of MTU's first photovoltaic system

## SDG 12: Responsible consumption and production



**Comprehensive climate action and environmental protection:** MTU stands for sustainable production and aims to maximize the eco-efficiency of its products. In the manufacture of our products, sustainability is our basic principle. In our maintenance shops, we rather repair parts than replace them with new ones. This saves on materials and conserves resources. With our environmental management system, we pursue an integrative approach, assessing the effects of our production processes and products already in our corporate decision-making. In product development, eco-efficiency is our primary aim. More on environmental protection and climate action in the chapters → [Product stewardship](#) and → [Production & maintenance](#)

**This is how we contributed to the SDG in 2021:**

- EUR 10.6 million invested in environmental protection at the site
- 6.8% of direct energy demand covered by renewable energy (Scope 1)
- 78.1% recycling rate for waste
- 19.7% renewable materials

## SDG 13: Climate action



**Wide variety of climate action activities:** MTU's product development efforts are aimed at reducing the climate impact of aircraft engines and ultimately achieving emissions-free flight. Its most significant contribution toward climate action is through sustainable engine technologies. Our work on new propulsion concepts such as the hydrogen-powered fuel cell and our commitment to the use of alternative fuels contribute to this. Climate action is another top priority at all of our locations: we have put efficient heat recovery systems in place, use renewable energy sources and are looking into more sustainable in-house transportation options. In addition, we support regional climate action initiatives. More on this in the chapters → [Product stewardship](#) and → [Production & maintenance](#)

**This is how we contributed to the SDG in 2021:**

- 31.4% reduction in CO<sub>2</sub> emissions year over year (Scope 1 and 2) in production & maintenance
- over 6 million metric tons less CO<sub>2</sub> since the introduction of our geared turbofan engine in flight operations (as of Q4 2021)

## SDG 16: Peace, justice and strong institutions



**Good corporate governance:** Through a well-founded compliance system in conjunction with a zero-tolerance approach, MTU actively fights corruption and bribery. Compliance with statutory provisions and internal regulations is an essential part of our corporate responsibility. In particular, we foster responsible international trade. With our Code of Conduct for Suppliers we make sure that our suppliers also abide by our high business ethics standards. More information about our approach under → [Compliance](#)

**This is how we contributed to the SDG in 2021:**

- Once again no incidents or suspicions of corruption at MTU

## SDG 17: Partnerships for the goals



**Successful collaborations:** MTU is convinced that the challenges the international community of states is currently facing can be addressed in partnerships only. This is why we rely on close cooperation with our joint venture and business partners. When it comes to the development of young talent, we also collaborate with providers of education and research establishments. At our locations, we have entered into education partnerships to further develop the expertise and skills of our local workforce. Participation in various research collaborations and technology networks are of tremendous importance for us to achieve our ambitious targets for sustainable air transport. More information about our climate action activities under → [Climate impact of aircraft engines](#) and on our educational collaborations under → [Corporate social responsibility](#)

### This is how we contributed to the SDG in 2021:

- Network of around 100 research partners
- Participation in numerous educational initiatives for young talent

### More information about:

[Sustainable Development Goals](#)

### Services and tools

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UNGC: 1-10

Graphic SDG "17 goals to transform our world"  
Source: UN Communication Material

## CORPORATE GOVERNANCE WITH CLEAR RULES

## Compliance

We act with integrity in our working and business relationships—in other words, in accordance with applicable law and our internal body of rules and regulations. A key benchmark for our behavior in the company, toward our business partners and in society is a Group-wide Code of Conduct that provides all of us with binding guidelines.

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MTU's long-term commercial success is founded on responsible actions carried out in full compliance with all applicable laws. Our Code of Conduct and internal guidelines contain clear requirements and thus provide orientation.

Compliance is essential for the long-term success of our company and for collaboration with our stakeholders. MTU conducts its business as a fair employer, business partner and customer, and advocates transparent competition where all parties are on an equal footing. Integrity and responsible conduct are core values of our corporate culture and are embedded in the MTU Code of Conduct, which is binding for all employees, managers and members of the Executive Board. Adherence to ethical and legal conduct is a key part of MTU's corporate responsibility in society.

MTU condemns corruption of any kind as well as all other forms of white-collar crime. We do not tolerate immoral practices such as bribing or accepting advantages in business transactions. This is why preventing bribery and corruption are stated goals of our compliance activities.

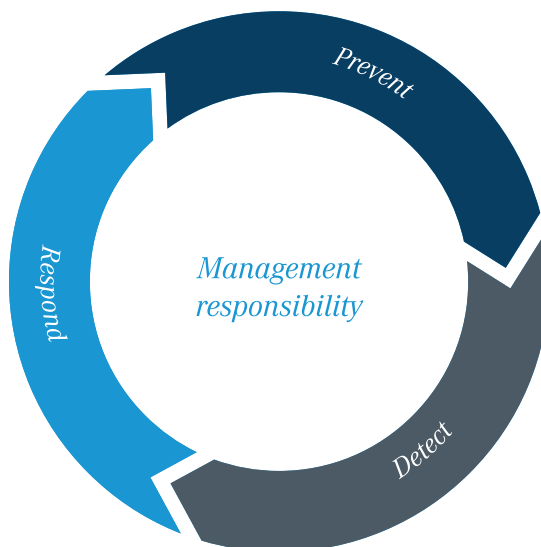
## Compliance system

MTU has installed a compliance system that rests on three pillars: prevent, detect, respond. Instruments and actions have been implemented for each of these pillars. Taking an integrated approach ensures, for instance, that insights from processing and resolving cases of suspected corruption (respond) also flow into prevention efforts. The focus of activities is on prevention.

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## MTU's compliance system

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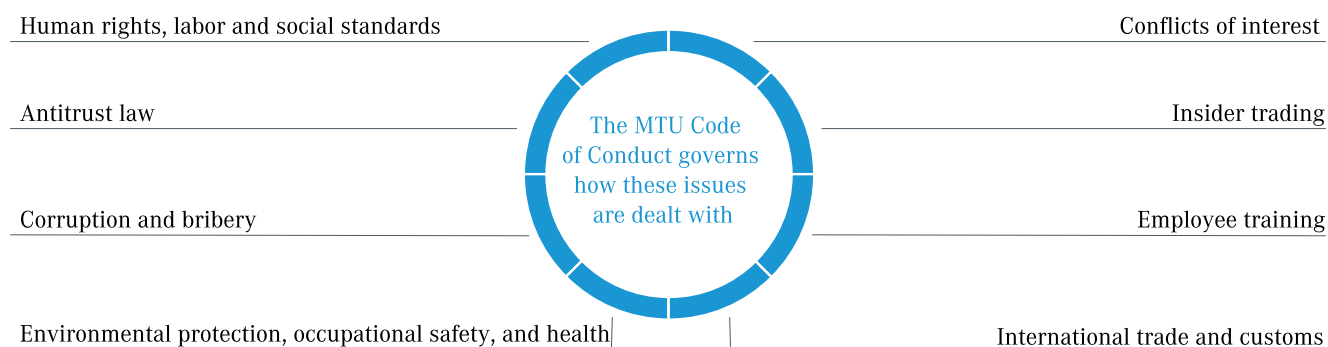
We act according to clear rules with orientation from standards

MTU's Code of Conduct addresses central compliance topics such as preventing corruption and dealing with conflicts of interest. The Code defines clear standards for working with stakeholders such as customers, suppliers, authorities and partners. As such, it is an important tool for implementing responsible business practices.

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## Key topics of the Code of Conduct

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→ [MTU's Code of Conduct](#)

All employees must be familiar with and comply with the legal provisions and company regulations relevant to their work. Managers have a particular responsibility to uphold these requirements and regulations and to act as role models. We also expect our business partners to fully comply with all applicable laws. A separate Code of Conduct covering compliance topics applies for suppliers. → [Code of Conduct for Suppliers](#) The MTU Principles (“We shape the future of aviation”) are an integral part of our corporate culture; they help us act in a consistent and reliable manner.

## External standards and memberships

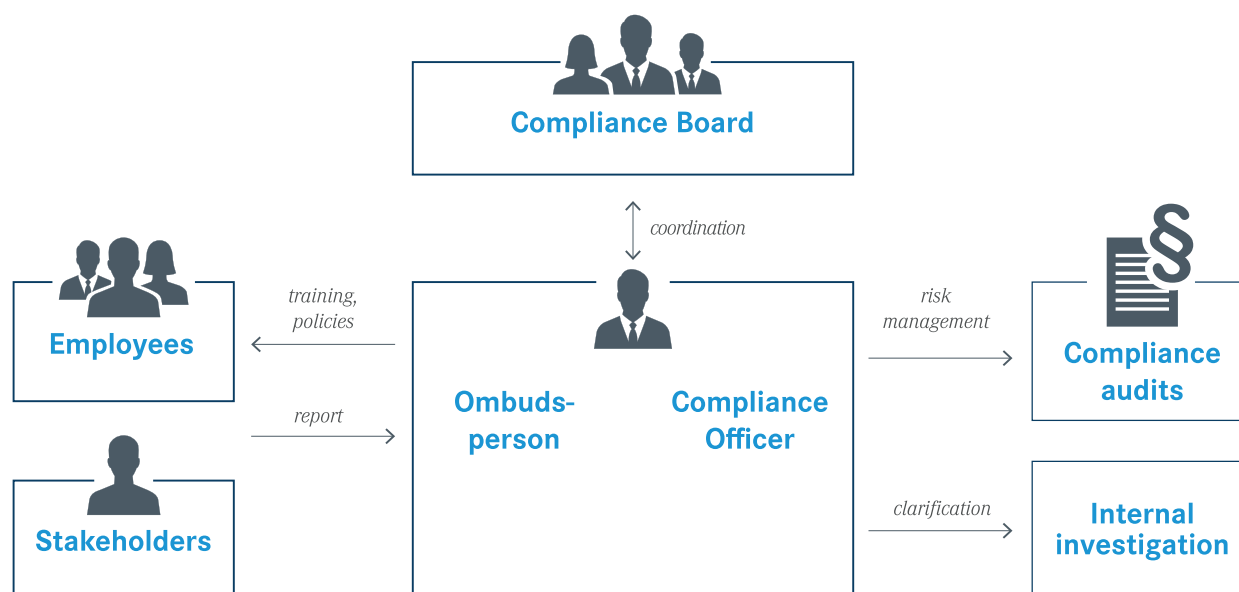
As a [signatory to the UN Global Compact \(UNGC\)](#), one cause we have committed ourselves to is preventing corruption within our company → [Principle 10 of the UNGC](#). In the interests of maintaining sustainable corporate leadership, we take our lead from the [German Corporate Governance Code](#), whose requirements we comply with fully, and from international compliance standards, such as the [Good Practice Guidance on Internal Controls, Ethics, and Compliance](#) issued by the Organization for Economic Cooperation and Development (OECD). Our commitment to fighting corruption extends beyond the company as well; we are also a member of the [TRACE International anti-corruption initiative](#). Through the German Aerospace Industries Association (BDLI), we are represented in the [Aerospace and Defense Industries Association of Europe \(ASD\)](#), and we are a signatory to ASD’s standards against corruption and bribery and in support of equal and fair competition.

## Compliance organization

As the final decision-making authority, the CEO holds responsibility for the company’s business ethics and anti-corruption policy. The core functions responsible for ensuring ethical and correct conduct are a Compliance Board and a Compliance Officer. Both the Compliance Board, whose members are top managers from various departments, and the Compliance Officer hold Group-wide responsibility. The Compliance Officer’s duties include conducting preventive measures, investigating incidents of white-collar crime, and collaborating closely with the Compliance Board in further developing the compliance system. The Compliance Board holds regular and ad hoc meetings, the latter at the request of the Compliance Officer. The Compliance Officer provides quarterly updates to the full Executive Board and the Supervisory Board’s Audit Committee, which for its part informs the plenary meetings of the Supervisory Board. The Supervisory Board’s Audit Committee oversees the Executive Board’s compliance activities. In addition, the Compliance Officer has a regular direct reporting line to the CEO.

The managing directors of the sites must ensure that all compliance-relevant provisions and regulations are adhered to within their areas of responsibility, and they must see to it that compliance is appropriately embedded in the local organization.

## MTU's compliance organization



The core functions responsible for ensuring ethical and correct conduct at the company are a Compliance Board and a Compliance Officer.

## Zero-tolerance approach to violations

We want to prevent compliance violations and ensure that business decisions are made with integrity. We do not tolerate any kind of conduct that violates laws or regulations. We respond to reports immediately and appropriately, and take disciplinary action in the event of detected violations. In such cases, MTU applies a principle of zero tolerance, which includes labor law measures as well as civil or criminal proceedings. As in previous years, we did not confirm any suspected instances of corruption in the reporting year. We also did not receive any formal complaints regarding corruption. No significant fines were levied against MTU for breaches of applicable laws, and it faced no legal action stemming from corruption or due to antitrust or anticompetitive practices.

## Open-access reporting system for all stakeholders

We have set up a global whistleblower system that allows employees and external stakeholders to report instances of unlawful conduct to the Compliance Officer. Tips can also be submitted anonymously via the web-based iTrust reporting system, which is available in several languages. → [iTrust](#) The Compliance Officer reviews all submitted reports. If any are found to be credible, the Compliance Officer initiates the investigative steps necessary. The ways we have established for reporting non-compliance are communicated to employees through internal media channels and explained to external stakeholders in writing or on our website.

We treat the identity of the whistleblower and the information they impart as confidential—even if the suspicion turns out to be unfounded. This is ensured by means of an internal regulation. We wish to make it clear that whistleblowers acting in good faith shall not be penalized or disadvantaged by the company in any way—as ensured by means of an internal regulation. In addition, employees can confide in their superiors, the legal department or HR.



## POSITIVE RESULT FOR OUR COMPLIANCE MANAGEMENT

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cases of corruption at MTU. In 2021, there were no confirmed cases of corruption nor any suspected cases.

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## Limiting risks of non-compliance

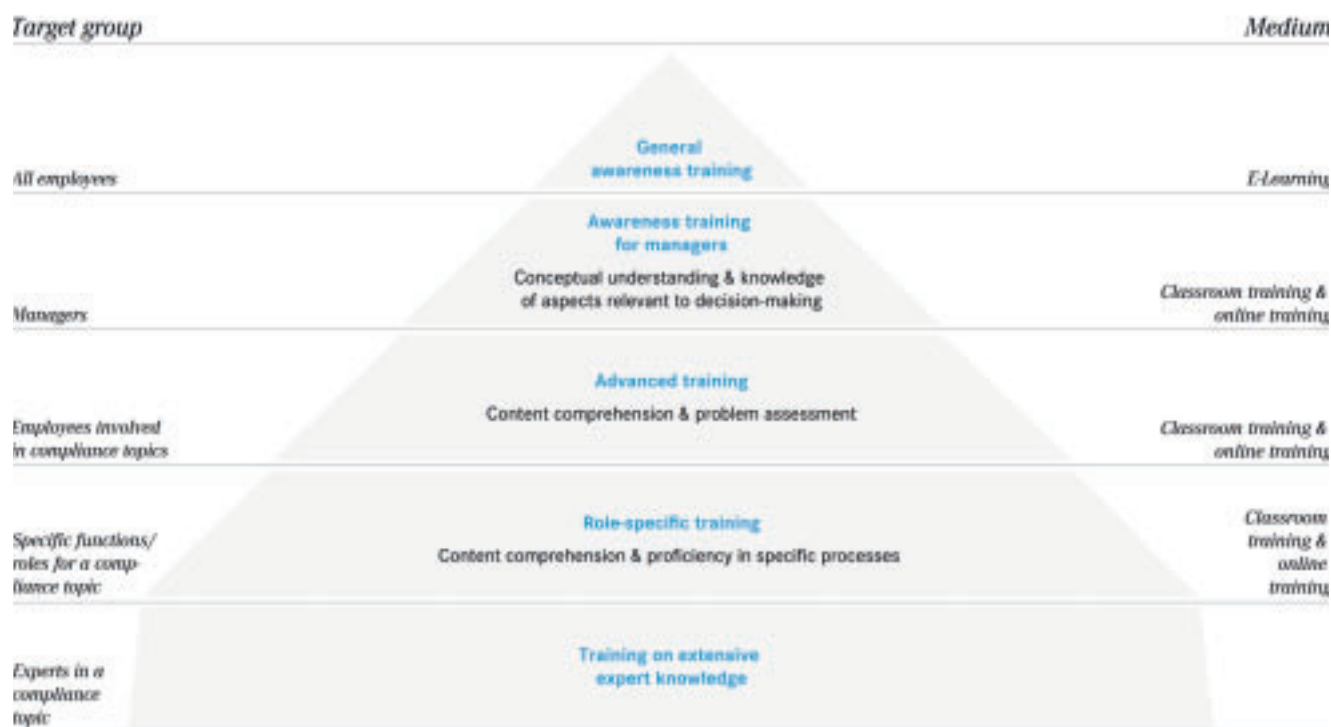
We have put various control mechanisms in place to ensure compliance throughout the company and to minimize risk. [All fully consolidated sites](#) are regularly surveyed about compliance-relevant incidents, and 2021 was no exception. No significant incidents were reported here during that year. The Compliance Officer additionally inspects all sales support consulting contracts for possible corruption risks before they are placed or renewed, 2021 included, and found no indications of corruption. Potential consultants are also subject to an assessment by an independent provider of due diligence services. The contracts require the sales consultants to stipulate that the ASD anti-corruption standards are binding. The corporate audit department conducts regular audits in which it checks business processes and procedures for conformity to legal requirements and adherence to internal guidelines.

In addition, our dialogue with the political sphere is governed by certain rules. [More about our exchange with policymakers in the chapter Stakeholder dialogue](#)

## Our focus is on prevention

To ensure a functional compliance culture, MTU puts a high priority on investigating possible forms of misconduct as well as communicating and raising awareness of compliance issues among employees. When new employees are taken on, we inform them about our Code of Conduct and require them to sign a declaration to uphold it. We also present and discuss the Code of Conduct at the introductory event for new employees. We regularly train our employees and managers across all hierarchies on the Code of Conduct and on specific compliance-relevant topics such as antitrust law. This applies in particular to all new hires.

## Training concept for compliance topics



Our compliance training is tailored to specific target groups.

In the reporting year, a new training document for the Code of Conduct was drafted to raise awareness of compliance topics among all employees. In addition, managers and employees who hold special functions, for instance in sales, attend regular mandatory anti-corruption training. In the reporting year, such corruption prevention training events were held successively for relevant employees at MTU sites in North America. Corruption prevention training at sites in Germany mainly took the form of the updated training on the Code of Conduct. In this way, we trained almost 4,100 employees across all MTU sites on compliance topics in the reporting year. In addition, we continuously provide information about and raise awareness of individual compliance issues, such as data protection, in a way suitable for each target group. The Compliance Officer and the legal department can also advise employees and managers as needed.

## CONTINUOUS EDUCATION



# 4,065

employees from various areas completed training courses on compliance topics in 2021. The focus was on our new online training course on the revised Code of Conduct.

## Responsible international trade

Another key compliance topic for us is observance of international trade law, also known as trade compliance. Customs and export control laws govern which products, services and technical data we are permitted to sell or provide and to where, to whom and for what purpose. This regulatory framework is binding for all the company's divisions, affiliates and employees worldwide. The need to comply with the applicable regulations is also specified in the MTU Code of Conduct. → [Export control law is outlined in the non-financial statement in the 2020 Annual Report \(p. 105\)](#)

MTU has its own organizational unit dedicated to ensuring effective trade compliance: the international trade compliance department provides the internal framework for implementing uniform process standards throughout the company. These include a review of existing approval requirements, e.g. before shipping documents, software or components, as well as controls relating to bidding procedures vis-à-vis sensitive countries. The international trade compliance department has cross-divisional authority to issue certain directions, which extends to the right to stop deliveries. In addition, the department's head reports directly to the Chief Operating Officer in the latter's capacity as the person in charge of exports at MTU Aero Engines AG.

Mandatory training for all employees affected by export control regulations continued with a new concept during the reporting year. This was developed according to the Internal Compliance Program.

## Privacy policy

In our business activities, we take care to provide comprehensive data protection. Given the increasing levels of digitalization in society and the world of work, such protection is of considerable importance. The protection of personal data in accordance with applicable legal provisions is laid out in the MTU Code of Conduct and is binding. When using digital applications, for instance to gather data to combat the coronavirus pandemic, we were able to fully ensure that our employees' personal data was protected.

We have established a management system for data protection and expect all employees to comply with its regulations, a requirement that is also set out in the Code of Conduct. The Group's data protection guidelines ensure a uniform level with a standard that applies across MTU worldwide. We have appointed data protection officers or coordinators in all of our Group companies, who are instructed in all relevant regulations. The aim is to achieve uniform data protection and data security standards for the handling of personal data throughout the Group that meet the requirements both of the [EU General Data Protection Regulation \(GDPR\)](#) and of the national legislation applicable at each location, such as the [German Federal Data Protection Act \(BDSG\)](#). The Executive Board is briefed on data protection once a month. Regular audits and checks are carried out on workflows that process personal information, especially in the course of processing orders.

We offer a range of information and training events aimed at specific target groups so as to continuously update our employees' knowledge and awareness of aspects relating to data protection.

In 2021 as in previous years, we had no reportable violations regarding data protection.

## IT security

*Given that all of MTU's key business processes have a highly advanced level of digitalization, ensuring the high availability and integrity of IT systems is a prerequisite for seamless business operations. MTU generates, maintains and processes large amounts of data with special confidentiality requirements—especially for but not limited to military business.*

MTU has an IT security management system based on ISO 27001 in place and implements appropriate protective measures on a technical and organizational level to ensure its IT systems are stable and secure. The aim is to minimize damage caused by cyberattacks on the company and to safeguard corporate data and expertise. In addition, it is important to protect data and systems when collaborating and networking with business partners.

Global and local regulations lay out binding rules for all employees and managers governing the confidentiality of operational and business secrets, the protection of electronic data and how to work with IT systems and data media.

A dedicated central team is responsible for IT security, serving as point of contact within the Group. IT security officers in the centers and in legally independent associations act as local contacts for IT issues and implement IT security guidelines and requirements on-site. MTU management receives regular reports from the IT security officers regarding the company's external situation, current developments, and current and future defensive measures.

We invest heavily and continuously in technological and organizational actions to ensure the availability, confidentiality and integrity of the IT systems that we use and operate. We continuously reassess the risks associated with IT. The two risks deemed most critical are system failures due to technical error, and cyberattacks that result in the non-availability of systems, unauthorized publication of information or the permanent loss of data. Our IT security management covers technical and organizational actions to limit the negative effects of such occurrences for the company. During the reporting period, there were no cyberattacks and no failures that resulted in significant or severe consequences for MTU.

## Outlook

We aim to continuously improve our compliance system and to always ensure that our Group regulations are up to date. To that end, we regularly evaluate whether changes or amendments are necessary. In doing so, we draw on a wide range of input, including concerns raised by our employees. In addition, we are continuing with our training program on the Code of Conduct.

By practicing good corporate governance, we can help achieve the following Sustainable Development Goal:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

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**GRI:** [102-12, 102-16, 103-2, 103-3, 205-1, 205-2, 205-3, 206-1, 412-2, 418-1, 419-1](#)

**UNGC:** [1, 10](#)

## INTERACTION WITH SOCIETY AND POLITICS

## Stakeholder dialogue

Maintaining an open and constructive dialogue with our key stakeholders is essential for the success of our company. We provide them with regular updates about MTU's sustainability goals and our progress, and receive valuable feedback in return.

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CPO Michael Schreyögg at the Dubai Airshow 2021 talking to a TV reporter about MTU.

Particularly during this time of transformation and in light of the complex challenges facing us, we are keen to exchange knowledge and information, provide orientation and create transparency about our role in the sustainable development of society and the economy. The best way for us to achieve this is by conducting an open, proactive dialogue with our key stakeholders on a regular basis. This stakeholder dialogue increases confidence and trust in MTU, raising acceptance for our business activities. It also gives us the opportunity to respond to suggestions, expectations and feedback, act on new topics in good time and thus better assess how our business activities affect society and the environment → [Materiality analysis](#). Developing and improving an open, regular dialogue with stakeholder groups is part of our Sustainability Program 2025+.

# MTU stakeholder groups

Stakeholders are individuals, groups or organizations that have a regular relationship with MTU. Our key stakeholders are employees, customers, business partners, suppliers and shareholders. We are also in continuous dialogue with scientists, researchers, analysts, journalists, politicians, associations, NGOs, employee representatives, neighbors and communities.

## Employees

### Topics

- Health and safety
- Career and advanced training opportunities
- Compensation and benefits
- Work-life balance
- Diversity and equality of opportunity
- Co-determination
- 
- 

### Forms of dialogue

- MTUnet (Social Intranet) and contact (employee magazine)
- Employee surveys (PulsCheck)
- Need-based information from the HR department
- Dialog and information events
- Company suggestion scheme
- Individual consulting sessions
- Online learning portal
- Welcome on Board program

## Business partners and customers

### Topics

- Product quality and safety
- Sustainable technologies
- Product fuel efficiency
- Human rights
- Compliance

### Forms of dialogue

- Voice of the customer
- Trade fairs
- Corporate communications media channels

## Suppliers

### Topics

- Product quality and safety
- Environmental protection
- Responsible sourcing
- Compliance with MTU standards

### Forms of dialogue

- Supplier portal
- Audits
- Supplier surveys
- Supplier Days

## Capital market

### Topics

- Product innovation/eco-efficiency
- Responsible corporate governance
- Human rights
- Compliance
- Climate protection
- Risk management
- Supplier management

### Forms of dialogue

- Annual General Meeting
- Conferences and roadshows
- Investor discussions
- Trade fairs
- Ratings
- Financial communications

## Science and research

### Topics

- Developing new technologies
- Promoting research and teaching
- Networking between industry and research
- Study of engineering and scientific disciplines
- Recruiting

### Forms of dialogue

- Joint research projects
- Work in MTU centers of excellence
- Trade fairs
- Visits from university student groups
- Presentations/discussions at universities

## Media

### Topics

- Innovation and technologies
- Aviation sector/eco-efficiency
- MTU as an employer
- Financial issues
- Site development
- Compliance

### Forms of dialogue

- Press releases
- Press conferences and briefings
- Plant tours
- Internet / social media
- Trade fairs
- Studies

## Region

### Topics

- Social commitment
- Climate protection
- MTU as an employer
- Site development
- Compliance

### Forms of dialogue

- Community partnerships
- Internet / social media
- Plant tours
- Stakeholder survey
- Museum open house days



## Politics and public agencies

### Topics

- Developing and promoting technology
- Climate protection, eco-efficiency
- Political frameworks and regulations
- Mobility concepts
- Site development
- Demographic change
- Globalization
- Compliance

### Forms of dialogue

- Parliamentary evening
- Plant visits
- Trade fairs
- Political discussions
- Background talks
- Visits by political delegations

## Associations and organizations

### Topics

- Eco-efficiency
- Promoting innovation and technology
- Economic and labor policies
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### Forms of dialogue

- Meetings and committees
- Participation in forums and events
- Studies
- Expert discussions
- Cooperations with NGOs

## Topics and dialogue formats

We provide information about the challenges, developments and technologies relating to sustainable aviation. Our focus is on achieving zero-emission aviation with novel propulsion concepts in the long term. Among the key topics for 2021 were climate action in the aviation industry and the environmental impact of emissions during flight, emissions-free flight as a long-term goal, sustainable aviation fuels (SAFs), and the reduction of CO<sub>2</sub> emissions in production. We also reported on social topics such as human rights—particularly in the supply chain—as well as diversity, our employees' human capital, and New Work topics like hybrid working.



To promote stakeholder dialogue, we use our own formats and platforms as well as public forums: online Annual General Meeting in April, MTU's booth at the Dubai Airshow, COO Lars Wagner at Capital Markets Day and CEO Reiner Winkler at the National Aviation Conference (clockwise from top left).

Communication with our stakeholders takes place over various channels and platforms so we can incorporate their interests and feedback. This dialogue is mostly tailored to the target group or a specific topic. We pursue this dialogue regularly, with the actual frequency determined by the need for communication and/or information.

We give our employees the opportunity to provide feedback and to participate. Through regular surveys such as our PulseCheck mood barometer, we gather the prevailing attitudes and opinions among employees in this time of dynamic change. → [More information about feedback opportunities under Collaboration & leadership](#). Special formats such as Ideation Challenges let us gather employee ideas about certain topics. → [More information under Research & development](#). We have established channels for specific sustainability topics on our social intranet.

Our social media posts increasingly feature such content, and we are gradually expanding our cross-channel communications. At the end of 2021, MTU channels had some 103,000 followers, and this figure continues to rise. We have frequently reported on sustainability topics on all channels using the hashtags #climateprotection #TakeOffToZero #sustainability #sdg #zeroemission. [Overview of our social media channels](#)

At our locations, we pursue a direct dialogue with the general public—for instance with community representatives, neighbors and other interest groups—with a view to providing information about the potential effects of our business activities on our immediate environment.

## Online survey about sustainability

Our website invites all stakeholders to discuss our sustainability management and its goals. We collected and evaluated almost 120 individual opinions on this in 2021 alone. We make use of the findings, for instance in our annual materiality analysis. Following our new strategy, we have adapted our surveys to our forward-looking Sustainability Program 2025+. How do you rate sustainability@MTU?

TAKE THE SURVEY

## Reliable informationen for the capital market

We aim to provide comprehensive and reliable information about MTU as a sustainable investment. To this end, our investor relations team is in regular dialogue with investors and analysts, for example at the annual Capital Markets Day, roadshows and the Annual General Meeting. We also offer insight into our sustainability strategy and performance, for example in relation to climate action, via the CDP rating. Through a material increase in sustainability management, we want to successively enhance our ranking in key sustainability ratings. We already provide information about climate-related risks and opportunities for our business model through CDP. For the future, we are looking to achieve more detailed reporting in accordance with the recommendations of the [Task Force on Climate-related Financial Disclosures \(TCFD\)](#).

VIDEO WEBCAST OF THE 2021 ANNUAL GENERAL MEETING ON APRIL 21

OVERVIEW OF SUSTAINABILITY RATINGS AND AWARDS

## Political dialogue: Centrally coordinated representation of interests

MTU takes no party political position as a matter of principle. We purposely cultivate relationships with parties and factions on certain topics, as aviation is affected to no small degree by political decision-making, especially at the national and European levels. Our key points of contact include elected representatives and decision-makers from ministries at the state, federal and EU levels as well as from subordinate authorities and the German Armed Forces. To ensure transparency and adherence to external and internal regulations, MTU's political dialogue is managed centrally by the Group Representation Office of the Corporate Communications department. In 2021, the main topics of the dialogue were emissions-free flight, sustainable aviation fuels, production and infrastructure, and promoting innovation. We pursue our industry-specific interests through memberships in various professional associations. → [Overview of our memberships in the GRI index under Organizational profile](#)

We do not make any financial or in-kind donations to political parties. All interactions in the political arena are carried out in compliance with the applicable legal and regulatory requirements and with our [Code of Conduct](#), and must be granted central approval. Donations to political parties or party-affiliated organizations are generally subject to approval by the Supervisory Board. Mandatory requirements are stipulated in our compliance management system and Code of Conduct, including those relating to donations, sponsorship, customer events, in-house events, hospitality and corporate gifts. Compliance with these rules and regulations is the responsibility of the relevant manager in each case and is ensured by means of an internal monitoring system.

We publish contacts with politicians on an ad hoc basis, e.g. on the occasion of site visits. These days, many politicians themselves also report on visits and contacts. MTU has instituted a self-imposed "quiet period" of six weeks prior to elections, during which visits from or events with elected representatives or candidates are prohibited so as not to offer them a public platform.

MTU welcomes the creation of a [Lobbying Register](#) in accordance with Germany's Lobbying Register Act (LobbyRG). This stipulates that since the beginning of 2022, all organizations and companies that lobby the German parliament and federal government for representation of interests must be registered. We believe that transparency is a prerequisite for trust when it comes to representation for interests and the political process. MTU appears on the Register under entry number R02076.

We support our employees' right to pursue voluntary or political causes as private citizens. However, our employees are bound by the rules relating to conflict of interest laid out in our Code of Conduct. When it comes to private voluntary or political causes, we in no way pursue MTU's corporate interests. → [Donations & sponsorship](#) → [Compliance](#)

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## Services & tools

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**GRI:** [102-40](#), [102-42](#), [102-43](#), [102-44](#), [103-2](#), [103-3](#), [415-1](#)

**UNGC:** [10](#)

## HIGH STANDARDS ACROSS THE ENTIRE VALUE STREAM

## Product quality and flight safety

Safety first—for us, safe flight operation is way more than just a legal requirement. In aviation, it is the highest priority, period. That's why we place high demands on quality and safety in our processes along the entire value chain. Not least because reliable and high-quality products are our trademark.



We meet aviation's exacting requirements through our quality management. Our Passion for Quality initiative aims to raise awareness of quality and safety among all employees.

Safety is imperative in aviation, and legal requirements concerning safety are subject to strict monitoring by the relevant authorities. This is why product quality and flight safety are just as important to us as well; this topic is one of the top priorities in our sustainability strategy. The company must comply with the legal requirements imposed upon it as an organization that develops, manufactures and maintains products, parts and equipment for the aviation industry. These include aviation-authority licenses, approvals and certifications as well as safety and environmental requirements as legally mandated by regulatory authorities. Through stringent quality standards, we ensure that these are implemented across the Group and at all levels of the value chain in accordance with the law, thus adding value for our customers and partners. Safe mobility solutions play an important role in the sustainable development of both society and the economy. Our vision is Zero Defects. In this, we stand for future-proof quality management.

A Group-wide [integrated management system \(IMS\)](#) ensures compliance with laws and internal regulations and clearly assigns responsibilities within the company. One principle of the IMS policy is that “safety takes priority in what we do.” The quality framework is enshrined in a management manual that is binding for all employees and managers across the Group. The company’s dedicated quality department, Corporate Quality, is directly subordinate to the Chief Operating Officer (COO) and reports quarterly to the full Executive Board on quality aspects and flight-related incidents. Through independent, accredited external auditors, we regularly validate and certify our IMS. MTU Safety Management in accordance with the [International Civil Aviation Organization \(ICAO\)](#) standard is part of the IMS and defines how to handle safety-related air-traffic events. Appropriate organizational structures and responsibilities, such as a Flight Safety Board and a Flight Safety Manager, have also been established.

High quality standards together with product safety and reliability are enshrined in the MTU Principles as key corporate objectives. MTU’s quality vision for 2025 also pursues error-free quality and product safety, as well as high customer satisfaction.

## Focus on the entire lifecycle

We take into account all safety and environmental requirements of regulatory authorities in the early stages of developing new engines for later use, and compliance must be documented as part of the certification process. We employ a comprehensive testing program involving test rigs and test series to validate the safe flight operation of our products. This includes being able to ensure safe operation during a hailstorm or a bird strike (following a bird ingestion event) and complying with strict limits on pollutants and noise emissions. MTU components frequently exceed aviation authority requirements, because our customers demand high standards when it comes to fail-safe operation and eco-efficiency. In addition, our manufacturing and maintenance of engine parts and modules meets all required occupational safety and climate protection standards.

We examine our engine modules for their impact on the environment, health and safety throughout their development, production and operation lifecycles. Accordingly, we cover all major stages of a product’s service life. The key to our continuous progress is the development phase. Our mission is to design every new engine we collaborate on so that it is greener, quieter and more fuel-efficient than its predecessor.

We use only fault-free and clearly identified components that have been approved by the appropriate aviation authority and are based on approved development documentation. They must also have been produced or maintained in compliance with aviation regulatory processes by a company officially authorized to do so.

### BREACHES OF COMPLIANCE

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We met our claim once again: in 2021, we didn’t record a single breach of legal or internal compliance regulations with regard to the quality and safety of our products.

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The aviation sector has strict rules governing documentation in order to verify the airworthiness of components and engines. There must be no gaps in documentation for the product’s entire service life. We hold our suppliers to the same standards and audit them regularly to ensure compliance. To ensure quality and safety requirements are upheld, we have implemented comprehensive monitoring and testing processes along the entire value chain. Safety-critical components (engine components are categorized into various safety classes) are subjected to particularly rigorous testing to verify their technical quality. Strict requirements also apply to materials. Since fail-safe materials are a basic prerequisite for aviation safety, all engine components, including all materials we use, must be approved by the aviation authorities after undergoing extensive test series.

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In the reporting year, once again there were no breaches of statutory regulations regarding compliance in connection with the purchase or operation of our products that resulted in a fine, sanction or warning for MTU.

## We are sustainably expanding our quality management

At MTU, we develop and refine our quality system together with our standards and regulations on an ongoing basis. This involves applying the ideas that emerge, for example, from collaboration in the Aero Engine Supplier Quality Group (AESQ) or from regular exchanges of experience and information among our quality managers in the aviation industry. Continuous development primarily concerns MTU's body of rules and regulations, its internal quality reporting system and especially the digitalization of quality processes.

We include all our employees in our high quality standards and provide key information across all locations through our Q.net quality network. In addition, several times a year we raise employees' awareness of quality issues across the Group by providing them with relevant information (Q Info bulletins and lessons learned). We provide managers and employees with training on quality issues specific to the individual sites. All employees receive IMS training. In addition, we are committed to a positive no-blame culture at MTU, characterized by openness and collaboration, and provide regular training on this subject.

We have customers and authorities conduct regular internal and external audits of quality issues to ensure that the uniformly high standards within the company are adhered to and that they comply with the regulatory requirements. Last year, some of the audits took place online in remote mode.

## New quality activities launched

As part of the quality vision for 2025, the reporting year saw the launch of the Passion for Quality initiative at our Munich site. This initiative aims to make all employees even more aware of quality issues along the entire value stream and to employ best practices to further raise quality, especially through preventative methods. In addition, the MRO Network Development project was launched at our maintenance locations with the goal of standardizing core processes in commercial engine maintenance. At our sites in Munich and Rzeszów, we launched a project designed to implement company-wide standardized requirements for MTU quality management.

## High customer satisfaction is our goal

A high level of product quality and safety is crucial for customer satisfaction and our competitiveness. "We increase the satisfaction of our customers" remained an overarching corporate objective for 2021. Secondary objectives were refined to reflect the aim of maintaining a high, stable level of on-time delivery and quality. IMS, our certified quality management system, supports us in ensuring customer satisfaction, process orientation and continuous improvement in all phases of development, production and maintenance. IMS takes into account, for example, the requirements of the standards ISO 9001, EN/AS9100, ISO 14001/EMAS and ISO 45001, and serves as a model approach in the aviation industry.

We set great store by customer complaints as an indicator of their satisfaction with the quality of MTU products. We follow up and analyze all customer complaints relating to products delivered in substandard quality. Appropriate measures are then defined and implemented so as to permanently eliminate the cause of the defects. Success of these measures is closely monitored. Customer complaints are assessed at the site level. For the majority of sites, the number of complaints in 2021 increased compared with the previous year. This is due mainly to shifts of responsibility for components within the location network and to higher workloads compared to 2020, the first year of the pandemic.

In the 2022 business year, we will also strive to achieve high performance and quality for our products and services.



## Measuring customer satisfaction

MTU Maintenance offers maintenance and additional services for aircraft engines and industrial gas turbines, and is thus active in the end-customer business. Direct interaction with customers, specifically airlines, leasing companies and energy producers, forms the basis of customer care. Once a quarter, we use an IT-based “voice of the customer” module to measure current customer satisfaction levels for our Hannover, Ludwigsfelde and Vancouver sites and for all main products. Each customer has the option of providing feedback about product quality, service, logistics and contractual terms. We use this valuable feedback to identify areas for improvement and initiate measures accordingly. Doing so allows us to continuously optimize our performance, increase customer satisfaction and stay competitive.

In addition, MTU Maintenance Lease Services runs its own system for measuring satisfaction in the engine leasing and asset management business.

[More information about dialogue with our stakeholders](#)

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**GRI:** 102-43, 103-2, 103-3, 301-2, 416-1, 416-2, 417-1, 417-2, 419-1

## TOWARD ZERO EMISSIONS

## Climate impact of aircraft engines

Emissions-free flight is the vision of MTU and the overall goal of aviation. Both take the 1.5-degree target set out in the Paris Agreement as their focal point. That is why we have further developed our Clean Air Engine technology agenda to provide engines for climate-neutral flight before 2050, and why we are intensifying research into revolutionary propulsion concepts.

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To achieve the ambitious climate targets laid out in the Paris Agreement and the EU Green Deal, it is important to consider every way in which aviation affects the climate.

MTU has been working for a long time on solutions to make flying more environmentally friendly. In the past, targets in the aviation sector mainly concentrated on reducing CO<sub>2</sub> emissions, but the Paris Climate Agreement has led to a paradigm shift. According to the Agreement, global warming is to be kept below 1.5 degrees Celsius compared to preindustrial levels. Meanwhile, the EU Green Deal is aiming for a 55% reduction in greenhouse gas emissions by 2030 as an intermediate target, and greenhouse gas neutrality by 2050. To achieve these ambitious targets, it is important to consider every way in which aviation affects the climate because non-CO<sub>2</sub> effects play a major role in climate change. In addition, knowledge about how non-CO<sub>2</sub> effects work has improved significantly. So besides further reducing fuel consumption and thus CO<sub>2</sub> emissions, MTU focuses on reducing contrails, the associated cloud formation and nitrogen oxides (NO<sub>x</sub>) emissions. [More about climate change in our spotlight](#) The reduction of noise and harmful exhaust emissions also remain important goals. The MTU Principles describe how to create products with fewer negative effects on the climate and health; corresponding principles are set out in [global MTU Code of Conduct](#).

## MTU's technology agenda featuring concepts for zero emissions

The aviation industry is characterized by long product cycles. As a rule, aircraft engines spend up to 30 years in service before they are decommissioned. Goals to produce eco-efficient engines therefore have a long-term perspective and are established in memoranda of understanding by stakeholders (airlines, aviation industry, research, aviation authorities), such as Flightpath 2050, Europe's vision for the future of aviation. However, as the goals set out in the Paris Agreement are far more ambitious than those of Flightpath 2050, MTU has realigned its Clean Air Engine (Claire) technology agenda. Our declared goal is to bring products to market that enable climate-neutral or emissions-free flight long before 2050. Therefore we are stepping up our research on pioneering propulsion concepts in partnership with players from industry, science and research. To this end, we have set out time horizons, targets and implementation options in Claire, taking into account the three application areas of aviation—short-haul, medium-haul and long-haul.

In addition to the evolutionary further development of the gas turbine engine, we have anchored new, revolutionary propulsion concepts in Claire. MTU engineers favor the water-enhanced turbofan (WET engine). This concept substantially reduces fuel consumption and all emissions that impact the climate—not only CO<sub>2</sub>, but also NO<sub>x</sub> and the formation of contrails. Another approach that MTU's technology development work is taking aims at complete electrification of the powertrain to achieve zero emissions. We see the greatest potential in converting hydrogen into electricity with the help of a flying fuel cell (FFC).

## We support the use of sustainable aviation fuels

Sustainable aviation fuel (SAF) will play a major role in efforts to achieve climate neutrality. SAFs can already be used in admixtures of up to 50% as a "drop-in" fuel—i.e., without the need to adapt the aircraft or engine. Tapping the full potential of SAFs is an essential part of achieving climate targets. This in turn hinges on immediately increasing production capacity for them significantly. Indeed, according to a study by the International Air Transport Association (IATA), SAFs alone can help reduce CO<sub>2</sub> emissions by up to 80%; future advanced manufacturing processes will achieve even higher figures. Flight tests conducted by the German Aerospace Center (DLR) recently demonstrated the potential of SAFs to reduce particulate emissions and thus have a strong positive impact on the formation and effect of contrails. As a founding member of the Aviation Initiative for Renewable Energy in Germany (aireg e.V.)—an association of airlines, manufacturers and research institutes—MTU advocates the introduction of SAFs.

In addition, we are funding several projects to set up SAF production facilities. For example, we are a consortium partner in the Clean Tech for Aviation initiative and support research into near drop-in fuels. These are fuels that can reduce the climate impact even further, but require minor adjustments to the engine and aircraft.

## Sustainable aviation fuels in our spotlight on climate action

[READ MORE](#)

# The geared turbofan flies: More energy-efficient and with lower emissions than previous engines

## Claire 1 – In service

With the first generation of the GTF engine family, which we developed together with our partner Pratt & Whitney and continue to manufacture, we have not only achieved but in fact exceeded our first climate target of a 15% reduction in CO<sub>2</sub> emissions as described in Claire 1 (16% for the PW1100G-JM that powers the A320neo, for example). This engine family has become a major business success and measurably reduces the burden on the environment: its first generation has already enabled airlines to avoid more than six million metric tons of CO<sub>2</sub> in flight. It also brings significant improvements in terms of NO<sub>x</sub> emissions, which are 50% lower than those of its predecessor.

– In service

According to the results of an in-house study, drop-in SAFs, which can already be used today in admixtures of up to 50%, could reduce the climate impact by 35% per passenger kilometer (relative to the technology of a 2000 engine).

### CO<sub>2</sub> SAVINGS OF



# 6.0 m metric tons

In over eleven million flight hours and on more than 1,100 aircraft, the engines of the geared turbofan family have already saved more than six million metric tons of CO<sub>2</sub> (source: Pratt & Whitney, as of Q4/2021). The engine is also a commercial success, and is a key driver of revenue in our portfolio.

### GTF ADVANTAGE™



→ [To the press release](#)

Pratt & Whitney is launching a technologically improved geared turbofan (GTF) for the A320neo family: the GTF Advantage™, for which we supply key improvements. The GTF Advantage will cut fuel consumption and CO<sub>2</sub> emissions, leading to an overall reduction of 17% in each compared to previous engine generations, and is designed to run on 100% SAF. It can thus achieve a 60% reduction in CO<sub>2</sub> per passenger kilometer (relative to the technology of a 2000 engine).

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## Our plans from now until 2035: 60–80% less climate impact

### Claire 2

As part of Claire Stage 2, by 2035 we aim to reduce the climate impact of aircraft engines by 60 to 80% per passenger kilometer (relative to the technology of a 2000 engine). MTU's Claire 2 relies primarily on an improved second-generation geared turbofan that achieves higher overall efficiency primarily through improved component efficiency and more lightweight and temperature-resistant materials. Climate impact can be immediately reduced through the widespread use of SAFs, which do not require any kerosene from fossil fuels (100% SAF) and could be used with the existing infrastructure. A hydrogen-powered geared turbofan would also be an alternative to achieve the climate action target. However, the use of hydrogen requires adapting the infrastructure on a broad scale.

There is also the WET engine, a revolutionary propulsion concept based on the geared turbofan. The first version is scheduled to reach the market in 2035 and achieve virtual climate-neutrality by reducing all emissions that have a negative climate impact. In the same timeframe, an initial version of the flying fuel cell could be operated over shorter distances with virtually zero emissions and so further reduce the climate impact of aviation.

In all projects, it must be taken into account that the evaluation of aviation's impact on the climate, particularly the formation and effect of contrails, is still the subject of research. Reducing uncertainties in scientific analyses and studies is therefore an important goal for us, which we rigorously pursue together with world-leading research institutes such as DLR.

## Climate-neutral aviation by 2050

### Claire 3

We are already working on the next stage (Claire 3) in projects with industrial and research partners. These publicly funded projects center on further reducing the climate impact of aviation. The second generation of the geared turbofan with WET engine should be even more efficient overall, allowing a further reduction in energy consumption. Given the limited availability of renewable energies, minimizing energy consumption is an important goal in addition to reducing climate impact. The use of hydrogen in the WET engine should also be possible at the same time. This would not only have advantages in terms of CO<sub>2</sub> emissions, but, thanks to the cooling potential of liquid hydrogen, could also facilitate the integration of WET engine technology into the aircraft system.

Use of flying fuel cells in short- and medium-haul operations is an objective of Claire 3. For this purpose, the focus is on a further improvement in the weight-specific performance of the individual components, which simultaneously reduces energy consumption in flight.

Let's talk about it! Our video series on sustainability@MTU, featuring films on the fuel cell and hydrogen lines in aircraft, is available in our [media archive](#).

## How the water-enhanced turbofan works

Based on the gas turbine, the water-enhanced turbofan (WET engine) is a revolutionary propulsion concept that takes full advantage of MTU's know-how. This concept reduces energy consumption and CO<sub>2</sub> emissions by recuperating heat from the exhaust gas stream and feeding it back into the work process. When that heat is added to water, it creates steam, which is then injected into the combustor. As part of the subsequent recovery of this water from the exhaust gas stream, particles are filtered out, which in turn can significantly reduce the formation of contrails. The overall effect is to reduce the climate impact by lowering emissions of CO<sub>2</sub> and nitrogen oxides (NO<sub>x</sub>) and reducing contrail formation and energy consumption. This saves costs and conserves resources.

## Flying fuel cell (FFC): Hydrogen drive offers vast potential

One very promising emerging technology for sustainable aviation is the hydrogen-powered fuel cell, which emits nothing but water. This flying fuel cell converts liquid hydrogen into electricity, which is then used to power electric motors that generate thrust via a propulsion generator, such as a propeller. This propulsion system does not produce any emissions of CO<sub>2</sub>, NO<sub>x</sub> or particulates—the only emission is water, thus making the FFC virtually emissions-free. We are pursuing this concept because of its major potential to reduce climate impact. To that end, we are working with DLR on a flight demonstrator based on a modified Dornier Do228 turboprop aircraft. The demonstrator is due to take off by the middle of the decade. In preparation, we tested an initial model-scale fuel cell unit, including control functions, on our test stand in 2021.

MTU AND EASA DRAW UP  
CERTIFICATION REQUIREMENTS



→ [To the press release](#)

MTU has entered into an innovation partnership with the European Aviation Safety Agency (EASA). Together, we are investigating possible ways forward for the future certification of a flying fuel cell (FFC).

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To enable passenger aircraft powered by fuel cells to fly, however, different technologies are required—first and foremost, the fueling system and its integration into the aircraft. Hydrogen occupies three to four times more volume than kerosene, even at minus 253 degrees Celsius. As things stand today, implementing this in the short- and medium-haul segments would still make sense. For longer routes, other solutions such as our WET engine are better.

**By rigorously pursuing eco-friendly engines, we can help achieve the following Sustainable Development Goals:**



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

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**GRI:**     [102-12](#), [103-2](#), [103-3](#), [201-2](#), [302-5](#), [305-3](#)

**UNGC:**   [7](#), [8](#), [9](#)

Images: [www.airbus.com](http://www.airbus.com); <https://www.easa.europa.eu/>



## REDUCING ENGINE NOISE AND EXHAUST GASES

## Health impact of aircraft engines

As part of our product development, we are working to make aviation considerably quieter and cleaner. Our stated goals therefore include reducing aircraft noise and exhaust emissions to minimize the impact that our products—in the air and on the ground—have on people's health.

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The geared turbofan—here for the PW1100G-JM engines on an A320neo—from Claire Stage 1 has an architecture that harbors vast potential for further reducing noise compared to conventional turbofans.

We undertake to protect the environment; climate action is one part of this, but our endeavors go further still. With quiet and clean engine concepts, we can improve the situation for residents living near and around airports in terms of noise pollution and local air quality, thereby promoting society's acceptance of air travel. As with our approach to climate action, we have established several pillars to anchor the issue of aircraft noise in the company. In our [global Code of Conduct](#), we commit to environmental protection and explicitly to reducing noise and exhaust emissions from aircraft engines. We want to set standards in this area, and we have formulated our goal accordingly. The MTU Principles also include the requirement to create products with lower noise and pollutant emissions under the heading "Environment & society."

To receive certification from aviation authorities both aircraft and engines must meet noise and emissions limits set by the [International Civil Aviation Organization \(ICAO\)](#); in the past, these limits have been successively tightened. National aviation authorities are responsible for certification. Furthermore, at almost every airport in the world, the fees charged for takeoff and landing are dependent on the noise emissions of the aircraft model.

## How is aircraft noise generated?

Aircraft noise is caused by both the engine and the aircraft itself. Noise during takeoff is largely due to the engine's fan and nozzles; during landing, the aircraft also adds to noise as a result of turbulence around the fuselage, wings and landing gear.

The core engine accounts for a relatively small proportion of aircraft noise.

In the certification of new aircraft models, noise is measured using a standardized process at three defined points and then cumulated. Aircraft noise has decreased continuously since the 1960s, by a total of about 17 EPNdB (effective perceived noise decibels; a specific unit for measuring the relative noisiness of aircraft) or about 70%.

## Quieter flying: We are pushing for Europe's SRIA noise targets

With our Clean Air Engine (Claire) agenda, we are pursuing not only climate action targets → [Climate impact of aircraft engines](#), but also targets for reducing aircraft noise emissions. Achieving future noise limits is one of the agenda's core elements. MTU's acoustics experts are involved in our projects at every stage of product development, from technology management to subsequent engine design and optimization.

When developing future engines, we support the goals of the [European aviation industry and research sector's Strategic Research and Innovation Agenda \(SRIA\)](#), which calls to reduce noise to 65% of its 2005 levels by 2050. With the first-generation geared turbofan, which we developed together with our partner Pratt & Whitney and continue to manufacture, we have already significantly reduced aircraft noise emissions as part of Claire Stage 1. They are on average 15–20 EPNdB (cumulated over the three ICAO measuring points) below the current legally stipulated noise emission class, ICAO Stage 4. This equates to a reduction in the geared turbofan's noise footprint (spread of aircraft noise near airports) of 75% compared to the previous generation.

### NOISE FOOTPRINT REDUCED BY



# 75 %

The noise footprint of our geared turbofan from Claire Stage 1 is 75% smaller, and so has significantly reduced the spread of aircraft noise in the sensitive area around airports. The geared turbofan already has over three million quieter flights to its name.

The geared turbofan from Claire Stage 1 has an architecture that harbors vast potential for further reducing noise compared to conventional turbofans. By making improvements to the latest generation, we want to achieve the SRIA goal of a 50% reduction in aircraft and engine noise emissions by 2035 (base year 2000).

According to the SRIA, new engine architectures are even to achieve a 65% drop in noise emissions by 2050 (base year 2000). Our efforts here include our new propulsion concept, the (hydrogen-powered) flying fuel cell, which can achieve massive reductions in noise because the fan is the powertrain's sole source of noise.

## New concepts pave the way for zero pollutants

In addition to contributing to climate effects and generating noise, air traffic also has an impact on local air quality at airports and in surrounding areas. The combustion process in aircraft engines produces pollutants in the form of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), unburned hydrocarbons (UHC) and soot/particulate matter. In terms of the impact these have on health, NO<sub>x</sub> and particulate matter emissions are the most significant. To obtain type certification, aircraft and engines must meet ICAO environmental standards. ICAO has defined limits for the levels of NO<sub>x</sub>, CO, UHC and soot emitted by aircraft engines. All of the engines in which MTU holds a workshare meet the ICAO certification standards. Recently, compliance with standards for ultra-fine particulate emissions became a criterion for engine certification. Unlike with noise emissions, we have less scope to influence NO<sub>x</sub> and particulate matter emissions and the health effects because the combustor is not part of our portfolio for commercial engine programs. We can make a difference here only indirectly by improving the efficiency of the engine. For example, with the geared turbofan we have succeeded in significantly reducing NO<sub>x</sub> emissions, which are 50% lower than those of its predecessor. Sustainable fuels can also make a big difference in this regard. In initial tests, the German Aerospace Center (DLR) has shown that particulate emissions from combustion are significantly lower with sustainable aviation fuels (SAFs) than with conventional aviation fuels. Using hydrogen as a fuel reduces them even further.

### REDUCTION IN NITROGEN OXIDES

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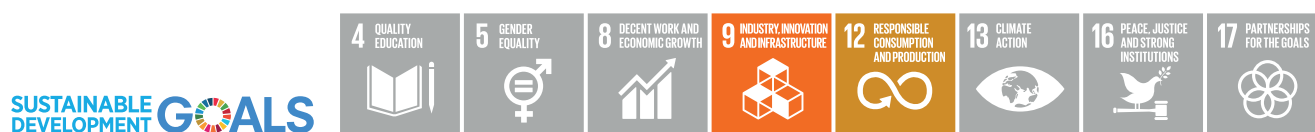
# 80 %

Our new WET engine propulsion concept can significantly reduce pollutants. It works by injecting water into the combustor, which, based on what we know so far, can cut NO<sub>x</sub> emissions by up to 80%.

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Our development of revolutionary propulsion concepts, which is part of our climate action activities, also holds great potential for reducing pollutant emissions. Our water-enhanced turbofan (WET engine) and flying fuel cell (FFC) concepts can significantly reduce pollutant emissions or even avoid them altogether. The WET engine works by injecting water into the combustor, which, based on what we know so far, can cut NO<sub>x</sub> emissions by up to 80%. Hydrogen-powered fuel cells would actually emit nothing but water.

By protecting people's health when using our products, we can help achieve the following Sustainable Development Goals:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

## Services & tools

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**GRI:** 102-12, 103-2, 103-3

**UNGC:** 7,8,9

WE ARE HARD AT WORK ON SUSTAINABLE SOLUTIONS

## Research & development

We are a technology leader in aviation—and it is our extensive research work and a high level of innovation that keep us in this top position. Our ideas and concepts aim to transform aviation in order to make sustainable and affordable air travel a long-term prospect.



We are home to smart minds and a whole host of experts, all of whom are working on the solutions of tomorrow with outstanding concepts for emissions-free flight on their agenda.

We are committed to the principle of integrated environmental protection, which takes a precautionary approach to how the company's products impact the environment and integrates insights from this into entrepreneurial decisions. This applies above all to our research and development work. In the technology and innovation process, our experts investigate environmental and societal driving forces for aviation and take them into account when defining MTU concepts and targets. We receive input for our analyses and stakeholder expectations through various channels as part of our stakeholder dialogue, which we conduct on an ongoing basis. → [More about stakeholder dialogue](#)

## Our innovation management

MTU manages technology development for future products using a multistage process. Short-term product development is managed according to concrete customer specifications on the basis of existing technologies. In the medium term (up to 15 years), advanced product designs are created and technology requirements derived from them. And over the long term (up to 2050), pilot concepts are developed with the help of a technology radar, and the development of enabling technologies initiated. An Innovation Board regularly discusses all topics related to technology and innovation and initiates technology projects and studies. The Technology steering committee, of which the Chief Operating and Chief Program Officers are members, approves MTU's technology roadmap and is regularly updated on progress. The basis of this technology process is our culture of innovation, which we cultivate with a variety of initiatives. These include a Group-wide innovation management concept, the Inno Lab and Ideation Challenges through which we gather and evaluate ideas from employees related to a specific field of innovation.

Our employees have top qualifications in fields as diverse as acoustics, fuel cells, 3D printing and bionics. We also ensure our excellent position by patenting our work; at the end of the year, MTU's patent portfolio contained 2,866 individual patents.

## Innovative Culture project launched

We want our corporate culture to further enhance the innovative strength of MTU's products and services. To this end, in 2021 we launched the company-wide Innovative Culture project. Another of its objectives is to support the transformation and draw up the next stages of our cultural roadmap. Over the past two years of the pandemic, MTU has proven how adaptable and resilient it is. As we head into a future in which the world is increasingly described as volatile, uncertain, complex and ambiguous (VUCA), we will need both of these qualities so we can respond more flexibly to key trends.

## R&D budget increased by almost a quarter

In the reporting year, MTU invested heavily in sustainable innovation: our investment in research and development (R&D) in 2021 totaled EUR 230 million (2020: EUR 186 million). Through our R&D activities, we are laying the groundwork for the future of aviation and extending our technological leadership. Within the scope of these activities, MTU is focusing on the role of hydrogen and flying fuel cells (FFCs) in emissions-free flight, technology studies on future engine generations, digitalization in engine production, and geared turbofan (GTF) programs and their evolution. In 2021, we achieved a key milestone in this journey together with our partner Pratt & Whitney in the form of the GTF Advantage™.

### INVESTING IN A GREEN FUTURE

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# 230 million euros

We spent 24% more on research and development than in the previous year. This includes investments in a green future, including emissions-free flight. Our R&D expenditure amounted to 5.5% of our revenue.

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## Strong research network

To sustain MTU's technological expertise, it is important to be adequately plugged into the research landscape. We maintain a network of some 100 universities, research institutions, and companies around the world. → [MTU's research network](#) MTU is involved in major research programs in Germany (LuFo aeronautics research program) and Europe (such as Clean Sky) that push the development of ecologically efficient engine technologies for aviation. These programs bring together researchers from a wide range of manufacturers, universities and major research institutions.

## CLEAN AVIATION HAS TAKEN OFF

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→ [To the press release](#)

Toward the end of 2021, the successor to Europe's Clean Sky aeronautics program was officially launched. MTU is a key player: in addition to supplying important new technologies, the company has once again been given a seat on the Governing Board, where it is represented by COO Lars Wagner.

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In 2021, MTU launched major national multipartner research projects related to both the water-enhanced turbofan (WET engine) and the flying fuel cell (FFC). These are to yield the first component and subsystem tests for the WET engine and a flight demonstration of the FFC. In addition, both concepts received positive reviews as part of the Call for Expressions of Ideas issued by the EU's Clean Aviation public-private partnership. This provided a basis from which to refine the technology roadmap for Clean Aviation. We therefore expect to see the Clean Aviation partners to step up their efforts in 2023.

### RESEARCH PARTNERS

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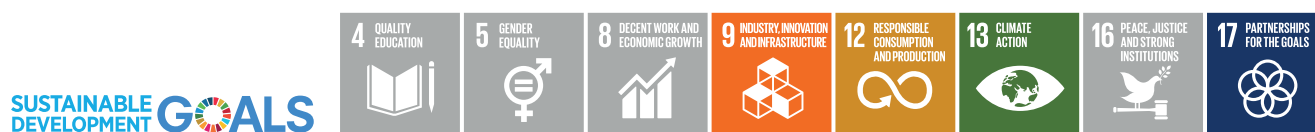
# 100

We have access to a strong network of universities, research institutions and companies and participate in important aviation research programs.

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In addition, we cooperate directly with numerous universities and research institutions and maintain several centers of competence at selected German universities, which are devoted to specific research topics. [Read more in the chapter → Corporate social responsibility](#)

With comprehensive research and development activities, we can help achieve the following Sustainable Development Goals:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

## Services & tools

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**GRI:** 102-12, 102-43, 103-2, 103-3

**UNGC:** 7, 8, 9



## UNIFORMLY HIGH STANDARDS

## Environmental management

Environmental protection is a maxim guiding how we do business. At all MTU sites around the globe, we aim to be efficient in our use of energy and resources, limit our emissions and avoid environmental risks. We strive for continuous improvement in all these areas, but especially with regard to reducing energy consumption and carbon emissions.



Our environmental management for site operations includes monitoring of our energy consumption as the basis for efficiency measures, which come into effect in, for example, our company climate action strategy, ecoRoadmap.

Operational environmental protection at our production sites is an important principle guiding our behavior and is implemented in MTU's business processes. It is also enshrined in the [global Code of Conduct](#) for all employees. The Executive Board assumes responsibility for company-wide environmental protection and climate action.

Uniform high standards are applied through an environmental management system that defines processes, responsibilities and targets at the site level. Environmental protection is part of MTU's integrated management system (IMS). The environmental criteria apply to all divisions and processes and are laid down in documented process flows and special company standards. Minimum operating standards for our machines and facilities, such as engine test cells, are laid down by national legislation and subordinate regulations. For machines and facilities with environmental implications, internal rules and regulations are supplemented by approval from the relevant authorities. Regular and occasional measurements, tests and inspections ensure that our machines and facilities are operating in accordance with these rules and regulations.

In our global Code of Conduct, MTU commits to an integrated approach that incorporates environmental protection and climate action into its business decisions. Environmental responsibility is also enshrined in the MTU Principles in the section entitled "Environment and society."

Integrated environmental protection covers:

- Making continuous improvements
- Precautionary principle
- Involving employees
- Limiting environmental impact
- Carefully complying with statutory limits and requirements
- Using resources and energy sparingly

Environmental management is not centralized, with the environmental departments at all production sites assuming responsibility for the local implementation of relevant rules and regulations. Individual site managers are directly responsible for environmental protection; they receive advice and support from the local environmental departments. The environmental departments regularly share their innovations and best practices with each other. The German sites are certified to ISO 14001, the international standard for environmental management systems, and/or to the EU Eco-Management and Audit Scheme (EMAS). In terms of energy use (Scope 1 and 2), this means that 89.3% of business activities at our production sites is certified to a recognized external standard.

We strive to constantly develop and refine our operational environmental protection measures. Independent external auditors and environmental consultants conduct regular reviews as part of the certification process to verify our implementation of and adherence to the applicable environmental protection management requirements, and provide recommendations for improvement. Internal inspections and audits supplement this monitoring and help ensure that the operational environmental protection requirements are being observed. Through regular management reviews, the management at the sites checks and controls the implementation and effectiveness of environmental management. In this way, it also influences the further development of this area. In addition, through IMS reporting, the Executive Board receives a quarterly report on carbon emissions for the production sites in Munich, Hannover, Ludwigsfelde, Rzeszów and Vancouver.

## Involving employees in climate action and environmental protection

We get our employees involved in active environmental protection via information campaigns and training courses—for example, as part of initial instruction for new employees, through the company suggestion scheme, or through initiatives to conserve resources and energy and reduce emissions. Moreover, raising the awareness of all employees in production and administration is part of our Code of Conduct regarding environmental protection. The Zero mission in Munich was launched to reduce resource consumption and emissions and to promote environmentally conscious behavior among employees. In the reporting year, Zero mission activities were linked to the ecoRoadmap.

We maintain a dialogue with our stakeholder groups about MTU's environmental impacts. Stakeholders can use the available media channels to direct complaints and report abuses to us, which we will immediately follow up. This applies to employees, suppliers, residents and other stakeholders. In the reporting year, we received no complaints regarding negative environmental impacts. At the German sites, environmental officers are available to answer any questions or receive comments. → [More information about stakeholder dialogue](#) Through environmental statements, the MTU sites in Munich, Hannover and Ludwigsfelde inform the public annually about their environmental impacts and performance. In addition, stakeholders can provide feedback about sustainability issues via an online survey.

### ENVIRONMENTAL STATEMENTS FOR PRODUCTION SITES

We also pursue environmental protection and climate action through joint initiatives. Besides its commitment to the [UN Global Compact](#), whose ten principles include environmental sustainability, MTU is also involved in several local initiatives. These include the [BEEN-i Bavarian Energy Efficiency Network Initiative](#), the [Munich Business Climate Pact](#) and the [Bavarian Environmental and Climate Pact](#).

## GREEN INVESTMENT

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# 10.6

million euros—that is how much we spent on investments and ongoing expenses for environmental protection and climate action at our production sites in 2021. A first photovoltaic system has gone online at our Munich facility.

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At our sites, we implement local environmental programs with various objectives, primarily to reduce energy consumption and emissions (for more information, see [Conservation of resources](#) and [Energy and climate action](#)). We use various measures to achieve improvements in our environmental performance. In the reporting year, we spent some EUR 10.6 million in total on investments and ongoing expenses in a bid to increase our environmental compatibility. The money went into measures such as wastewater treatment, safe waste disposal, climate action and air pollution control. At our Munich location, we commissioned the first ever photovoltaic system at MTU.

Emergency management plans have been prepared to deal with operational disruptions with a negative environmental impact, and a crisis committee has been set up. We also hold regular staff drills and provide instructions on what to do in the event of an emergency. In the reporting year, for example, evacuation exercises were carried out at the MTU locations in Munich and Rzeszów. Moreover, MTU has comprehensive fire protection measures in place that comply with legal directives.

In 2021 as in previous years, there were no incidents at the production sites with a negative environmental impact, nor were any fines levied against the company for breaches of statutory requirements relating to the environment. No non-monetary sanctions were brought against MTU.

However, a fire broke out in the electroplating works at our Munich facility in September 2021, which was caused by chemical reactions when preparing a new solution in a plating tank. The fire was quickly extinguished by the site's internal fire service. Investigations conducted by Munich's professional fire service in the immediate aftermath of the fire did not identify any negative environmental impacts. We promptly notified the proper authorities and have been in continuous dialogue with representatives from the authorities ever since.

Root cause analysis was carried out by the Work Safety and Environmental Protection department with the participation of other departments. A project has been launched to systematically analyze the damage event and derive suitable measures including lessons learned. In coordination with the City of Munich's Department for Climate and Environmental Protection (RKU), surveyors were commissioned to evaluate the measures already taken and the existing processes and systems, and to improve them if necessary.

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All fully consolidated production sites of the MTU Group worldwide (Munich, Hannover, Ludwigsfelde, Rzeszów and Vancouver) are included in our environmental reporting for this Sustainability Report. The Serbia site is currently being constructed, with operations of the new repair shop in the MTU network due to begin around the end of 2022. By comparison, smaller sites are not relevant for our environmental impact and are therefore not included.

By practicing environmental management, we can help achieve the following Sustainable Development Goals:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

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**GRI:** 102-11, 102-12, 102-43, 103-2, 103-3, 307-1

**UNGC:** 7, 8

## ON THE WAY TO AN MTU GREEN EUROPE

## Energy and climate action

We want to realign our energy management to permanently reduce our use of fossil fuels and emission of greenhouse gases in production and maintenance. More green energy and avoidance of carbon emissions are important components of our ecoRoadmap on the way to an MTU Green Europe. As the first step, we implemented net zero greenhouse gas emissions for operations at our Munich site in 2021.

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MTU's first ever photovoltaic system went online in 2021, and we plan to further expand our climate-friendly generation of our own energy supply.

Environmental protection in production and maintenance is an important objective for MTU. The primary focus is on climate action. Environmental management is established at all production sites. [For more information, see Environmental management.](#) In introducing climate strategies for operations at our sites, MTU aligns its objectives with the Paris Agreement and launched an ecoRoadmap for the Munich headquarters during the reporting year. The other production sites in Europe will follow suit in 2022. This will mean significantly reducing the carbon footprint of the production sites by 2030 by avoiding emissions and transitioning to more green energy. This is how we want to help reach the goals of the Paris Agreement.

## Energy management

We rely on a mix of renewable and non-renewable energy sources and choose energy resources based on security of supply, cost effectiveness and environmental considerations. As part of the newly launched ecoRoadmap, we are realigning our energy management and prioritizing the use of green energy in supplying our facilities.

## Energy consumption in 2021

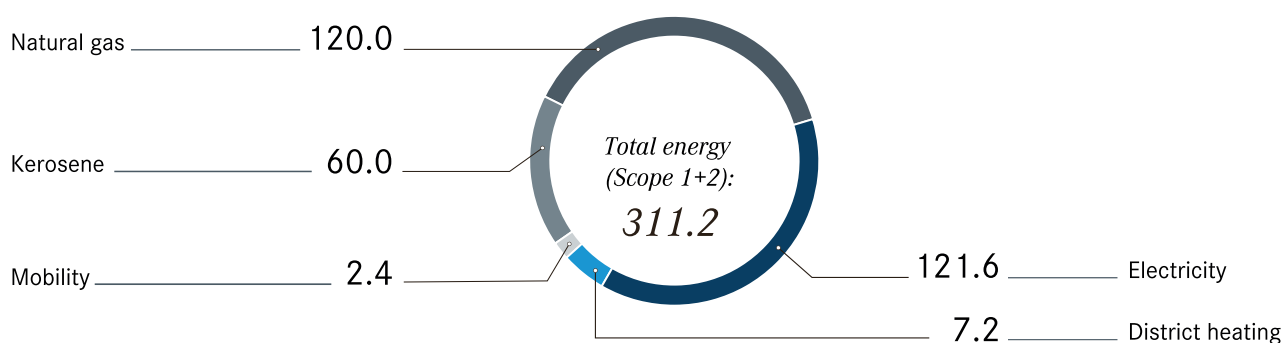
Regarding non-renewable primary energy, we use natural gas and the aviation fuel kerosene. On top of this, there are the fuels used to power vehicles used by management personnel (mobility), which make up a very small proportion of the total. In Munich, we generate electricity and heat using a cogeneration plant (BHKW). Compared to conventional power plants, cogeneration plants are much more efficient and emit less pollution. We want to use more photovoltaic energy in the future, and in 2021 we installed and commissioned our first ever photovoltaic system on the roof of the new logistics facility in Munich as part of the ecoRoadmap. It delivers up to 240,000 kilowatt-hours of self-produced green electricity every year. Planning and/or testing is underway for further systems at various locations. In addition, the Hannover site makes use of solar energy with the aid of a solar thermal power plant and also employs a cogeneration plant comprising three micro gas turbines for generating electricity and heat. We also achieve greater energy efficiency by having the sites use waste heat from compressed air generation as thermal energy (combination principle).

### Energy sources used in 2021 (consumption in GWh)

GRI 302-1

*Primary energy (Scope 1):* **182.4**

*Secondary energy (Scope 2):* **128.8**



Our Scope 1 energy demand (direct energy consumption) in 2021 was 182.4 gigawatt-hours (GWh), slightly above the previous year's level (176.9 GWh). Scope 1 primarily concerns the energy sources natural gas and kerosene. Natural gas is used primarily for heating, in production and, to a lesser extent, for test stand operation. Kerosene is used as a fuel for testing engines on the test stand, so consumption depends on how extensive the tests are and on engine size. MTU has no influence on the type and duration of test runs. All maintained and newly manufactured engines must complete a test run prior to delivery for safety reasons and to demonstrate their performance. As part of our digitalization strategy, we are striving to increase the use of simulations in development and manufacturing in order to reduce the amount of development testing for new engines. We are able to run our test stands in Hannover on [sustainable aviation fuels \(SAFs\)](#), and in 2022 we carried out initial test runs of customer engines with alternative aviation fuels at MTU Maintenance.

In 2021, we procured a total of 128.8 GWh of external energy (Scope 2)—due to capacity utilization, this was once again up on the previous year (2020: 116.0). Scope 2 energy is predominantly electricity, which accounts for 39.2% of our total energy consumption. This total is drawn from renewable sources in varying proportions. MTU Maintenance Canada gets some of its electricity from hydroelectric power stations, which are a renewable resource. As part of our ecoRoadmap, in the future we aim to successively increase the purchase of green electricity generated exclusively from renewable sources.

Overall Scope 1 and 2 energy demand was 311.2 GWh in 2021. This was 5.7% higher than the previous year's level, owing to higher capacity utilization than in the first year of the pandemic.

## GREEN ELECTRICITY



70

four-person households consume roughly the same amount of electricity every year as we generate ourselves annually with the new photovoltaic system at our Munich site. Further systems are at the planning stage.

**Energy supply, production,  
Scope 1 and 2 (in GWh)**  
[GRI 302-1](#)

	2021	2020	2019
<b>Total</b>	<b>311.2</b>	<b>294.6</b>	<b>294.9</b>
Direct energy consumption, natural gas, kerosene, mobility = Scope 1	182.4	178.6	164.9
Indirect energy consumption, electricity, district heating = Scope 2	128.8	116.0	130.0

## Introduction of a climate strategy at the Munich site

MTU aims to continuously reduce the greenhouse gas emissions resulting from manufacturing and maintenance work at its facilities as a contribution to global climate action in line with the objectives of the Paris Agreement.

We continuously assess greenhouse gas emissions according to the recognized international Greenhouse Gas (GHG) Protocol. Of all the greenhouse gases that the Kyoto Protocol lists as having an impact on the climate only the carbon emissions are relevant for operations at MTU sites. Our carbon footprint is made up of direct greenhouse gas emissions (Scope 1) and indirect greenhouse gas emissions (Scope 2). Scope 1 refers to direct emissions of climate-damaging gases within a company itself. They are produced in MTU's own ambit, such as during production or by the company's fleet of vehicles. Scope 2 refers to indirect emissions generated by energy suppliers. They arise when MTU purchases energy such as electricity. Scope 3 includes upstream and downstream carbon emissions as generated, for example, by suppliers or arising from business trips and transports in the external logistics chain. The emissions arising from the use of our products also fall under Scope 3. [More about climate action in product usage](#)

At our Munich headquarters, we launched the implementation of a climate strategy in 2021, which is designed to reduce our carbon footprint (Scope 1 and 2) through measures aimed at energy efficiency, producing our own green energy and buying in green electricity. Unavoidable emissions are compensated by means of high-quality offsets. By 2030 we want to reduce carbon emissions by 60% compared to the base year of 2019. In 2022, MTU began extending the ecoRoadmap to include the rest of Europe. Targets for CO<sub>2</sub> reductions will be set at the site level.



REDUCTION IN CO<sub>2</sub> BY 2030

60 %

With the ecoRoadmap, MTU is pursuing an ambitious target for its Munich headquarters (base year: 2019). The largest site in the MTU network accounts for 57.2% of the total energy usage (2021).

In addition to the commissioning of a photovoltaic system for generating the site's own electricity, the purchasing of green energy has also been expanded in Munich as part of the ecoRoadmap. On top of this, we have launched initiatives to get employees involved in identifying potential savings (company suggestion scheme and eco-ideation challenge.) Environmental programs are being implemented at other MTU locations. The Hannover site has agreed on measures to be implemented by 2022, primarily to reduce gas and electricity consumption in machinery and building management. Renewable energy as a proportion of total electricity purchased was increased at the Hannover and Munich sites. The Polish site in Rzeszów continued the Eco Facility 2025 project for reducing environmental impacts and promoting environmentally conscious behavior.

## Three steps to carbon neutrality at the Munich site



## AVOID

Target for 2030 for operations at our sites:

Annual increase in energy efficiency of 2%

## TRANSITION

Transition to using more green energy through:

MTU-initiated and -produced energy (e.g. geothermal, PV systems)

Increasing proportion of renewable energy from energy providers

## OFFSET

Remaining unavoidable emissions will be compensated by means of selected high-quality offsets



## Our carbon footprint for 2021

In the reporting year, MTU generated 51,300 metric tons of CO<sub>2</sub>e emissions at its production sites (2020: 74,800). Scope 1 emissions amounted to 39,900 metric tons of CO<sub>2</sub>e for the MTU Group and were therefore at the same level as the previous year, while Scope 2 emissions amounted to 11,400 metric tons of CO<sub>2</sub>e (2020: 35,700). The reduction in Scope 2 emissions can be attributed to higher procurement of green electricity at the Hannover, Munich and Rzeszów sites. Thanks to the measures from the ecoRoadmap, CO<sub>2</sub>e emissions at the Munich location amounted to 27,300 metric tons, a total that is considerably lower than the previous year's (2020: 40,700). This is due primarily to the reduction of Scope 2 emissions to 5,900 metric tons. Scope 1 emissions were 21,400 metric tons, roughly the same as in the previous year. MTU compensated the remaining Scope 1 and 2 CO<sub>2</sub>e emissions for operations at Munich by means of high-quality offsets, such that this site achieved net-zero status in 2021 for the first time.

### CO<sub>2</sub> emissions (in t CO<sub>2</sub>e equivalents)

#### Scope 1 and 2

GRI 305-1, 305-2

	2020	2020	2019
<b>Total</b>	<b>51,300</b>	<b>74,800</b>	<b>73,900</b>
Scope 1	39,900	39,100	33,100
Scope 2	11,400	35,700	40,800

MTU's Scope 1 CO<sub>2</sub>e emissions result from consumption of the direct energy sources kerosene and natural gas. In addition, fuels for manager vehicles at the Munich site have been included in this category since the reporting year. Meanwhile, MTU's Scope 2 CO<sub>2</sub>e emissions result from the consumption of bought-in energy (electricity and district heating). The calculation of Scope 2 emissions uses emission factors from energy suppliers (market-based method). In the emissions footprint for 2020, the value that was accounted for as biomethane in previous years was calculated as natural gas, as MTU re-evaluated the certificates due to higher quality standards for offsets as part of the ecoRoadmap.

## HIGH-QUALITY OFFSETS

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→ To offset our emissions, we work with recognized partners

To achieve climate neutrality for MTU, we have selected various international offsetting projects such as the construction of a hydroelectric power station in Brazil and biogas plants in Nepal. However, offsetting is always the last resort in our climate strategy. First and foremost, we want to avoid emissions and successfully transition to green energy.

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## CO<sub>2</sub> reduction as important ESG goal

Due to the high priority of climate action at MTU, the reduction of carbon emissions is an important environmental, social and governance (ESG) goal. In IMS reporting to the Executive Board in 2021, carbon emissions (Scope 1 & 2) from site operations were reported in relation to production hours for manufacturing sites or in relation to hours worked for maintenance sites. The “CO<sub>2</sub> emissions related to production hours” indicator for the Munich site was incorporated into the variable compensation of the Executive Board as an ESG-relevant KPI for the first time in the 2021 financial year. Goal attainment is measured here by reduction compared to the base year 2019 (28.9 kilograms per production hour). The target was an overall reduction of 6%, of which 5% was to come from the purchase of renewable energy and 1% from sustainability measures in site operations, such as increasing energy efficiency or self-generated renewable energy. As the year 2021, unlike the base year, was affected by the coronavirus pandemic, MTU compensated for specific pandemic-related effects (e.g. lower capacity utilization and coronavirus protection measures such as energy-intensive shop floor ventilation) by purchasing green electricity. The reduction in carbon emissions through the purchase of green energy was 8.6%, exceeding the target of 5%. In comparison, through measures designed to deliver a lasting reduction in carbon emissions, we achieved a reduction of 1.8%, also exceeding the target of 1%. Overall, carbon emissions for the period from 12/2020 to 11/2021 were 26.4 kilograms per production hour.

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To make our company's environmental impact still more transparent, we take part in the annual assessment by the international non-profit organization [CDP](#), which collects data on companies' greenhouse gas emissions, climate risks and climate strategies on an annual basis. For 2021, we achieved a rating of B- on a scale from D- to A+.

## Logistics and employee mobility

We also extend our climate action efforts to cover our transport and logistics chain. Measures include optimizing routes for transport within facilities and using vehicles with better environmental performance or electric motors to reduce fleet consumption. In addition, we promote sustainable ways of working for our employees.

**Fleet and company cars:** In Germany, we have a total of 19 all-electric and 40 plug-in hybrid vehicles in use, representing 32% of the whole fleet. We expect to be able to increase this proportion to around 40% in 2022. A further increase is currently dependent on delivery conditions. In addition, we significantly increased our charging capacity in 2021. To date, we have installed 20 regular charging stations, including eight in employee parking lots. We are planning to further expand charging capacity as demand grows.

**Job tickets:** We promote sustainable commuting practices among our workforce, through a special discounted "job ticket" for the local public transportation network or web portals for carpooling.

Emissions from the transport and logistics chain (excluding company vehicles) fall under Scope 3, for which we do not have complete data. The amount of CO<sub>2</sub>e emissions caused by business trips (travel by aircraft, train or rental car) in 2021 totaled 1,134 metric tons due to ongoing heavy restrictions on business travel.

### CO<sub>2</sub> emissions (in t CO<sub>2</sub> equivalents) Scope 3 [GRI 305-3](#)

	2021	2020	2019
Business Travel	1,130	1,970	6,880

Data collected for the MTU sites in Germany and Serbia (2021), Germany (2020), Germany and Canada (2019), emission factors according to GHG Protocol

## Further airborne emissions

The energy sources we use generate other airborne emissions aside from carbon emissions. The use of kerosene, natural gas, electricity and district heating from fossil fuels causes the emission of carbon monoxide, nitrogen oxides, sulfur dioxide and dust. We aim to reduce these emissions as well. Generation of electricity and heat in the new cogeneration plant at our Munich site, which went into operation in 2018, cuts emissions of nitrogen oxides by 80% and of carbon monoxide by 66% compared to its predecessor. These MTU non-CO<sub>2</sub> airborne emissions are caused primarily by the use of kerosene for test runs and by the purchase of electricity.

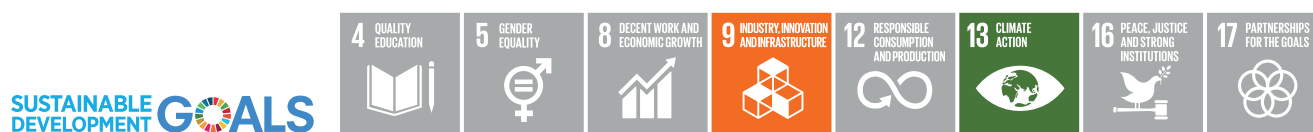
### Airborne emissions (in metric tons) Scope 1 and 2 [GRI 305-7](#)

	2021	2020	2019
<b>Total</b>	<b>177</b>	<b>238</b>	<b>266</b>
Carbon monoxide (CO)	18	41	42
Nitrogen oxide (NO <sub>x</sub> listed as NO <sub>2</sub> )	141	162	184
Sulfur dioxide (SO <sub>x</sub> listed as SO <sub>2</sub> )	16	31	36
Particulates (dust)	2	4	4

## MTU Green Europe

The ecoRoadmap has been rolled out at all European production sites since 2022. Its aim is to achieve an MTU Green Europe by 2030, with a reduction of carbon emissions by 60%, which is the same target as for the Munich location. Initial site-specific measures have been initiated for the reduction and avoidance of carbon emissions. In addition, the scope of validity of the ESG indicator for carbon emissions, which is factored into the variable compensation of the Executive Board, will be expanded to all European production sites as of 2022.

By conducting our energy management and climate action activities, we can help achieve the following Sustainable Development Goals:



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**GRI:** 102-3, 103-2, 103-3, 302-1, 302-4, 302-5, 305-1, 305-2, 305-3, 305-4, 305-5, 305-7

**UNGC:** 7-9

## WATER MANAGEMENT &amp; CIRCULAR ECONOMY

## Conservation of resources

For us, conservation of resources means the responsible use of primary resources, improved material efficiency and the careful handling of waste and the natural raw material that is water.



MTU Maintenance Canada is located near the sea. As such, its employees have a special relationship to the ocean, which they demonstrated with a beach cleaning initiative.

MTU is reliant upon raw materials for manufacturing and maintenance at its facilities. In addition to the use of renewable and non-renewable energy, [which is presented in the Energy & Climate Action section](#), there is also the use of water as a natural resource and the consumption of various materials. It is the job of our environmental management system to control our demand for and use of raw materials with the aim of obtaining high levels of efficiency in manufacturing and maintenance with low resource consumption and a circular approach for products and processes insofar as possible. We have set out the responsible use of resources as a guideline for all employees in our [Code of Conduct](#) and our MTU Principles. Our demand for raw materials depends fundamentally on batch sizes in production and maintenance.

## Water management

Water is a valuable resource that we use responsibly. We have effective water management systems in place at all production sites, although water consumption is of course dependent upon production volumes. In keeping with the precautionary principle, we treat wastewater properly and in accordance with the applicable legal requirements. One of our aims in the MTU Group is to decrease water consumption overall (absolute reduction) or, when production increases, to keep the increase in water consumption at a lower rate (relative reduction).

Our fully consolidated production sites are situated in Germany, Poland and Canada, none of which are water-stressed regions as determined by the [World Resources Institute's Aqueduct Water Risk Atlas](#) (water risk for those countries: low or low/medium). Water-stressed regions are regions in which water is a scarce resource. We monitor the development of water availability in the regions in which we operate, which allows us to make decisions about additional measures to take, if required.

## Our water consumption

We use drinking water for production and maintenance processes, in sanitary facilities and in the cafeteria. In addition, we use well water for cooling processes. Water withdrawal in the reporting year amounted to around 8.1 million m<sup>3</sup> for all production sites (2020: 8.3 million m<sup>3</sup>). At our Munich location, we use Quaternary groundwater from our own wells. The water used was 98% groundwater and only 2% came from the municipal drinking water supply. Using well water contributes to environmental protection and climate action, as it eliminates the need for energy-intensive cooling processes such as compressor cooling systems.

We use recirculated water as much as possible in chemical process baths for applying protective coatings to blades and also for the process water in installations for testing component damage. Thanks to this recirculation, we have to treat only a small amount of wastewater before discharging it into the municipal sewers. This enabled us to save around 640,400 m<sup>3</sup> of water in the reporting year. We also use recycled water for the chemical cleaning of engine parts. Our sustainable water management also includes systematic inspection and renovation of the well water and sewer networks.

### Water balance (in m<sup>3</sup>)

GRI 303-3, 303-5

		2021	2020	2019
	<b>Total</b>	<b>8,079,600</b>	<b>8,327,300</b>	<b>9,691,000</b>
Intake	Potable water	159,900	175,000	204,000
	Groundwater	7,919,700	8,152,300	9,487,000
	<b>Total</b>	<b>8,592,200</b>	<b>9,044,400</b>	<b>9,652,000</b>
Discharge	Sewer system	121,100	110,200	133,000
	Surface water	719,800	1,458,600	1,634,000
	Groundwater	7,751,300	7,475,600	7,885,000

No water withdrawal or discharge in water-stressed regions; data presented in line with official wastewater and well reports and may deviate from previous publications.

At the Munich site, a proportion of the well water and some of the rainwater collected from the roofs is discharged as surface water via the Schwabenbächli stream. Rainwater is discharged into the municipal sewer system only in the event of heavy rainfall. As a result, the sum of the volume discharged into groundwater and surface water may not correspond to the volume withdrawn.

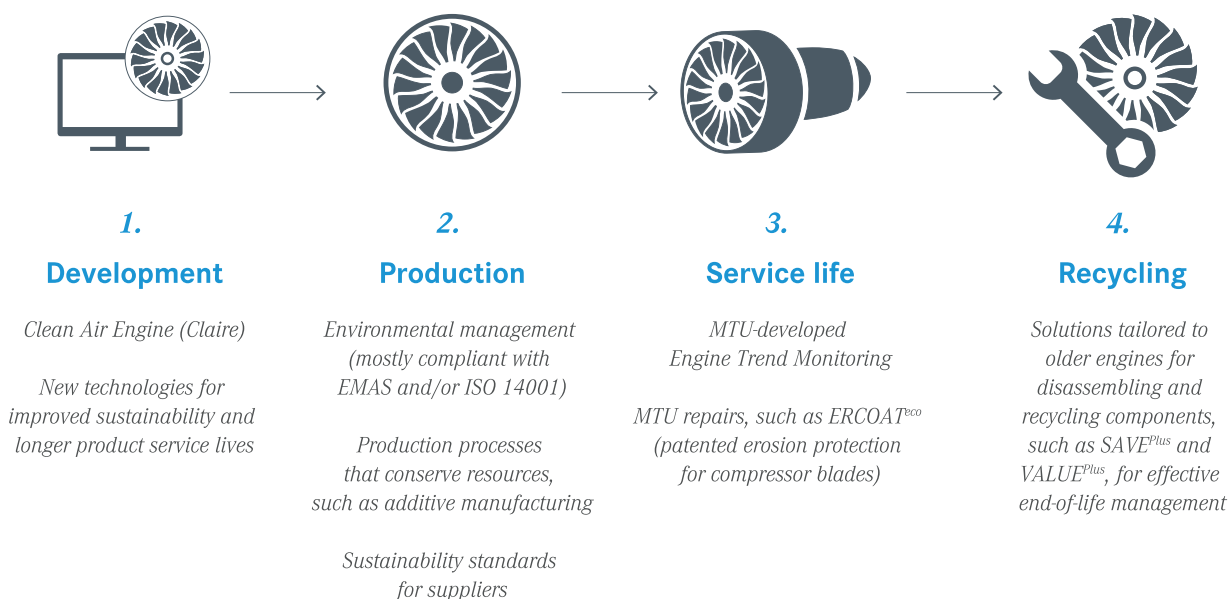
## Water quality

We treat wastewater in suitable sewage systems according to the type and extent of pollution. The quality of the discharged wastewater complies with the official requirements issued for the respective sites. We carry out strict monitoring at the sites to ensure that legal limits are observed and comply with all local authority requirements. Neither water sources nor water surfaces were negatively impacted or polluted by our operating activities, and again no harmful substances were leaked in our plants in 2021. This applies to our site in Canada in particular, which is located near to the ocean.

## Circular economy

What we mean by circular economy is a lifecycle approach for our products that takes into account all phases of an engine, including the design of products and processes according to closed-loop principles. This includes the responsible use of primary resources, improved material efficiency and the use of secondary materials without impairing the quality or safety of our products. And responsible waste management and recycling are also part of the MTU approach. In addition, we are working on extending the service life of products; and we can prevent the use of new parts by means of customized repairs in particular.

### Sustainability over the lifecycle of an engine



Engine materials such as titanium, nickel and alloying elements such as platinum or rhenium are of high value, and this explains why aircraft engines have very high recycling rates. As a vendor, we have no direct influence over the scrapping of engines, which is carried out by specialist companies.



## Product development and design

In product development, designs must comply with all safety requirements and aim to create highly robust engines with a long service life. As a rule, aircraft engines spend 30 years in service before they are decommissioned. Since climate impact and energy consumption are a focus of product design, conserving resources is a natural part of the products' lifecycle. In addition, designs ensure that the product can undergo multiple repairs throughout its service life, as repairing existing parts conserves more energy and resources than fitting new ones. At the end of an engine's lifecycle, the metallic properties of all its constituent materials (e.g. titanium, nickel) means that they are almost entirely recyclable.

## Use of materials in production and maintenance

The long service life of our products and the continuous improvement of our maintenance processes ensure our demand for raw materials is reduced. In all of our production methods, we pay attention to efficiency in the use of materials and seek to avoid waste. We develop our own production and repair methods that are characterized by their high material efficiency. The use of new repair techniques and targeted maintenance programs increases the service life of engines and actively helps reduce pollutant emissions in the subsequent operation of engines.

We achieve greater material efficiency in the production of new parts through the use of additive processes such as the 3D printing of metals. This manufacturing technology enables the rapid 3D production of highly complex components and allows for more freedom in designing them. Components are laser-melted directly from a powder bed according to CAD data—with just 5–10% of the powder ending up as excess material that cannot be used. We plan to employ this particularly resource-conserving method more and more as time goes on.

Efficient and eco-friendly processes are increasingly being used for repairs at our maintenance locations. One example is the use of water jets to remove coatings from components, which avoids the need for environmentally harmful chemical processes.

Energy-efficient production is also an aspect of material efficiency and product manufacturing. [For more information, see Energy management and climate action](#)

## Material consumption in 2021

The consumption of production materials (alloys and spray powder) as well as of consumables and supplies was 8,230 metric tons, which is roughly the same as in the previous year (2020:7,380) and still reflects lower capacity utilization than before the coronavirus pandemic. Of our total consumption, 19.7% came from renewable materials, which is a considerable increase from the previous year (7.1%).

### Material consumption (in metric tons)

GRI 301-1

	2021	2020	2019
<b>Total</b>	<b>8,230</b>	<b>7,380</b>	<b>10,300</b>
Production material	2,840	3,350	4,300
Consumables and supplies	3,770	3,510	4,390
Other materials	1,620	520	1,610

Externally sourced material for production sites; production material comprises titanium and nickel alloys and spray powder; consumables and supplies include oils, cooling lubricants, chemicals, lubricants, gases and kerosene and diesel used as fuel; the other material comprises paper, cardboard packaging and wooden pallets and boxes. For engine parts, MTU uses returnable packaging that can be reused several times.

Our products require the use of materials that are classified as conflict minerals due to their possible origin in Central Africa and can be problematic with regard to human rights violations. As we do not procure these mineral raw materials directly, we have implemented appropriate processes in our supplier management in order to comply with our human rights due diligence. → [More information about human rights in the supply chain](#)

## Harmless materials: REACh regulation

Wherever possible, we avoid using materials that are hazardous to the environment or to human health in our manufacturing processes and products. According to the European REACh (Registration, Evaluation, Authorisation and Restriction of Chemicals) regulation, certain substances of very high concern (SVHCs) containing chromium(VI) are subject to authorization. We implement all provisions of the EU regulation for protecting employees and the environment. We use the REACh-listed material chromium trioxide for wear and corrosion protection. The European Chemicals Agency ECHA authorized MTU to continue its use in several of our processes until 2029 on the basis of the extremely safe workplace standards in our surface coating activities. At the same time, we are pushing ahead with the long-term elimination of SVHCs that require authorization. Through technology projects, we are searching for substitutes for chromic acid / chromium(VI). We oblige our suppliers to comply with the EU's legal requirements (registration, authorization, etc.) via our General Terms and Conditions of Purchase if they use REACh substances in their auxiliary or operating materials.

## Engine repairs

With its “repair beats replacement” philosophy, MTU Maintenance achieves a truly impressive depth in aircraft engine repair. Using special techniques the company has developed in-house, we repair engine components that in other maintenance shops would have to be replaced with new parts. For example, we manage to give around 70% of all engine blades a second, third or even fourth lease on life. We are gradually expanding this product recycling approach to include new processes with an eye to achieving even longer service lives and thus greater material efficiency. For instance, in the case of life-limited parts, we have succeeded in repairing integrally manufactured engine blades and disks, known as “blisks.” This is important because the number of blisks being installed in engines is increasing. MTU is one of the world’s leading companies in the field of blisk production and repair.

In addition, we offer repairs and various other measures to improve the operating behavior of components and engines. Special coatings in particular are able to increase the performance capability and durability of components, while targeted individual repairs of components can also help lower engine emissions and improve operating behavior.

Repairs to engine components not only avoid the energy- and resource-intensive manufacture of spare parts, but also offer further opportunities in the context of the circular economy for the usage and recycling phase—for example, through the targeted use of customized repair scopes, components can be repaired not just once but multiple times.

We collect all metal parts and components for targeted recycling, especially the highly valuable materials nickel, titanium and rhenium.

## Our waste management

MTU practices sustainable waste management with the safe disposal of waste sorted according to waste type and recycling process. First and foremost, we try to avoid waste, reuse leftover materials and use waste either for its materials or as energy; if recycling is not possible, waste is disposed of properly. In this way, we seek to minimize material consumption and waste disposal volumes, but also to achieve high recycling rates.

### RECYCLING RATE

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# 78.1%

MTU was able once again to recycle a large proportion of its waste in 2021. We have achieved high rates of recycling for years.

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We have abolished single-use drinks cups at sites in Germany and Canada and replaced them with returnable or deposit cups. This means that we save around 400,000 cups per year (in normal times).

**Waste footprint (in metric tons)**

GRI 306-2

	2021	2020	2019
<b>Total waste</b>	<b>6,800</b>	<b>7,040</b>	<b>8,370</b>
Recycled	5,310	5,440	7,320
Disposed of	1,490	1,600	1,050
<b>Share of hazardous waste</b>	<b>2,760</b>	<b>2,790</b>	<b>3,440</b>
Recycled	1,380	1,370	2,590
Disposed of	1,380	1,420	850

Excluding construction waste; the higher volume of hazardous waste for disposal in 2020 results from a revised declaration by the customer at our site in Rzeszów, Poland

Total waste produced in 2021 was 6,800 metric tons, which is slightly down on last year's level. Measured against that total, the MTU Group achieved an overall recycling rate of 78.1%. The amount of waste produced and of recyclables utilized depend primarily on production capacity utilization. The proportion of hazardous waste in the reporting period was 40.6%, slightly higher than in the previous year (39.6%). In 2021, once again, no soil contamination was found at MTU sites that resulted from the leakage of hazardous materials or pollutants.

By conserving resources, we can help achieve the following Sustainable Development Goals:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

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**GRI:** [103-2, 103-3, 301-1, 301-2, 301-3, 303-1, 303-3, 303-4, 303-5, 306-2, 306-3](#)

**UNGC:** [7, 8](#)

## STANDARDS OF ECOLOGICAL &amp; SOCIAL RESPONSIBILITY IN PROCUREMENT

## Supplier management

We work with numerous suppliers around the globe. As a basis for this collaboration, we hold them to the environmental and social criteria that are important to us.



We procure components, goods and services for our production and maintenance activities from suppliers based all over the world. We integrate the global supply chain into our sustainability activities.

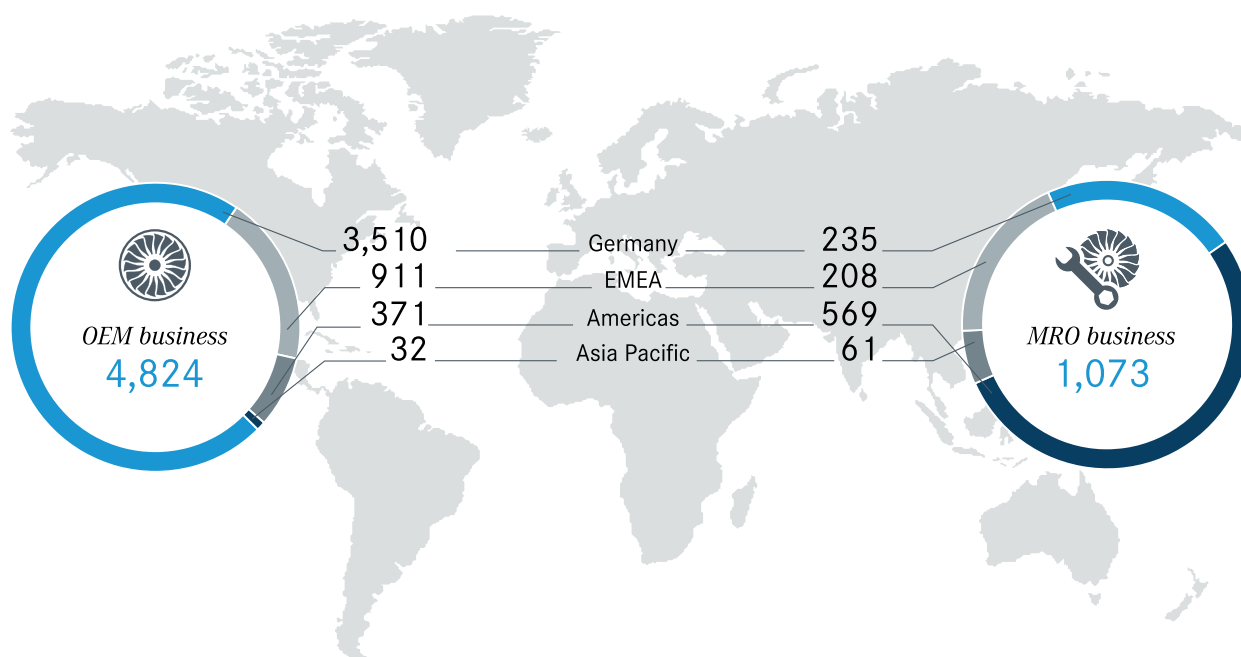
The value added by an MTU product includes important pre-production stages at external suppliers. We seek to create reliable relationships with those suppliers based on mutual trust. In keeping with our claim of sustainable value creation and the expectations of our stakeholders, we uphold certain standards in purchasing. For us, the pursuit of sustainable supplier management (responsible sourcing) encompasses environmental and social aspects as well as transparency along the supply chain. Key sustainability requirements are mandatory for suppliers. We place the same standards as regards sustainability on the collaboration with our suppliers that we do on our own business activities. To a large extent, the same standards apply to both of MTU's business segments: new and spare parts (original equipment manufacturer: OEM) and commercial maintenance (maintenance, repair and overhaul: MRO). However, they each have their own organizational units for sourcing production material.

Because today's supply chains are so global, extensive and complex, we concentrate our efforts regarding sustainability aspects on the supply step immediately upstream (tier 1). However, our direct suppliers are contractually obliged to ensure that their subcontractors also abide by our defined standards.

## Our supplier base

In 2021, MTU worked with 5,897 suppliers around the world, so its supplier base was roughly the same size as in the previous year (2020: 5,810). Europe is home to 82.5% of the suppliers, with 63.5% of the total number of suppliers located in Germany.

### MTU suppliers 2021 by region



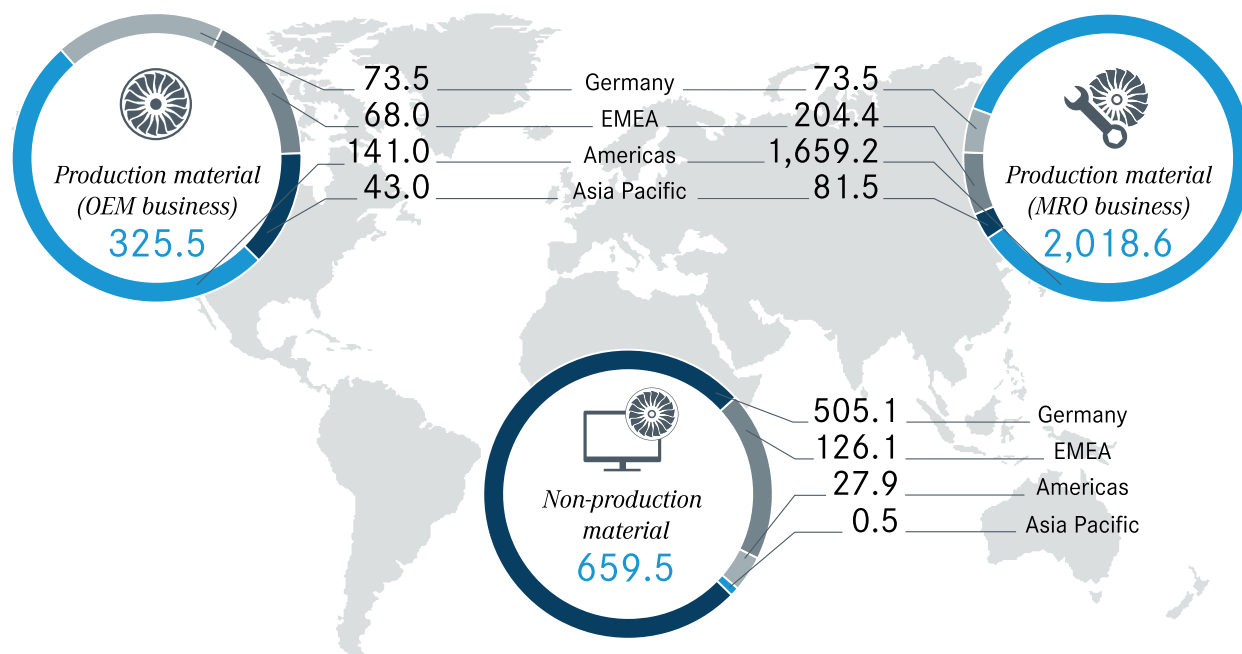
GRI 102-9: Supplier base for production material and non-production material for OEM (new and spare parts) and MRO (commercial maintenance) segments: EMEA = Europe (excluding Germany), the Middle East and Africa; Americas = North, Central and South America plus the Caribbean; Asia Pacific = East Asia, Southeast Asia, Australia and Oceania; excluding MTU Maintenance Serbia (location under construction)

## Purchasing volume

Purchasing volume totaled some EUR 325.5 million for production materials in the OEM business. Due to production activities, this was below the previous year's level (2020: EUR 467 million). For the MRO business, we procured production material worth EUR 2 billion, the same level as in the previous year (2020: EUR 2.1 billion). Non-production material expenses amounted to EUR 659.5 million for the OEM and MRO business (2020: EUR 549 million). By and large, we were able to source production and non-production material for the OEM business at our own discretion. By contrast, MRO purchasing volume for spare parts and repair work is subject to strict requirements imposed by the relevant OEMs. As a result, MTU Maintenance has less room for maneuver in selecting suppliers. The sole exception is MTU Maintenance Lease Services (MLS) in Amsterdam.

Measured by purchasing volume, the Western Europe and North American markets, which are so important generally for the aviation industry, account for the lion's share of MTU's procurement. In the business for new and spare parts, we procure across the entire breadth of the supply chain, from blanks to finished parts. We always source castings and forgings externally, and the same goes for special materials for which MTU has not built up manufacturing expertise, such as electronic control systems. If possible, we source our supplies directly from the manufacturers of blanks or finished parts, whereby the company procures raw materials itself only to a small extent ( → [The measures we take regarding conflict minerals in raw material purchasing](#)). For commercial engine modules, the average proportion of sourced parts lies between 41% for Poland and 64% for Germany.

## Purchasing volume 2021 by region (in EUR m)



GRI 102-9: Purchasing volume for OEM (new and spare parts) and MRO (commercial maintenance) segments. EMEA = Europe (excluding Germany), the Middle East and Africa; Americas = North, Central and South America plus the Caribbean; Asia Pacific = East Asia, Southeast Asia, Australia and Oceania; non-production materials excluding MTU Maintenance Canada and MTU Maintenance Serbia (location under construction)

Local value creation is particularly important when purchasing non-production material and services, as is the wide variety of goods and services. We procure many of our non-production materials in the countries in which we operate. The local proportion of the purchasing budget for non-production material, for instance, was 80.6% in Germany and 45.8% in Poland.

## Sustainable standards in procurement

We have established a binding [Code of Conduct for Suppliers](#) that is a fixed component of the contracts. The code is informed by the [ten principles of the UN Global Compact](#) and contains the following social and environmental standards: respecting [internationally recognized human rights](#), observing the [International Labour Organisation's \(ILO's\) core labor standards](#), protecting the climate and combating corruption. Each contract signed by a supplier includes the commitment to abide by these principles and to communicate them to subcontractors. The Code of Conduct applies to suppliers of the European manufacturing sites and of MTU Maintenance Canada and MTU Aero Engines North America, and therefore to 96.7% of the entire purchasing volume. Moreover, MTU's General Terms and Conditions of Purchase also contain environmental, social and compliance stipulations. In our General Terms and Conditions of Purchase for our European sites, we also insist on compliance with the EU's REACH chemicals regulation.



## Focus on human rights

When managing our suppliers, we place a particularly strong focus on safeguarding the respect of human rights. Our approach and measures are presented in detail under [→ Human rights and conflict minerals in the supply chain](#). We are currently preparing for the forthcoming Act on Corporate Due Diligence Obligations in Supply Chains (LkSG), which will take effect for MTU in Germany starting in 2023.

## No violations of the Code of Conduct

Suspicious that the Code of Conduct for Suppliers may have been breached can be reported confidentially to MTU's Compliance Officer. Reports can also be submitted anonymously via the web-based [iTrust](#) system, which is available in several languages. Should a supplier be implicated in charges of corruption, extortion, the granting of undue advantage or the use of child labor in the execution of a contract for MTU, the collaboration agreement will be terminated without notice. If other principles of the Code are violated, the supplier must demonstrate that suitable corrective measures have been initiated and implemented and must guarantee this in writing. MTU reserves the right to carry out on-site audits to verify compliance with the Code of Conduct. No accusations of possible breaches of the Code of Conduct were reported or registered during the period under review. Nor were there any complaints about suppliers. Therefore, as in previous years, no supplier partnership was terminated because of sustainability violations, confirmed cases of corruption or other complaints. This also applies to human rights aspects [→ Human rights in the supply chain](#).

## Risk management and assessment

We believe partnerships based on trust are key to sustainable supplier management. For this reason, we seek out long-term relationships with our suppliers. In the OEM business unit for aircraft engines, for example, a large proportion of the materials and services is based on contracts with a typical term of two or more years. Contractually agreed buffer inventories allow us to respond quickly to fluctuations in demand. In the reporting year, MTU worked with 938 new suppliers (2020: 960), or 15.9% of the total (2020: 16.5%). All suppliers are vetted before being accepted into MTU's supply chain. This process includes a binding supplier disclosure and contractual undertaking to comply with the Code of Conduct. MTU's engine leasing business, Amsterdam-based MLS, has its own separate but similar process. To cover environmental aspects, we request proof of certification to standards such as ISO 14001. Using periodic evaluations, we regularly review existing suppliers, including with respect to their ISO 14001 certification. Once approved, suppliers must regularly demonstrate their ISO 9001 compliance for quality management via re-certifications. In connection with the establishment of the new MTU site in Serbia, a process was defined for screening new suppliers there with regard to corruption risks. Reviews during the reporting period did not reveal any indications of corrupting behavior. We present our analysis of risks relating to human rights in the supply chain in this report under [→ Human rights in the supply chain](#).

We will intensify our assessment and review of suppliers with regard to sustainability requirements in the future. To this end, we have initiated an in-house project to identify suitable measures and tools and then manage their rollout and implementation.

To raise awareness of sustainability standards in the supply chain, we regularly provide purchasers with training on professional compliance matters and on the [MTU Code of Conduct](#), which applies to all the company's employees and prohibits corruption, bribery, the granting of undue advantage, and anti-competitive behavior. Our purchasers are also trained on the Code of Conduct for Suppliers. In addition, we offer special corporate responsibility training, including bespoke training for purchasing departments.

By practicing sustainable supplier management, we can help achieve the following Sustainable Development Goals:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

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**GRI:** 102-9, 102-10, 103-2, 103-3, 204-1, 205-3, 308-1, 308-2, 407-1, 408-1, 409-1, 412-3, 414-1, 414-2

**UNGC:** 1-5, 8

## DOING OUR DUE DILIGENCE

## Human rights in the supply chain

We respect human rights and are committed to seeing that they are also upheld in upstream value creation activities. Our aim is to prevent the violation of human rights in the supply chain.

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We are conscious of our responsibility as a company with global operations, and aim to carry out our due diligence with regard to human rights. As a participant in the UN Global Compact, MTU fully respects the internationally proclaimed human rights set out in the United Nations' Universal Declaration of Human Rights and applies that to the supply chain as well. In particular, we pursue the goal of preventing human rights violations that could affect employees (zero-tolerance principle). [Read more at Employees](#) However, our respect for human rights by no means stops at our plant gates. MTU expects its suppliers to uphold human rights and create fair working conditions.

## Code of Conduct for Suppliers

The Code of Conduct for Suppliers applies to upstream value creation activities. Our suppliers are obligated to uphold this Code of Conduct, which is informed by the [ten principles of the UN Global Compact](#) and the [core labor standards of the International Labour Organisation \(ILO\)](#). The Code requires suppliers to observe and uphold human rights and to ensure that they are not complicit in any human rights violations. In addition, it calls for compliance with labor standards regarding the freedom of association, the right to collective bargaining, the prohibition of forced and child labor, the equality of remuneration regardless of gender, and equal treatment of employees. And finally, we require our suppliers to apply the Code to their subcontractors and reserve the right to terminate any contract with a supplier using child labor to manufacture products supplied to MTU, without prior notice. → [MTU's Code of Conduct for Suppliers](#)

Established reporting procedures are in place to ensure that we can systematically follow up on all complaints or reports of human rights infringements. Employees and external stakeholders can make reports to the Compliance Officer as a confidential contact point in the Group, or anonymously via the web-based [iTrust reporting system](#) available in multiple languages. This applies to all human rights concerns. → [See Compliance for information about handling reports](#)

In the reporting period, no reports of suppliers violating the Code of Conduct regarding human rights were submitted. Furthermore, no supplier relationships were terminated due to sustainability shortcomings with regard to human rights.

## Risk analysis carried out regularly

We regularly conduct a risk analysis of suppliers to the sites in Germany, Poland and Canada as well as the MTU Aero Engines North America subsidiary. The risk analysis takes into account MTU-specific product groups and the countries they are sourced from. It incorporates the findings of the [Global Slavery Index der Walk Free Foundation](#), which evaluates countries regarding forced and child labor and legal frameworks, among others. This risk analysis is integrated into the existing risk process for suppliers. In the next step, we plan to audit key suppliers to check their compliance with sustainability criteria. To this end, MTU has investigated an IT solution available on the market and decided to implement it in 2022.

Throughout this process, we again in 2021 identified no supplier that poses a significant risk as regards child, forced or compulsory labor, or at which the freedom of association or right to collective bargaining could be compromised. MRO also conducts a supplier evaluation twice a year for suppliers of the German sites.

## Conflict minerals: Transparency about raw materials used

We take various steps to safeguard the respect of human rights in the supply chain. This applies especially to the procurement of certain raw materials known as conflict minerals: for example, tantalum, tin, tungsten and gold, which can be found in some of our engine components. These minerals can cause problems in procurement because they are sometimes mined in Central African countries, where the profits are used to finance armed conflicts that commit human rights violations. MTU strives for a sustainable and transparent value chain that excludes the use of conflict minerals. The company never deliberately purchases conflict minerals, but they can find their way into production or pre-production at the various levels of the global supply chain. According to the provisions of the Dodd-Frank Act applicable to companies listed on stock exchanges in the United States, our American partners and customers require that we disclose the origin of minerals used in our components and limit our sources to certified mining companies and primary-alloy producers ([Conformant smelters and refiners list](#)). In turn, MTU demands that its relevant suppliers should specify the origin of such minerals, in order to ensure that the value chain contains only conflict-free raw materials. The general terms and conditions and contract provisions require suppliers to provide information about the source of minerals in accordance with the EICC/GeSi Conflict Minerals Reporting Template.

When MTU requested information from suppliers in 2021, it discovered nothing to indicate that MTU components contain conflict minerals.

## Outlook

Germany's Act on Corporate Due Diligence Obligations in Supply Chains (LkSG) will take effect for MTU in 2023. In the reporting year, we reviewed the requirements and drew up a timetable for properly complying with the relevant requirements in a timely fashion.

By respecting human rights along the supply chain, we can help achieve the following Sustainable Development Goals:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

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**UNGC:** 1-6

**GRI:** 103-2, 103-3, 407-1, 408-1, 409-1, 412-3, 414-1, 414-2

## WORKING ENVIRONMENT &amp; CORPORATE CULTURE

## Collaboration and leadership

Good cooperation and reliable leadership are important pillars of our success. We encourage the commitment of our employees and support our managers in their responsibility. In this way, we strengthen cohesion within MTU.

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We work in teams on our company's challenges and tasks and support this by providing a working environment that sparks inspiration and brings us together.

Recent years have shown that MTU's performance is very high, even in challenging times. This is due not least to our employees' exceptional commitment. That is why we rely on a respectful leadership culture in which we support our employees' commitment, acknowledge outstanding performance, promote hybrid working arrangements and actively welcome feedback. We offer our employees opportunities for long-term personal development, embrace diversity and inclusion, and protect our employees' health and safety.

Our goal is to strengthen confidence in MTU and in leadership and further pave the way to a successful future. We rely on a culture that is open to change in order to deal with accelerated developments such as digitalization or pressing challenges such as climate change. Further developing our corporate culture is an overarching MTU goal for 2022. We encourage hybrid working in various projects—from the design of modern workplaces and opportunities to new forms of collaboration and sustainable knowledge management. With the introduction of the workday® IT tool, we are consistently driving forward the digitalization of the HR processes in place between our employees, managers and human resources.

## EMPLOYEES AT MTU



10,508

The commitment and skills of our global MTU team are key success factors and allow us to look to the future with confidence. Together, we have overcome the crisis and are now going into the beginning our ascent.

## Our HR strategy

Responsibility for employment issues lies with the Executive Board. The CEO is also the Director of Labor Relations. MTU's human resources department sets policy in line with our corporate strategy. It also assists in efforts to achieve our long-term corporate and growth targets. The full Executive Board receives regular reports on human resources policy. Responsibility for successful implementation lies with local human resources departments and the respective technical departments and managers.

The aim of our HR strategy is to address changes and developments in the world of work that are relevant to MTU and position the company as an attractive and sustainable employer for existing and new employees alike. As a best-in-class employer, we create the conditions for profitable corporate growth, a pillar of MTU's strategy. In our case, that means we act in an employee-oriented manner with an increasingly diverse workforce, overcome increasing complexity with confidence, and are present on the German and international labor markets as an attractive employer.

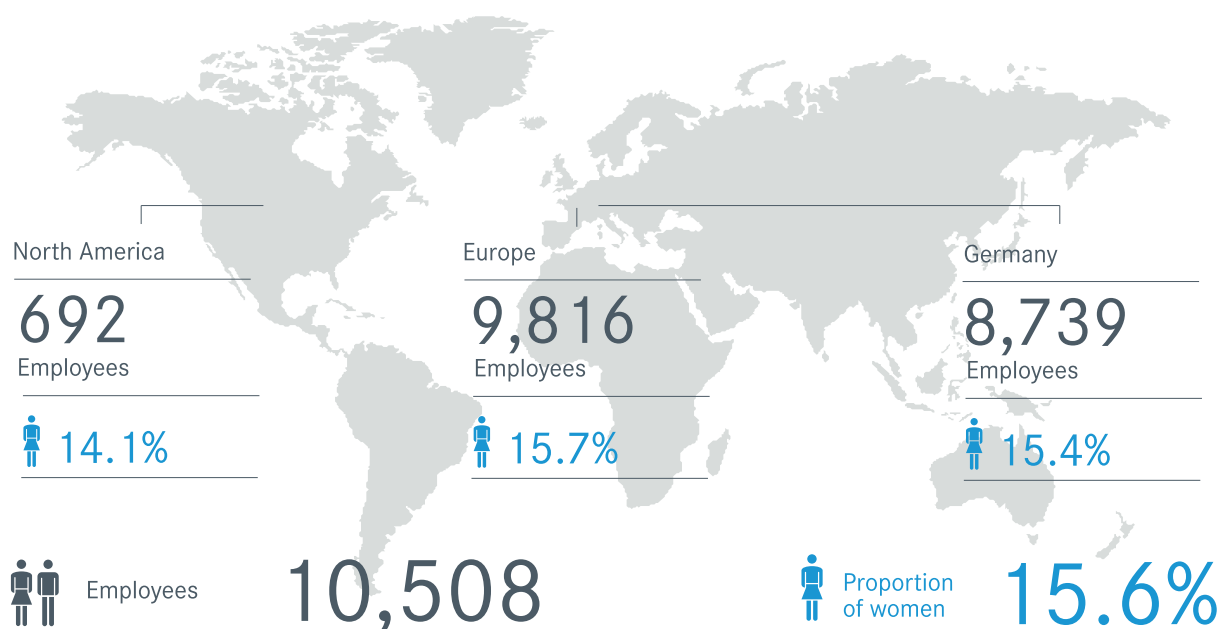
OUR HR GOALS IN THE 2025+ SUSTAINABILITY PROGRAM

## Innovative Culture project launched

We are convinced that our corporate culture is the basis for the success and innovative strength of MTU's products and services. Launched in 2021, the Innovative Culture project aims to actively strengthen corporate culture, support MTU's path to a successful future, and draw up the next stages of a cultural roadmap to this end. Over the past two years of the pandemic, MTU has proven how adaptable and resilient it is. We will need both of these qualities even more in the future in order to identify trends at an early stage, exploit them for our benefit, and also set them—true to our MTU Principles: “We shape the future of aviation.”

## Our global MTU team

### Employees by region



GRI 102-8: Total workforce of fully consolidated sites as at the end of 2021; proportion of female employees measured against active workforce. For composition of workforce sizes and scope of consolidation, see the [GRI Index](#).

At the end of 2021, our workforce comprised 10,508 employees at all fully consolidated sites, a slight increase on the previous year (10,313). At 93.4%, the majority of MTU's total workforce was employed in Europe, with 83.2% of the total workforce in Germany. The share of the workforce in North America was 6.6%. We are committed to long-term employment contracts. The proportion of permanent employment contracts at MTU is traditionally very high (93.7% for 2021).

### Staff turnover

GRI 401-1

	2021	2020	2019
No. of employees that left the company	609	385	289
Turnover rate (%)	6.8	4.2	3.4

Turnover rate measured as a proportion of core workforce, annual average, figures retirements; data broken down by age group is not available. We report on new hires in the chapter on Diversity & inclusion.



In view of the economic crisis during the coronavirus pandemic, we had to initiate measures to adjust our human resources capacity. A reduction of 10–15% was envisioned by the end of 2021, which we will achieve for example by reducing the number of temporary workers, allowing fixed-term contracts to expire, offering part-time work, offering older employees a phased reduction of their hours as they approach retirement, and leaving vacant posts unfilled. This is reflected in a higher turnover rate of 6.8% (2020: 4.2%). The degree of loyalty to our company remains high, with an average length of service of around 15 years (Germany, active workforce).

## Employee groups

GRI 102-8

	2021	2020	2019
Blue collar workers	47.3%	48.5%	49.5%
White collar workers	52.7%	51.5%	50.5%
Employees on temporary contracts	664	634	865
Apprentices	349	324	293
Temporary agency staff	286	180	395

Blue-collar and white-collar employee groups measured against active workforce. For composition of workforce sizes and scope of consolidation, see the [GRI Index](#).

## Principles of our social responsibility

As an employer, we show responsibility toward our employees, protect their rights and requirements, and create long-term, secure employment on the basis of corporate social responsibility. Our social and labor standards are defined in a Group-wide Code of Conduct and incorporate:

- Observance of human rights
- Equality of opportunity in the workplace
- Dealings with suppliers, customers and business partners in industrial relations
- Collaboration with employee representatives and labor unions
- Entitlement to appropriate remuneration
- Occupational health and safety
- Employee training and development

→ [MTU Code of Conduct](#)

The reporting procedures in the event of suspected breaches of our Code of Conduct, statutory requirements, plus our internal company guidelines and our principle of zero tolerance are described under → [Compliance](#) and → [Human rights](#). Details of the anti-discrimination measures we take can be found under Human rights. As a signatory to the [UN Global Compact](#), we are committed to observing its principles of respect for human rights and equal treatment in the workplace. We are also committed to fair working conditions in accordance with the [International Labour Organization's \(ILO's\) core labor standards](#).

MTU protects employees' rights and safeguards their freedom of association through the Code of Conduct. When drafting employment contracts, we observe national statutory requirements, collective agreements such as collective bargaining agreements, as well as internal company agreements. Managers ensure that company agreements are implemented and observed on a day-to-day basis in their areas of responsibility. In 2021, 92% of the people employed by the company were covered by collective agreements (e.g. collective bargaining agreements), a figure that stood at 80% worldwide in the same year.

The relationships we form with our employees are based on respect and trust and we take their concerns into account: in accordance with the German Works Constitution Act (*Betriebsverfassungsgesetz*), MTU's sites in Germany have works councils that maintain regular, open and trust-based dialogue with management. The German sites also have a Group works council that handles Group-related issues. At the company's sites in Poland and Canada, elected employee representatives support the interests of the workforce in dealings with management. In addition, the interests of employees are represented on the Supervisory Board, where seats are filled on the basis of parity.

## Further strengthen leadership & commitment

The MTU leadership values ("We transform, we empower, we create trust") form a shared basis for managers' values and conduct and shape our leadership culture. They promote collaboration at all levels, provide orientation and formulate expectations for leadership behavior. The past two years in particular, with the challenges posed by the coronavirus pandemic, have underscored the importance of our leadership values—especially the value "We create trust" against the backdrop of hybrid working models as well as more individual responsibility and creative freedom for our employees. We thoroughly prepare and train our managers for their tasks and constantly provide them with inspiration. [These offers are detailed under Employee development.](#)

## PulseChecks gauge the current mood

### INDEX VALUE FOR COMMITMENT & LEADERSHIP

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# 73 %

We had set ourselves a target index value of at least 75% from the three PulseCheck mood barometer surveys. Although we fell just short of this target, we consider the result to be good in view of the ongoing pandemic situation in 2021.

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We carry out an employee survey at regular intervals at all of our larger locations to provide important impetus for the company's ongoing development. We see this as an important yardstick for successful collaboration and leadership. We use the PulseChecks survey format at regular intervals to determine the current mood in the organization at the German sites. All employees are surveyed on various topics such as commitment, information, leadership, team, perspective and mobile working. The feedback on the topics of commitment and leadership is incorporated into an index value; this was taken into account as an ESG-relevant (ESG=environmental, social and governance) indicator for the Executive Board's variable compensation for the first time in the 2021 business year. The index value includes the agree responses ("Agree fully" to "Agree somewhat"). The value across all three PulseChecks was around 73% of the responses, which we see as a good result given the pandemic situation. In addition, 90% of employees reported a high level of trust and confidence in MTU.

We also conduct regular surveys at our sites outside Germany, such as MTU Aero Engines Polska. Feedback was particularly positive regarding collaboration and communication in hybrid working models, communication between management and employees in new formats, and health and safety offerings.

Moreover, further employee involvement forums are established at our sites around the world. These range from works meetings in Germany and townhall meetings in the United States, to special instruments such as leadership feedback and team barometers, to formats such as a regular dialogue with the Executive Board on selected current issues. We use our idea management system to obtain and evaluate improvement suggestions from employees. In 2021, the participation rate was 23.6%. In addition, we regularly initiate an in-house Ideation Challenge on predefined tasks in order to utilize the ideas of our employees. The ideas and concepts submitted are evaluated by a jury. We take particularly promising suggestions and test their potential and feasibility in projects in our Inno Lab, an in-house MTU innovation hub.

## Everyone gets individual feedback

We have established a consistent methodology for feedback and for evaluating performance at all levels of the hierarchy, from senior managers to employees included in collective bargaining agreements. The performance criteria are based on corporate, center or departmental objectives and are designed to measure how employees and managers contribute to reaching these objectives. Goal attainment is discussed during the year in milestone meetings and at year-end in goal attainment meetings. All managers undergo performance reviews to evaluate achievement of their personal targets, and in 2021, 97.2% of all MTU employees worldwide received a regular appraisal of their performance (at least once a year).

## Our awards in employer rankings

In comparative analyses with other companies, MTU again received several awards in 2021:



- TOP Employer Germany
- Germany's most attractive employers (Universum)



- TOP Employer Poland



- Women's Career Index
- Top Company on Kununu

→ [More about MTU's awards](#)

## Attractive compensation and benefits

For us, fair wages are part of an appreciative and respectful approach. Our employees' right to appropriate remuneration is enshrined as a pillar of MTU's Code of Conduct. Employee wages at all our locations are above the legally stipulated local minimum wage. We reexamine our remuneration structures regularly.

MTU ensure that employees receive competitive remuneration that reflects their performance, regardless of gender or other characteristics against which discrimination occurs. The remuneration of pay-scale employees in Germany is based on collective bargaining agreements. Variable compensation for senior managers is tied to MTU's long-term performance.

We offer a broad range of additional perquisites. In addition to the statutory obligations, in Germany these include accident insurance, profit-sharing, family-related services, mobility benefits, a healthcare service and training opportunities. In addition to the employer's contributions, all employees can make a personal contribution to the company pension plan. At our international locations we offer a range of benefits such as private life insurance, health insurance and retirement planning support.

### SOCIAL BENEFITS IN 2021

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# 134 million €

In addition to their salary, we offer our employees a wide range of social benefits such as a company pension scheme, in which we invested EUR 13 million.

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We enable our employees to share in the company's success. Each site does this using different regulations and programs. For our German sites, we offer an annual employee share program (participation rate 2021: 40.3%), with which we also aim to strengthen the entrepreneurship of our employees and their loyalty to us. Some of our international locations offer their own long-term bonus schemes, as in Rzeszów (Poland), or award annual bonuses, as is the case in Vancouver (Canada).

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### Solidarity fund helps with short-time working

During the pandemic-related economic crisis, we continued to employ people on short-time working at our German sites in the first half of 2021. Because short-time working can lead to cases of particular hardship among colleagues, at the start of the pandemic MTU set up a solidarity relief fund worth EUR 4 million. The Executive Board and well over 90% of senior management waived a significant slice of their variable remuneration to the benefit of the fund. This solidarity fund enabled us to provide financial support to employees and alleviate particular cases of hardship.

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We recognize the specific needs and various life phases of our employees and offer various options for individuals to shape their working hours and how their work is organized. These include, for example, a range of part-time models, mobile working and sabbaticals. This way, we create attractive conditions at MTU and help our employees achieve a better work-life balance.

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### Alternative working arrangements (Germany)

GRI 102-8, 401-3

	2021	2020	2019
Part-time employees (in %)	7.4	7.6	7.4
Employees on parental leave	478	416	395

The right to parental leave in Germany is governed by the German Parental Allowances and Parental Leave Act, which applies to the entire workforce. The legislation stipulates that any employee has a right to time off—regardless of their gender. Given discrepancies between national legal considerations, we do not consider it useful to consolidate these figures at the Group level.

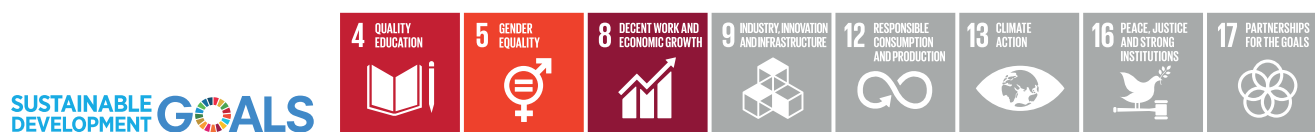
## Our initiatives include

- Flexible working hours and flextime accounts
- Wide variety of part-time working arrangements
- Educational leave
- Mobile working
- Teleworking
- Sabbaticals
- Part-time work for older employees
- Parental leave
- Job sharing
- Support for families (advice on arranging childcare, care services)
- Collectively agreed leave to look after children and relatives in need of care
- Collectively agreed time off for special personal occasions (e.g. wedding, change of residence, deaths in the family)

## Outlook

We will continue digitalizing our HR processes in 2022 with the introduction of workday® in order to offer our employees a digital HR platform in 2023. For the first time as part of Innovative Culture, we will determine a maturity index, and we will maintain the PulseCheck with two rounds of surveys.

Through good collaboration and trust-based leadership, we promote the following Sustainable Development Goals:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

## Services & tools

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**GRI:** 102-8, 102-12, 102-16, 102-41, 102-43, 103-2, 103-3, 201-3, 401-1, 401-2, 401-3, 404-3, 405-2

**UNGC:** 3, 6

## COMMITMENT &amp; ASPIRATION

# Human rights

We respect the human rights of our employees and have enshrined this in our corporate culture by means of various instruments. Beyond this commitment, we aim to prevent the violation of human rights at MTU.

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Respecting the individuality and dignity of each and every person, maintaining equality of opportunity and preventing discrimination—respecting our employees' human rights is essential to MTU.

MTU respects the internationally proclaimed human rights set out in the United Nations' Universal Declaration of Human Rights and enforces and protects these rights within its sphere of influence. Our [Code of Conduct](#) stresses that respect for human rights is an essential part of MTU's corporate social responsibility. We also respect and support the fundamental principles of the International Labour Organization ([Core labor standards of the International Labour Organization \[ILO\]](#)) and are a signatory to the [UN Global Compact](#), Principle 6 of which aims to uphold human rights.

We view the respecting of human rights principles as a Group-wide issue that involves many different areas, including social labor standards/law for employees, sustainable supplier management and trade compliance standards for responsible international trade.

[More about human rights in the supply chain at Procurement practices](#)

[More about responsible international trade under compliance at Corporate governance](#)

We are conscious of our responsibility as a company with global operations, and aim to carry out our due diligence with regard to human rights. In particular, we pursue the goal of preventing human rights violations that could affect employees (zero-tolerance principle).

## Code of Conduct for employees

MTU sees it as its duty to respect the individuality and dignity of each and every person, maintain equality of opportunity in the workplace and prevent discrimination. The protection of human rights, the right to appropriate remuneration, as well as recognition of regulations governing employee and union representation under labor and works constitution law, are implemented Group-wide through the [Code of Conduct](#). As an employer, we offer fair working conditions based on legally binding employment contracts with appropriate remuneration. This includes the right to unionize and to adopt collective agreements. Our zero-tolerance approach to violations is also a fundamental component of our Code of Conduct.

Compliance with the Code of Conduct and ethical principles is enshrined in the MTU Principles. In addition, MTU is bound by legal obligations that may differ from location to location; in Germany, for example, MTU must honor the General Act on Equal Treatment (AGG). Also in Germany, we have worked with employee representatives to enact internal guidelines on fair and cooperative conduct that are designed to prevent bullying, sexual harassment and discrimination. They also stipulate a systematic process for handling complaints.

When they join the company, new employees are informed about the regulations laid down in the Code of Conduct and—in Germany—in the [General Act on Equal Treatment \(AGG\)](#), and they undertake to comply with these requirements. In addition, we provide regular training on the Code of Conduct for all employees at all the company's sites and hierarchical levels. A new e-learning course on the Code of Conduct as revised in 2020 has been launched. By the end of 2021, almost 4,000 employees had taken part, → [More about MTU's Code of Conduct and associated training under Compliance](#)

## Reporting channels are open to all

Established reporting procedures are in place to ensure that we can systematically follow up on all complaints or reports of human rights infringements. Employees and external stakeholders can make reports to the Compliance Officer as a confidential contact point in the Group, or anonymously via the web-based [iTrust reporting system](#), available in multiple languages. This applies to all human rights concerns. → [See Compliance for information about handling reports](#)

Additional points of contact for employees have been set up at each location, about which we provide information on-site. For example, in compliance with legal regulations such as the AGG in Germany, trained personnel at each site are identified as the contact points for complaints regarding discrimination. For cases of sexual harassment, female employees can go to a female contact person. At MTU Maintenance Canada, employees can file a formal complaint with human resources management in cases of discrimination. They also have the right to go beyond the company and make a formal complaint to the BC Human Rights Tribunal. At MTU Aero Engines Polska, this function is carried out by a person elected by the employees. Employees can also report grievances to managers, the works council or the head of human resources. The Executive Board is informed about infringements depending on the severity of their impact. In cases of substantiated complaints, we take appropriate action to find a solution. → [More information about the collaboration between management and the works council in the chapter Collaboration and leadership](#)

### INCIDENTS OR SUBSTANTIATED COMPLAINTS

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Zero discrimination: We are pleased to report that we had no incidents or substantiated complaints regarding discrimination against employees. We see this as a sign of good collaboration at MTU.

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No site had a case of discrimination or received a substantiated complaint in 2021 as defined by the respective anti-discrimination legislation in effect there. Furthermore, there were no substantial violations within the MTU Group of the principles underpinning the Code of Conduct.

## Risk of human rights violations

We have identified no MTU business location that we must consider at significant risk of child, forced or compulsory labor, or at which the freedom of association and right to collective bargaining could be compromised. MTU considers the risk of human rights violations among its employees to be low at all its locations, as it is bound by the relevant national legislation that protects human rights and can play a direct role in upholding them. Employees are hired and developed solely on the basis of expertise, skills and experience. For these reasons, all national as well as international decisions are also examined to determine whether they meet our standards and guidelines. [More information about managing sustainability-related risks](#)

By protecting human rights, we can help achieve the following Sustainable Development Goals:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

### Services & tools

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**GRI:** 103-2, 103-3, 406-1, 407-1, 408-1, 409-1

**UNGC:** 1-6

## ADEQUATELY PROTECTING OUR EMPLOYEES

## Occupational health and safety

A safe and healthy working environment not only forms a key part of our corporate social responsibility, but was also greatly important during the second year of the coronavirus pandemic. In addition to preventing workplace accidents, we focused on protecting our employees against infection and actively containing the pandemic.



Explosion test in the laboratory: For three years, machine and safety experts have been tracking the explosion hazard of dusts; as a result, 32 plants have been rebuilt for even greater employee protection.

MTU places a great deal of importance on the safety of its employees. Occupational safety and employee health are enshrined as one of the key principles of corporate social responsibility in MTU's [Group-wide Code of Conduct](#). Compliance with national statutory regulations on occupational safety is also embedded in the Code of Conduct as a mandatory minimum standard for all of our international subsidiaries. In addition, we have established an internal standard that lays down parameters, rules and KPI definitions applicable across all locations. A Group report on workplace accidents is submitted to the Executive Board each quarter. Our occupational safety approach is not centralized; local implementation addresses the requirements at each location. At the individual production sites, occupational safety is the responsibility of the site managers; occupational safety officers are appointed at the management level. Local technical departments take action on occupational safety issues on-site and report regularly to their site management. The workforce at the company's production sites in Germany, Poland and Canada is represented in locally organized occupational safety committees, the composition of which includes employee representatives.

Occupational safety forms part of our integrated management system (IMS) policy and is regularly reviewed and improved. At the European production sites, workplace regulations that are mandatory for all employees contain important safety rules pertaining to accident prevention, fire protection and what to do in the event of workplace or commuting accidents. The occupational safety management systems in place at the German sites are certified externally in accordance with the ISO 45001 international standard for occupational health and safety management systems. → [MTU's current certifications](#) Accordingly, 83.2% of the workspaces comply with an external standard; all workspaces in the company are part of our IMS based on the principle that “safety takes priority in what we do.” This includes the workspaces occupied by temporary workers, who are included in occupational safety measures in the same way as permanent employees. At the new production site in Serbia, which is currently under construction, a management system based on the ISO 45001 standard is being implemented.

## ACCIDENTS PER 1,000 EMPLOYEES

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# 3

High level of safety: The number of reportable accidents per 1,000 employees in 2021 was—as in previous years—well below the industry average for the metal industry of 31 accidents.

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We strive to prevent health and safety risks to our employees and third parties. In addition to the steps we are taking to protect against infection during the pandemic (the measures went into effect in 2021), we regularly assess workspaces for any risks and hazards they present for employees. If potential burdens or hazards are identified, we take measures to eliminate them or reduce them to a minimum. External ISO 45001 audits also review the risk assessments of workplaces and activities.

With the aim of permanently reducing the number of accidents and reaching a level of safety that aspires to prevent any accidents whatsoever, the local occupational safety officers record all accidents according to uniform criteria and investigate them together with the affected employees / temporary workers and their managers. Should the assessment reveal specific aspects pertaining to the cause of accidents, we will take further steps to increase safety precautions. In addition, the company has a system in place to record and evaluate near-misses at all production sites. We strongly encourage the workforce to report unsafe situations. Safety training at least once a year is mandatory for all employees throughout the Group; for production employees, it is sometimes held monthly. We train all employees and temporary workers on health and safety matters specific to working life at MTU when they first start working at the company. In addition, managers receive repeated mandatory training on occupational safety. First-aiders are appointed and obligated to attend a refresher course every two years. Additional functions are fire safety assistants and safety officers. The local technical departments carry out ongoing prevention work at the company's sites through training sessions and information campaigns. In the reporting year, training was conducted online as far as possible.

## Accident figures at a low level

Accident-free and low-stress workspaces form part of our IMS policy. Each year, we define maximum tolerance thresholds at each location for workplace accidents (non-reportable workplace accidents entailing one to three days lost plus reportable accidents that entail more than three days lost; accidents while commuting are not included). The threshold ranged from 0 to 15 in 2021, depending on the location. Regrettably, we were not able to meet this threshold at two of our five production sites. However, the number of accidents remained at a low level. For the Group as a whole, a total of 70 accidents entailing lost days were recorded in the reporting year, which is more than in the previous year (50 accidents). This increase correlates with higher workloads compared to the first year of the pandemic (2020), which was heavily influenced by short-time/remote working and production interruptions. The Group-wide accident rate thus increased over the previous year: from 2.1 reportable workplace accidents per 1,000 employees (entailing more than three days lost) to 3.0. Overall, MTU still has a high level of safety compared to the average in the German metalworking industry (31.4 accidents per 1,000 employees, as recorded by Wood and Metal Trade Association—BG Holz und Metall in the data for 2020). As in previous years, there were no fatal accidents.

## Workplace accidents and days lost

GRI 403-9

	2021	2020	2019
Non-reportable workplace accidents (category 3, 1–3 days lost)	39	28	32
Reportable workplace accidents (category 4, more than three days lost)	31	22	47
Fatal workplace accidents (category 5)	0	0	0
Accident rate per 1,000 employees (category 4)	3.0	2.1	4.4
Days lost as a result of reportable accident (category 3+4)	820	679	1,226

The accident statistics relate to the total workforce, including temporary agency workers since 2020. The recording of category 3 accidents for temporary agency workers began in 2021. Accidents while commuting are not included and the day of the accident does not count as a day lost. For composition of workforce sizes, see the [GRI Index](#).

The total days lost also increased as a result of the higher number of workplace accidents, totaling 820 days for 2021 (2020: 679 days). By contrast, the average ratio of accidents to days lost did not increase, but fell to 11.7 (2020: 13.8).

All accidents are recorded and evaluated. The analyses of accidents show that, overall, MTU has a very high level of technical and organizational safety with regard to its machines and equipment. The accidents that do occur are frequently related to behavior and less so to the operation of machines and equipment.

## Further expand and improve protection concepts

The occupational safety specialists on-site derive proactive measures from regularly updated risk assessments, routine inspections of workstations, and audits in production and administration. We also use findings from such analyses and from the evaluation of existing workstations for the ergonomic and safe design of new workspaces—for example, the extension at the Hannover site. In addition, production employees at the headquarters in Munich were surveyed on the occupational safety measures implemented and their perception of risks and hazards. The results will be taken into account in, for example, the selection of personal protective equipment and in future communication measures. A full 94% of respondents said they always or often feel safe in their jobs.

Further development efforts also focus on high standards in ergonomic workspace design. For this purpose, MTU has tested a new generation of exoskeletons in assembly, logistics and maintenance to see how well they ease the physical strain on employees in their activities. Regarding risk assessment, we have realigned the concept for recording mental stress in collaboration with occupational health management. In addition, the Rzeszów and Munich sites conducted evacuation exercises in the production facilities, as did the new site in Serbia, with exercises on the construction site for all third-party companies present and in the office for employees present. At the Munich site, we held our first action day on occupational safety aspects for apprentices and people in the dual vocational training program.

## Employee health was of great importance in 2021 as well

In 2021, we again put extensive measures in place across all sites to protect our employees' health during the coronavirus pandemic. These technical and organizational measures applied both to the actual workstations and to daily workflow processes. The idea was to offer our employees the best possible protection against the coronavirus and minimize the risk of infection at work. To this end, we issued binding guidelines for all employees. These were in line with publicly announced measures and were set to be at least as strict as official limits, but were often stricter. The workforce was instructed on the applicable regulations on the occasion of the comprehensive amendment to the SARS-CoV-2 Occupational Health and Safety Ordinance.

As part of an ongoing in-house communication campaign, we are keeping employees continuously up to speed with important changes and processes, raising their awareness of infection risks, and appealing to their sense of personal responsibility. A coronavirus board, on which various functions of the company are represented, initiates company-wide regulations to protect employees. The board also ensures that all the sites in Germany coordinate with one another.

For the duration of the pandemic, we switched to mobile working, virtual conferences and alternating presence in the office to limit the number of employees present on-site at one time. We issued binding distancing and hygiene regulations for any unavoidable meetings of small groups requiring physical attendance as well as in communal areas and company restaurants. These included the wearing of protective masks especially in buildings outside an employee's normal workplace but also wherever a minimum distance of two meters cannot be maintained, for example in some areas of production. Over the past two years, MTU has issued around 1.25 million masks to employees. If necessary, we took additional workplace-related measures or individual measures to protect employees who belong to risk groups. The regular distribution of self-tests to employees supported the protection concept; in 2021, more than 380,000 self-tests were issued.

### Largest vaccination campaign in the company's history

Since offering vaccinations within the company is an essential step in supporting nationwide vaccination efforts across the board, MTU joined the 2021 coronavirus vaccination campaign. Our medical teams administered a total of around 7,000 doses of vaccine in the form of first, second and booster vaccinations to employees. The campaign, which ran under the motto "We're rolling up our sleeves," is the largest vaccination campaign in the company's history to date. In addition, flu vaccinations during the winter months are a regular offering under the company's health management program. The offer also served to minimize the spread of influenza during the coronavirus pandemic.

## Regular health offers

Health management also includes core initiatives such as a service at the German sites that covers occupational health and—at sites with a company doctor—emergency medicine and is responsible for general preventive measures. This service is available to all employees and temporary workers.

Counseling services offer employees and temporary workers support with maintaining their overall work performance as well as for mental health issues. In addition, all of our German locations offer supplementary in-house and external services. This includes in-house case managers, who provide advice for employees returning to work following a long absence, as a result of sickness or an accident for instance, to ensure that they get the best possible support with their reintegration. External providers offer a comprehensive support package for family-related matters. Additional benefits offered by MTU include fitness centers, which are run either in-house or by external partners, as well as physiotherapy and ergonomics training on-site; in 2021, the pandemic meant these offerings were either limited or online, or available only at certain times. A two-day online prevention program was conducted for apprentices.

## Health rate

	2021	2020	2019
Germany	94.9%	94.8%	94.4%

Our employees outside of Germany can also take advantage of permanent health services. Employees in Vancouver, Canada, have access to a free Employee Assistance Program. It offers a wide variety of support services on topics such as financial planning for healthcare costs, mental health, and personal or family counselling, as well as advice on equipping workspaces in a way that promotes good health. MTU Aero Engines North America offers its employees health and welfare benefits in the form of various health insurances or workplace reintegration after a long period off work. At our site in Rzeszów, Poland, the basic medical services on offer include a doctor who is on-site once a week as well as psychological support as needed. In addition, employees can take part in an additional offer, which last year was the online project Together for Health.

By actively protecting the health of our employees, we can help fulfill this Sustainable Development Goal:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

## Services &amp; tools

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**GRI:** 103-2, 103-3, 403-1, 403-2, 403-3, 403-4, 403-5, 403-6, 403-8, 403-9

## WE INVEST IN OUR EMPLOYEES AND THEIR SKILLS

## Employee development

We promote a model of lifelong learning for all and support our management in their role as managers of change to strengthen MTU's performance for the future.



A solid, forward-looking apprenticeship is the starting point for a vocational career. We rely on new, digital learning methods such as augmented reality.

Innovative strength and competitiveness are key factors for success in our industry. In addition, the transformation of aviation is bringing about profound changes. We are playing an active part in this and shaping the future of aviation. That is why we train and qualify our employees for specific important future fields such as propulsion concepts for emissions-free flight, digitalization, innovative production technologies, and new working methods.

We firmly believe that continuous, intensive employee development is essential for MTU. We invest specifically in the training and development of our talent, and we have continued to do so during the coronavirus pandemic. In times of change, MTU is expanding its leadership skills to include the forward-looking management concept of change leadership, which actively initiates and supports change, reinforces personal responsibility and the ability to act, and conveys trust and stability. Continuous personal and professional development of our employees also makes us an attractive employer for new hires and our own talented individuals.

In addition to industry-specific vocational training and dual work-study programs aimed at building up knowledge over the long term, we support and promote the development of all our employees—this is a key principle of corporate social responsibility as defined in the company's [Code of Conduct](#). In many areas of our business activities, aviation authorities prescribe additional qualification measures, such as mandatory training on human factors (failure through human error). Promoting training and development as well as avenues for personal development for employees and managers is also enshrined in the MTU Principles and in our HR strategy.



The head of human resources is responsible for the training and development of employees Group-wide. The full Executive Board receives an annual update on training indicators and discusses selected training initiatives.

## Huge significance of training and development

The huge significance of training and development is reflected in the scale of opportunities we offer and how much we invest in them. This is based on our Group-wide works agreement in Germany, which guarantees access to training for all employees and requires management to conduct an interview with each employee once a year to discuss their development opportunities (training interview). This directive applies to 83.2% of the total workforce. At our three sites in Germany, the works council is also involved in employee training in accordance with the German Works Constitution Act (Betriebsverfassungsgesetz) and has a say in the annual training and development program. International sites have their own regulations; at MTU Aero Engines North America, for example, an annual development plan is agreed with all employees.

Our welcome-on-board program provides new employees with important introductory information about working at MTU. In the spirit of lifelong learning, we then continuously encourage and challenge them to develop their skills. The broad spectrum of opportunities reflects the various aspects of the world of work and MTU's business. We establish training requirements annually in a standard process (training interview). Employees evaluate training courses they have completed in a personal meeting with their manager, or in some cases via a feedback form. An individual training history documents completed training and development courses. Training officers are on hand to answer questions relating to needs-focused training.



# 4.2 million €

We continuously invest in the development and training of our employees. Our investments in this area in 2021 were almost as high as before the crisis. MTU has a wide range of development offerings and formats.

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A multilingual online learning portal is the cornerstone for expanding multimedia learning. Increased use of digital and hybrid learning formats should ensure and flexibly support the training of specialists at all levels. Employees can use the portal to organize their own development in consultation with their manager.

Our Future Readiness Program, which focuses on digitalization, consists of various formats through which all employees can learn more, exchange ideas, and network. The aim is to continuously promote a digital mindset among our workforce.

In Rzeszów, Poland, we continued with "MTU positive thinking & action," a coronavirus-related online platform that provides links to free webinars, courses, specialist articles and podcasts relating to various aspects of training and development.

At our MTU Aero Engines North America site, we have a program for entry-level graduates that rotates them through a variety of departments focusing on different areas of engineering. Moreover, we cover a certain portion of tuition fees for employees there who return to university to obtain a master's degree as part of their development plan.

In 2021, the second year of the coronavirus pandemic, we again continued our extensive investment in employee training. The cost of all in-house and external training activities (without apprenticeships) throughout the Group stood at EUR 4.2 million (2020: EUR 3.0 million). This increase in training costs is mainly due to the fact that for a certain period of time during the pandemic, more face-to-face training was possible again. At 21,141 days, the number of training days was also up on the previous year (2020: 17,717), which brought the average number of training days per employee up to 2.0. This means that the KPIs for the training of our workforce approached the pre-crisis level.



## Employee training

GRI 404-1

	2021	2020	2019
Training days (total)	21,141	17,717	27,174
Training days per employee (Group-wide)	2.0	1.6	2.5
Training days according to employee category per manager	2.4	2.1	3.2
Training days per employee category per pale-scale employee	2.0	1.6	2.7
Proportion of women in training courses (Group-wide)	16.0%	16.3%	16.1%

We started recording training days by employee category in 2019 for Germany; starting in 2020, the figures cover the Group.

## Developing managers into change managers

Change leadership has become one of the most important management skills. That is why MTU is developing its managers so they become managers of change with a view to securing MTU's performance now and in the future. Especially in times of change, the MTU leadership values—"We transform, we empower, we create trust"—take on even more relevance as a shared basis for managers' values and conduct. The values are intended to provide orientation and formulate expectations for leadership behavior. That is why we have continued this leadership values process, for example with training courses on remote leadership.

Moreover, we are constantly providing our managers with orientation and inspiration through offers such as the "Forum Leadership" blog, which is updated every two weeks, as well as through regular online short formats, or "leadership nuggets." These offers also address current challenges such as remote leadership, virtual teamwork, resilience in times of crisis, managers as change leaders, or dealing with hybrid working environments. The human resources department's change management team supports managers in implementing changes in their work situations.

We also offer development opportunities and programs across all levels in order to identify and best cultivate new talent, while supporting our existing managers in their professional development. A key tool is the Development Center, which, by way of exercises and interviews, supports talented employees in honing their individual development plan for assuming a management position. The Development Center is designed to objectively evaluate talented individuals and promote their visibility within the company. Some 60% of new managers appointed in 2021 had participated in Development Center activities. Due to the coronavirus pandemic, not all Development Center activities could go ahead as planned.

Furthermore, we have added a new module to talent management: potential candidates from the German sites can participate in a mentoring program for professional and personal development and for cross-hierarchical and cross-divisional exchange and networking.

There are also special development programs for new managers: a Leadership Exploration Program for departmental managers as well as a First Leadership Program for managers at the team leader level.

MTU also offers new and experienced managers the opportunity to receive management transition or pit-stop coaching with optional reflection and sparring components.

## Our programs

We have numerous Group-wide initiatives that we use to develop our managers and support them both professionally and personally:

- Development Center
- Leadership Exploration Program
- First Leadership Program
- Management transition coaching
- Building on Talent/International Building on Talent

In addition, there are site-specific offerings for managers, such as an MTU Management Academy run by MTU Aero Engines Polska.

## A promising career start through a solid apprenticeship

For us, vocational training is a central component of securing promising young employees. In Germany, we offer a solid grounding in ten different trades as part of a dual work-study approach, while the places we offer for students taking dual-track courses of study offer different specializations. We pursue a holistic approach that goes beyond specialist topics to also cover social and ecological aspects, for instance through health and environment days or through corporate social responsibility. → [For examples, see the section about Corporate social responsibility](#). We continued training in Germany at the usual level in 2021, giving 95 people the chance to start their apprenticeships.



Starting their careers: The new apprentices at the three German sites in Hannover, Munich and Berlin (from left to right)

Apprentices have made up a constant proportion of MTU's workforce for many years; last year they accounted for 3.3% of the total workforce (2020: 3.1%); in Germany, where most of our apprenticeships take place, the share was 3.8%. As of the end of the year, MTU employed a total of 349 apprentices (2020: 324). In addition, we offer practical courses of study in collaboration with selected vocational academies.

For the new location in Eastern Europe, MTU Maintenance Serbia d.o.o, the training concept based on the dual system used in Germany got underway for first-year apprentices at the Aviation Academy Belgrade. As part of the cooperation with the Academy, Serbian teachers themselves spent time as trainees at the training shop in Munich. To ensure a high level of qualification for the new employees and prepare them as effectively as possible for working with the specific requirements of aviation, a large number of them are trained at our German sites.

## Educational initiatives in which MTU participates

In an effort to attract potential recruits early on, numerous MTU sites take part in educational initiatives including:

- Training Night
- IdeenExpo science exhibition in Hannover
- Nature and Technology Days
- Teachers in Industry
- Girls' Day
- Research Camp for Girls
- EUROTEC
- *Jugend forscht* contest for young researchers
- *Komm, mach MINT!* (a German STEM initiative)
- Business4School

## Outlook

A new Executive Leadership Program is being planned for top-level management.

By training our workforce, we can help achieve the following Sustainable Development Goal:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

### Services & tools

DOWNLOAD CENTER AND REPORT ARCHIVE

ONLINE SURVEY ABOUT SUSTAINABILITY@MTU

**GRI:** 103-2, 103-3, 404-1, 404-2

**UNGC:** 6

## DIVERSITY MAKES US STRONGER

## Diversity &amp; inclusion

Different ideas and experiences broaden our horizons and make us more flexible and innovative. That's why we promote diversity & inclusion through an appreciative and inclusive corporate culture.



Flying the flag: To mark the 9th German Diversity Day on May 18, 2021, MTU expressed its commitment to diversity in artistic terms. An employee brought the motto #Vielfaltverbindet (#diversityconnects) to the Munich premises.

Diversity is a key element of our commercial success. We firmly believe that a diverse workforce is conducive to collaboration and bolsters our innovative capabilities and competitiveness. Given the high complexity of engineering projects, it is advantageous to have mixed teams. We see diversity as more than a strength; for us, it's part of our corporate social responsibility. As an employer, it makes us more attractive to new talent.

Promoting diversity is a key component of our corporate culture and is enshrined in the MTU Principles. To ensure an inclusive working environment within the company, MTU embraces a corporate culture based on respect and appreciation that promotes fair and cooperative conduct. MTU is actively committed to equality of opportunity and equal treatment of all employees and takes a clear stand against discrimination in the workplace. We have laid down these principles in our globally applicable Code of Conduct. We want to assign employees to positions in accordance with their skills, abilities and performance. All our employees are given the same opportunities regardless of their gender, ethnic origin, age, religion, disability or sexual orientation. → [Code of Conduct](#) We have processes in place that allow breaches of the Code of Conduct or of internal guidelines to be reported to designated points of contact. → [These are laid out in detail in the chapter Human rights.](#)

Companies with high gender or ethnic diversity are more successful—the likelihood of achieving above-average profitability is 25–36% higher. This is one of the findings of the 2020 McKinsey international study “Diversity Wins—How Inclusion Matters.”

Especially in times of crisis, diverse teams are crucial, as is an inclusive corporate culture characterized by equality of opportunity, openness and belonging. Compared to earlier surveys, the link between diversity and business success has strengthened.

MTU's commitment to diversity and equality of opportunity is also demonstrated by its status as a signatory to the [Diversity Charter](#) and as a partner company of the [Impact of Diversity](#). We also support various research projects on diversity & inclusion, and we exchange information with experts, organizations and networks on this topic. As a signatory to the [UN Global Compact](#) sustainability initiative, we commit to preventing discrimination in the workplace.



## Diversity is a focus of our Innovative Culture project

With the Innovative Culture project, we want to actively develop our corporate culture in seven fields of action. In this context, cultural change also refers specifically to the promotion and use of individuals' diversity to overcome challenges for MTU and leverage innovation potential.



*Reiner Winkler*  
*Chief Executive Officer*  
*MTU Aero Engines AG*

“Our company is committed to **diversity and equality of opportunity**. Aviation is an international industry that connects cultures and people. We firmly believe that a diverse workforce bolsters our **innovative capabilities and collaborative culture**, which in turn ensures our **competitiveness**. We take a clear stand **against discrimination** in the workplace. **Equality of opportunity** regardless of gender, ethnic origin, age, religion, disability or sexual orientation is the foundation for a respectful corporate culture, which we strengthen and develop through a variety of specific measures.”

## Achieving diversity in any kind

Our diversity concept takes into account various aspects such as gender, cultural background, age and experience, disability, and sexual orientation and identity. The diversity officer is responsible for diversity issues throughout the Group and reports directly to the HR manager and thus to top management. They work closely with HR policy/strategy and are in continuous communication with local HR departments to effectively support the needs of local employees. The aim is to actively develop and strengthen diversity within MTU. In our internal media and via our social media channels, we regularly raise awareness for diversity and inclusion and for a discrimination-free working environment. We use training courses and presentations to draw the attention of employees and managers to the positive effects of diversity and an inclusive working environment at MTU.

We support employee resource groups (ERGs), i.e., self-organized networks and groups of employees that promote a diverse, inclusive work atmosphere. These networks offer employees a way to make their concerns visible and provide impetus for collaboration within the company. This helps us better incorporate diverse experiences and perspectives from the workforce into our decision-making. There is, for example, a Network of Engine Women (NEW) founded under the auspices of MTU’s Chief Technology Officer, as well as informal networks such as one for Spanish-speaking employees.



## Getting more women excited about our tech world

Aviation has always offered numerous career opportunities of a technical nature and is still dominated by men. We consciously focus on change and actively promote equality of opportunity as well as equality for all genders. It follows that one of our key goals is to increase the proportion of women in management positions to 13% by the end of 2022 for all management levels in Germany except the Executive Board. The share here was 11.3% at the end of 2021. In contrast, almost a quarter (23.6%) of places in the Development Centers, a personal development program for high-potential employees, were filled by women in 2021.

We have set a separate goal for the Executive Board: by June 30, 2022, 25% of members are to be women. The Supervisory Board has two female members each on the employee and shareholder sides. [More information available in MTU's corporate governance report for 2021 \(p. 109f.\)](#)

### PROPORTION OF WOMEN

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# 15.6%

This puts us almost exactly at the share of women in STEM professions, which is 15.4% according to the latest German Economic Institute spring report (May 2021). It is important to get girls and young women interested in technology at an early age, so that engineering companies like MTU become an option when choosing a career.

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The Executive Board is kept regularly informed about the measures that have been initiated to promote equality of opportunity as well as equality for all genders. In addition, it presents a report on equality at the works meeting at German locations once a year. In Germany, the works council is involved in decisions subject to co-determination, such as flexible working time rules.

The principal focus of our initiatives is to secure more female employees for the company, identify and promote female talent, and offer female employees greater support throughout their careers. To this end, we participate in mentoring programs, including:

- Cross-Mentoring Munich (a program organized by the City of Munich)
- Mentoring Program offered by the University of Stuttgart for women studying and in research
- "Project U" project for female students of STEM subjects at Leibniz University Hannover
- Accelerated Leadership Mentorship Program offered by the Women in Leadership Foundation, Canada



## Proportion of women

GRI 102-8, 405-1

	2021	2020	2019
Workforce	15.6%	15.1%	14.7%
Managers	11.8%	11.3%	11.5%
Apprentices	14.9%	16.7%	18.2%
New hires	20.5%	21.5%	16.9%

Share of women in the workforce and in management positions as a proportion of the active workforce for trainees/apprentices, relating to the Group (2020) or Germany (2019); recorded at the end of each year; we do not have figures on the proportion of women by employee group.

When it comes to the proportion of women in the workforce, we see an ongoing upswing over a three-year period (2019–2021). The current share is 15.6%. We were able to slightly increase the proportion of women in management at MTU as a whole to 11.8% at the end of 2021. We actively consider diversity and equality of opportunity when filling positions and selecting new employees. The share of women among new employees across the workforce was 20.5%. The share of women among apprentices was 14.9%.



Our efforts and progress are rated annually by the [Women's Career Index \(FKI\)](#), an external tool for evaluating career opportunities for women in business enterprises. MTU has had itself certified since 2016 and has always finished **among the top ten** since then.

In addition, we are involved in educational initiatives aimed specifically at young female talent. For instance, we are a project partner in Komm, mach MINT!, a German STEM initiative that aims to inspire more women to pursue qualifications and careers in the fields of science, technology, engineering and mathematics. The Women Researchers Camp, organized by the Bavarian Business Education Association, has also been an integral part of our promotion of young female talent for years. Each year, we give female school students an insight into the working world of female engineers and research at our company.

## Programs and initiatives (in-house and external)

- Talent management
- Development Center
- Network of Engine Women
- [Munich Memorandum for Women in Management](#)

- Cross-Mentoring Munich Program
- [Women in Leadership Foundation](#)
- [The MTU “Studienstiftung” foundation for female students in scientific and technical fields](#)
- [Girls’ Day](#)
- [The Lower Saxony Technical Internship \(“Niedersachsen Technikum”\)](#)
- [Komm, mach MINT! \(a German STEM initiative\)](#)

We have a range of offers open to all employees to improve their work-life balance, including flexible working hours, services to assist families and mobile working opportunities. → [More information under Collaboration and leadership.](#)



In 2021, MTU was awarded the Success Factor Family progress index seal of approval issued by the German Federal Ministry for Family Affairs. We live by a family-friendly corporate culture and we are committed to achieving work-life balance.

## Inclusion involves everyone

As an early signatory to the Charter of Diversity, MTU has for years been committed to creating a working environment that is free from prejudice, one that recognizes and supports people’s diverse potential. We want to be a positive example of diversity, create a culture of impartiality and ensure all employees have equality of opportunity in the workplace. This approach is inclusive of employees who identify themselves as lesbian, gay, transgender or intersex. We embrace diversity and welcome all employees who wish to enhance the company. Every person should be able to openly declare their sexual orientation or gender identity without experiencing any disadvantages as a result.

Individual talent should be able to unfold within a respectful and appreciative environment with an emphasis on solid performance and personal commitment. We support public initiatives to prevent bullying and discrimination, for instance by participating regularly in Pink Shirt Day in Canada and observing the International Day for the Elimination of Racial Discrimination. We also express our appreciation for our employees in inclusive language. Since spring 2021, we have used inclusive language in our in-house and external corporate publications and in our communications with employees. We developed a guide for this purpose, which provides recommendations, examples and good reasons for use.

As part of our inclusion efforts, we recognize the importance of integrating employees with disabilities. In 2021, the proportion of our employees in Germany with disabilities was 5.1%, which meets statutory requirements. At our sites in Germany, we have elected representatives for employees with severe disabilities as well as dedicated inclusion officers who act as points of contact for issues relating to disability. Our locations, and especially new buildings, are designed with accessibility in mind. A case in point is the new company restaurant in Munich.

## Strengthening cross-generational collaboration

Cross-generational collaboration makes it possible to combine valuable experiences and new impulses in a productive way. This is why we believe in good relations between young and old, and we take age diversity into consideration in our company. At our company, three generations work together hand in hand. We are meeting the challenges associated with our aging workforce in Germany and the fact that people are working longer from career entry to retirement. To secure the long-term performance of our employees, we operate a company health management system (→ [Occupational health and safety](#)). Employees in every age group receive equal access to training and development. We offer a variety of career opportunities geared toward younger generations: Apprenticeships, dual work-study programs, trainee programs and development programs for high-potential employees (→ [Employee development](#)). The interests and needs of young employees in particular are also represented by an elected youth and apprenticeship council. In 2021, we established a new network for young talent in the company, called Young Professionals.

### Age groups GRI 405-1

	2021	2020	2019
< 30 years	16.2%	16.4%	18.2%
30 – 50 years	55.1%	53.7%	52.8%
> 50 years	28.6%	29.9%	29.0%

Measured in terms of active workforce, at year-end in each case. For composition of workforce sizes, see the [GRI Index](#).

## Inclusion of diverse cultural backgrounds

As a globally active company, we consider internationalization to be a key dimension of diversity. Our engine business has a global outlook, and having an intercultural workforce helps us to succeed in different markets. The 2020 McKinsey study “Diversity Wins—How Inclusion Matters” comes to the conclusion that ethnic diversity among employees has a positive effect on a company’s profitability. We promote internationality in our workforce and intercultural understanding, e.g. through intercultural training and cross-site dialogue formats. → [Learn more about our training programs here](#) Secondments to international locations form an important part of our HR policy for promoting intercultural skills. In 2021, some 70 employees were working for MTU abroad. Apprentices are also given the opportunity to gain international professional experience.

We have strong roots in Germany, but our character draws on a variety of cultural backgrounds. Employees of 82 different nationalities work together at MTU. We take an active stand against xenophobia and in favor of diversity and equality of opportunity, for instance as part of the International Day for the Elimination of Racial Discrimination.

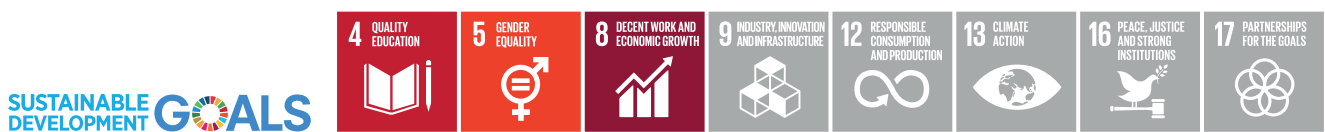
## WE ARE DIVERSE



82

is the number of nationalities represented by our employees. They work successfully together, with their individual cultural background adding different experiences and perspectives to the mix.

By promoting diversity & inclusion, we can help achieve the following Sustainable Development Goals:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

## Services &amp; tools

DOWNLOAD CENTER AND REPORT ARCHIVE

ONLINE SURVEY ABOUT SUSTAINABILITY@MTU

**GRI:** 102-8, 102-12, 103-2, 103-3, 401-1, 405-1

**UNGC:** 6

## STRENGTHENING KNOWLEDGE ECONOMIES AND LOCAL COMMUNITIES

## Corporate social responsibility

Our contribution to social development is focused primarily on research, education and training. In addition, we support social projects that have a local impact close to our sites.



We offer young people apprenticeships at MTU—for instance to become aircraft maintenance mechanics—in specially set up training shops such as the one here in Munich.

Corporate social responsibility is an integral part of the MTU Principles, one of which states: “MTU takes its responsibility for the environment and society seriously.” At many of our sites, we are a major local employer offering a wide variety of attractive jobs in a high-tech environment. This has a positive effect on the local employment situation, including in less economically successful regions such as Brandenburg, Germany. We also offer apprenticeships in various trades in Germany. We generally take a long-term approach to employment. In addition to training and developing our employees, we invest in the expansion of our sites, as we are currently doing with several building projects at our Munich location, an extension in Hannover and the construction of a new repair site in Serbia. These investments strengthen the local economy and job market, and in turn have a positive effect on social aspects such as infrastructure and prosperity. We also contribute to society through the income tax we pay. → [How we add value through our economic output](#)

As we drive aviation technology forward, we rely on a new generation of skilled employees and an innovative business environment. Therefore, our concept of corporate citizenship revolves around science and engineering initiatives. We seek out interaction and collaboration with the world of science and research and foster dialogue with young people and new talent.

We have built strategic alliances with research partners to foster links between universities and industry and to safeguard our capacity for innovation. Together with partners from industry, research and teaching, we have built up a strong technology network. → [Our technology network](#)

In the Sustainability Program 2025+, we formulated goals for research collaborations, corporate citizenship and employee engagement.

## OUR SUSTAINABILITY PROGRAM 2025+

### TRAINING AND APPRENTICESHIPS



# 349

is the number of future aviation professionals we had on board with us at MTU last year—more than in previous years. They complete a two- to three-year apprenticeship based on Germany's dual-track system or an 18-month on-the-job training course at our site in Canada.

We offer young people a solid grounding in various trades. In 2021, we had a total of 349 apprentices (2020: 324) learning a trade at MTU, which corresponds to 3.3% of our total headcount (2020: 3.1%). In Germany, where most of our apprenticeships take place, the share was 3.8%. As part of the dual-track training system, we pursue an integrated approach that combines technical qualifications with methodological and social skills. It gives our apprentices experience in all aspects of the company, including health management, environmental protection, social values and our no-blame culture. To this end, we organize special awareness days on selected aspects (occupational safety, environmental protection). At our new site in Serbia, we are currently preparing a local training program for aviation industry specialists based on Germany's dual-track system. MTU also collaborates with German vocational academies in Stuttgart, Ravensburg and Berlin as well as with Baden-Wuerttemberg Cooperative State University to offer practical courses of study in business administration, information technology, mechanical engineering and business engineering. In addition, we participate in numerous educational projects and initiatives for children and young people → [Diversity & inclusion](#), → [Employee development](#).

## MTU APPRENTICES DONATE TO GOOD CAUSES



The proceeds from the annual Christmas fundraising campaign in 2021 organized by apprentices were distributed equally to four organizations: a Bavarian charity that sends clowns to cheer up hospital patients; an organization that gives food to the needy in Munich; an association of barbers who regularly give free haircuts to the homeless and others in need; and a charity that offers palliative care in patient's own homes in Dachau. The total donation was EUR 9,200, a bigger sum than ever before.

## Collaborations with schools and universities

We run a series of sponsorship schemes at the University of Stuttgart and the German Aerospace Center that support young researchers for a number of years after they finish their degrees, and we provide financial backing for a *Deutschlandstipendium*, or “Germany Scholarship,” at Leibniz Universität Hannover and Technische Universität Braunschweig. Together with Technische Universität Braunschweig, we operate a maintenance laboratory to enable students to experience engine maintenance at our premises as part of their master's studies. In cooperation with the Business4School project, an initiative that aims to foster business skills in schoolchildren, HR and Controlling managers at MTU Maintenance Hannover give insights into their work in lectures at local schools. Our international locations also work together with selected universities and colleges in their regions: MTU Aero Engines Polska has established an alliance with the Lezajsk Technical School and the University of Science and Technology (AGH) in Kraków, and MTU Aero Engines North America has a partnership with the CREC Aerospace Academy. Our engineering subsidiary in the United States also financially supports the Eurotech scholarship program at the University of Connecticut.

Our long-term programs include a foundation through which we support highly talented young women studying scientific and technical disciplines. As well as providing financial grants, the [MTU Studien-Stiftung](#) offers personal advice and mentoring to help students get started with their careers. Employees also volunteer in the foundation.



MTU research experts give regular presentations and guest lectures at universities. We provide a significant proportion of the lectures for the engine technology course at the Brandenburg University of Technology (BTU) in Cottbus. MTU has endowed a chair for aircraft engine structural mechanics at the University of Stuttgart as well. We offer trainee programs, dual vocational training, work placements for high school students, work experience for students and opportunities for writing bachelor's/master's/doctoral theses at our European sites. These are key factors on the labor market. In 2021, there were 397 students working with us in a wide variety of areas as part of their undergraduate or postgraduate program, or working during school vacations.

Each year, MTU confers the Wolfgang Heilmann Science Award for outstanding achievements by talented young students performing research in the field of aircraft engines at Karlsruhe Institute of Technology. In addition, we are an industry sponsor of a prestigious German award for aerospace journalism.

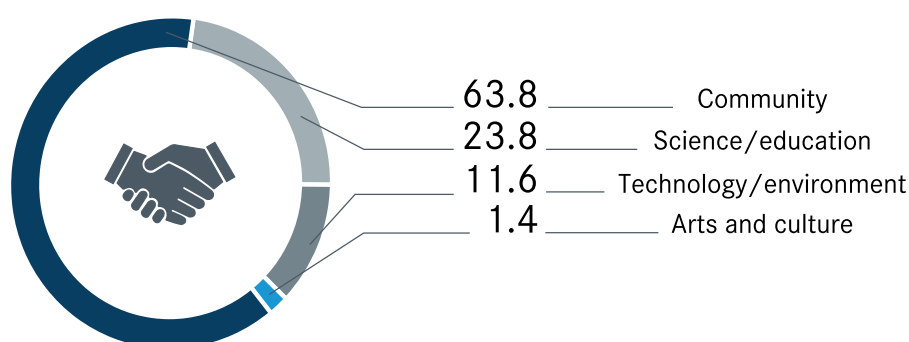
## MTU is a longstanding partner of *Jugend forscht*

For several years now, MTU Maintenance Hannover has supported the *Jugend forscht* initiative in Hannover through its involvement as a partner. The regional contest is designed to get young people interested in STEM subjects. "Let there be a future" was the motto for the 2021 edition of the competition. Due to the pandemic, the competition had to be held online only, but many young researchers did not let that dampen their enthusiasm. A total of 59 projects were submitted to the regional contest in Hannover by 101 schoolchildren.

## Our local activities

We support various social institutions. These are usually charitable organizations, preferably with a social focus, to which we provide assistance in the form of financial or in-kind donations. A key factor in selecting recipients is a local/regional connection or a thematic link to our business. We prioritize support for specific projects over general institutional funding. The MTU subsidiaries concerned select these projects and participate in them on their own initiative, following careful research and consideration. Internal guidelines govern the granting of donations and sponsorship, and a centrally managed clearance and approval process ensures that the rules are adhered to.

### Donations and sponsorship in 2021 (distribution in %)



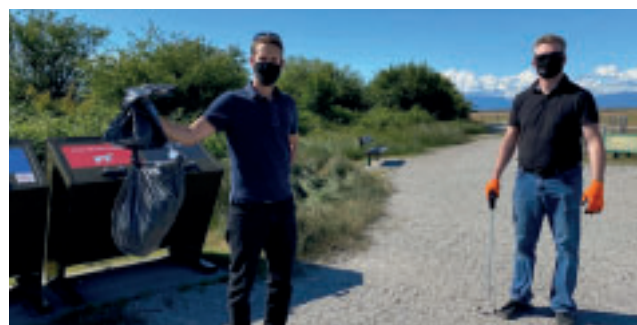
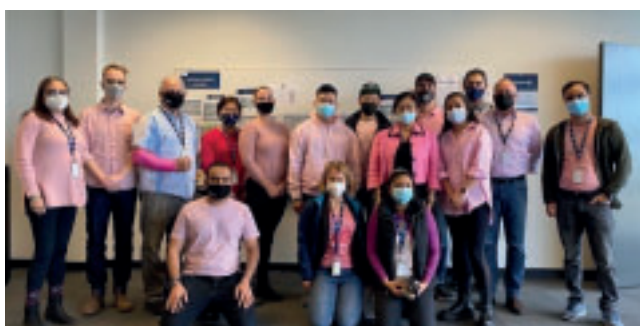
In the reporting year, we supported around 70 projects, institutions or organizations. Together with regional partners, we also achieved local goals that we could not have met on our own. For example, MTU is committed to the Munich Business Climate Pact and makes a local contribution to sustainability through carsharing services. And we provide the TurBienchen daycare center, a parent-led initiative situated close to the company gates in Munich, with ongoing support in the form of financial and in-kind donations.



## Further institutions that we supported in 2021

- Aktion Kindertraum for children in need, Hannover
- BayWa Foundation for healthy nutrition and renewable energy, Munich
- Bavarian Red Cross, Munich
- Centrum Medyczne Zdrpwia, “Health & Life after Covid-19” Congress, Rzeszów
- Condrobs e.V., a charity for helping disadvantaged people with addiction and other problems
- Irene Children’s Home, Langenhagen—taking the kids on a day out to the zoo
- Die Arche (The Ark), a charity devoted to improving the lives of children in Potsdam
- Hospital No. 2 (ventilators), Rzeszów
- MTUlandia public playground (photovoltaic panels and sound system), Rzeszów
- The University of Connecticut Foundation, Inc.
- Verein für krebskranke Kinder e.V., an association to help children with cancer, Hannover

## Wide range of activities at our locations



Local volunteering—such as the Pink Shirt Day in Canada to take a stand against bullying and discrimination, or the “Hannover putzmunter” day where volunteers collect garbage and tidy up the city. On Oceans Day in Vancouver, local employees helped clean up a beach near the MTU site. MTU Maintenance Berlin-Brandenburg supported a local charity for children with cystic fibrosis (Mukoviszidose Landesverband Berlin-Brandenburg e.V.) and a charity devoted to improving the lives of children in Potsdam (Die Arche) with a donation that came from an initiative inspired by the company suggestion scheme (clockwise from top left).

We welcome our employees’ voluntary efforts to support good causes. This is covered by an internal company agreement. Our apprentices volunteer in a variety of ways, for example by collecting returnable bottles from the break rooms and donating the deposit, or by clearing nearby streets of litter during a public action day. Employees in the United States have collected donations for food banks. In Germany, the company allows staff to undertake projects during their paid workday with the German Federal Agency for Technical Relief or the volunteer fire department, and offers the services of lay justices for labor tribunals and social justice courts and of examiners for the Chamber of Industry and Commerce.

## Emergency catastrophe relief



In addition, we help out in emergency situations with spontaneous financial aid. In response to the devastation caused by flooding in several regions of Germany in the summer of 2021, MTU donated a total of EUR 100,000 to the Red Cross and other aid organizations and initiatives. Some of this money went to local charity drives, especially in the affected region of southern Bavaria. Employees pitched in with the volunteer fire department or helped with the German Federal Agency for Technical Relief's clean-up work.

## Current assistance for Ukraine



At MTU's site in Poland, a team of employees has set up an emergency relief organization for Ukraine that matches up volunteers, aid packages and goods with people who need help (left). MTU also supports various aid organizations such as Luftfahrt ohne Grenzen (Wings of Help) e.V. (right)

MTU is appalled by Russia's military attack on Ukraine. We are following developments with great concern. Our solidarity is with the Ukrainian people who are suffering from the war or are being forced to flee their country. As a company, MTU also supports the Ukrainian population in this emergency situation and to date has donated some EUR 200,000 to international and national aid organizations. In addition, employees have launched aid measures and initiatives at MTU, are volunteering at the Polish border to Ukraine or in shelters for refugees from the war-torn regions, or are donating money, clothing and toys. Some are taking refugees into their homes. This varied and exceptional involvement is worthy of our appreciation and utmost respect.

Our location in Rzeszów, MTU Aero Engines Polska, is situated close to the Ukrainian border. From the first days of the war, employees there have helped women, children and older people on the border to Poland. In the meantime, a team of MTU employees has set up an emergency relief organization for Ukraine that matches up volunteers, aid packages and goods with people who need help. Many colleagues are engaging in the in-house MTU initiative. The cafeteria, meanwhile, takes care of the meals for refugees who are staying at the homes of MTU employees.



The MTU Aero Engines Polska team coordinates the Ukraine aid at the Polish site.

As an employer, we provide all employees that want to help on-site or take in refugees at their homes with non-bureaucratic and individual support—for example, by giving them flexible working hours or time off work. In our company's social intranet, we have set up a Ukraine forum where employees can share knowledge and find out information.

## MTU supports these organizations as part of its Ukraine aid

- Luftfahrt ohne Grenzen (Wings of Help) e.V.
- Civil Relief Munich
- PAH – Polish Humanitarian Action
- PCPM – Polish Center of International Aid
- Polish Medical Mission
- UN Refugee Aid Germany



“We call them our Ukrainian families”

### ***Aneta Strugalska heads the local aid team at MTU Aero Engines Polska***

[You established a team for Ukraine emergency relief. How did this team come into being?](#)

February 24, 2022, will be a day we will always remember, as it has changed our perspective of the world around us. Soon afterward, the first huge wave of Ukrainian refugees crossed our border to Poland. Seeing all these petrified and exhausted immigrants, we were shocked and speechless, but certain that we had to act immediately. We, as MTU Aero Engines Polska, made a unanimous decision to start helping them.

Our first joint aid action was to organize a collection of essential items for refugees and to bring them to the border crossing. At the same time, we started thinking about what else we could do. A team of seven employees was established spontaneously. All of us were eager to help, motivated and full of ideas that needed to be put into practice.

At the very beginning, we met daily to brainstorm and analyze the dynamic situation so we could provide our help in the most efficient way. Our objective was clear: we knew our assistance could not be limited to a one-time action, but that we needed to provide it responsibly by taking a short-, medium- and long-term approach. We also had to bear in mind that needs might change along the way, just as the range of help might.

[In the meantime, you have created an online tool for aid needs.](#)

With the situation constantly changing and the need for aid growing, our team was too small to make a significant difference. Fortunately, our IT came up with a solution: a platform to better organize the aid delivery and reach more volunteers among our staff members. Thanks to our employees, we have been able to collect many things so far like (various necessary day-to-day items, hygienic articles like diapers and clothing, etc.

Our company currently supports approximately 100 people (Ukrainian families being directly cared for by our employees, and persons staying in a shelter house in Rzeszów—this last is mainly mothers and children). This is the group we focus our activities on. We call them “our Ukrainian families.”

### What are the tasks of the help team?

From the beginning, we have maintained an online list of the needs of the refugees. Many of them left behind all they had and came without any belongings. Each of these families has a unique, horrific story to tell. We are helping them with transport, organizing school or care for the children, finding medical support, sharing necessary items, going with them to local administrative offices, and assisting them in the job search. Our goal is to provide them with a kind of support that will help them to become self-reliant and independent.

Also, I have to say that we do not focus only on their material needs. We believe that “soft” actions have a significant meaning as well and let these people forget about the war in Ukraine, which is especially important for children. That is why we organized an event for Ukrainian kids with support from the local movie theater. Our company provided transport and snacks for the children and their mothers. The movie was of course in Ukrainian. Seeing the smiling faces of the children was priceless and tugged at our heartstrings.

### How would you describe your colleagues' willingness to help?

Our employees' compassion, response and willingness to support our neighbors in the current situation is amazing. They actively participate in our initiatives. We take joint action together as the MTU Polska community, but a number of our colleagues are also providing aid individually—for example, they have taken refugees into their own homes or have rented apartments for them. For me, it is incredible to see what big and open hearts they have.

The MTU Board of Management and our Executive Board also actively support our local initiatives and we know that all MTU employees are behind us.

**Wspólna troska ma moc!** Together we care more!

By being good corporate citizens, we can help achieve the following Sustainable Development Goals:



→ [Learn more about our contribution to the SDGs of the UN's 2030 Agenda](#)

## Services & tools

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ONLINE SURVEY ABOUT SUSTAINABILITY@MTU

**GRI:** 103-2, 103-3, 201-1

**UNGC:** 7



## OUR REPORTING CONCEPT

## About this report

Each year, MTU Aero Engines AG compiles a sustainability report to comprehensively inform its stakeholders about corporate responsibility (CR) of an economic, environmental or social nature within the company. The report provides information about the company's CR strategy, objectives and performance and also describes the priorities and progress made in 2021, building on the previous report. It supplements the non-financial statement in our Annual Report.

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## Reporting period and cycle

The reporting period covers financial year 2021 (January 1 to December 31). To better organize how information is presented and provide explanatory context for readers, activities from outside the reporting period are also cited in some cases. The report is published annually in German and English and will be available as an online report at [→ sustainability.mtu.de](https://sustainability.mtu.de) in May 2022. It is possible to obtain a [→ PDF download](#) of the report. The non-financial statement is included in the Group management report of the [Annual Report](#).

## Scope of validity

The report covers all of the MTU Group sites that are treated as fully consolidated in the company's financial reporting. The information and key performance indicators refer to the specified Group reporting entity, unless otherwise indicated. This includes the following locations:

- MTU Aero Engines, Munich, Germany (headquarters)
- MTU Maintenance Hannover, Hannover, Germany
- MTU Maintenance Berlin-Brandenburg, Ludwigsfelde, Germany
- MTU Aero Engines Polska, Rzeszów, Poland
- MTU Maintenance Serbia
- MTU Maintenance Lease Services B.V., Amsterdam, Netherlands
- MTU Maintenance Canada, Vancouver, Canada
- MTU Aero Engines North America, Rocky Hill, United States

## Reporting standards and topics

### Global Reporting Initiative (GRI)

The 2021 Sustainability Report was drawn up in compliance with the [Global Reporting Initiative \(GRI\) and meets the GRI standards](#) ("Core" option). In accordance with these globally recognized sustainability reporting guidelines, we report on all required standard disclosures as well as on our management approaches for key topics and on selected indicators for each topic. We provide a [GRI index](#) for cross-referencing the report's contents with the GRI standards. Tables and graphics with statements relevant to GRI have been appropriately marked. The relevant GRI standards are listed at the end of each page.

A materiality matrix presents the sustainability topics that are significant for the MTU Group and shows how they are weighted from an internal (X-axis) and external (Y-axis) perspective. It is checked and updated every year as part of a materiality analysis, and serves as the basis for selecting the key topics and performance indicators for this report.

[→ Sustainability strategy and organization](#)

## Reporting in accordance with TCFD

In the future, we intend to follow the recommendations of the [Task Force on Climate-related Financial Disclosures \(TCFD\)](#) and appropriately present climate risks and opportunities for our business model as well as our contribution to the Paris Agreement and the EU Green Deal. We already provide information on this via the CDP rating.

## UN Global Compact and Sustainable Development Goals

The 2021 Sustainability Report also provides information on progress made in accordance with the [ten principles of the UN Global Compact](#). Cross-references to those principles can be found in the [GRI index](#). The relevant principles are also listed at the end of each page. As a signatory of the UN Global Compact, we support the [Sustainable Development Goals](#) and want to help achieve them by 2030. We present our contribution to the SDGs under the relevant topics. A summary can be found under [→ Sustainable Development Goals](#).

## Key figures and collection methods

All data and information for the reporting period was collected by the relevant departments using representative methods. Environmental KPIs are collected via the environmental management systems at the individual sites and then consolidated centrally in the CR database according to agreed criteria. The HR KPIs are collected and evaluated centrally at the headquarters in Munich for Germany, and locally for all non-German sites. Once the data is evaluated, it is sent to the CR database. All other data is requested from the CR coordinators in the relevant departments and compiled centrally in the CR database. Financial KPIs are collected and published in accordance with the International Financial Reporting Standards (IFRS).

## Supplementary information and previous reports

MTU regularly informs its stakeholders about sustainability issues. You can find supplementary information, more detailed analyses and older publications online:

- [Corporate responsibility at MTU](#)
- [Compliance at MTU](#)
- [MTU Annual Reports](#)

In addition, we regularly report on important and/or current sustainability topics in central MTU publications and through various communication channels, including our social media platforms.

- [News and Media](#)

## External validation of the report

The CR reporting for this sustainability report was not subject to external auditing or validation. The majority of corporate processes that underlie data collection for CR reporting are certified. We have already reported selected key figures for topics of very high importance in our non-financial statement. These have been verified by auditors as part of a limited or partly also reasonable assurance engagement.

## Contacts

Please address questions about the report to [corporateresponsibility@mtu.de](mailto:corporateresponsibility@mtu.de)



## Forward-looking statements

This report contains forward-looking statements. These statements reflect the current understanding, expectations and assumptions of MTU Aero Engines and are based on the information available to management at the present time. Forward-looking statements provide no guarantee that certain results and developments will actually occur in the future, and they entail risk and uncertainty. Consequently, for a variety of reasons, the actual future results of MTU Aero Engines may deviate substantially from the expectations and assumptions expressed here. MTU Aero Engines assumes no obligation to update the statements contained in this communication.

## Wording

We have opted for gender-neutral language in MTU's communications, so this Sustainability Report is written in an inclusive way. To ensure readability and consistency, we follow rules that we have established in German for inclusive language@MTU.

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### Services and Tools

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[ONLINE SURVEY ON SUSTAINABILITY@MTU](#)

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**GRI:** 102-45, 102-49, 102-50, 102-51, 102-52, 102-53, 102-54, 102-56

# Keyfigures at a glance

## Employees

### Employees

	2017	2018	2019	2020	2021
Total workforce	8,846	9,731	10,660	10,313	10,508

### Turnover

	2017	2018	2019	2020	2021
No. of employees that left the company	281	313	289	385	609
Turnover rate (%)	3.8	4.0	3.4	4.2	6.8
New hires male (2017/2018 Germany only)	374	735	991	361	598
New hires female (2017/2018 Germany only)	76	127	201	99	154

### Occupational safety

	2017	2018	2019	2020	2021
Reportable workplace accidents* (category 4, more than three days lost)	33	42	47	22	31
Non-reportable workplace accidents* (category 3, 1–3 days lost)	35	37	32	28	39
Accident rate per 1,000 employees (category 4)	3.7	4.3	4.4	2.1	3.0

### Employee development

	2017	2018	2019	2020	2021
Training days (total)	21,971	29,468	27,174	17,717	21,141
Training days per employee (Group-wide)	2.3	3.0	2.5	1.6	2.0

### Diversity - Proportion of women

	2017	2018	2019	2020	2021
Proportion of women (% staff)	14.1	14.4	14.7	15.1	15.6
Proportion of women (% managers)	10.3	10.7	11.5	11.3	11.8
Proportion of New hires (% staff)	16.9	14.7	16.9	21.5	20.5

### Diversity - Age groups

	2017	2018	2019	2020	2021
active workforce < 30 years	14.9	16.9	18.2	16.4	16.2
active workforce 30 – 50 years	52.1	52.4	52.8	53.7	55.1
active workforce > 50 years	33.0	30.7	29.0	29.9	28.6

## Operational environmental protection

## Energy consumption (in GWh)

	2017	2018	2019	2020	2021
Scope 1	151.1	162.4	164.9	178.6	182.4
Scope 2	126.5	125.6	130.0	116.0	128.8
<b>Total</b>	<b>277.6</b>	<b>288.0</b>	<b>294.9</b>	<b>294.6</b>	<b>311.2</b>

CO<sub>2</sub> emissions (in t CO<sub>2</sub> equivalents)

	2017	2018	2019	2020	2021
Scope 1	34,000	32,800	33,100	39,100	39,900
Scope 2	40,400	39,500	40,800	35,700	11,400
<b>Total</b>	<b>74,400</b>	<b>72,300</b>	<b>73,900</b>	<b>74,800</b>	<b>51,300</b>

Water balance (in m<sup>3</sup>)

	2017	2018	2019	2020	2021
Intake**	8,820,000	8,682,000	9,691,000	8,327,300	8,079,600
Discharge	9,018,000	9,176,000	9,652,000	9,044,400	8,592,200

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**Waste footprint (in t)**

	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Waste footprint, total	7,100	8,010	8,370	7,040	6,800
Recycled	6,210	7,060	7,320	5,440	5,310
Disposed of	890	950	1,050	1,600	1,490
Share of hazardous waste	42.4	41.1	41.1	39.6	40.6

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**Material consumption (in t)**

	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Total	7,600	9,860	10,300	7,380	8,230
Proportion of renewable materials (i%)	13.9	13.4	15.6	7.1	19.7

\* The accident statistics relate to the total workforce, including temporary agency workers, from 2020 onward. Exception: The recording of category 3 accidents for temporary agency workers began in 2021. Accidents while commuting are not included.

\*\* At the Munich site, a small proportion of the well water and some of the rainwater collected from the roofs is discharged as surface water via the Schwabenbächle stream. Rainwater is discharged into the municipal sewer system only in the event of heavy rainfall. As a result, the sum of the volume discharged into groundwater and surface water may not correspond to the volume withdrawn.

# KPI according to GRI

Field of action: Employees

## Staff turnover by region GRI 401-1

	2019	2020	2021
<b>No. of employees that left the company</b>	<b>289</b>	<b>385</b>	<b>609</b>
Germany	192	204	460
Rest of Europe	37	104	77
North America	60	77	72
<b>Turnover rate (%)</b>	<b>3.4 %</b>	<b>4.2 %</b>	<b>6.8 %</b>
Germany	2.7 %	2.7 %	6.2 %
Rest of Europe	4.6 %	12.1 %	8.6 %
North America	8.9 %	11.2 %	11.3 %

Staff turnover measured against core workforce

## Proportion of women for new hires GRI 401-1

	2019	2020	2021
<b>Group-wide</b>	<b>16.9 %</b>	<b>21.5</b>	<b>20.5 %</b>
Germany	18.1 %	20.3 %	22.9 %
Rest of Europe	11.0 %	29.0 %	22.2 %
North America	16.8 %	19.6 %	10.5 %

New hires measured against active workforce

### Employees on temporary contracts

GRI 102-8

	2019	2020	2021
<b>Employees on temporary contracts</b>	<b>865</b>	<b>634</b>	<b>664</b>
Germany	706	541	518
Rest of Europe	154	88	140
North America	5	5	6
Female employees on temporary contracts			112

Data acquisition for employees on temporary contracts by gender started in 2021

### Alternative working arrangements (Germany)

GRI 102-8, 401-3

	2019	2020	2021
<b>Part-time employees total</b>	<b>604</b>	<b>623</b>	<b>596</b>
Part-time employees, male			274
Part-time employees, female			322
Employees on parental leave, female	143	156	190
Employees on parental leave, male	252	258	288

Data acquisition for part-time employees by gender started in 2021

## REPORTING IN ACCORDANCE WITH STANDARDS

## GRI and UN Global Compact index

The MTU Aero Engines 2020 Sustainability Report was drawn up in compliance with the Global Reporting Initiative (GRI) and meets the GRI standards (“Core” option). The GRI index contains cross-references of the GRI disclosures to the individual chapters in the report. Furthermore, the Sustainability Report serves to provide information on progress made in accordance with the UN Global Compact (UNGC). In this index, you will also find cross-references of the statements in this report to the ten principles of the UNGC.

## General disclosures

## Organizational profile (102-1 – 102-13)

GRI standard	UNGC principle		Reference/Comment
102-1		Name of the organization	<a href="#">The enterprise MTU</a>
102-2		Activities, brands, products and services	<a href="#">The enterprise MTU</a>
102-3		Organization’s headquarters	<a href="#">The enterprise MTU</a>
102-4		Countries where the organization operates	<a href="#">The enterprise MTU</a>
102-5		Nature of ownership and legal form	<a href="#">The enterprise MTU</a>
			<a href="#">2021 Annual Report, p. 19</a>
102-6		Markets served	<a href="#">2021 Annual Report, p. 142, table 54</a>
102-7		Scale of organization	<a href="#">The enterprise MTU</a>



102-8	6	Total workforce	<p>Collaboration and leadership</p> <p><i>Total workforce at fully consolidated sites including apprentices, interns, thesis students and doctoral candidates, students and holiday staff, temporary part-time employees on parental leave, and marginal workers, but excluding temporary workers and inactive employment contracts; as at December 31 each year. Active workforce: employees with permanent or fixed-term contracts, temporary part-time employees on parental leave, excluding students, interns, trainees/apprentices, short-term holiday workers, temporary workers and employees from external companies</i></p> <hr/> <p>KPI according to GRI</p> <hr/> <p>Diversity and inclusion</p>
102-9		Supply chain	Supplier management
102-10		Changes to the supply chain	Supplier management
102-11		Precautionary approach	Environmental management
102-12		External charters, principles, or other initiatives	<p>Sustainability strategy and organization</p> <hr/> <p>Compliance</p> <hr/> <p>Climate impact of aircraft engines</p> <hr/> <p>Environmental management</p> <hr/> <p>Diversity and inclusion</p>
102-13		Memberships	<p>Selection:</p> <ul style="list-style-type: none"> <li>• Aviation Initiative for Renewable Energy in Germany e.V. (aireg)</li> <li>• Bauhaus Luftfahrt e.V.</li> <li>• Bavarian Employers' Associations for the Metalworking and Electrical Industries (bayme)</li> <li>• bavAIRia e.V.</li> </ul>

- Bund der Freunde TU München
  - German Aerospace Industries Association (BDLI)
  - co2ncept plus, Association of the Economy for Emissions Trading and Climate Protection e.V.
  - Federation of German Security and Defence Industries (BDSV)
  - Deutsche Gesellschaft für Luft- und Raumfahrt – Lilienthal-Oberth e.V. (DGLR)
  - Friends and Sponsors of the Deutsches Museum
  - Deutsches Verkehrsforum e.V.
  - German Aerospace Center (DLR)
  - Enterprise for Health
  - European Aerospace Quality Group
  - Forum Luft- und Raumfahrt e.V.
  - IATA Strategic Partnerships
  - Chamber of Commerce and Industry for Munich and Upper Bavaria (IHK)
  - MINT-Campus Dachau
  - Münchener Bildungsforum gem. n.e.V. (Munich-based network for employee training and HR development)
  - Stifterverband für die Deutsche Wissenschaft (sponsors' association for German science)
  - Trace International, Inc.
  - Bavarian Industry Association
  - Bavarian Employers' Associations for the Metalworking and Electrical Industries (vbm)
  - UN Global Compact (signatory)
  - Unternehmer TUM MakerSpace GmbH
  - Unternehmer TUM Solutions GmbH
  - Association of German Engineers (VDI)
-

## Strategy (102-14)

GRI standard	UNGC principle		Reference/Comment
102-14	1-10	Statement from the Executive Board	<a href="#">Foreword by the Chief Executive Officer</a>

## Ethics and integrity (102-16)

GRI standard	UNGC principle		Reference/Comment
102-16	10	Values, principles and codes of conduct	<a href="#">Compliance</a>
			<a href="#">Collaboration and leadership</a>

## Corporate governance (102-18)

GRI standard	UNGC principle		Reference/Comment
102-18		Governance structure	<a href="#">2021 Annual Report, p. 7-9, 15-16</a>

## Stakeholder engagement (102-40 – 102-44)

GRI standard	UNGC principle		Reference/Comment
102-40		Stakeholder groups	<a href="#">Stakeholder dialogue</a>
102-41	3	Collective bargaining agreements	<a href="#">Collaboration and leadership</a>
102-42		Identifying and selecting stakeholders	<a href="#">Stakeholder dialogue</a>
102-43		Approach to stakeholder engagement	<a href="#">Stakeholder dialogue</a> <a href="#">Product quality and flight safety</a> <a href="#">Research and development</a> <a href="#">Environmental management</a> <a href="#">Collaboration and leadership</a>
102-44		Key topics and concerns of stakeholders	<a href="#">Stakeholder dialogue</a>

## Reporting practice (102-45 – 102-56)

GRI standard	UNGC principle		Reference/Comment
102-45		Consolidated Group entities	<a href="#">About this report</a>
102-46		Material aspects identified	<a href="#">Sustainability strategy and organization</a>
102-47		List of material topics	<a href="#">Sustainability strategy and organization</a>
102-48		Restatements of information	<i>If climate figures from previous years have been recalculated, this is indicated alongside the data in question in the report.</i>
102-49		Changes in reporting	<a href="#">About this report</a>  <i>Consolidated Group entities: Sale of the subsidiary Vericor Power Systems, new repair location MTU Maintenance Serbia</i>
102-50		Reporting period	<a href="#">About this report</a>
102-51		Date of most recent report	<a href="#">About this report</a>
102-52		Reporting cycle	<a href="#">About this report</a>
102-53		Contact point for questions regarding the report	<a href="#">About this report</a>
102-54		Option to apply GRI standards	<a href="#">About this report</a>
102-56		External assurance	<a href="#">About this report</a>

# Management approach

## Management approach (103-1 – 103-3)

GRI standard	UNGC principle		Reference/Comment
103-1		Boundaries to material topics	<p><b>Materiality principle</b>  <i>MTU determines the relevance of the material topics along the value chain as follows: the relevance of upstream and downstream activities is based on information supplied to MTU by business contacts. We deem any topic to be relevant that plays a significant role in the industry and that has a bearing on MTU's business activities.</i></p>
103-2	1-10	Management approach and its components	<p><i>The management approaches are presented for each material topic.</i></p>
103-3	1-10	Evaluation of the management approach	<p><b>Sustainability strategy and organization</b></p> <p><b>Stakeholder dialogue</b></p> <p><i>Management approaches to the material topics</i></p>

## Topic-specific standards

### Economic standards (201-1 – 207-2)

GRI standard	UNGC principle		Reference/Comment
		<b>Economic performance</b>	
103-2, 103-3	7	Management approach	Sustainability strategy and organization  Corporate social responsibility  Climate impact of aircraft engines
201-1		Value generated and distributed	The enterprise MTU  Corporate social responsibility <i>Key figures are not broken down by market or region</i>
201-2	7	Financial implications and risks due to climate change	Climate impact of aircraft engines
201-3		Defined benefit plan and retirement plans	Collaboration and leadership
		<b>Procurement practices</b>	
103-2, 103-3		Management approach	Supplier management
204-1		Proportion of spending on local suppliers	Supplier management <i>The company's major sites are in Germany, Poland and Canada.</i>
		<b>Anti-corruption</b>	
103-2, 103-3	10	Management approach	Compliance
205-1	10	Operations assessed for risks related to corruption	Compliance

205-2	10	Information and training about anti-corruption	Compliance
205-3	10	Confirmed incidents of corruption and actions taken	Compliance
		Anti-competitive behavior	
103-2, 103-3		Management approach	Compliance
206-1		Legal actions for anti-competitive behavior, anti-trust and monopoly practices	Compliance
		<b>Taxes (GRI 2019)</b>	
103-2, 103-3		Management approach	The enterprise MTU
207-1		Approach to tax	The enterprise MTU
207-2		Tax governance, control and risk management	The enterprise MTU

GRI Standards 2016, wo nicht anders angegeben

## Environmental standards (301-1 – 308-2)

GRI standard	UNGC principle		Reference/Comment
		<b>Materials</b>	
103-2, 103-3	7, 8	Management approach	Environmental management
			Conservation of resources
301-1	7, 8	Materials used by weight or volume	Conservation of resources
301-2	7, 8	Recycled input materials used	Conservation of resources
301-3	8	Recycled products and their packaging materials	Conservation of resources



<b>Energy</b>			
103-2, 103-3	7, 8	Management approach	Energy and climate action
			Energy and climate action
302-1	7, 8	Energy consumption within the organization	Energy and climate protection
302-4	7, 8	Reduction of energy consumption	Energy and climate action
302-5	8, 9	Reductions in energy requirements of products and services	Climate impact of aircraft engines
<b>Water and effluents (GRI 2018)</b>			
103-2, 103-3	7, 8	Management approach	Environmental management
			Conservation of resources
303-1	7, 8	Interactions with water as a shared resource	Conservation of resources
303-3	7, 8	Water withdrawal	Conservation of resources
303-4	7, 8	Water discharge	Conservation of resources
303-5	7,8	Water consumption	Conservation of resources
<b>Emissions</b>			
103-2, 103-3	7-9	Management approach	Environmental management
			Energy and climate action
305-1	7, 8	Direct (Scope 1) greenhouse gas emissions	Energy and climate action
305-2	7, 8	Energy indirect (Scope 2) greenhouse gas emissions	Energy and climate action
305-3	7-9	Other indirect (Scope 3) greenhouse gas emissions	Energy and climate action
			Climate impact of aircraft engines

305-4	7, 8	Intensity of greenhouse gas emissions	Energy and climate action
305-5	8, 9	Reduction of greenhouse gas emissions	Energy and climate action
305-7	7, 8	Significant airborne emissions	Energy and climate action <i>To evaluate emissions, we use the emission factors from the German Environment Agency's ProBas database. Where we deviate from this: for sulfur dioxide we use emission factors from our own measurements for kerosene; for nitrogen oxide and carbon monoxide from the operation of engines we use MTU-specific factors (average values from NOx and CO emissions according to the ICAO database for all engines tested by us for the climb out operating point). For indirect emissions we use specific, locally adjusted emission factors based on ProBas.</i>
<b>Waste</b>			
103-2, 103-3	7, 8	Management approach	Environmental management Conservation of resources
306-2	7	Waste by type and disposal method	Conservation of resources
306-3	7	Spills	Conservation of resources
<b>Environmental compliance</b>			
103-2, 103-3	7	Management approach	Environmental management
307-1	7	Non-compliance with environmental laws and regulations	Environmental management
<b>Supplier environmental assessment</b>			
103-2, 103-3	8	Management approach	Supplier management

308-1	7	New suppliers that were screened using environmental criteria	<a href="#">Supplier management</a>
308-2	8	Negative environmental impacts in the supply chain	<a href="#">Supplier management</a>

GRI Standards 2016, wo nicht anders angegeben

## Social standards (401-1 – 419-1)

GRI standard	UNGC principle		Reference/Comment
		<b>Employment</b>	
103-2, 103-3	6	Management approach	<a href="#">Collaboration and leadership</a>
401-1	6	Employee turnover	<a href="#">Collaboration and leadership</a>
			<a href="#">KPI according to GRI</a>
			<a href="#">Diversity and inclusion</a>
401-2		Benefits provided to full-time employees	<a href="#">Collaboration and leadership</a>
401-3	6	Parental leave	<a href="#">Collaboration and leadership</a>
			<a href="#">KPI according to GRI</a>
		<b>Labor/management relations</b>	
103-2, 103-3		Management approach	<a href="#">Collaboration and leadership</a>

402-1	3	Minimum notice periods regarding operational changes	Germany: Agreements between the employer and the works council that are governed by collective agreements can be terminated with three months' notice under Section 77 of the German Works Council Constitution Act (Betriebsverfassungsgesetz). As a rule, this is also laid down in the collective agreements. In cases in which the arbitration body's decision can overrule an agreement between the works council and employer, the regulations governing the notice period remain valid until replaced. Also laid down in the collective agreements are the notice periods for the assertion of claims for employers as well as employees. In accordance with Polish law, in Poland this period is 3 working days for temporary contracts for replacement and 1–3 months for permanent contracts dependent on the length of the term of employment. Canada: 2 weeks. USA: 60 days for reduction of 50% or more of the workforce for companies with more than 100 employees. Serbia: 4 weeks
		<b>Occupational health and safety (GRI 2018)</b>	
103-2, 103-3		Management approach	Occupational health and safety
403-1		Occupational health and safety management system	Occupational health and safety
403-2		Hazard identification, risk assessment and investigation of incidents	Occupational health and safety
403-3		Occupational health services	Occupational health and safety
403-4		Worker participation, consultation, and communication	Occupational health and safety The entire workforce of all our production sites is fully represented in the locally organized occupational safety committees, the composition of which reflects the legal requirements for employer and employee representation in the respective countries .

403-5		Worker training	Occupational health and safety
403-6		Promotion of worker health	Occupational health and safety
403-8		Workers covered by occupational health and safety management system	Occupational health and safety
403-9		Work-related ill health	Occupational health and safety
<b>Training and education</b>			
103-2, 103-3	6	Management approach	Employee development
404-1	6	Average hours of training per year per employee	Employee development
404-2		Lifelong learning	Employee development
404-3	6	Percentage of employees receiving regular performance reviews	Collaboration and leadership
<b>Diversity and equality of opportunity</b>			
103-2, 103-3	6	Management approach	Diversity and inclusion
405-1	6	Diversity of governance bodies and employees	Diversity and inclusion <i>Active workforce: employees with permanent or fixed-term contracts, temporary part-time employees on parental leave, excluding students, interns, trainees/apprentices, short-term holiday workers, temporary workers and employees from external companies. Nationalities: We don't track Nationalities on the US, but rather state-mandated diversity metrics based on ethnicity.</i>
405-2	6	Ratio of basic salary and remuneration of women to men	Collaboration and leadership
<b>Non-discrimination</b>			
103-2, 103-3	6	Management approach	Human rights
406-1	6	Cases of discrimination and corrective actions taken	Human rights

		<b>Freedom of association and collective bargaining</b>	
103-2, 103-3	2, 3	Management approach	Human rights
407-1	2, 3	Operations and suppliers for which the right to freedom of association and collective bargaining may be at risk	Human rights Human rights in the supply chain
		<b>Child labor</b>	
103-2, 103-3	2, 5	Management approach	Human rights
408-1	2, 5	Operations and suppliers at significant risk for incidents of child labor	Human rights Human rights in the supply chain
		<b>Forced or compulsory labor</b>	
103-2, 103-3	2, 4	Management approach	Human rights Human rights in the supply chain
409-1	2, 4	Operations and suppliers with significant risk for incidents of forced and compulsory labor	Human rights Human rights in the supply chain
		<b>Human rights assessment</b>	
103-2, 103-3	1, 2	Management approach	Human rights Human rights in the supply chain
412-1	2	Operations that have been subject to human rights reviews	Human rights
412-2	1	Employee training on human rights policies or procedures	Compliance
412-3	2	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	Human rights Human rights in the supply chain

		<b>Supplier social assessment</b>	
103-2, 103-3	2	Management approach	<a href="#">Supplier management</a>
414-1	2-5	New suppliers that were screened using social criteria	<a href="#">Human rights in the supply chain</a>
			<a href="#">Supplier management</a>
414-2	2-5	Negative social impacts in the supply chain and actions taken	<a href="#">Human rights in the supply chain</a>
			<a href="#">Supplier management</a>
		<b>Public policy</b>	
103-2, 103-3	10	Management approach	<a href="#">Stakeholder dialogue</a>
415-1	10	Political contributions	<a href="#">Stakeholder dialogue</a>
		<b>Customer health and safety</b>	
103-2, 103-3		Management approach	<a href="#">Product quality and flight safety</a>
416-1		Products and services for which health and safety impacts were assessed	<a href="#">Product quality and flight safety</a>
416-2		Incidents of non-compliance concerning the health and safety impacts of products and services	<a href="#">Product quality and flight safety</a>
		<b>Marketing and labeling</b>	
103-2, 103-3		Management approach	<a href="#">Product quality and flight safety</a>
417-1		Requirements for product labelling and information	<a href="#">Product quality and flight safety</a>
417-2		Incidents of non-compliance concerning product labeling and information	<a href="#">Product quality and flight safety</a>
417-3		Incidents of non-compliance concerning marketing communications	In the reporting period, there were no incidents of non-compliance with the regulations.

<b>Customer privacy</b>			
103-2, 103-3		Management approach	<a href="#">Compliance</a>
418-1		Substantiated complaints concerning breaches of data protection	<a href="#">Compliance</a>
<b>Socioeconomic compliance</b>			
103-2, 103-3		Management approach	<a href="#">Compliance</a>
419-1		Non-compliance with laws and regulations in the social and economic area	<a href="#">Compliance</a>

GRI Standards 2016, unless otherwise stated

More information about:

[The GRI standards for sustainability reporting](#)[The ten principles of the UN Global Compact](#)

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This Sustainability Report was published in an online-first format at <https://sustainability.mtu.de/report2021/>.  
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