Our ideas and concepts
FOR A SUSTAINABLE FUTURE

20

Sustainability Report
MTU AERO ENGINES AG
BUSINESS YEAR 2020

2020 SUSTAINABILITY REPORT

Our ideas and concepts for a sustainable future

Product stewardship is our main focus, but sustainability at MTU goes far beyond climate action and safe flight operations. It encompasses resource-conserving and environmentally friendly production and maintenance as well as fair and safe working conditions, equal opportunities for all employees and high-quality training and development. Compliance forms a key part of our corporate culture and sustainability does not end at the gates of our plants: we involve the supply chain in our activities, too.

"We are setting the course for a green future for aviation and for MTU. And this in a time that presents major challenges we must all strive to overcome. The crisis we are facing as a result of the coronavirus pandemic has highlighted the importance of decisive and responsible action. At the same time, we should see it as an opportunity for change–and that is precisely what we are doing."

Reiner Winkler
Chief Executive Officer
MTU Aero Engines AG

→ Foreword by the Chief Executive Officer
→ The enterprise MTU
→ Our 2020 business year
→ About this report

INTRODUCTION

Foreword by the Chief Executive Officer

Reiner Winkler
Chief Executive Officer
MTU Aero Engines AG

Dear readers,

Renewables are expanding apace, with global installed capacity constantly growing. According to the International Renewable Energy Agency (IRENA), more than 80% of the increase in power generation capacity in 2020 is attributable to renewables–a new record. This marks the start of a new decade of green energy and points to the path of decarbonization that the economy and society must follow. We, too, are setting the course for a green future for aviation and for MTU. And this in a time that presents major challenges we must all strive to overcome. The crisis we are facing as a result of the coronavirus pandemic has highlighted the importance of decisive and responsible action. At the same time, we should see it as an opportunity for change–and that is precisely what we are doing.

Last year, we began preparations for our ecoRoadmap, which aims to make MTU carbon-neutral in the long term. Having launched the project a few months ago, our first aim is to make operations at our largest production site in Munich climate-neutral by late 2021. Efficiency improvements, emission reductions and high-quality offsets should get us there. This project is visible on the roof of our logistics center, where we have installed our first photovoltaic system to generate our own green energy. We are also examining whether to do the same at other production sites. In the long term, we want all our production sites to be carbon-neutral in an effort to support the goal set out in the Paris Agreement: limiting global warming preferably to 1.5 degrees Celsius by 2050.

"For some time now in our product development, our Clean Air Engine Agenda has stood for a climate transformation for aviation. Emissions-free flight is the vision that drives us. It is a long-term goal that is also in line with the Paris Agreement."

We want our ecoRoadmap to achieve for our site operations what our Clean Air Engine Agenda has stood for in our product development for some time now: a climate transformation for aviation. Emissions-free flight is the vision that drives us. It is a long-term goal that is also in line with the Paris Agreement, and here, too, we made progress in 2020. For example, we are committed to the concept of hydrogen-powered fuel cells and have established our own development team, which is working hard to prepare for the first flight of a prototype. We expect this will occur in the next few years. In addition, we are pursuing the concept of a propulsion system that employs a heat exchanger to use the energy from the engine's exhaust gas stream and that would be suitable for powering long-haul aircraft. In our view, sustainable aviation fuels are just as essential for a green future in aviation; these are fuels that can be used in conjunction with existing infrastructures and engine architectures today to reduce emissions that have an effect on the climate.

"Another key consideration in 2020 was occupational safety, with health management to provide our employees with sufficient protection against infection. We took comprehensive measures to help combat the coronavirus pandemic."

Bold, creative and innovative ideas are born in an environment that motivates and inspires, offering recognition and respect. We are committed to embracing diversity more than ever because, especially in times of transformation, diversity and integration are crucial to effecting successful and sustainable change. Another key consideration in 2020 was occupational safety, with health management to provide our employees with sufficient protection against infection. We took comprehensive measures to help combat the coronavirus pandemic. The crisis has made us all aware of the urgency of digitalization. We are hard at work on this task as well—regarding products, production and new forms of collaboration within MTU.

We also assume responsibility for the supply chain. We attach great importance to safeguarding the respect of human rights in suppliers' upstream production processes for our components. As part of our due diligence, we carry out supplier risk analyses. We have refined these procedures so we can further enhance our assessment of potential risks, and we want to integrate them more tightly into our processes. We are also planning to conduct more stringent audits of our suppliers' compliance with sustainability criteria.

"We want to devote more of our efforts to medium- and long-term goals across the whole of MTU. My colleagues on the Executive Board and I are also opting to be measured more closely in terms of sustainability."

All the topics addressed are embedded in a sustainability strategy that we are currently reworking in order to devote more of our efforts to medium- and long-term goals across the whole of MTU. My colleagues on the Executive Board and I are also opting to be measured more closely in terms of sustainability. Starting in the 2021 business year, MTU Executive Board members' variable compensation will reflect non-financial performance indicators.

The target year for attaining the UN's Sustainable Development Goals is 2030, and we want our sustainability commitment to contribute to those efforts. Moreover, we have been committed to the ten principles of the UN Global Compact since 2011. Our foundation for integrity in business and labor relations is our in-house compliance management system and a binding Code of Conduct for all employees and managers.

So far, we have weathered the crisis well. We are particularly pleased that no MTU location has emerged as a coronavirus hotspot to date. From my point of view, and judging by the feedback from managers and employees, we enjoy a good level of cohesion in the company. For example, we have set up a solidarity fund financed by managers, the Executive Board and the Supervisory Board for employees suffering particular hardship as a result of short-time working.

“In our view, this transformation can succeed only if society as a whole pulls together, with the research community, industry and policymakers all collaborating closely.”

As a company and as a society, we are in the middle of change. Sustainable mobility—in our case, emissions-free flight—is one of the central challenges of our time. In our view, this transformation can succeed only if society as a whole pulls together, with the research community, industry and policymakers all collaborating closely. We clearly want to play our part and take on responsibility—and you can find out how in this Sustainability Report.

I hope you enjoy reading this report and watching the exciting videos of our employees talking about their projects and ideas. And please take advantage of the new opportunity to give us feedback directly. We look forward to a constructive exchange of ideas with you!

Yours sincerely,

Reiner Winkler
Chief Executive Officer
MTU Aero Engines AG

Services and tools

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Online SURVEY about SUSTAINABILITY@MTU

GRI: 102-14

UNGC: 1-10

In the shadow of the coronavirus pandemic

Our 2020 business year

In the boom years leading up to 2019, airlines worldwide posted record sales–but now the global coronavirus pandemic has changed all that. Over the course of 2020, the number of flights shrank by 50 percent. Production of new engines took a steep downturn, as did demand for maintenance services. Fortunately, MTU performed better than its competitors in many areas, showing its economic stability, and, despite the difficult year, was able to press ahead with important plans, such as for innovative propulsion concepts for emissions-free flight, and new projects including our internal ecoRoadmap.

Airbus delivered a total of 431 aircraft from its A320neo family in 2020. Some of them, like the first A320neo aircraft for SWISS, shown here at a delivery ceremony in Hamburg in February, are powered by our geared turbofan engine.

The coronavirus pandemic presented us all with unexpected challenges and caught us all off guard, resticting the way people and companies all over the world usually live and work. The aviation industry, and by extension MTU, has been hit especially hard, with things previously taken for granted now thrown into disarray. National entry restrictions, the mandatory wearing of masks, mobile working, new forms of collaboration, changes to logistics and production structures, legal requirements for occupational health and safety–the challenges we had to respond to were many and varied, and they still confront us. At the same time, we want to continue shaping our future, especially under these circumstances, and initiate new projects so that we will be fully capable of action as soon as the crisis is over: “Emerging stronger together from the crisis”–for partners and customers, and above all for MTU’s success–is the motto under which we have set our current corporate objectives.

A year full of challenges

“Our swift and decisive action paid off. We coped well with the challenges associated with the coronavirus pandemic and the economic crisis that came with it, and also achieved respectable results in 2020. Now we’re all pulling together to prepare for the return; we’ll continue to use mobile working arrangements, as these will allow us to maintain our newfound flexibility.”
Reiner Winkler, Chief Executive Officer

“We believe in the aviation industry and are convinced that the need, desire and freedom to travel will eventually return. When they do, MTU will be there as a reliable partner to customers worldwide, providing its products and services in the same capacity as before–but we’ll be even more innovative, connected, digital and sustainable”
Michael Schreyögg, Chief Program Officer

“Aviation is at an important threshold, and so is MTU. Despite the current crisis, our sights are still firmly set on our major goal of emissions-free flight. We are pursuing innovative and bold concepts, and in doing so we are also gaining society’s acceptance of our business activities.”
Lars Wagner, Chief Operating Officer

“Right now, investing in the future is more important than ever. Given the long development times in aviation, we *remain undeterred in our efforts* to advance and fund our work on the technologies needed for the next generation of aircraft. This is a balancing act in light of the economic crisis in our industry.”
Peter Kameritsch, Chief Financial Officer and Chief Information Officer

Our approach to the coronavirus crisis

We responded quickly, calmly and decisively to the demands of the pandemic: we showed the necessary flexibility, accelerated our digitalization processes and tackled the challenges with exemplary commitment from the entire workforce and our managers.

MTU temporarily suspended most of its activities at several European sites in April 2020. Besides being our response to the beginnings of an interruption in the supply of materials, this coordinated shutdown of our operations was a way for us to protect the workforce and help contain the spread of the pandemic. We did this in close cooperation with our customers and partners. We made sure that we were there for all stakeholders during this time and ensured our availability to handle important concerns. Wherever operations had to continue, appropriate precautions were taken to protect employees. The shutdown affected our production sites in Munich and in Rzeszów, Poland, as well as our maintenance operations in Hannover and Ludwigsfelde near Berlin. This enabled us to weather the first phase of the crisis calmly and collectedly and with great cohesion.

Following the suspension of operations, we resumed with short-time working arrangements at our German sites. The organizational and technical measures we have adopted to prevent coronavirus infections mean we continue to ensure high standards of protection for our employees' health on-site. To overcome the crisis resulting from the coronavirus pandemic, MTU took various financial measures in the reporting year to safeguard the company's liquidity. These included limiting dividend payments to shareholders for the 2019 business year to the legal minimum of 0.04 euros per share.

Our coronavirus protective measures for employees and workplaces at MTU are presented comprehensively under Occupational health and safety.

MTU's business performance in 2020

On balance, our key financial figures for the latest business year paint a respectable picture: Revenue totaled EUR 4.0 billion during the crisis, compared with EUR 4.6 billion in the previous year, and operating profit (EBIT adjusted) amounted to EUR 416 million (2019: EUR 757 million). Net income came to EUR 294 million (2019: EUR 538 million). The company's order backlog at the end of the year ran to EUR 18.6 billion (2019: EUR 19.8 billion). Since we recorded only postponements and hardly any cancellations, this is still a high level that in purely numerical terms will secure our capacity utilization for more than four years. 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 also an important propulsion concept in our sustainable product development. Read more in the chapter Product stewardship under Climate impact and health effects of aircraft engines

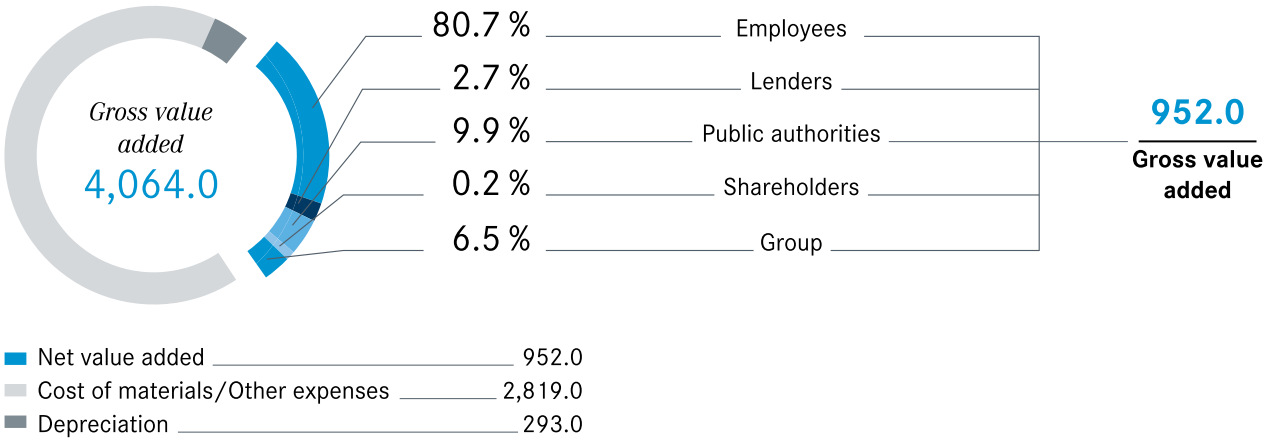
Key financial data (in EUR m)
> GRI 201-1

	2020	2019	2018
Revenue	3,977	4,628	4,567
Earnings before interest and tax (EBIT, adjusted)	416	757	671
Income taxes	48	178	154
Earnings after tax (adjusted)	294	538	479
Capital expenditure on property, plant and equipment and intangible assets	327	479	273

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 2020, the MTU Group employed 10,313 people at fully consolidated locations around the world, with 324 young apprentices training. We are a major employer in the region at all major international locations. Our plan is to establish a new repair site in Serbia, where we will provide specialist aviation training based on the German dual-track system. We pay our employees attractive salaries. 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 almost 6,000 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 2020 (in EUR m)



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

The value added statement shows that the wealth created by MTU amounts to a gross value added of EUR 4,064 billion for 2020. After deducting the cost of materials, depreciation, amortization and other expenses, net value added came to EUR 952 million. The lion's share of that (80.7%) went to our employees in the form of wages, salaries and other benefits, while the Group retained 6.5%. The proportion allocated to pay taxes levied by public authorities accounted for 9.9%. In the 2020 reporting year, we distributed a dividend limited to the minimum amount required by law to our shareholders (0.2%); this was one of the financial measures that MTU undertook to safeguard the company's liquidity in order to overcome the crisis. To give our employees an opportunity to provide MTU with additional liquidity and at the same time participate in MTU's success, we continued our annual employee stock option program in 2020.

Sustainability 2020@MTU

Watch the video at https://www.youtube.com/watch?v=n6huZeFfjd4

Services and tools

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Online survey about sustainability@MTU

GRI: 201-1, 207-1, 207-2

Photo: www.airbus.com

Firmly established in engine construction

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, a long-standing aviation company with strong roots in Germany, has established itself as an indispensable partner to all major players in the global engine industry.

87
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.

10,313
employees

were working at MTU's fully consolidated sites around the world at the end of 2020; 15.1% of our employees were women.

4.0

billion euros in revenue

was recorded by MTU for the financial year 2020, which was marked by the economic crisis resulting from the coronavirus pandemic.

16

locations worldwide

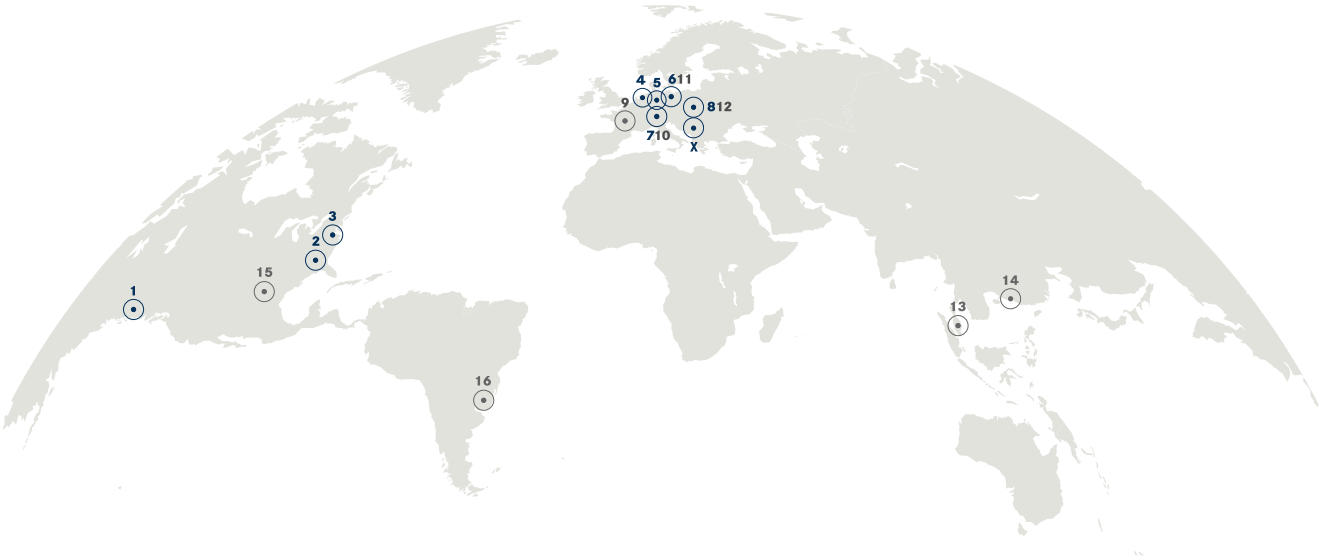
give MTU a presence in important markets and regions. It is headquartered in Munich, Germany.

MTU Aero Engines is a technological leader in low-pressure turbines, high-pressure compressors and turbine center frames as well as in manufacturing processes and repair techniques. In the commercial OEM business for aircraft engines, we play a key role in the development, manufacturing and marketing of high-tech components together with international partners. MTU cooperates with the top names in the industry—GE Aviation, Pratt & Whitney and Rolls-Royce. MTU components are used in one-third of the world's commercial aircraft. In the commercial maintenance sector, we rank among the top three service providers for commercial aircraft engines and aero-derivative industrial gas turbines. The activities are combined under the roof of MTU Maintenance. In the military arena, the company is Germany's industrial lead company for practically all engines operated by the country's military. MTU operates a network of locations around the globe; Munich is home to its corporate headquarters.

MTU's business model is divided into two operating segments: OEM business (Original Equipment Manufacturer) and MRO business (Maintenance, Repair and Overhaul). The OEM segment covers new commercial engines, including spare parts, and the whole of the military sector. The MRO segment comprises all commercial maintenance activities.

www.mtu.de

MTU Aero Engines worldwide



MTU LOCATIONS AROUND THE WORLD:

fully consolidated:

01 __ MTU Maintenance Canada
02 __ Vericor Power Systems
03 __ MTU Aero Engines North America
04 __ MTU Maintenance Lease Services
05 __ MTU Maintenance Hannover
06 __ MTU Maintenance Berlin-Brandenburg
07 __ MTU Aero Engines, Headquarter
08 __ MTU Engines Polska
XX __ MTU Maintenance Serbia (under construction)

09 __ Ceramic Coating Center
10 __ Aerospace Embedded Solutions
11 __ Pratt & Whitney Customer Service Centre Europe
12 __ EME Aero
13 __ Airfoil Services
14 __ MTU Maintenance Zhuhai
15 __ MTU Maintenance Dallas
16 __ MTU Maintenance do Brasil

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.

MTU's highlights of 2020

→ Watch the video at https://www.youtube.com/watch?v=zy5DT7k9gNY

Services and tools

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Online survey about sustainability@MTU

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

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 2020, building on the previous report. It supplements the non-financial statement in our Annual Report.

Reporting period and cycle

The reporting period covers financial year 2020 (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 in May 2021. 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 Lease Services B.V., Amsterdam, Netherlands
- MTU Maintenance Canada, Vancouver, Canada
- MTU Aero Engines North America, Rocky Hill, United States
- Vericor Power Systems, Alpharetta, United States

Reporting standards and topics

Global Reporting Initiative (GRI)

The 2020 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 preparation

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. This development is in preparation and we are currently collecting the necessary information. We will publish the information on our website.

UN Global Compact and Sustainable Development Goals

The 2020 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 assurance engagement.

Contacts

Please address questions about the report to 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.

Services and Tools

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Online survey on sustainability@MTU

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

CORPORATE GOVERNANCE

Conducting business responsibly

We bear responsibility for our activities, not only in economic terms but also in environmental and social terms. That is why sustainability is our guiding principle. Our sustainability strategy and our sustainability management support us in this. Meanwhile, our comprehensive compliance system guarantees ethics and integrity in the company. Respect for human rights is fundamental to what we do.

3,000
employees trained on compliance topics

Zero
tolerance approach to violations

→ Sustainability strategy and organization
→ Our goals 2025+
→ Global goals for sustainable development
→ Stakeholder dialogue
→ Compliance
→ Human rights

SUSTAINABLE DEVELOPMENT GOALS

We take responsibility

Sustainability strategy and organization

Aviation is on the threshold of fundamental change. As an engine manufacturer and key player in the sector, we want to actively drive these changes and help shape them. Climate action is a focus of our activities, especially in product development. Ultimately, our mission is to achieve to emissions-free flight. In addition, as a manufacturing company and employer of some 10,000 people, we aim to act responsibly in all key areas.

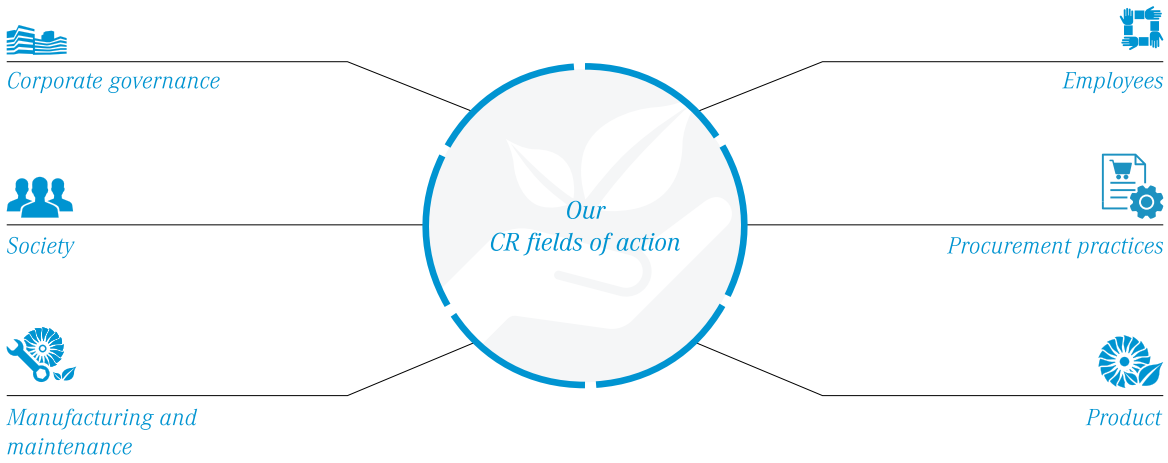
Emissions-free flight is our vision for a sustainable future for aviation. We want to develop the propulsion concepts that this will require. Alongside this technological focus, MTU also attaches great importance to social and ecological matters with regard to its activities.

Shouldering responsibility is simply part of our corporate identity. This sense of responsibility is reflected in every area of our business and extends to the entire value chain. A sustainability strategy and the corresponding management systems have been established throughout the Group. For over ten years, we have been driven by our vision of “We shape the future of aviation”—a vision that is more relevant now than ever. This future can only be a sustainable one—in harmony with ecological and social aspects.

Corporate responsibility (CR) at MTU: Our claim and fields of action

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.

CR fields of activity at MTU



This is what the fields of action mean for us:

Corporate governance

- Comprehensive **sustainability management**
- Ensuring the **security of information and systems**
- **Protecting personal data** in all areas of the company
- **Compliance** as part of the corporate culture
- Active commitment to **combating corruption** in all business areas
- Ensuring adherence to **embargo and export guidelines**
- Regular and open **dialogue with all stakeholder groups**

Society

- **Research collaborations** for joint knowledge building
- **Corporate citizenship:** MTU is part of society and a good neighbor
- **Employees** use the knowledge they have acquired at MTU to play a responsible role in society

Manufacturing and maintenance

- **Reducing CO_2 emissions** at all production sites (Scope 1&2)
- Continuously **improving resource efficiency**
- **Efficient management processes** have been established
- **Advanced procedures** in site and plant operations
- **Raising employee awareness** of climate protection in production

Employees

- Ensuring compliance with **human rights** at our own sites
- Providing active and targeted **employee development** at all hierarchical levels
- Continuously promoting **diversity and equality of opportunity**
- Enabling a **work-life balance** for all employees
- Ensuring **health and safety** in the workplace
- Promoting mutual **employer/employee dialogue**
- Continuously increasing internal and external **employer attractiveness**
- **Trust-based leadership**
- Ensuring high **employee satisfaction**

Procurement practices

- **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**
- **CSR is embedded in our contracts and sourcing decisions.** In this way, we ensure social and ecological standards
- **Responsible handling of conflict minerals** is ensured

Product

- Highest priority for **product quality and flight safety**
- Improving **fuel efficiency and reducing CO_2 emissions**
- Reducing the **climate impact**
- Minimizing the **health effects of product use (exhaust and noise emissions)**

We have set targets for each field of action: MTU's Sustainability Program 2025+

UN Global Compact and 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 also transfer them to the supply chain. This Sustainability Report also serves to outline progress made in accordance with the UNGC. Cross-references of the statements published here to the UNGC principles can be found in the GRI Index.

As a signatory of the UN Global Compact, we also want to contribute to the UN Agenda 2030. At the core of the agenda are 17 goals for sustainable development, or SDGs for short. 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; here we can make an indirect positive contribution, such as to SDG 10 on “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 Labor Organization (ILO)
- German Corporate Governance Code

Paris Agreement

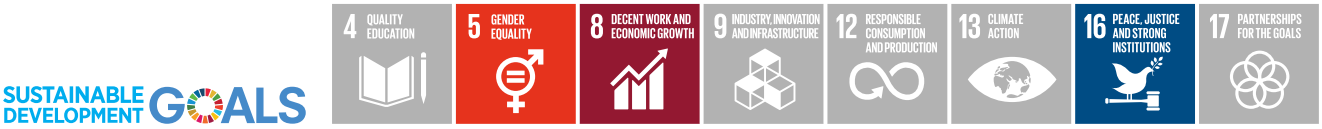
MTU is committed to the goal of limiting global warming preferably to 1.5 degrees Celsius by 2050, as set out in the Paris Agreement, and wants to play a part in paving the way for the decarbonization of the industry. We follow our technology roadmap to help us achieve our long-term goal of zero-emission aviation. Our roadmap helps us develop sustainable propulsion concepts that meet the high safety standards of aviation, greatly improving energy and emissions footprints and reducing aircraft noise. 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 aviation, especially aircraft and engine manufacturers, must find clever answers and intelligent solutions to the current challenges. Passengers want to have a significantly lower impact on the environment and on the climate when they travel by air in the future. More on aligning our product stewardship with the Paris Agreement in the chapter Climate impact of aircraft engines

We also want to implement concepts for our own business activities, in production and repair at our plants, that reduce our carbon footprint and go as far as achieving climate neutrality. More on this under Emissions

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

All the topics we have identified as relevant to our sustainability strategy are reflected in this report. They are cross-referenced to the four aspects into which this report is structured: corporate governance, product stewardship, value creation, and employees and society. The topics are selected and weighted in the course of a materiality analysis in which we defined a total of 24 strategic focus topics.

Corporate governance

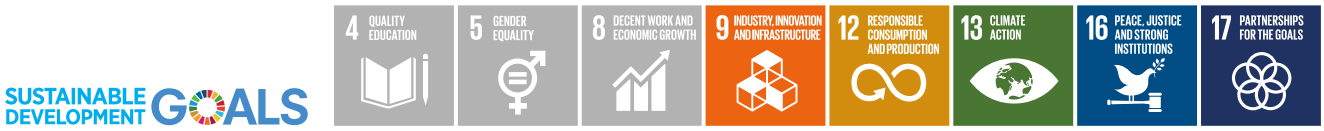


Material topics	Chapter in the report	Relevance for MTU along the value chain		
		Upstream activities (e.g. supply chain)	Activities within the MTU group	Downstream activities (e.g. flights operated by airlines)
Trade compliance	Compliance	significant	significant	significant
Anti-corruption	Compliance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

Product stewardship

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 effiency of products	Climate impact of aircraft engines		significant	significant
Health impact in operation	Health impact of aircraft engines		significant	significant

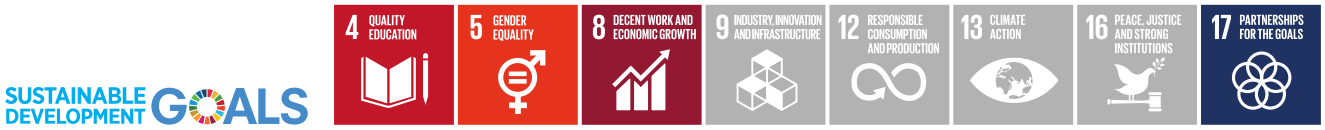
Value creation



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_2 emissions at production sites	Emissions		significant	
Environmental management: water	Conservation of resources		significant	
Environmental management: energy	Conservation of resources		significant	
Noise abatement at production sites	Environmental management		significant	
Environmental management: waste	Conservation of resources		significant	
Responsible sourcing OEM business	Supplier management	significant	significant	significant

Responsible sourcing MRO business	Supplier management	significant	significant	significant

Employees and 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)**
Employee development	Employee development		significant	significant
Occupational safety	Occupational health and safety	significant	significant	significant
Diversity and equality of opportunity	Diversity and inclusion		significant	
Work-life balance	Collaboration and leadership		significant	
Health management	Occupational health and safety		significant	
Stakeholder dialog	Stakeholder dialog		significant	significant
Corporate citizenship	Corporate social responsibility		significant	

How do we determine the material topics? Our analysis and weighting

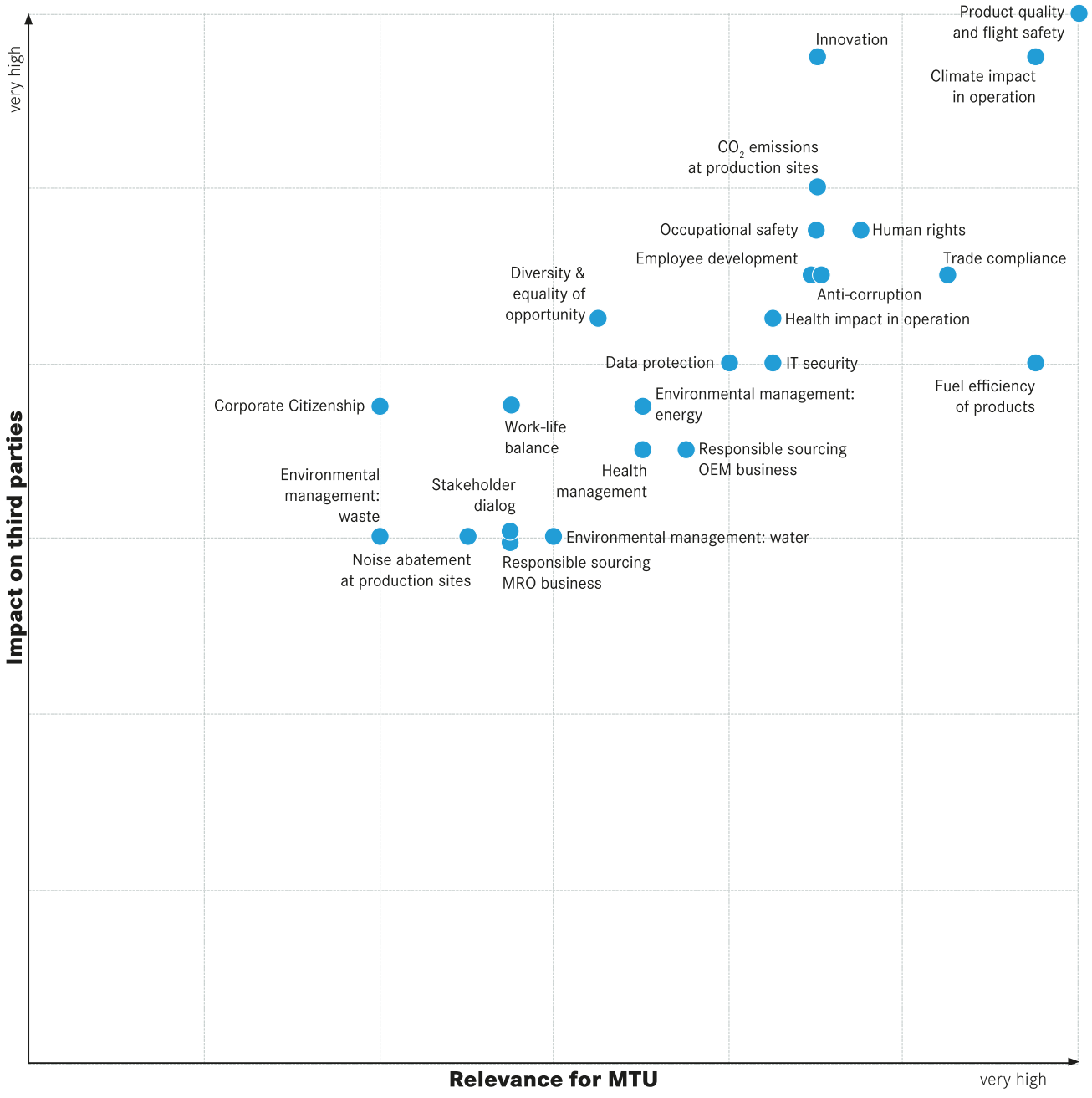
We review our sustainability strategy annually as regards the latest changes and developments, refining our priorities in the process. This allows us to recognize opportunities and risks for our business in good time and to honor our claim of being a company that acts in a sustainable manner. In this materiality analysis, we evaluate the topics using defined criteria. These criteria correspond to each topic's significance for our business activities and how these affect society and the environment. The criteria for the two aspects of business relevance and impact on third parties are incorporated into the evaluation according to a defined weighting scheme. 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.

The materiality analysis takes place in a multi-stage process: It is managed by the central CR coordination team, with analysis of the key topics performed by the CR divisional coordinators within the departments. Next comes a workshop in which the interdisciplinary CR team discuss the evaluation of the topics and their position within the materiality matrix. Acting as the ultimate decision-making body for sustainability, the CR Board then signs off on the matrix and the risk assessment for the sustainability topics. The Executive Board and the Supervisory Board's Audit Committee are involved in the materiality determination process.

Results for 2020: Climate action continues to grow in importance

The determination of materiality for the 2020 business year identified a total of 24 topics. Changes from the previous year mainly relate to sustainable product stewardship and climate action at our production sites. For one thing, aviation's climate impact is not based on CO_2 emissions alone, as contrails and cloud formation also have an impact on the climate; for another, more attention is being paid to the impact on air quality. A reevaluation of the topics for eco-efficient engines led to the following changes: CO_2 emissions from products and other climate effects that are not attributable to CO_2 emissions are combined under the heading Climate impact in product use. Fuel efficiency in the sense of environmentally friendly resource consumption is treated as a separate topic. Our approach to product development is described in detail in the chapter Climate impact of aircraft engines. Exhaust and noise emissions from aircraft engines are now gathered under the heading Health impact of product use. This topic's evaluation reflects both aspects. Another significant change relates to climate action in our production and maintenance operations. CO_2 emissions at the production sites have become significantly more relevant. The topic of diversity has also gained in importance due to recent developments, such as the Black Lives Matter movement in the United States or the planned legislation in Germany on having more women in prominent management positions.

Materiality matrix: Important sustainability topics and their weighting



Evaluation of topics for the financial year 2020 adopts the materiality concept in accordance with the legal implementation of CSR guidelines in Germany (CSR-RUG)

Organization and management of sustainability

We have integrated sustainability into organizational structures and established sustainability management throughout the MTU Group. A Corporate Responsibility (CR) Board is responsible for the implementation of CR management on behalf of the Executive Board. Through the CR management system, we monitor our sustainability strategy, performance and goals. The CR Board acts as the system's decision-making authority, drawing its members from the tier-1 senior management team. It is responsible for driving the topic of sustainability forward at MTU. The CR Board meets regularly and as required. The CR Board is in charge of CR activities at MTU and implements relevant actions and initiatives. It reports regularly to the Executive and Supervisory Boards. If needed, 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.

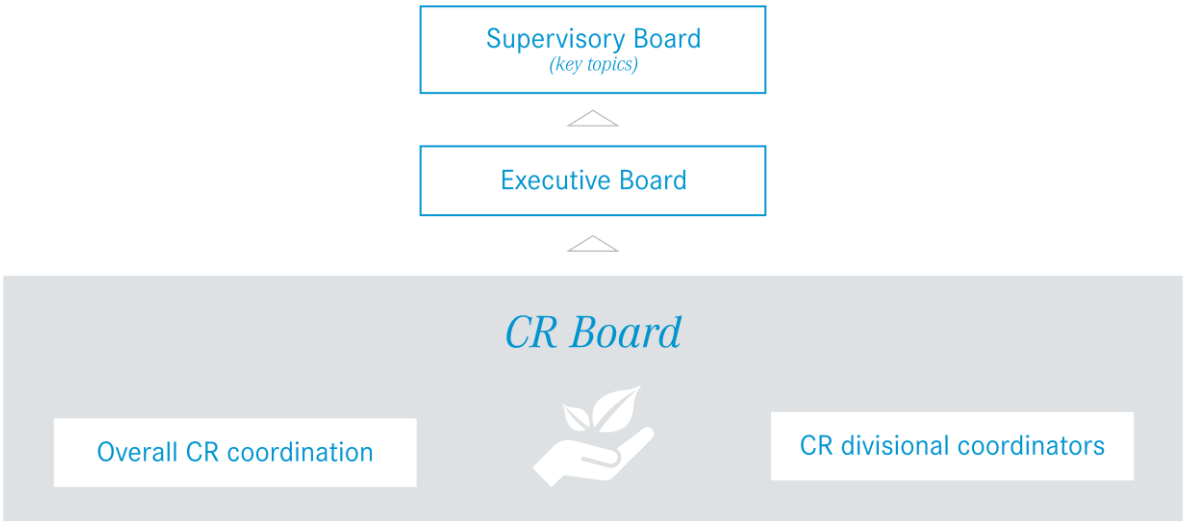
CR Board mission statement

We assume responsibility for society and the environment in harmony with economic requirements.

→ We are actively expanding our Group-wide sustainability strategy.
→ Together with the Executive Board and other decision-makers, we are developing measurable targets for the implementation of MTU's sustainability strategy.
→ We promote interdisciplinary cooperation in CR projects within the company as well as in CR networks beyond company boundaries.

At the heart of this 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 have a CR management system in place to steer our sustainability strategy. The CR Board makes the decisions, a central CR coordination team manages Group-wide sustainability activities and overall CR management, and the CR divisional coordinators work to develop and implement goals and measures 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 about sustainability topics that are deemed of high materiality in the materiality analysis. In consultation with their upper management, the CR divisional coordinators conduct the survey according to standardized criteria and use a scale similar to the one for risk management. The results of the risk assessment are reviewed quarterly by the CR Board. If necessary, the Board passes the report on to the risk management team and, if appropriate, to the Executive Board.

The risk assessment for financial year 2020 identified no material risks in relation to the top issues of our CR strategy. Material risks are those that are very likely and have a severe negative impact.

For the current 2021 business year, we have revised the risk analysis to better assess the impact of our business activities on the environment and society. Crucial to this is a new risk register that can more accurately identify risk, look at defined time horizons and better capture the potential impact and probability of occurrence. In addition, we have extended sustainability risk management to all topics covered by the strategy in order to identify risks at an early stage.

Sustainability ratings and rankings

MTU's performance with regard to non-financial indicators is also 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

CDP

In this global carbon accounting of the annual climate footprint, we received a score of B in 2020.

www.cdp.net

MSCI ESG Research

MTU Aero Engines is rated AA.

www.msci.com/esg-ratings

Outlook

We have started to further expand our Group-wide sustainability strategy. In doing so, we want to set ourselves more Group-wide goals for the medium to long term in order to further integrate sustainability into our processes and decisions. In addition, non-financial performance indicators will be included in the variable compensation for the Executive Board starting in 2021.

Services and tools

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GRI: 103-2, 103-3

UNGC: 1-10

Photo: www.airbus.com

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.

Our contribution toward achieving the Sustainable Development Goals

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–in equal measure. We support the implementation of the SDGs and have identified eight goals to which we can contribute and which 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 2020:

- EUR 3 million invested in training for the qualification of our employees
- 1.6 training days per employee
- 324 apprentices, making up 3.1% of MTU's workforce (that's more than in the previous year)

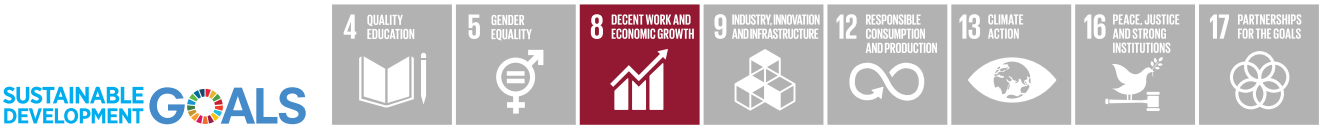
SDG 5: Gender equality

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 2020:

- 15.1% female employees at MTU (proportion higher than in previous years)
- 21.5% share of women among new employees (just under 5% more than in the previous year)

SDG 8: Decent work and economic growth

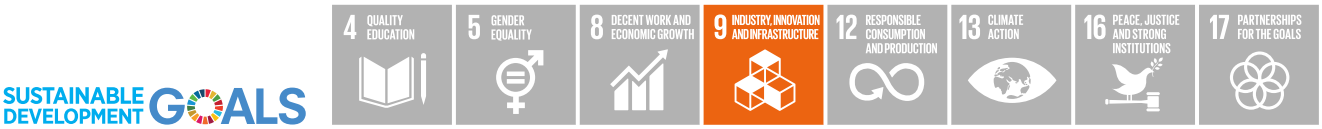


Maintaining fair working conditions: Decent working conditions are a top priority at MTU. We do not tolerate forced or child labor and maintain high occupational health and safety standards in compliance with the applicable national regulations, which we consider to constitute the minimum requirements. 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 and health protection → Human rights → Supplier management

This is how we contributed to the SDG in 2020:

- 2.1 accidents per 1,000 employees (well below industry average)
- Health rate of 94.8% (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 continents and nations. 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 → Value creation

This is how we contributed to the SDG in 2020:

- EUR 186.0 million invested in research and development
- 150 technology projects focused on sustainable flight
- Over 400 patent applications every year

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 → Value creation

This is how we contributed to the SDG in 2020:

- EUR 10.0 million invested in environmental protection at the sites
- 10% of direct energy demand covered by renewable energy (Scope 1)
- 77.3% recycling rate for waste

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 → Value creation

This is how we contributed to the SDG in 2020:

- 545,000 metric tons of CO_2 saved by the end of 2020 through our climate action program for the Munich site
- 4.2 million metric tons less CO_2 due to our geared turbofan engine in flight operations (as of February 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 2020:

- 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 2020:

- 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

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 **Protecting personal data in all areas of the company** **Compliance as part of the corporate culture** **Active commitment to combating corruption in all business areas** **Ensuring adherence to embargo and export guidelines**	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.
	These take into account regulatory changes as well as technical developments.
	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.
	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.
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		
Highest priority for product quality and flight safety	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		
	Goals 2030	**Goals 2040**	**Goals 2050**
Improve fuel efficiency and reduce CO_2 emissions of products	-10% fuel consumption and CO_2 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_2 by using hydrogen in fuel cells on short-haul routes
	Carbon-neutral operation through the use of sustainable aviation fuels	Complete avoidance of CO_2 emissions by using sustainable aviation fuels	Carbon-neutral revolutionary gas turbine concepts on long-haul routes
		Complete avoidance of CO_2 by using hydrogen in fuel cells for regional air travel applications	Complete avoidance of CO_2 emissions by using sustainable aviation fuels
Reduce the climate impact of products	-10% fuel consumption and CO_2 emissions with the 2nd generation geared turbofan (compared with 1st generation)	-15% direct CO_2 emissions through revolutionary gas turbine concepts (compared with 2nd generation GTF)	Complete avoidance of CO_2 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_2 emissions by using hydrogen	
		Complete avoidance of CO_2 by using hydrogen in fuel cells for regional air travel applications	

Minimize the health effects of product use (exhaust and noise emissions)	-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
Reduce CO_2 emissions at all production sites (Scope 1&2)	Reduction of CO_2 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.
Continuously improve resource efficiency	Continuous improvement of resource efficiency (e.g. energy, water, raw materials, and consumables and supplies), specifications by site managers	
Efficient management processes have been established.	Efficient management processes have been established at the sites to reduce adverse environmental impact	
Advanced procedures in site and plant operations.	Improvements in climate protection achieved through advanced procedures in site and plant operations.	
Raising employee awareness of climate protection in production	Regular external and internal communication as well as raising of employees' awareness	

Employees

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

Promote mutual employer/employee dialogue	The dialogue between employees and employers is open and constructive.
Continuously increase internal and external employer attractiveness	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.
Trust-based leadership	Leadership is valued for its confident handling of new forms of collaboration and employee diversity.
Ensure a high level of employee satisfaction	Employees are highly committed due to their high level of satisfaction.

Society

	Goals 2025
Research collaborations for joint knowledge building	Our research collaborations play a significant part in the further development of technology for aviation and beyond.
	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.
Corporate citizenship: MTU is part of society and a good neighbor	MTU enters into targeted partnerships within the industry and at its locations in order to jointly achieve further sustainability goals.
	MTU's established donations policy provides targeted support for sustainability projects with a local connection or thematic link to its business.
Employees use the knowledge they have acquired at MTU to play a responsible role in society	MTU raises its employees' awareness of sustainability issues beyond the boundaries of the plant.

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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. Particularly in the current crisis, we want to offer stakeholders a high degree of orientation and transparency and provide a continuous flow of information about our plans and progress, especially on sustainability issues.

As a result of the coronavirus crisis, the 2020 Annual General Meeting took place virtually–MTU's Executive Board members provided information on the company's business developments and answered shareholders' questions via a live stream.

We strive to conduct a proactive, mutually supportive dialogue with our key stakeholders. We pursue this dialogue regularly, with the actual frequency determined by the need for communication and/or information. Our dialogue pursues two objectives. We want to achieve wide societal acceptance for our business activities and to 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. This stakeholder dialogue also gives us the opportunity to respond to suggestions, expectations and feedback and act on new topics in good time. It helps us evaluate how our activities and products are affecting the environment and society in general. → Materiality analysis
We give employees the opportunity to provide feedback and participate in the stakeholder dialogue, and we regularly gather the views and opinions of our employees through surveys such as the PulseCheck mood barometer, which was introduced in 2020, especially in the current period of dynamic change. We have set ourselves the corporate goal of providing our stakeholders with a high level of security and orientation during the crisis. This increases confidence and trust in our company.

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.

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. At our locations, we pursue a direct dialogue with the general public, for instance with community representatives, neighbors and other interest groups.

Online survey about sustainability

Our website invites all stakeholders to discuss our sustainability strategy. We collected and evaluated almost 70 individual opinions on this in 2020 alone. To the survey

Due to the coronavirus pandemic, many events took place virtually in the reporting year, including aviation trade shows such as ILA Berlin with AeroDays2020. → The AeroDays panels in which MTU participated can be found on YouTube

In 2020, key sustainability topics we addressed in our stakeholder dialogue included: climate action in the aviation industry (in particular the reduction of CO_2 emissions from products and in production); emissions-free flight as a long-term goal; sustainable aviation fuels (SAFs) with a particular emphasis on hydrogen; human rights in the supply chain; sustainable finance; and social topics such as diversity or our employees' human capital. Our social media posts increasingly feature sustainability topics. MTU channels currently have some 68,000 followers, and this figure continues to rise. Under the hashtags #futureofaviation, #hydrogenpower, #climatefriendly, #greenaviation, #sustainabilityfacts, #weareresponsible and #whysustainabilitymatters, we regularly report on sustainability topics on all channels and in 2020, we launched a campaign to provide information about our contribution to the SDGs. → More about the SDGs

Reliable information for the capital market

We aim to provide sufficient and reliable information about MTU as a sustainable investment, and to this end we engage in regular dialogue with our investors, for example at the annual Capital Markets Day, roadshows and the Annual General Meeting. We also offer investors and analysts insight into our sustainability strategy and performance, for example in relation to climate action, via the CDP rating. → To our rating and rankings We also 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 are currently collecting the necessary information and will publish it on our website.

Video Webcast of the 2020 annual general meeting

Our stakeholder groups and dialogue platforms

Employees

Topics	Forms of dialogue
• Health and safety • Career and advanced training opportunities • Compensation and benefits • Work-life balance • Diversity and equality of opportunity • Co-determination • •	• 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	Forms of dialogue
• Product quality and safety • Sustainable technologies • Product fuel efficiency • Human rights • Compliance	• Voice of the customer • Trade fairs • Corporate communications media channels

Suppliers

Topics	Forms of dialogue
• Product quality and safety • Environmental protection • Responsible sourcing • Compliance with MTU standards	• Supplier portal • Audits • Supplier surveys • Supplier Days

Capital market

Topics	Forms of dialogue
• Product innovation/eco-efficiency • Responsible corporate governance • Human rights • Compliance • Climate protection • Risk management	• Annual General Meeting • Conferences and roadshows • Investor discussions • Trade fairs • Ratings • Financial communications

- Supplier management

Science and research

Topics	Forms of dialogue
• Developing new technologies • Promoting research and teaching • Networking between industry and research • Study of engineering and scientific disciplines • Recruiting	• Joint research projects • Work in MTU centers of excellence • Trade fairs • Visits from university student groups • Presentations/discussions at universities

Media

Topics	Forms of dialogue
• Innovation and technologies • Aviation sector/eco-efficiency • MTU as an employer • Financial issues • Site development • Compliance	• Press releases • Press conferences and briefings • Plant tours • Internet / social media • Trade fairs • Studies

Region

Topics	Forms of dialogue
• Social commitment • Climate protection • MTU as an employer • Site development • Compliance	• Community partnerships • Internet / social media • Plant tours • Stakeholder survery • Museum open house days

Politics, public agencies

Topics	Forms of dialogue
• Developing and promoting technology • Climate protection, eco-efficiency • Political frameworks and regulations • Mobility concepts • Site development • Demographic change • Globalization • Compliance	• Parliamentary evening • Plant visits • Trade fairs • Political discussions • Background talks • Visits by political delegations

Associations and organizations

Topics	Forms of dialogue
• Eco-efficiency • Promoting innovation and technology • Economic and labor policies • •	• Meetings and committees • Participation in forums and events • Studies • Expert discussions • Cooperations with NGOs

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 2020, the main topics of the dialogue were emissions-free flight and hydrogen as the fuel of the future, as well as the impact of the coronavirus crisis on the aviation industry–for example, prospects for MTU sites or economic and labor market policy. 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. during site visits. These days, many politicians themselves also report on visits and contacts. → Donations and sponsorship → Compliance

Services and tools

Download Center and report archive

Online survey about sustainability@MTU

GRI: 102-40, 102-42, 102-43, 102-44, 103-2, 103-3, 415-1

UNGC: 10

Complying with rules and laws

Compliance

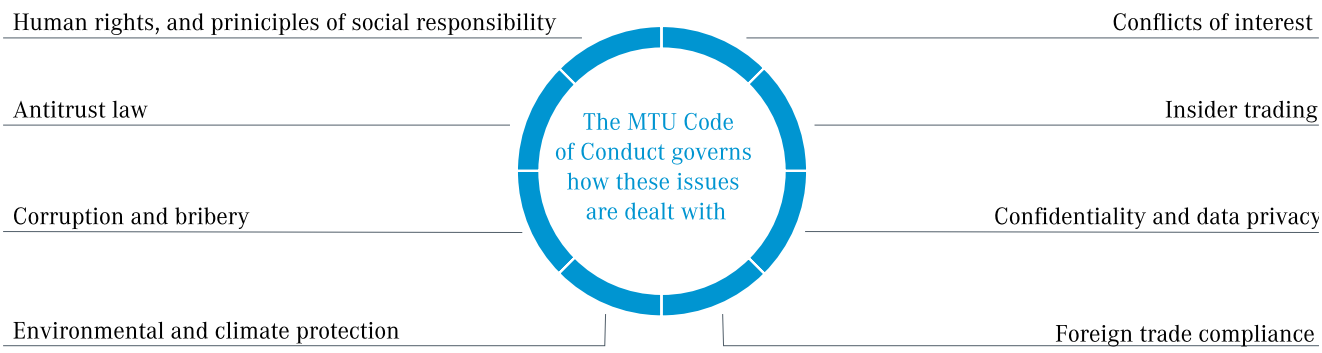
We act with integrity in our working and business relationships—in other words, in accordance with applicable law and our internal body of rules and regulations. A key benchmark for our behavior in the company, toward our business partners, our customers, and in society is a Group-wide Code of Conduct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

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 for employees and provide an authoritative point of orientation.

For the success of our company and for our collaboration with our stakeholders, compliance is essential. 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. The Code defines clear standards for working with stakeholders such as customers, suppliers, authorities and business partners. As such, it is an important tool for implementing responsible business practices.

This Group-wide Code of Conduct includes topics that are important to us, including key compliance issues such as corruption prevention or antitrust law. We revised the standards in the reporting year to reflect relevant current developments. One result of this revision is that the topics of human rights and data protection have been given greater weight. We have informed our employees about the new version of the guidelines through our internal media channels.

Key topics of the Code of Conduct



→ 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 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.

Anti-corruption

One focus of our compliance activities is the prevention of corruption. MTU condemns corruption of any kind as well as all other forms of white-collar crime. In addition to the Group-wide Code of Conduct, our internal regulations concern the prevention of corruption and apply especially to customer events, donations, sponsoring and the approval process for sales consultants.

Our contribution to SDG 16

SDG 16 “Peace, justice, and strong institutions” calls for a significant decrease in all forms of corruption and bribery. With our compliance system in place, we are actively taking steps to combat corruption and bribery, minimize the risk thereof and support fair competition. We expect our suppliers to uphold the same standards that we do. In 2020, too, there were no incidents or suspicions of corruption at MTU–a contribution to sustainable development as defined by SDG 16.

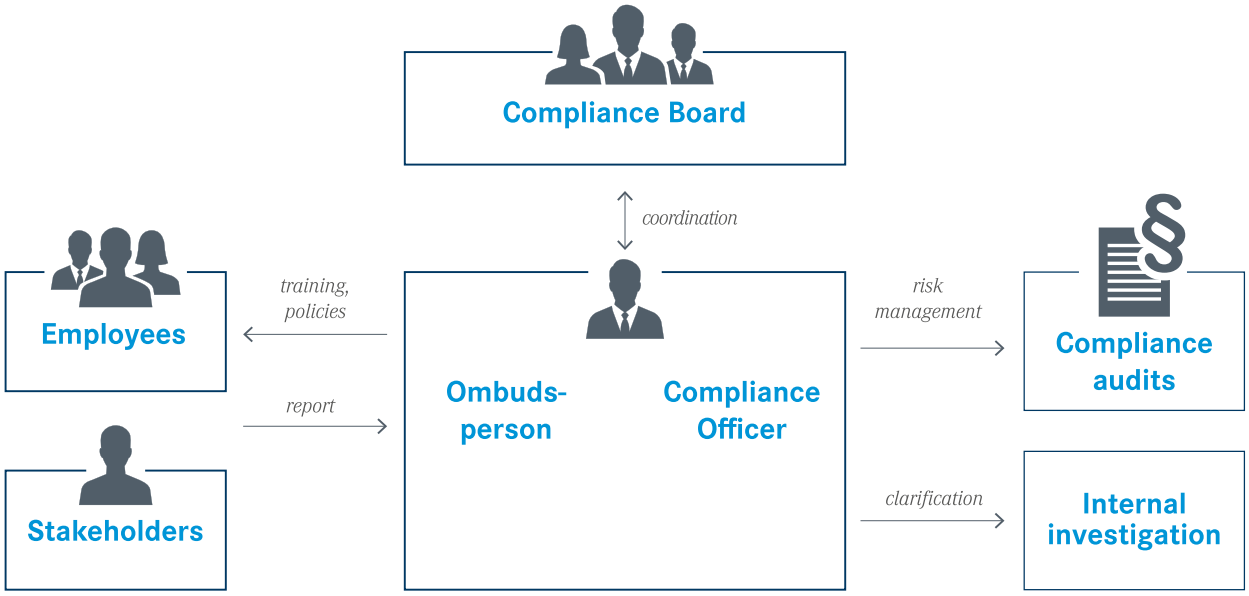
→ Learn more about our contribution to the SDGs of the UN’s 2030 Agenda

A compliance system for all of MTU

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 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 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 disciplinary measures, termination of the employment contract, or 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. In 2020 as in previous years, we had no reportable violations regarding data protection. Similarly, there were no substantial violations of the principles underpinning the Code of Conduct in the reporting year.

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 and reports can also be submitted anonymously via a web-based reporting system, iTrust, which is available in various 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. In addition, employees can confide in their superiors, the legal department or HR.

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 2020 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, 2020 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. Due to the pandemic, these were conducted in part remotely in 2020.

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

Compliance training for 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. In 2020, training courses on corruption prevention were held primarily as e-learning classes on the Code of Conduct, and courses on antitrust law were held as live events (via Skype) for employees and managers from relevant areas such as sales, purchasing and program management. Furthermore, the members of the project team responsible for setting up our new site in Serbia underwent external anti-corruption training. All in all, we trained over 3,000 employees across all MTU sites on compliance matters 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.

3,000
employees trained

We carry out continuous education, because we focus above all on prevention: more than 3,000 employees from various areas completed training courses on compliance topics in 2020.

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.

In the reporting year, MTU issued the internal Group Export Control Directive to regulate holistic trade compliance obligations, responsibilities, principles and process principles for the entire Group. Furthermore, over 3,000 employees affected by export control regulations have received training as part of a new concept.

Data protection and IT security

In our business activities, we take care to provide comprehensive data protection. In times like these and especially given the increasing levels of digitalization in society and the world of work, such protection is becoming more and more important. We took this development into account when revising the Code of Conduct and have emphasized data protection as an explicit concern of MTU. This meant making protection of personal data in accordance with applicable legal provisions mandatory.

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. 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. The Executive Board is briefed on data protection once a month.

We also intensively discuss the topic of IT security, as this is a fundamental prerequisite for our business success. MTU has an IT security management system in place and implements appropriate protective measures on a technical and organizational level to ensure its IT systems are stable and secure. This also includes an internal body of rules and regulations that we have established in line with the international ISO 27001 standard.

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. Currently, we are overhauling the Group's data protection guidelines. As a global company, we require a uniform level with a standard in place that applies across the Group worldwide.

Services and tools

Download center and report archive

Online survey about sustainability@MTU

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

Doing our due diligence

Human rights

We respect human rights and are committed to seeing that they are upheld within the Group and upstream along the value chain. Respect for human rights is firmly embedded in our corporate culture by means of several instruments. Beyond this commitment, we aim to prevent the violation of human rights at MTU and in the supply chain.

Respecting the individuality and dignity of each and every person, maintaining equality of opportunity and preventing discrimination–we are committed to respecting our employees' human rights.

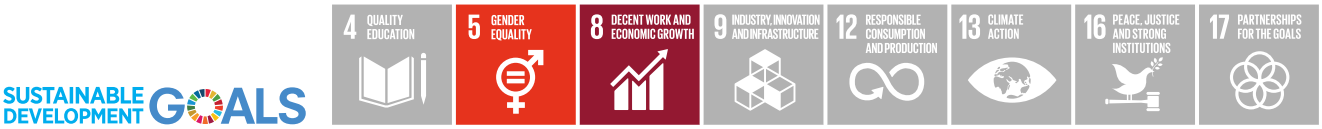
MTU respects the internationally proclaimed human rights set out in the United Nations' Universal Declaration of Human Rights and enforces and protects these rights within its sphere of influence. We also respect and support the fundamental principles of the International Labour Organization (Core labor standards of the International Labor 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.

Society's expectations of companies regarding human rights have risen. Increasing levels of statutory regulations reflect this, such as Germany's planned Due Diligence Act and proposed new EU due diligence legislation. 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). 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.

Our contribution to SDGs 5 and 8

Human rights principles also feature in the UN's global sustainable development goals (SDGs). We support SDG 5 on "Gender equality" and SDG 8 on "Decent work and economic growth," and want to play a role in achieving these SDGs. We succeeded at this again in 2020: there were no incidents of discrimination at MTU nor any reports of suppliers violating our standards with regard to human rights.



→ Learn more about our contribution to the SDGs of the UN's 2030 Agenda

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 want to create fair working conditions based on legally binding employment contracts with appropriate remuneration. This includes the right to unionize and to adopt collective agreements.

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 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 at all the company's sites and across all hierarchical levels. → More about MTU's Code of Conduct and associated training can be found under Compliance Revisions to the Code of Conduct made in the reporting year include a stronger emphasis on human rights; respect of human rights is highlighted as an essential part of MTU's corporate social responsibility. Our zero-tolerance approach to violations is also underpinned by our Code of Conduct.

Human rights in the supply chain

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 Organization (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

Channels for reporting complaints in place

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.

No violations or incidents

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discrimination at MTU

Zero discrimination–we also lived up to this aspiration in 2020: We are pleased to report that we again had no incidents or substantiated complaints regarding discrimination against employees. We see this as a sign of good collaboration at MTU.

No site had a case of discrimination or received a substantiated complaint in 2020 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.

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.

Keeping a close eye on potential risks

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. We review all national and international decisions about capital expenditure to ensure that they comply with MTU's human rights standards. More information about managing sustainability-related risks

Regarding the supply chain, we apply a concept for an annual risk analysis of all key suppliers to the sites in Germany, Poland and Canada as well as the MTU Aero Engines North America subsidiary. The concept takes into account MTU-specific product groups and the countries they are sourced from. This process incorporates the assessment of the annual Global Slavery Index compiled by the Walk Free Foundation, which evaluates countries regarding forced and child labor and legal frameworks, among others. MTU applies the concept to the OEM (new and replacement parts business) and MRO (commercial maintenance) divisions separately, since each handles procurement through its own organizational units. In the reporting year, we refined the existing concept to enable us to carry out a more differentiated assessment of product risk. The next steps are being planned (see the outlook at the end of this chapter).

Throughout this process, we again in 2020 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 in the supply chain

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. We never deliberately purchase conflict minerals, but they can find their way into our production or pre-production at the various levels of our 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. In 2020, no infractions of the Dodd-Frank Act came to the knowledge of MTU when it requested information from suppliers relating to the extraction and trade of conflict minerals in the Democratic Republic of Congo and its neighboring states (Angola, Burundi, Republic of Congo, Rwanda, Zambia, Sudan, Tanzania, Uganda, Central African Republic).

Outlook

In 2021, we plan to introduce training courses on the revised Code of Conduct for all employees. To this end, we are working on a new e-learning format.

We intend to integrate the enhanced version of our supplier risk analysis into our existing process for analyzing supplier risk and, in the next step, we plan to audit key suppliers to check their compliance with sustainability criteria. This development is currently in the concept phase.

Further information in this report:

→ Sustainable supplier management

→ Responsible international trade

Services and tools

Download center and report archive

Online survey about sustainability@MTU

GRI: 103-2, 103-3, 406-1, 407-1, 408-1, 409-1, 412-1, 412-3, 414-1, 414-2

UNGC: 1-6

PRODUCT STEWARDSHIP

Creating sustainable products

Virtually emission-free flight–to make this vision a reality, we are working on the development of various propulsion concepts. Our aim is to enable passengers to fly safely and with a clear conscience in the future. We pursue a definitive technology roadmap to develop innovative solutions for the next few decades–in line with the Paris Agreement.

0
emissions from air travel

65%
less aircraft noise

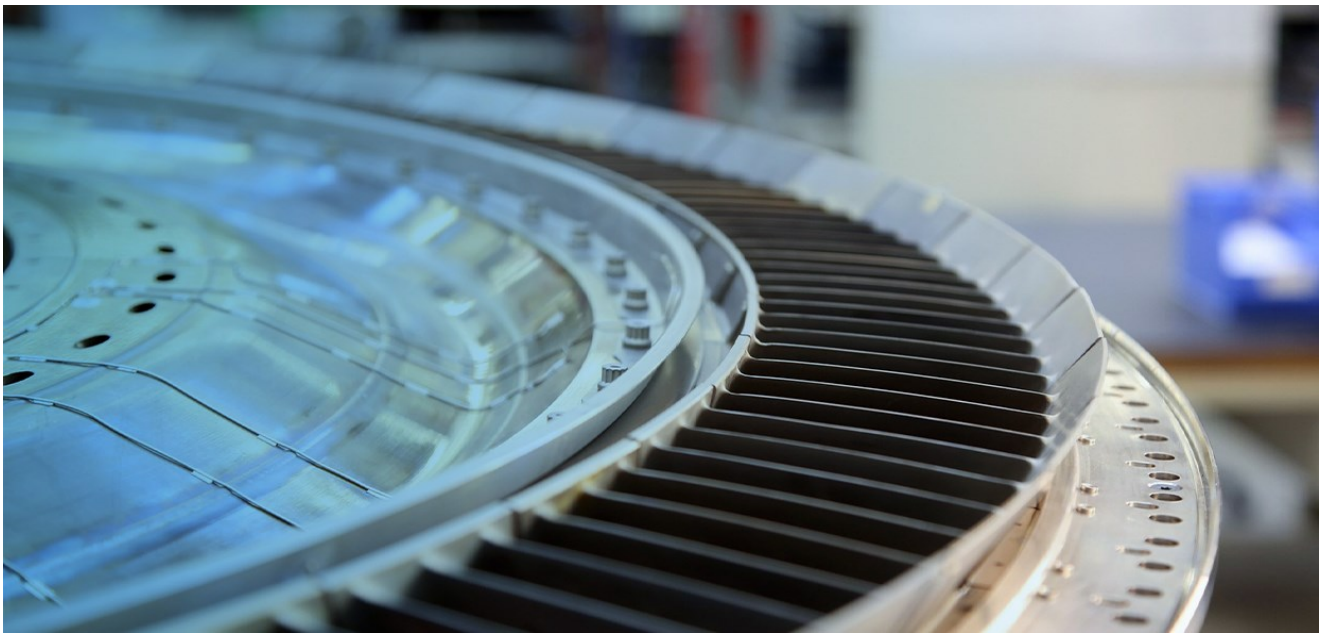
→ Product quality and flight safety
→ Climate impact of aircraft engines
→ Health impact of aircraft engines
→ Research and development

SUSTAINABLE DEVELOPMENT GOALS

Ensuring high standards

Product quality and flight safety

Safety first: For us, safe flight operation is much more than just a legal requirement. In aviation, it is fundamentally the highest priority. 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.



Our products are created in accordance with uniformly high quality standards and safety regulations, and are subject to a rigorous certification process by the regulatory authorities. In 2020, the GE9X engine was certified to power the Boeing 777X family. We provide the engine's turbine center frame.

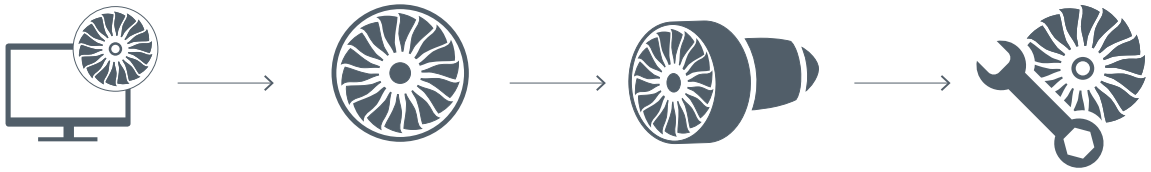
Safety is imperative in aviation, and legal requirements concerning safety are subject to strict monitoring by the relevant authorities. This is why product quality and flight safety are just as important to us as well. The company must comply with the legal requirements imposed upon it as an organization 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.

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 Executive Board on quality aspects and flight-related incidents. 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. Through independent, accredited external auditors, we regularly validate and certify our IMS.

The entire lifecycle in view

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 environmental protection standards.

Sustainability over the entire lifecycle of an engine



1. Development

Clean Air Engine (Claire)

New technologies for improved sustainability and longer product service lives

2. Production

Environmental management (mostly compliant with EMAS and/or ISO 14001)

Production processes that conserve resources, such as additive manufacturing

Sustainability standards for suppliers

3. Service life

MTU-developed Engine Trend Monitoring

MTU repairs, such as ERCOAT^{eco} (patented erosion protection for compressor blades)

4. Recycling

Solutions tailored to older engines for disassembling and recycling components, such as SAVE^{Plus} and VALUE^{Plus}, for effective end-of-life management

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.

A treasure trove with wings: Too good to throw away—decommissioned aircraft contain spare parts, valuable materials and even materials for making stylish upcycled furniture. Our story about aircraft recycling in AEROREPORT, MTU's aviation magazine

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.

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breaches of compliance

In 2020, we again didn't record a single breach of legal or internal compliance regulations with regard to the quality and safety of our products.

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.

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.

Constantly improving our quality management system

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. Continuous development primarily concerns MTU's body of rules and regulations, its internal quality reporting system and especially the digitalization of quality processes. Here we have started a digitalization project for quality data, particularly given that accurate data must be available for a digital twin or virtual engine.

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, and their number also had to be reduced due to the necessary operational restrictions.

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" was an overarching corporate objective for 2020. The corresponding secondary objectives specified a measurable increase in the quality of our services. 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. In 2020, our goal was to lower the number of customer complaints, or at least keep it stable, at all locations. For the majority of sites, customer complaints were down or constant compared with the previous year.

In the 2021 business year, we want to further increase customer satisfaction and stabilize product quality at a high level.

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

MTU employees honored with a customer’s Leadership Award

In the OEM business unit (new and spare parts), our strategic partner Pratt & Whitney presented its 2020 Leadership Award for outstanding performance to a cross-company team that included MTU employees from various locations. The team received the award for streamlining the replacement of individual components by adopting an efficient and flexible engine disassembly process. MTU Maintenance Hannover won the 2021 Deutscher Ideenmanagementpreis (German Ideas Management Award) in the category “Best Idea in Production and Technology” for its idea that made this campaign a reality. The Deutsches Institut für Ideen- und Innovationsmanagement (German Institute for Idea and Innovation Management) confers the award on companies and individuals who are role models in the field of idea management. A jury of experts from science and industry evaluated the submitted proposals.

Services and tools

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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

Climate action plays an immensely important role in MTU's product development. Our technology agenda guides the hard work we are doing to substantially reduce aircraft engines' fuel consumption and climate impact in several stages. Our long-term goal is to develop new propulsion concepts to make aviation emissions-free in the future—an important step toward achieving the target set out in the Paris Agreement.

The Dornier 228 turboprop aircraft is set to become a flight demonstrator for the hydrogen-powered fuel cell. MTU is a development partner in this project by the German Aerospace Center (DLR).

Climate change is one of the greatest global challenges of our time. There is broad consensus in society on limiting climate change, preferably to a temperature increase of 1.5 degrees Celsius (target adopted at the 2015 UN Climate Change Conference in Paris). For the aerospace industry, this calls for a drastic cut in global greenhouse gas emissions. But not only that. We also have to mitigate the overall impact these emissions have on the climate (CO_2 and non-CO_2 effects). MTU has made climate action a key focus of its sustainability strategy and pursues ambitious goals. Given that the greatest climate impact over an aircraft engine's entire lifecycle occurs in flight operations, MTU's primary focus here is on its products' service life. We are actively pursuing decarbonization, i.e. the shift to a long-term carbon-free economy, and include our own business activities in this effort. → Learn more about this commitment and our ecoRoadmap under Environmental protection in production

Even though the aviation market slumped as a result of the global coronavirus pandemic, it will return to its growth trajectory in the medium term. According to forecasts, the active aircraft fleet is still set to double by 2036, so now is the time to act decisively and set the course for a successful transition to renewable energy in aviation. Our activities center around significantly reducing the impact that air transport has on the climate; our long-term goal is emissions-free flight. The only way we can do this is if the entire industry pulls together and policymakers implement the appropriate framework. For that reason, we are involved in numerous aviation initiatives and forge new cooperative ventures to work on promising concepts with others. In our view, this transformation can succeed only if society as a whole pulls together, with the research community, industry and policymakers all collaborating closely.

Our contribution to SDGs 9, 12 and 13

With our commitment to climate action in product development, not only do we support important strategies such as the Paris Agreement and EU Green Deal; we also contribute to the SDGs, in particular to SDG 13 on "Climate action" and SDG 9 on "Industry, innovation and infrastructure", and also to SDG 12 on "Responsible consumption and production." This enables us to fulfill our commitment to the UN Global Compact (UNGC), a unique sustainability initiative in which many companies and organizations around the world have joined forces to make globalization fairer and more environmentally friendly. With our measures described here, we are making progress toward UNGC Principles 7 to 9, which come under the category of Environment.

→ Learn more about our contribution to the SDGs of the UN's 2030 Agenda

Climate action guides how we conduct our business

We are long-time advocates of environmentally compatible aviation, and sustainable product development is enshrined in our MTU Principles with a view to reducing the harmful impact on climate and health. We have also formulated corresponding guidelines in our global MTU Code of Conduct. In our revision of the MTU Code of Conduct in the reporting year, we placed a much clearer emphasis on climate action as the key maxim guiding how we conduct our business. We see our Technology roadmap toward emissions-free flight as an ambitious contribution to society's key goals for sustainable development. These include the EU Green Deal aimed at making Europe climate-neutral by 2050 and the international community's Paris Agreement. As a manufacturer of aircraft engines, we see it as our responsibility not only to support this path, but also to put forward solutions. We are already hard at work on our Green Deal for aviation with revolutionary propulsion concepts high on our agenda.

Aviation's climate impact goes beyond CO_2

The United Nations Intergovernmental Panel on Climate Change (IPCC) reports that the climate impact of air traffic is due mainly to CO_2 emissions, but also to ozone production as a consequence of NOx (nitrogen oxide) emissions, and the formation of contrails and cirrus clouds. According to the International Energy Agency, global air traffic is responsible for some 2.7% of CO_2 emissions around the world (data from 2015). Conducted in 2020, a new international study led by Manchester Metropolitan University in collaboration with the German Aerospace Center (DLR) evaluated all the emissions from aircraft engines that contribute to climate change using an advanced IPCC metric. The study included CO_2, NOx, water vapor, soot, aerosol and sulfate aerosol particles, contrails and cirrus clouds in its calculations, finding that global aviation is responsible for 3.5 percent of human-induced climate change. It also shows that CO_2 emissions are responsible for only one-third of aviation's impact on the climate, with the other two-thirds due to non-CO_2 effects. Contrails and cirrus clouds (clouds of ice crystals) also have an impact on the climate; they are generated under certain temperature and humidity conditions in the atmosphere triggered by particle and water emissions. Clever selection of flight routes and altitudes can greatly reduce or even avoid them. Contrails can also be reduced with the help of sustainable fuels, as these produce fewer particulate emissions due to a lower proportion of aromatics. New combustor concepts can significantly reduce nitrogen oxides.

We align our activities with the Paris Agreement

Efficiency is key to environmentally friendly air travel. Fuel consumption and CO_2 emissions are directly proportional and a considerable factor in the impact aviation has on the climate. This is why improving fuel efficiency remains very important to us, as it reduces both resource consumption and the impact on the climate. Given our expertise in the development and manufacture of high-pressure compressors and low-pressure turbines, this is something we directly influence. But the efforts to date are no longer enough.

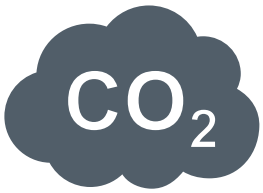
The goal set out in the Paris Agreement, to limit the temperature increase preferably to 1.5 degrees Celsius, requires all activities to be accelerated and stepped up. And instead of just focusing on CO_2 emissions, a shift is required to include all emissions that impact the climate. That is why, in addition to reducing fuel consumption and thus engine CO_2 emissions, MTU is increasingly focusing on reducing contrails and cloud formation and, alongside evolutionary development of gas turbine technology, is also researching new, revolutionary propulsion concepts that range all the way to emissions-free solutions. Our technology roadmap toward emissions-free flight charts a long-term course to achieve zero-emission aviation. It outlines key new propulsion technologies required to make this happen and notably includes sustainable fuels and hydrogen-powered fuel cells as a long-term propulsion concept.

Another important objective set out on our technology roadmap is to reduce the impact of noise and exhaust emissions on health. → More information about this under Health impact of aircraft engines

New roadmap featuring concepts for zero emissions

The aviation industry is characterized by long product cycles. As a rule, aircraft engines spend 30 years in service before they are decommissioned. Goals to produce more eco-efficient engines therefore have a long-term perspective and are established in memoranda of understanding by the aviation stakeholders (airlines, aviation industry, research, aviation authorities). One example is the Strategic Research and Innovation Agenda (SRIA) developed in 2012, which we have always used as our benchmark. However, as the goals set out in the Paris Agreement for reducing climate impact are far more ambitious, we are currently realigning our Clean Air Engine Agenda (Claire) as our next step. This in-house roadmap for the development of engine programs sets several climate targets for MTU itself through to 2050. By realigning it, our aim is to accelerate the development of new propulsion concepts and implement emissions-free concepts. Publication is due in 2021.

We have already achieved a great deal: The geared turbofan engine



4.2
million metric tons saved

The first generation of the geared turbofan engine family already powers 940 aircraft, helping reduce CO_2 emissions by 4.2 million metric tons.
(Source: Pratt & Whitney, February 2021) The engine is a key driver of revenue in our portfolio.

With the first generation of the geared turbofan engine family, which we develop and manufacture together with our partner Pratt & Whitney, we have not only achieved but in fact exceeded our first climate target of a 15% reduction in CO_2 emissions (16% for the PW1100G-JM that powers the A320neo, for example). By 2022, this engine family will have been successively introduced in various models for a total of five aircraft applications. It has become a major business success and measurably reduces the burden on the environment: this first generation has already enabled airlines to save more than four million metric tons of CO_2 in flight. It also brings significant improvements in terms of NO_X emissions, which are 50% lower than those of its predecessor.

The next stage in our roadmap: 25% less fuel by 2030

Following the promising launch of the new geared turbofan engine, we now want to reduce fuel consumption and CO_2 emissions even further. To achieve this, we are taking an evolutionary approach based on the geared turbofan, which still offers huge potential for improvement. In the next generation, we want to develop its technology and turn it into an ultra-high bypass engine. Running the new engines on sustainable aviation fuels (SAFs) would even pave the way for carbon neutrality. Because SAFs also cause lower soot emissions, engines in turn have less of an impact on the climate, since a reduction in soot reduces the number of contrails and cirrus clouds. Our engineers are already busy working on preliminary designs and technologies for the new generation. Within the German government's LuFo aeronautics research program and European technology initiatives such as Clean Sky 2, we are driving development to get these concepts ready for full-scale production, for example by preparing tests on new high-temperature materials. This technology development work could be completed by 2027.

Rethinking propulsion: Claire stage 3 engine architectures

As part of the third stage of our Claire agenda, we are working with industry partners as well as universities and research institutions on solutions for 2030 and beyond. This is when new propulsion concepts are set to come into use that open the door to emissions-free flight. To this end, we are pursuing two concepts.

Water-enhanced turbofan (WET engine)

The water-enhanced turbofan (WET engine) employs a heat exchanger to use the energy from the engine's exhaust gas stream. It works by evaporating water in a heat exchanger and injecting the vapor into the combustor for the turbine to generate additional power. A condenser is employed to obtain the requisite water from the exhaust gas. "Wet" combustion of this kind massively reduces nitrogen oxide emissions. This concept also cuts fuel consumption and CO_2 emissions by a large degree. In addition, it holds great potential for significantly limiting the climate impact caused by contrails because it enables emissions of water vapor to be reduced. We started initial trials in 2020 to condense water from the engine's exhaust gas stream for application in a WET engine. If this concept proves to be viable, there will be a further challenge to solve together with the aircraft manufacturer: how to integrate the required condenser into the aircraft.

The major advantage of this technical solution is that the WET engine can be designed to fly all ranges. Since the majority of aviation's climate impact is the result of medium- and long-haul flights, the WET Engine holds great potential to reduce this impact. If the engine ran on SAF, its would be carbon-neutral to operate and the significantly lower particulate emissions would also help reduce contrails. Another conceivable source of power is hydrogen, which would eliminate CO_2 emissions and soot entirely.

Electric propulsion: From battery-electric and hybrid concepts to fuel cells

Battery-electric propulsion systems enable zero-emission aviation—provided the power is produced sustainably. Currently, however, they are not technically feasible for existing commercial passenger aircraft. Today's battery concepts do not offer anywhere near the energy density of conventional kerosene. Batteries' storage capacity is far too small to power commercial flights. But battery-electric flight is a viable option for carrying a small number of passengers over short distances.

One possible concept for longer distances would be hybrid propulsion systems combining electric motors, generators, gas turbines and batteries. These open up completely new possibilities in aircraft design and propulsion technology while still using kerosene or SAFs as high energy density fuels for greater range. Disadvantages of hybrid propulsion systems, however, are the significant weight they add and energy conversion losses. We are participating in this future propulsion concept through our stake in Silent Air Taxi, which will have a parallel hybrid-electric propulsion system.

Lars Wagner
Chief Operating Officer
at MTU Aero Engines AG

"As things stand today, the **fuel cell** in conjunction with **sustainably produced hydrogen** offers the greatest long-term potential for realizing **zero-emission aviation**. **That's our vision for the future.** We believe that a fuel-cell system of this kind could in the future provide sufficient power and range to be used as the primary propulsion system for regional, short- and medium-haul aircraft."

One very promising propulsion concept is the hydrogen-powered fuel cell as an emerging technology for sustainable aviation. It emits nothing but water and water vapor, paving the way for climate-neutral flight. This concept uses hydrogen as its energy source and employs electric motors to drive the propulsors. Hydrogen has a very high energy density, so–in contrast to the electric battery–a fuel cell could conceivably also power long-distance flights. However, the fuel cells available today are not suitable for use in larger aircraft. That notwithstanding, due to the enormous potential the technology holds and encouraging approaches for automotive applications, we are pursuing this concept as a long-term solution and established a Flying Fuel Cell team in 2020 to explore the development of an electric propulsion system with fuel cells. We have also teamed up with DLR to collaborate on a flight demonstrator for electric propulsion systems (flying fuel cell demonstrator), which is based on a modified Dornier Do228 turboprop aircraft. We signed a joint declaration of intent for this project in the reporting period. The maiden flight is expected to take place at the middle of the decade, for which the engineers are replacing one of aircraft's two engines with a 500-kilowatt electric motor powered by electricity from a fuel cell. As many as 80 experts are set to work on this pioneering project.

Let's talk about! *Listen to what our fuel cell specialist has to say in our video series on sustainability@MTU*

→ *Watch the video at https://youtu.be/rfk_Sp_Us8Y*

To enable passenger aircraft powered by fuel cells to fly, however, different technologies are required–first and foremost, the fueling system. In gas form, hydrogen occupies a huge volume, even when stored in pressure tanks; liquid hydrogen cooled to minus 253 degrees Celsius is three to four times as voluminous as kerosene. For distances of up to about 3,500 nautical miles (just under 6,500 kilometers), in our view it still makes sense to accommodate the hydrogen tank, with modifications, in the current aircraft configuration. For longer routes, other solutions such as our WET engine are better.

Essential for green aviation: Sustainable fuels

Our position is clear: aviation must move away from the use of fossil fuels and tap far deeper into renewable energy sources. Sustainable fuels have the potential to neutralize CO_2 emissions generated by aviation, which makes them an indispensable part of efforts to achieve the target set out in the Paris Agreement. MTU is strongly committed to the adoption of alternative aviation fuels. For instance, through our involvement in the Bauhaus Luftfahrt think tank and the Aviation Initiative for Renewable Energy in Germany (aireg), an association we set up together with airlines, manufacturers and research institutions.

Sustainable aviation fuels (SAFs) can already be used in today's infrastructure as an admixture of at least 50 percent. The new fuels can be "dropped in" to existing infrastructure, which means there is no need to modify the engine or aircraft. Currently, however, SAFs are used only in minimal quantities. Basically there are two different production methods: biomass-based and synthetic fuels. It is essential that biomass-based processes do not stand in the way of food production. One way to ensure this is by converting waste and residual materials into kerosene. Compared to the methods used today, advanced processes such as biomass-to-liquid can achieve even greater sustainability because very few CO_2 emissions are generated in the production of the fuels. In addition, a diverse range of raw materials can be used, which helps avoid changes in land use.

Unlike biomass-based SAFs, the scalability of synthetic fuels is virtually unlimited. These synfuels, as they are known, are produced using renewable electricity or sunlight, for which the power-to-liquid (PtL) process is particularly suitable. Although this technology is known and approved, there are still no large-scale production plants. As a result, prices are still very high; currently many times higher than for standard kerosene. A ramp-up to industrial scale, however, is expected to significantly reduce the cost. To produce this PtL fuel in large volumes, sufficient quantities of renewable energy must be available. Stepping up efforts to source even more energy from renewables is therefore also central to the use of SAF.

Let's talk about! *Listen to what our expert on hydrogen lines in aircraft has to say in our video series on sustainability@MTU*

→ Watch the video at https://youtu.be/00f3IsMszH4

In addition to SAF, hydrogen can be burned directly as an alternative source of power for gas turbines. To enable this, the modifications to the geared turbofan would be relatively easy to make. When it comes to the aircraft and infrastructure, more extensive adjustments are likely to be required, as the entire fueling system will have to be changed or the fuel systems at airports will have to be adapted. As is the case with SAF, sufficient quantities of renewable energy are required to provide green hydrogen.

Hydrogen is gaining momentum in aviation. MTU is following and reporting on these developments in its aviation magazine **AERO**REPORT. Our articles on the fuel of the future

More information:

Zero-emission aviation: a white paper by Germany's aviation research community (in German)

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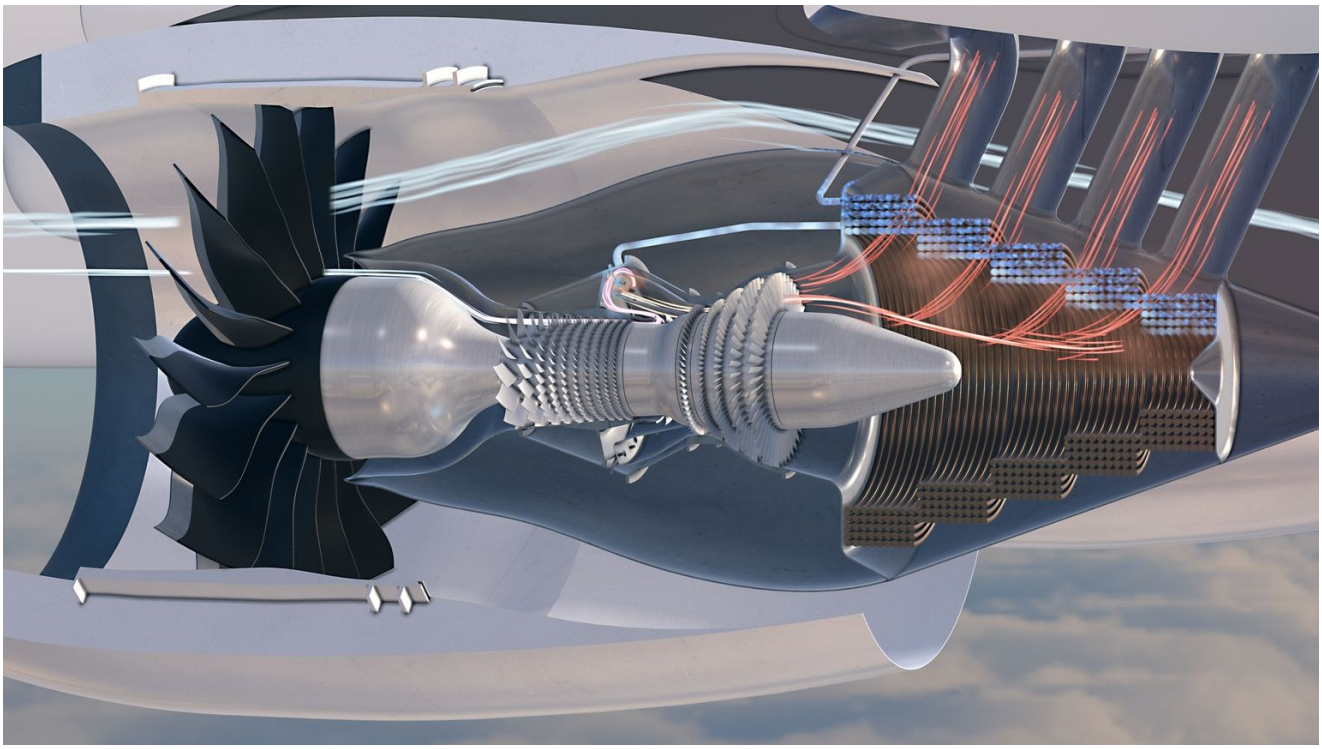
GRI: 102-12, 103-2, 103-3, 201-2, 302-5, 305-3

UNGC: 7, 8, 9

Reducing engine noise and exhaust gases

Health impact of aircraft engines

As part of our sustainable product development, we are not only working on new propulsion concepts for zero-emission aviation. Our Clean Air Engine agenda also focuses on minimizing the impact that our products–in the air and on the ground–have on people's health. This includes reducing aircraft noise and exhaust emissions to make flying significantly quieter and cleaner.

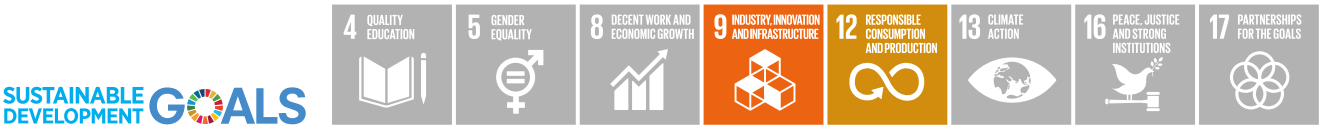


Our new WET engine propulsion concept can significantly reduce or even eliminate pollutants. It works by injecting water into the combustor, which, based on what we know so far, can cut NO_x emissions by up to 80%.

We undertake to protect the environment; climate action is one part of this, but our endeavors go much further. We are also committed to reducing aircraft noise and improving air quality through lower exhaust emissions. This is important because with quiet and clean propulsion concepts, we can improve the situation for residents living near and around airports in terms of noise abatement and 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 issues of aircraft noise and emissions 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 and society."

Our contribution to SDGs 9 and 12

Our commitment to reducing aircraft noise helps achieve two SDGs of the UN's 2030 Agenda: SDG 9 on "Industry, innovation and infrastructure" and SDG 12 on "Responsible consumption and production." Reducing aircraft noise levels improves the aviation infrastructure that is important for growth and prosperity while at the same time leading to lower levels of pollution for people living around airports. Lower exhaust emissions help improve local air quality.



→ Learn more about our contribution to the SDGs of the UN's 2030 Agenda

In contrast to CO_2 emissions, 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 for noise 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 down to the fan and engine airflow; during landing, the aircraft also adds to noise as a result of turbulence around the fuselage, wings and landing gear. Noise is also produced by the aerodynamic interaction between components. The core engine accounts for a relatively small proportion of aircraft noise. www.fluglaerm-portal.de

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: Our Clean Air Engine agenda provides answers in this area, too.

With our Clean Air Engine agenda (Claire), we are pursuing not only climate action targets → Climate impact of aircraft engines, but also targets for reducing aircraft noise emissions. Our project is in line with the European aviation industry and research sector's Strategic Research and Innovation Agenda (SRIA), which calls for noise reductions of 55% by 2035 and 65% by 2050. With the first-generation geared turbofan, which we develop and manufacture together with our partner Pratt & Whitney, 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%.

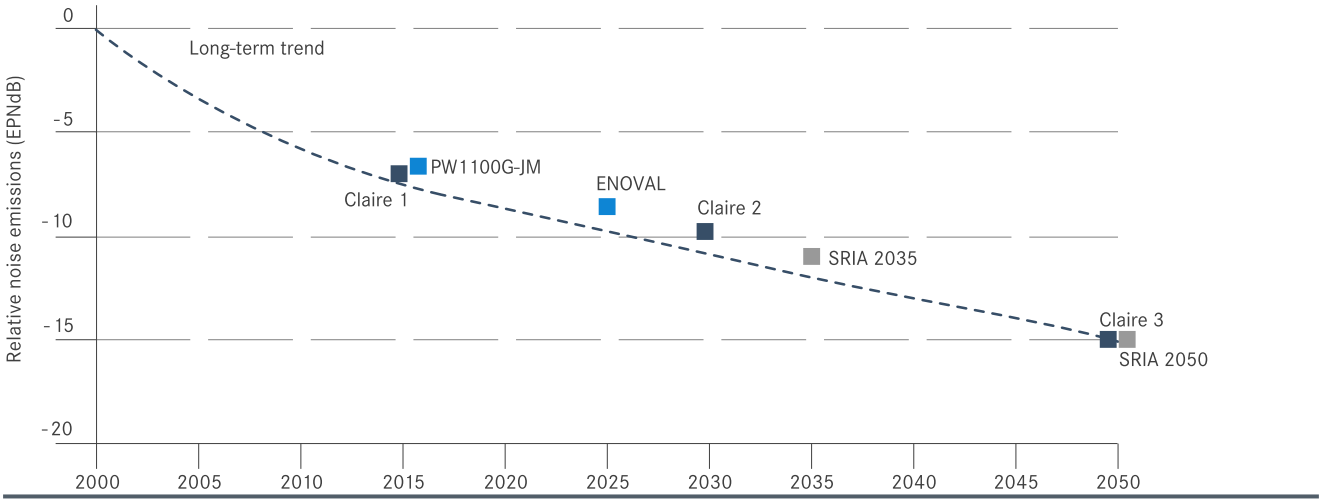
65%

less aircraft noise

Noise abatement plays an important role in our activities: With our Clean Air Engine agenda, we have set ourselves staggered targets for reducing aircraft noise levels–by up to 65% by 2050. Our models are already well below the legal limit.

In the next step, Claire Stage 2, improvements to the second-generation geared turbofan are set to reduce aircraft and engine noise emissions by 50% (base year 2000). To achieve this, the engine industry has developed the necessary fans with a low pressure ratio and low-noise low-pressure turbines as part of European research programs such as ENOVAL. Entry into service is scheduled for later this decade.

SRIA and Claire agenda targets for reducing noise emissions



All the targets refer to an aircraft's noise emissions including engines (improvements are relative to an aircraft from the year 2000); noise level in EPNdB (effective perceived noise decibels) are relative to the limits defined by the International Civil Aviation Organization (ICAO) (Stage 4). A reduction in noise emissions of 10 EPNdB corresponds to a 50% cut in perceived noise.

In the third and final stage of Claire, noise emissions are set to be reduced by as much as 65% (base year 2000) thanks to new engine architectures. Our engineers are currently working on various promising concepts for the future, and our acoustics experts are involved in our projects at every stage of product development, from technology management to subsequent engine design and optimization.

New concepts pave the way for zero pollutant emissions

In addition to contributing to climate effects and generating noise, air traffic also has an impact on local air quality at airports and surrounding areas. The combustion process in aircraft engines produces pollutants in the form of nitrogen oxides (NOx), carbon monoxide (CO), unburned hydrocarbons (UHC) and soot/particulate matter. In terms of the impact these have on health, NOx and particulate matter emissions are the most significant. To obtain type certification, aircraft and engines must meet environmental standards stipulated by the ICAO. ICAO has defined limits for the levels of NOx, 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 the health effects caused by NOx and particulate matter 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 NOx 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 (SAF) than with conventional aviation fuels. Using hydrogen as a fuel eliminates them completely.

80 %

reduction in nitrogen oxides

A pilot concept that we're backing and for which we're already making preliminary designs can make aircraft engines remarkably cleaner: The WET engine could reduce NOx emissions by up to 80% in the future. Hydrogen-powered fuel cells would eliminate them completely.

Our development of revolutionary propulsion concepts, which is part of our climate action activities, also holds great potential for reducing pollutant emissions. Our WET engine and fuel cell concepts can minimize 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 NOx emissions by up to 80%. Hydrogen-powered fuel cells would emit nothing but water. That's what we're aiming for.

Services and tools

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

UNGC: 7,8,9

Working on sustainable innovations

Research and 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. With our research and development activities, we want to implement innovative and sustainable solutions that strengthen our competitiveness and secure our business. Ultimately, all MTU's stakeholders benefit from this–above all our customers, employees and shareholders.

We bring together smart minds and a whole host of experts who are working on the solutions of tomorrow, with 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 dialog, which we conduct on an ongoing basis with all stakeholders. → More about stakeholder dialogue

Our contribution to SDGs 9, 12, 13 and 17

With our sustainable product solutions, we support several of the Sustainable Development Goals (SDGs): SDG 9 on “Industry, innovation and infrastructure,” SDG 12 on “Responsible consumption and production,” SDG 13 on “Climate action,” and SDG 17 on “Partnerships for the goals.” A secondary objective of SDG 9 calls for research and development to be expanded by 2030. We conduct intensive research and development work with numerous specialists in the company and in collaboration with universities and research institutions. In 2020, we invested EUR 186 million in solutions for tomorrow and beyond.

→ Learn more about our contribution to the SDGs of the UN’s 2030 Agenda

Comprehensive management for unlocking innovation

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 also members, approves MTU’s technology roadmap and is regularly updated on progress and the course of the projects. MTU manages its product development in a multistage technology and innovation process. Short-term product development is oriented toward concrete customer specifications on the basis of existing technologies. In the medium term (up to 15 years), we will create advanced product designs and derive technology requirements from them. And over the long term (up to 2050), our engineers will use a technology radar to develop pilot concepts and initiate the development of enabling technologies. 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 Innovation Day: Innovations are important for every company to achieve long-term success. MTU has experts in its ranks who possess the wealth of ideas and ingenuity it takes to develop pioneering technologies for tomorrow's aviation. Every two years, we hold our Innovation Week during which we present the most promising approaches to new products and processes, and award prizes for them on Innovation Day. In 2020, the WET engine also received a future prize.

"The ideas and creativity that our employees bring to the table are key to MTU's continued success in shaping the future of aviation. That's why have a special day–Innovation Day–to honor this commitment, which is so valuable to us."
Dr. Stefan Weber, SVP Engineering & Technology and member of the CR Board at MTU Aero Engines

In the reporting year, we again invested heavily in sustainable innovation: our investment in research and development (R&D) in 2020 totaled EUR 186 million (2019: EUR 214 million). With our R&D activities, we lay the groundwork for the future of aviation; for a long time now, as much as 90% of our investment in R&D has been targeted at reducing emissions. Our long-term focus is on emissions-free flight and, in particular, on the WET engine and the flying fuel cell. Alongside this R&D work and technology studies for future engine generations, the geared turbofan programs and their further improvement were high on MTU's agenda in 2020, as was the GE9X engine for the Boeing 777X. We currently have around 150 technology projects in the research pipeline. Our teams bring together bright minds from fields as diverse as acoustics, fuel cells, 3D printing and bionics. We file over 400 patent applications every year, which also puts us in an excellent position.

186
million euros

Investing in a green future: One focus of our research and development work is emissions-free flight and, in particular, hydrogen and flying fuel cells. The EUR 186 million we invested in research and development in 2020 amounted to just under 5% of our revenue.

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 German (Lufo) and European research programs (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 and universities.

100
research partners

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

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

Services and tools

Download center and report archive

Online survey about sustainability@MTU

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

UNGC: 7, 8, 9

VALUE CREATION

Production, maintenance and procurement

As a manufacturing company, we face the challenges of climate change and resource conservation. With our environmental management system, we aim to develop, manufacture and maintain engines and modules in a way that is as energy-efficient as possible and minimizes emissions and raw material consumption. With our new ecoRoadmap, we're stepping up our ambitious climate action efforts to support the Paris Agreement target of 1.5 degrees. We include the upstream supply chain in a sustainable process of creating value.

10
million euros spent on environmental protection

545,000
metric tons of CO_2 saved at our Munich location

→ Environmental management
→ Conservation of resources
→ Emissions
→ Supplier management

SUSTAINABLE DEVELOPMENT GOALS

Ecological standards for production and maintenance

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 regular measurements of our energy consumption as a basis for effective monitoring and reduction measures.

Environmental protection is an important principle guiding our corporate behavior and is implemented in our business processes. It is also enshrined in the global Code of Conduct for all employees, where we express our commitment to a policy of integrated environmental protection that starts at the causes of pollution and evaluates the environmental impact of our production processes and products in advance. We integrate insights from this into corporate decisions. We apply the precautionary principle so as to keep negative environmental impact to a minimum. The most significant way we can help protect the environment is with our product development processes, as the environmental effects (energy consumption, climate impact) of our products is greatest during their use. → Climate impact of aircraft engines

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

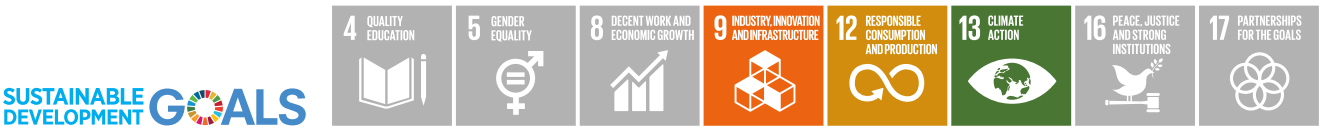
10.0
million euros

Our investments and ongoing expenses for environmental protection and climate action at our production sites totaled EUR 10 million in 2020. This went primarily toward implementing projects for generating energy from renewable sources, such as the photovoltaic system in Munich.

Furthermore, we have embedded our environmental responsibility in the MTU Principles in the section entitled "Environment and society," Responsibility for company-wide environmental protection is assumed by the Executive Board. Uniform high standards are applied across MTU through an environmental management system that defines processes, responsibilities and targets at the site level. Environmental protection is part of our → Integrated management system (IMS). Internal standards are binding for MTU's sites and, in some cases, exceed the legal requirements. The stringent 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 stipulated by national legislation and local specifications. For machines and facilities with environmental implications, this body of rules and regulations is supplemented by approval from the authorities. We conduct measurements, tests and inspections at regular intervals to ensure our machines and facilities are operating invariably in accordance with these rules and regulations.

Our contribution to SDGs 9, 12 and 13

Through our environmental management system, we continually improve energy and resource efficiency and minimize emissions of CO_2 and pollutants in production and maintenance. In this way, we live up to our responsibility as a manufacturing company. In doing so, we also want to help achieve the Sustainable Development Goals (SDGs), specifically SDG 9 on "Industry, innovation and infrastructure," SDG 12 on "Responsible consumption and production" and SDG 13 on "Climate action."



→ Learn more about our contribution to the SDGs of the UN's 2030 Agenda

Certified management systems for environmental protection

Our environmental management approach is not centralized. All of MTU's production sites have a dedicated environmental department and take care of implementing environmental protection measures on a local level. Through IMS reporting, the Executive Board receives a quarterly report on CO_2 emissions in relation to production hours for the sites in Munich, Hannover, Ludwigsfelde, Rzeszów and Vancouver. 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. We regularly train employees on matters relevant to the environment, such as the safe handling of hazardous goods or chemicals.

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). → Overview of our certifications This means that 89.5% of MTU's business activities at our production sites are certified to a recognized, external standard in terms of energy used (natural gas, kerosene, biomethane, electricity and district heating).

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 Emissions). We use various measures to achieve improvements in our environmental performance. In the reporting year, we spent some EUR 10.0 million in total on investments and ongoing expenses in a bid to increase our environmental compatibility. These concerned, for example, wastewater treatment, safe waste disposal, use of renewable energies, energy-saving measures and noise abatement. At our Munich site, we are investing in a new photovoltaic system that will go into operation in 2021.

Our goal is to constantly develop and refine our operational environmental protection measures. Independent external auditors and environmental consultants conduct annual reviews at our German sites to confirm our implementation of and adherence to the applicable environmental protection management requirements, and provide recommendations for improvement. We always pass these reviews with flying colors, 2020 was no exception. This monitoring is supplemented by internal inspections and audits. The same applies to our production facilities. MTU's management regularly conducts reviews to monitor and steer environmental management in the company and to influence its further development.

0

fines for environmental incidents

We apply the precautionary principle so as to keep environmental impact to a minimum. The company has been operating in compliance with the law at its production sites for years, and no fines for environmental incidents were imposed on MTU in 2020 either.

Emergency management plans have been prepared to deal with interruptions to operations 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. MTU has comprehensive fire protection measures in place that comply with legal directives.

In 2020 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.

Environmental protection in dialogue with stakeholders

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 comments. → More information about Stakeholder dialogue

Our → Environmental statements for Munich, Hannover and Ludwigsfelde provide information to the public annually about our environmental impact and environmental management. In addition, we offer stakeholders the opportunity to make use of an → Online survey on sustainability to give feedback.

We promote greater environmental protection in industry and business through the following global and local initiatives:

- UN Global Compact
- Been-i Bavarian energy-efficiency network
- Bavarian Environmental Pact (Umwelt und Klimapakt Bayern)
- Munich Business Climate Pact (Klimapakt Münchner Wirtschaft)
- YVR Vancouver Airport Authority's Environmental Management Plan

We involve our employees in active environmental protection endeavors and promote environmentally conscious behavior through awareness events, information campaigns and training courses at all our production sites–including initial instruction for new employees at MTU. Raising the awareness of all employees in production and administration is part of our Code of Conduct regarding environmental protection. We promote environmentally friendly behavior among our employees through local initiatives such as Zero mission at our headquarters in Munich and the Eco Facility campaign in Rzeszów; a sustainability committee is active in Canada. We also support the commitment of our employees outside MTU. One example in 2020 was a call to participate in the Climathon, a global brainstorming event for a better climate.

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. By comparison, smaller sites are not relevant for our environmental impact and are therefore not included.

Outlook

In 2020, we began developing an ecoRoadmap for climate neutrality at MTU's Munich site as a pilot project. We aim to make site operations climate-neutral as early as 2021. The other German sites are to follow and all fully consolidated production sites are to be included in the long term.

Services and tools

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Online survey about sustainability@MTU

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

UNGC: 7, 8

Using raw materials responsibly

Conservation of resources

When producing engine modules or engines in our plants, or when maintaining them in our maintenance shops, we aim to conserve resources as far as possible. Using processes that are efficient in terms of energy and raw materials, we aim to minimize consumption of scarce resources and reduce greenhouse gas emissions, thus playing a role in environmental protection and climate action.

Our production sites, such as our maintenance plant here in Ludwigsfelde near Berlin, rely on resource-conserving procedures that are efficient with energy and materials and careful in the handling of water and waste.

With the help of our environmental management system, we aim to advance our resource-conserving production processes, and gradually improve energy efficiency in the manufacture of our products and in the maintenance of engines and modules. Our goal is highly efficient production and maintenance with minimal use of resources. We use raw materials, water and energy sparingly and will rely more on renewable energy sources in the future. We have set out the responsible use of resources as a guideline for all employees in our Code of Conduct and our MTU Principles. The use of resources depends on batch sizes in production and maintenance. The reporting year was dominated by the global coronavirus pandemic, which resulted in lower production volumes and capacity utilization at the plants.

Our contribution to SDGs 9, 12 and 13

By making our processes resource-conserving, we support SDG 9 on “Industry, innovation and infrastructure” and SDG 12 on “Responsible consumption and production.” A secondary objective of SDG 9 calls for sustainable industry with more efficient use of resources and increased use of environmentally friendly technologies and industrial processes. Our sustainable waste management system contributes in particular to SDG 12, which calls for a significant reduction in global waste generation by 2030. All the measures we take to protect resources, reduce our energy requirements, and above all use renewable energies, ultimately also benefit SDG 13 on “Climate action.”

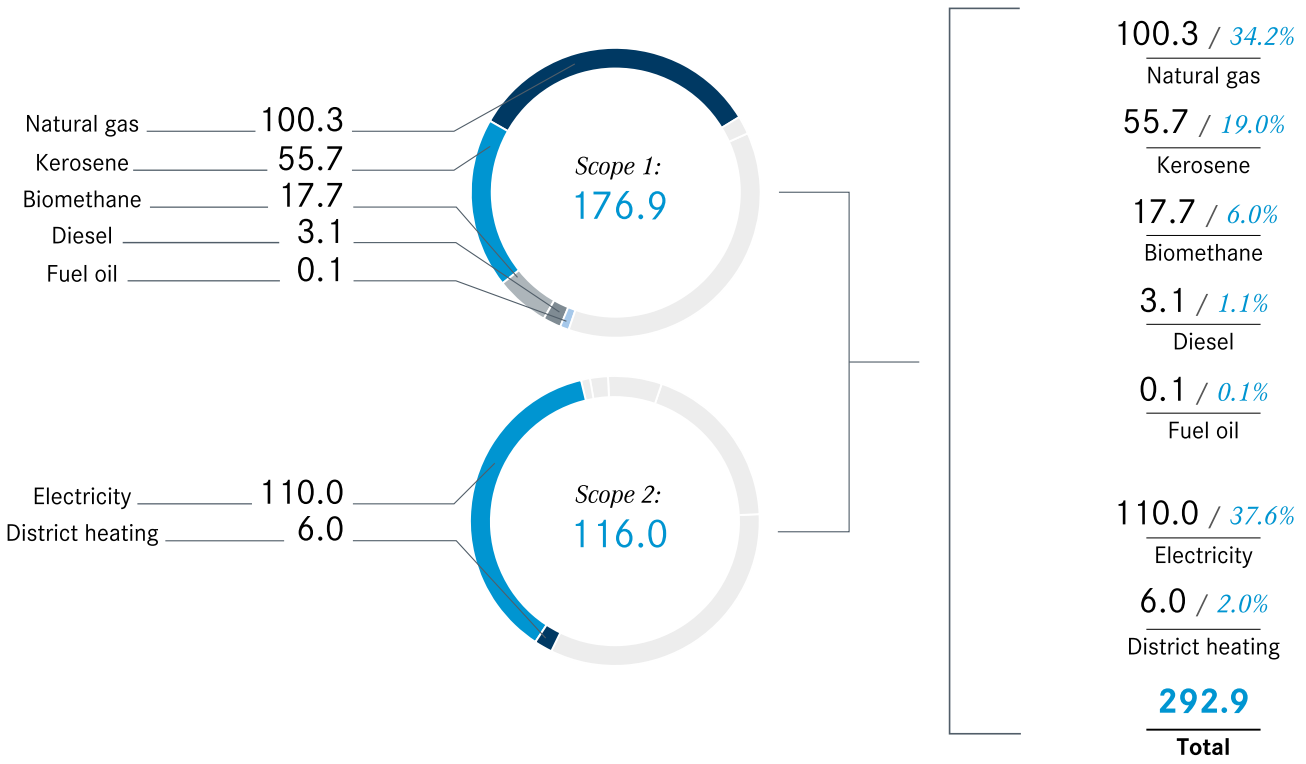
→ Learn more about our contribution to the SDGs of the UN’s 2030 Agenda

Energy management

MTU relies on a mix of renewable and non-renewable energy sources and chooses energy resources based on security of supply, cost effectiveness and environmental considerations. Regarding non-renewable primary energy, we use natural gas, the aviation fuel kerosene and a very small amount of diesel and heating oil (together accounting for less than 1.5%). 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. In addition, we use biomethane to operate the BHKW. The Hannover site makes use of solar energy with the aid of a solar thermal power plant and 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).

The highlight of the 2020 measures was investment in greater use of renewables. To this end, we have started building a photovoltaic system in Munich, which will go online in 2021. MTU plans to use the system to generate a portion of its own electricity–up to about 240,000 kilowatt hours a year–and thus save around 60 metric tons of CO_2 a year. Similar systems are being planned or examined for other locations.

Energy sources used in 2020
Scope 1 and 2 (consumption in GWh; share in %)
GRI 302-1



Production sites only

Measures for energy-efficient production/maintenance

- Well water for cooling purposes
- District heating network modernization and improvements thermal insulation
- Building automation systems
- Heat recovery systems
- Renewable energy
- Energy-efficient compressed air supply
- Energy-efficient lighting systems
- Waste heat from compressed air generation
- Electric transport in the plants
- Machine shutdowns during disruptions of production to reduce the base load

Energy consumption in 2020

Our energy requirement for Scope 1 (direct energy consumption) was 176.9 gigawatt hours (GWh) in 2020 compared to 164.9 GWh in 2019 (+7.3%). Scope 1 primarily concerns the energy sources natural gas and kerosene. Natural gas is used primarily in production, for heating, and for test stand operation. The higher energy consumption for Scope 1 is due to a higher volume of natural gas, as heat consumption has increased due to new manufacturing halls and different ventilation (partial or complete fresh air operation because of coronavirus prevention measures). 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 newly maintained as well as manufactured engines must complete a test run prior to delivery for safety reasons and to demonstrate their performance. Consumption here was lower in 2020 due to a reduced test spectrum. Our digitalization strategy is also making strides toward increasing the use of simulations in development and manufacturing in order to reduce the amount of development testing for new engines. To this end, a number of projects in the area of development and technology are already underway. This is an important contributor to resource conservation. Regarding renewable energy, we used 17.7 GWh of biomethane for our cogeneration plant (2019: 20.8), corresponding to 10% of direct energy requirement.

70

four-person households

Their electricity consumption is roughly equivalent to the amount we can generate ourselves each year with our new photovoltaic system at the Munich site. From 2021 onward, we will feed the green electricity into the MTU grid.

In 2020, we procured a total of 116.0 GWh of external energy (Scope 2)—as a function of capacity utilization and due to increased use of mobile working, this is some 10.5% less than in the previous year (2020: 130.0 GWh). Purchased energy is mainly electricity, with a share of 94.8%. The electricity purchased is drawn from renewable sources in varying proportions. MTU Maintenance Canada gets all its electricity from hydroelectric power stations and therefore 100% from renewable sources (corresponding to a 2.5% share in Scope 2). As part of our ecoRoadmap, in the future we aim to successively increase the purchase of green electricity generated exclusively from renewable sources. More information about the ecoRoadmap on the road toward climate-neutral site operations in the Emissions chapter

Energy supply, production, Scope 1 and 2 (in GWh)
GRI 302-1

	2020	2019	2018
Total	**292.9**	**294.9**	**288.0**
Direct energy consumption, natural gas, kerosene, other = Scope 1	176.9	164.9	162.4
Indirect energy consumption, electricity, district heating = Scope 2	116.0	130.0	125.6
Covered by Scope 1: non-fossil fuels = biomethane	17.7	20.8	18.1

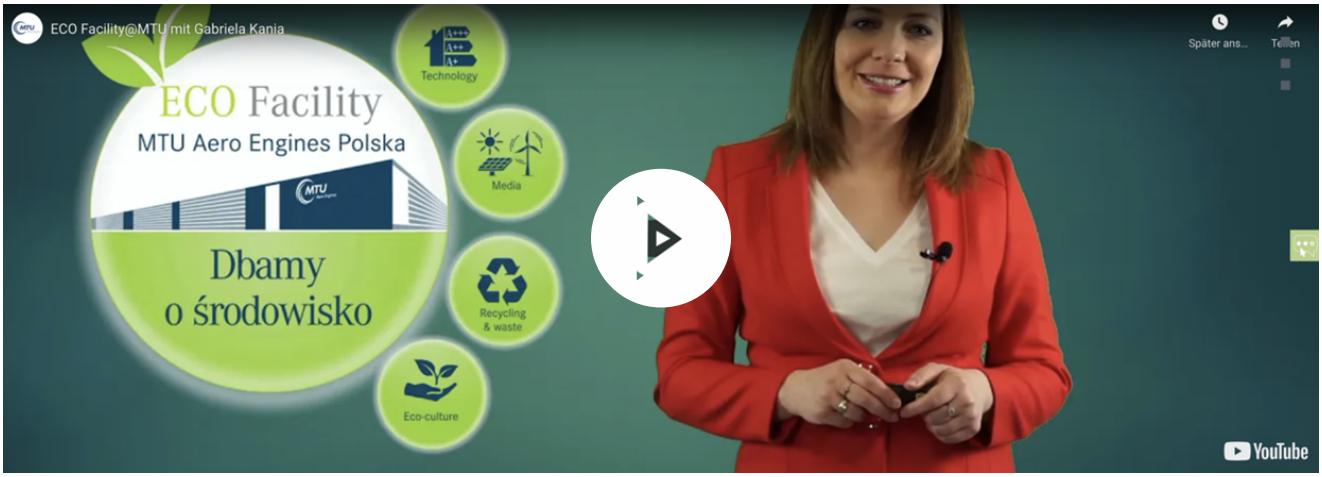
Production sites only; Scope 1 energy consumption for 2019 adjusted for double counting in previous publications

The total energy requirement for Scope 1 and 2 was 292.9 GWh in 2020, which is at the previous year's level (-0.7%). With a systematic energy management system, we manage primarily the consumption of our main energy sources electricity and natural gas and implement improvements.

Our progress in energy management in 2020

- Renovation of lighting in several production facilities, Munich
- Switch to LED lighting, several production sites
- An end to computers in stand-by mode, Munich, Vancouver
- Renewal of equipment in heat treatment, facade renovation, Hannover

Let's talk about! *In conversation with the head of the ecoFacility project at MTU Aero Engines Polska*



→ You can find this film at https://youtu.be/oYfO_pQTd_8

Water

Water is a valuable resource that we use sparingly. We have effective water management systems in place at all production sites. Our water consumption also fluctuates depending on 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 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). In 2020, we invested some EUR 0.6 million in improved wastewater management.

Our fully consolidated production sites are in Germany, Poland and Canada, so they are not located in 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. We record water consumption locally as an absolute value. Water withdrawal amounted to around 8.3 million cubic meters for all production sites (2019: 9.7 million m^3). The lower water usage figure is due primarily to less demand for groundwater at the Munich site (where we use Quaternary groundwater from our own wells). As in the previous year, the water used was 97.9% groundwater and only 2.1% 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 675,200 m3 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^3)
GRI GRI 303-3-303-5

		2020	2019	2018
	Total	**8,327,300**	**9,691,000**	**8,682,000**
Intake	Potable water	175,000	204,000	186,000
	Groundwater	8,152,300	9,487,000	8,496,000
	Total	**9,044,400**	**9,652,000**	**9,176,000**
Discharge	Sewer system	110,200	133,000	140,000
	Surface water	1,458,600	1,634,000	1,519,000
	Groundwater	7,475,600	7,885,000	7,517,000

Production sites only; no water withdrawal or discharge in water stress areas; data presented in line with official wastewater and well reports and may deviate from previous publications. 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.

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 100% 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 2020. This applies to our site in Canada in particular, which is located directly on Sea Island in the Fraser River estuary in Richmond, British Columbia. The surrounding nature conservation areas are crucial for salmon migration and the Pacific route of migratory birds.

Material and waste

The long service life of our products and the continuous improvement of our maintenance processes ensure our demand for raw materials is reduced. Aircraft engines as a rule spend 30 years in service before they are decommissioned. 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. 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. We are one of the world’s leading companies in the field of blisk production and repair.

400,000
fewer single-use cups

We have abolished single-use cups at sites in Germany and Canada and replaced them with returnable or deposit cups. This means we avoid using numerous single-use cups each year. Due to the increased amount of waste generated by take-out lunches, we are switching to a reusable method here as well.

We achieve greater material efficiency in the production of new parts by using additive processes such as 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.

Harmless materials: REACh regulation

Wherever possible, we avoid using materials that are hazardous to the environment or to 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. Two technology projects are currently underway with which we are looking for chromic acid/chromium(VI) substitutes. We oblige our suppliers to comply with the EU's legal requirements (registration, authorization, etc.) via the General Terms and Conditions of Purchase if they use REACh substances in their auxiliary or operating materials.

Use of materials

The consumption of production materials (alloys, spray powder and steel) amounted to 3,350 metric tons in the past financial year, while the quantity of consumables and supplies was 3,510 metric tons. In total, we needed 7,380 metric tons of materials, a significant drop from the previous year (2019: 16,030 metric tons) and mainly due to lower demand for consumables and supplies as a result of lower capacity utilization. Of all the materials we used, 7.1% were made from renewable materials.

Material consumption (in tons)
GRI 301-1

	2020	2019	2018
Total	**7,380**	**16,030**	**15,110**
Production material	3,350	4,340	3,760
Consumables and supplies	3,510	10,080	10,030
Other materials	520	1,610	1,320

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. Rather than procuring 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

Circular economy: Our waste management

77.3%
recycling rate

MTU was able to recycle a large proportion of its waste in 2020, too. We have achieved high rates of recycling for several years.

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. This is how we achieve high recycling rates over the years. We have abolished single-use drinks cups at sites in Germany and Canada and replaced them with returnable or deposit cups. This means we are already able to avoid around 400,000 cups per year (in normal times).

Waste footprint (in t)
GRI 306-2

	2020	2019	2018
Total waste	**7,040**	**8,370**	**8,010**
Recycled	5,440	7,320	7,060
Disposed of	1,600	1,050	950
Share of hazardous waste	**2,790**	**3,440**	**3,290**
Recycled	1,370	2,590	2,440
Disposed of	1,420	850	850

Production sites only; not including 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 generation in 2020 amounted to 7,040 metric tons, 15.9% less than the previous year. Measured against that total, the MTU Group achieved an overall recycling rate of 77.3%. The amount of waste produced and recycling routes depended primarily on production capacity utilization. The share of hazardous waste in the reporting period was 39.6%. In 2020 as in 2019, no soil contamination was found at MTU sites that resulted from the leakage of hazardous materials or pollutants.

Outlook

We aim for energy management to support the goal of making Munich a largely climate-neutral site in the future by expanding photovoltaic (PV) systems and using potential storage technologies and heat from deep geothermal energy. The first PV system will go into operation in 2021. After that, we will prepare a feasibility study on geothermal energy with regard to the technical, economic and legal aspects of implementation. Geothermal energy is considered a particularly environmentally friendly energy source that can replace fossil fuels and does not emit CO_2. A PV system is already being planned for the Rzeszów site in Poland, and the maintenance facility in Ludwigsfelde near Berlin is also examining similar possibilities.

Services and tools

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Online survey about sustainability@MTU

GRI: 103-2, 103-3, 301-1, 301-3, 302-1, 302-4, 303-1, 303-3, 303-4, 303-5, 306-2, 306-3

UNGC: 7-9

Climate action and air pollution control at our sites

Emissions

We want to continuously reduce the greenhouse gas emissions and airborne pollutants resulting from development, manufacturing and maintenance work in our plants as a contribution to protecting the global climate and improving local air quality. With the ecoRoadmap, we are taking the first step toward making our site operations in Munich climate-neutral as of 2021.

We have started building a photovoltaic system in Munich, and climate-friendly in-house generation of energy is also planned for our Polish site in Rzeszów.

We are committed to the Paris Agreement and want to make our own contribution to limiting the warming of the Earth's atmosphere to a maximum of 1.5 degrees Celsius relative to the pre-industrial baseline. Along with alternative engine concepts and fuels for aviation, sustainable site operations are a pillar of our climate action activities. The greatest proportion of emissions with an effect on the climate occurs when our products are used. This is why the climate impact from use of our products is of particularly high relevance to us and forms the focus of our sustainability strategy. This is presented in detail in → Climate impact of aircraft engines.

We continuously assess greenhouse gas emissions related to the manufacture and maintenance of engines and modules at our plants according to the recognized international Greenhouse Gas (GHG) Protocol. Our aim is to reduce them permanently or arrange high-quality offsets of unavoidable carbon emissions by means of our **ecoRoadmap**. Of all the greenhouse gases that the Kyoto Protocol lists as having an impact on the climate–such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulfur hexafluoride (SF_6)–only the CO_2 emissions are relevant for MTU site operations. Our carbon footprint is made up of direct greenhouse gas emissions (Scope 1) from sources owned by the company and of indirect greenhouse gas emissions (Scope 2) that come from the consumption of bought-in electricity and district heating. Upstream and downstream CO_2 emissions, for example generated by suppliers or from business trips and transports in the external logistics chain, fall under Scope 3.

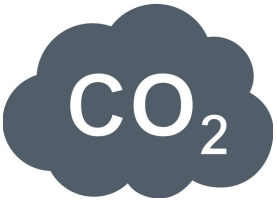
Our contribution to SDG 13

By reducing greenhouse gases, we can contribute to SDG 13 on “Climate action” and live up to our responsibility as a manufacturing company in the face of global challenges such as climate change. For us, this includes using a roadmap to align our site operations with the Paris Agreement.

→ Learn more about our contribution to the SDGs of the UN’s 2030 Agenda

Continuously reducing CO_2 emissions

MTU aims to continuously reduce the greenhouse gas emissions resulting from development, manufacturing and maintenance work in its plants as a contribution to protecting the global climate. Targets for CO_2 reductions are set at the site level. With the help of the **Clean Air Industrial Site program** at our headquarters in Munich, we wanted to reduce CO_2 emissions by 25% (baseline year: 1990). The program was successfully completed in 2020. We were even able to exceed our original target with an overall reduction of 29%. We have adopted a follow-up environmental program to run through 2022, with reduction targets that are based on the requirements of the Munich Climate Pact. Other MTU sites have also launched environmental programs: Hannover has agreed on measures to be implemented by 2022, primarily to reduce gas and electricity consumption in machinery and building management. One target that the Ludwigsfelde site has set is reducing energy consumption by at least 1% annually by 2022. At the Polish site in Rzeszów, the **Eco Facility** 2025 initiative was established in the reporting year to promote environmentally conscious behavior and launch investment projects for technical solutions that will reduce energy consumption and the associated CO_2 emissions.



545,000
metric tons of CO_2 saved

We successfully completed our Clean Air Industrial Site environmental program at the Munich site at the end of 2020. We not only achieved our reduction target of 25%—we exceeded it. In other words, we saved roughly half a million metric tons of CO_2 through this program alone.

Examples of CO_2 savings

- Further increased use of well water for cooling purposes
- Turning machines off instead of putting them on standby
- Operating BHKW 2.0 cogeneration plant using biomethane
- Using micro gas turbines

We are also committed to climate action in joint initiatives. Besides its commitment to the UN Global Compact, whose ten principles include environmental protection, MTU is also involved in several local initiatives. These include the Been-i Bavarian energy-efficiency network, the Munich Business Climate Pact, which has been in its second round since 2019 with the motto "More cooperation–more climate action," and the Bavarian Environment Pact, which was launched in 2020.

Our carbon footprint for 2020

In the reporting year, MTU generated 71,300 metric tons of CO_2e emissions at its production sites. The amount of Scope 1 emissions was 35,600 metric tons of CO_2e, while 35,700 metric tons of CO_2e were attributable to Scope 2. Our Scope 1 emissions are caused mainly by the use of natural gas (which accounts for 28.5% of the overall carbon footprint) and kerosene (20.2%); our natural gas requirements are dependent above all on production volume, our kerosene requirement on the type and duration of test runs. The higher Scope 1 CO_2e emissions are due to greater consumption of natural gas, as we commissioned two new buildings in Munich and Vancouver that use it for heating, and also switched off the heat recovery system in Munich for reasons related to the coronavirus. At 49%, use of electricity (Scope 2) makes up the largest share of CO_2e emissions. Scope 2 emissions decreased in 2020 due to lower utilization of production capacity and increased use of mobile working. Our specific CO_2e emissions amounted to 21.6 kilograms per production hour in 2020 (2019: 14.3).

CO_2 emissions (in t CO_2 equivalents)
Scope 1 and 2
GRI 305-1, 305-2

	2020	2019	2018
Total	**71,300**	**73,900**	**72,300**
Scope 1	35,600	33,100	32,800
Scope 2	35,700	40,800	39,500

Production sites only; emission factors according to the GHG Protocol, calculation of Scope 2 emissions uses emission factors from energy suppliers (market-based method); Scope 1 emissions for 2019 deviate from earlier publications as a result of adjusted data on energy consumption and the emission factor for biomethane. Data on emission reductions from the Munich Business Climate Pact (Klimapakt Münchner Wirtschaft) is calculated according to a standardized emission factor for all companies that differs from our local emission factor.

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. In the reporting year, we greatly improved our score and achieved a B on a scale from D– to A+.

At the moment, we are exploring whether to publish climate-related risks and opportunities in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) in the future. We present our position and the status of implementation here.

Logistics and employee mobility

We also extend our climate action efforts to cover our transport and logistics chain. Measures include optimizing routes for in-plant transport 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. At the Hannover site, we have taken concrete steps to prepare for the introduction of hydrogen-based internal logistics.

Fleet and company cars: In Germany, we have a total of seven all-electric and 19 plug-in hybrid vehicles in use, representing 14% of the whole fleet. We expect to be able to increase that to at least 20% in 2021. We have installed ten normal charging stations, some of them in employee parking lots. By 2022, we aim to expand the network to as many as 15 charging stations for MTU and employee vehicles.

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_2e emissions caused by business trips (travel by aircraft, train or rental car) in 2020 totaled 2,000 metric tons due to heavy restrictions on business travel.

CO_2 emissions (in t CO_2 equivalents)
Scope 3 from business travel
GRI 305-3

	2020	2019	2018
Total	**2,000**	**7,100**	**6,600**
Emissions per employee	0.2	0.8	0.9

2019-2020: Germany, the Netherlands and Canada; 2018: only Germany and Canada, emission factors according to the GHG Protocol

24,600 carbon-neutral kilometers

The MTU team pedaled to ninth place in Munich's 2020 city bike-a-thon. By participating, our employees avoided a total of 3.6 metric tons of CO_2. Well done!

ecoRoadmap toward climate neutrality

We launched our **ecoRoadmap** for climate-neutral site operations in 2021, with the aim of achieving long-term climate targets for the whole of MTU by 2030. In the first step, an annual CO_2 reduction of 6% (baseline year: 2019) is planned for the Munich site through a combination of efficiency and the purchase of sustainably generated energy; we arrange high-quality offsets of unavoidable emissions. This should make our main site climate-neutral starting as early as 2021.

By 2030, we plan to reduce CO_2 emissions by a total of 60% compared with the 2019 baseline. The key to this lies in a sustainable reduction of consumption through more efficient use of energy. We will also take advantage of opportunities for sustainable on-site generation, for example through photovoltaics or geothermal energy (under review). MTU relies on environmentally friendly energy sources even when purchasing energy.

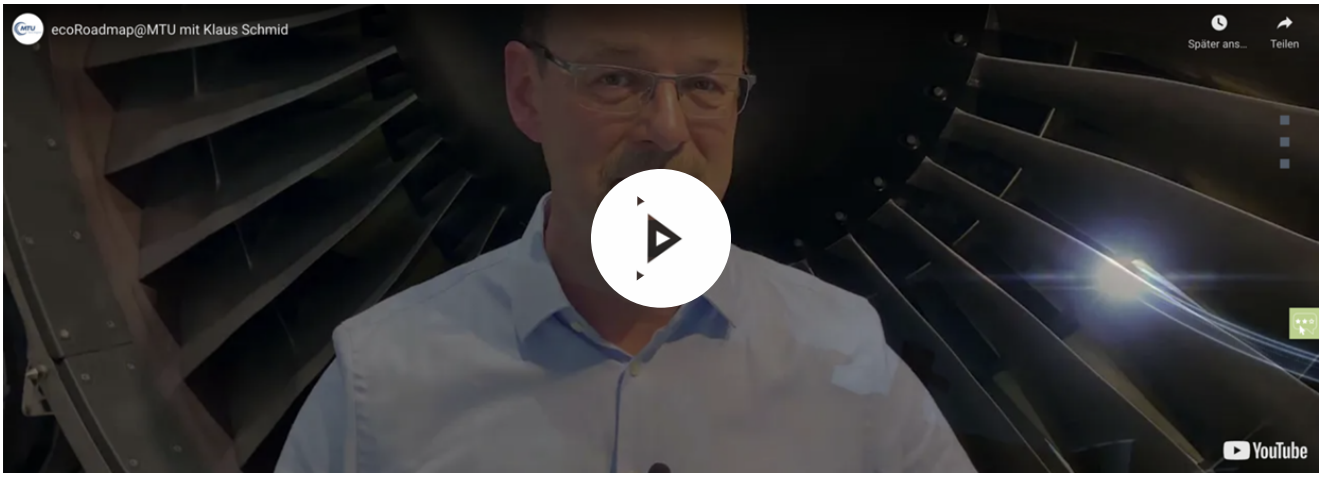
The first specific measures are to be defined and implemented in 2021. To this end, the project team not only looks at direct and indirect emissions, but also determines the relevant upstream and downstream site emissions in order to take them into account when setting the targets. These categories include employee mobility, logistics and business travel.

60 %

less CO_2 by 2030

With its ecoRoadmap, MTU is pursuing the ambitious goal of reducing CO_2 emissions at its Munich site 60% by 2030 compared with 2019 levels. That plant is also the company's largest, accounting for 58% of energy use for site operations.

Let's talk about! *Our video series on sustainability@MTU with our climate protection expert on the ecoRoadmap.*



→ You can find this film at https://youtu.be/WhHxNX4eF_I

Airborne emissions

The energy sources we use generate other airborne emissions aside from CO_2 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 our modern cogeneration plant at the 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. At our production sites, absolute emissions for 2020 totaled 238 metric tons, which, as a function of production activities, were below the previous year's level. Nitrogen oxides accounted for the lion's share of these emissions (162 metric tons), primarily due to the use of kerosene in test runs.

Airborne emissions (in tons)
Scope 1 and 2
GRI 305-7

	2020	2019	2018
Total	**238**	**266**	**244**
Carbon monoxide (CO)	41	42	38
Nitrogen oxide (NO_X listed as NO_2)	162	184	167
Sulfur dioxide (SO_X listed as SO_2)	31	36	35
Particulates (dust)	4	4	4

Production sites only

Services and tools

Download center and report archive

Online survey about sustainability@MTU

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

UNGC: 7-9

Responsible Sourcing

Supplier management

We work with numerous suppliers around the globe; they play a key role in our value creation. We have a shared goal: to work together as partners to achieve sustainable production. As a basis for this collaboration, we have defined the environmental and social criteria that are important to us.

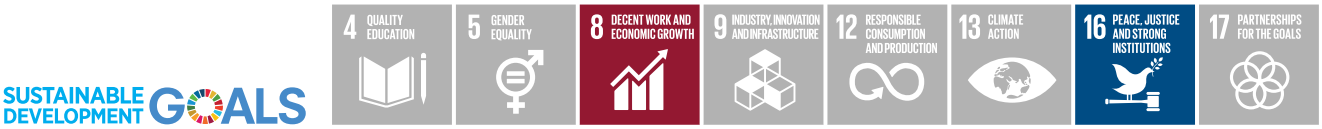
We procure components, goods and services for our production and maintenance activities from suppliers based all over the world. We integrate the global supply chain into our sustainability activities.

The value added of 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 contribution to SDGs 8 and 16

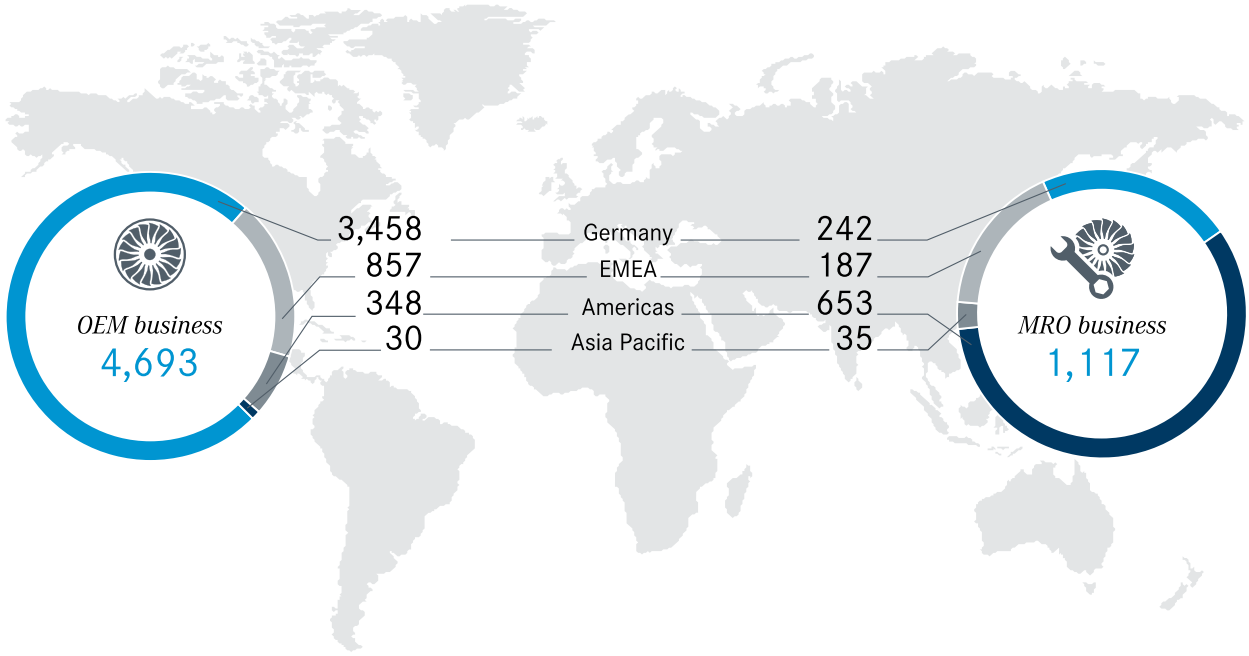
With responsible purchasing practices, we can help advance several SDGs. Our commitment to fair global supply chains specifically furthers SDG 8, “Decent work and economic growth,” and through compliance requirements for suppliers, we also actively support SDG 16 on “Peace, justice and strong institutions.” It has a secondary objective that calls for reducing corruption and bribery worldwide.



→ Learn more about our contribution to the SDGs of the UN’s 2030 Agenda

In 2020, our sites worked with 5,810 suppliers around the world; this means our supplier base was smaller than in the previous year (2019: 6,253), especially among OEM suppliers in the European region. Europe is home to 81.7% of the suppliers, with 63.7% of the total number of suppliers located in Germany.

MTU suppliers 2020 by region (production and non-production material)

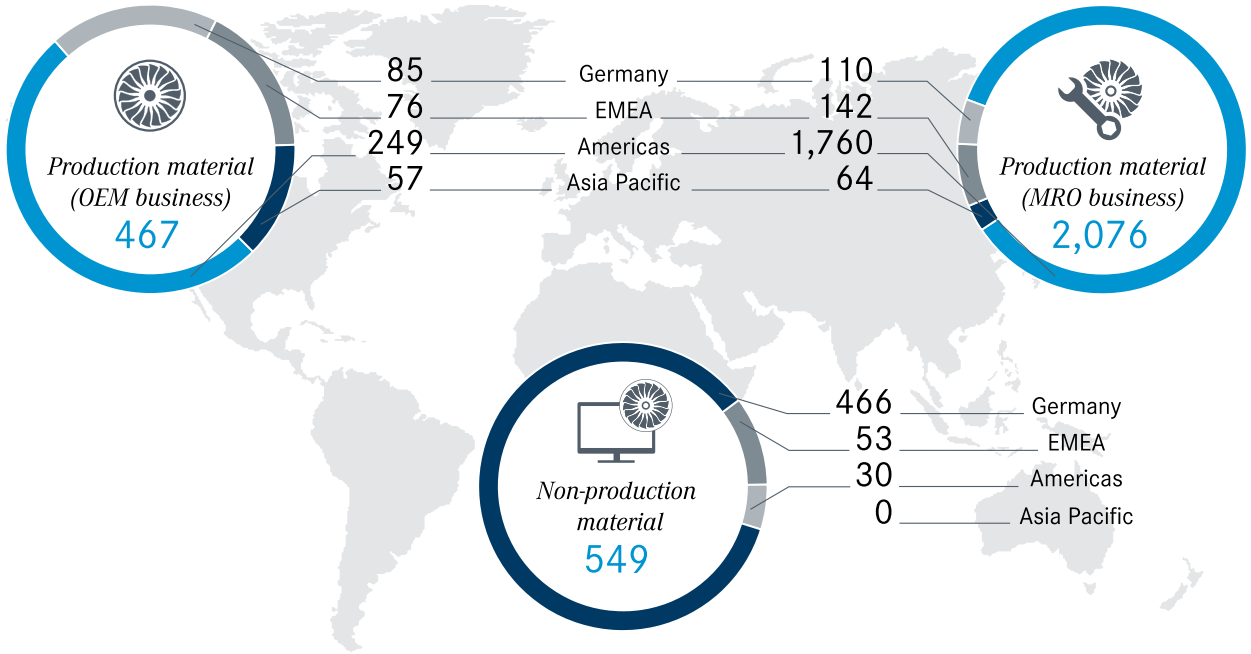


GRI 102-9: Supplier base for production material and non-production material for OEM (new and spare parts) and MRO (commercial maintenance) segments EMEA = Europe (excluding Germany), the Middle East and Africa; Americas = North, Central and South America plus the Caribbean; Asia Pacific = East Asia,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

Our purchasing volume declined due to lower capacity utilization in 2020 and totaled some EUR 467 million for production materials in the OEM business (2019: EUR 611 million) and EUR 2.1 billion for MRO (2019: EUR 2.4 billion). In 2020, we purchased non-production material to the tune of EUR 549 million for OEM and MRO combined (2019: EUR 720 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 42% for Poland and 68% for Germany.

Purchasing volume 2020 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 material excluding MTU Maintenance Canada and Vericor; production material for Vericor estimated

Local value creation is particularly important when purchasing non-production material and services, as is the wide variety of goods and services. We procure non-production materials predominantly in the countries in which we operate. The local proportion of the purchasing budget for non-production material, for instance, was 92.2% in Germany and 50.5% in Poland.

Setting sustainable standards in purchasing

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 Organization'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 95.9% 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 in the chapter Corporate governance under Human rights → Human rights and conflict minerals in the supply chain

No violations of the Code of Conduct

Suspicions 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 in 2020, as in previous years, no supplier partnership was terminated because of sustainability deficiencies, confirmed cases of corruption or other complaints. This also applies to human rights aspects → Human rights and conflict minerals 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 960 new suppliers (2019: 1,407), or 16.9% of the total (2019: 22.5%). 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. We present our analysis of risks relating to human rights in the supply chain in this report under → Human rights.

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. These reviews did not reveal any indications of corrupting behavior in the reporting period.

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.

Outlook

Our plan is to integrate sustainability aspects into supplier audits for the OEM and MRO business.

Services and tools

Download center and report archive

Online survey about sustainability@MTU

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

EMPLOYEES AND SOCIETY

Social responsibility

We are a leading player in the aviation industry underpinned by a strong team. To bring out the best in our employees, we create a working environment that is attractive, sustainable and marked by a sense of responsibility. This includes flexible working arrangements, high-quality training and development and comprehensive occupational health and safety. Standardized leadership values provide guidance and create a leadership culture based on trust and support that promotes sustainable and innovative thinking. The cornerstone of our corporate social responsibility is exchange and cooperation with science and research.

4.2%
turnover rate

2.1
accidents per 1,000 employees

15.1%
proportion of women

324
apprentices

→ Collaboration and leadership
→ Occupational health and safety
→ Employee development
→ Diversity & inclusion
→ Corporate social responsibility

SUSTAINABLE DEVELOPMENT GOALS

Our identity as an employer

Collaboration and leadership

We create an innovative and respectful working environment in which our employees can develop in the long term and deliver the best results for MTU. Good collaboration and reliable leadership are important pillars of our success. We encourage the commitment of our employees and support our managers with their responsibility. In this way, we strengthen cohesion within MTU.

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.

Our working environment is shaped by our respectful leadership culture in which we support the commitment of our employees, recognize strong performance, promote flexible and digital working arrangements and welcome feedback. We offer our employees opportunities for long-term personal development, embrace diversity and inclusion, and protect our employees' health and safety. This makes us internationally successful as a company and is a prerequisite for emerging from the crisis at full strength and being well prepared to master the upswing.

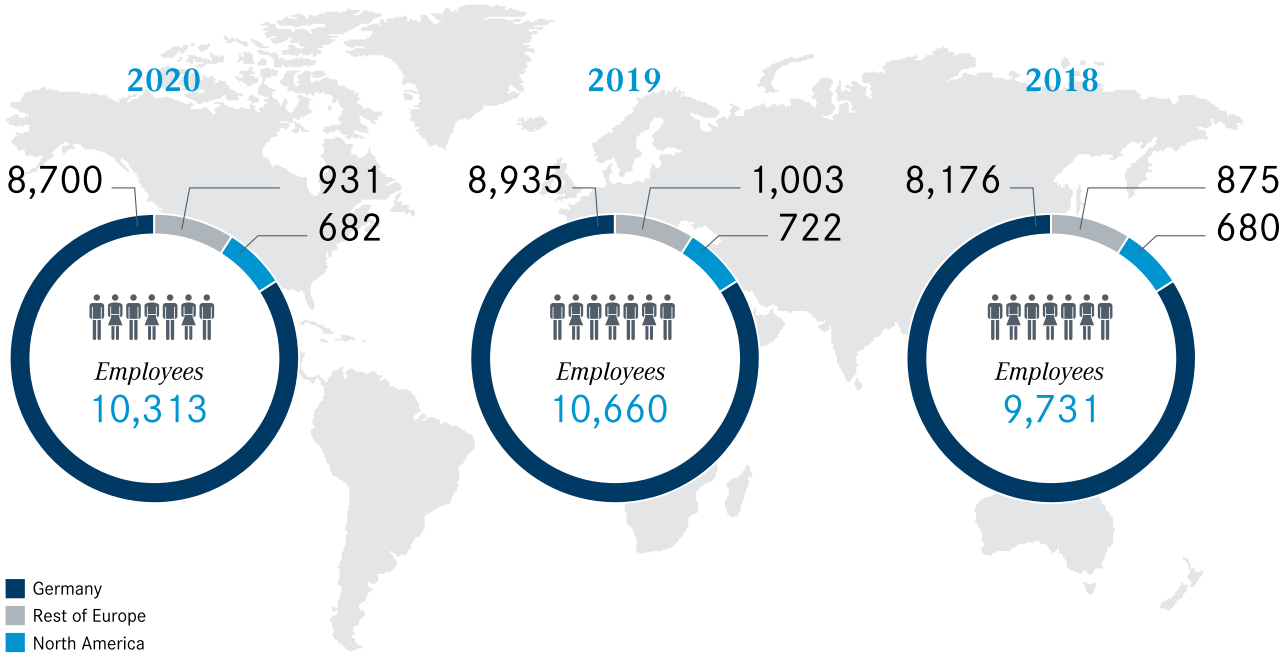
We want to offer our employees orientation and security, especially at the present time. Our goal is to strengthen confidence in MTU and further pave the way to a successful future. Because for the current tasks associated with major challenges such as digitalization, automation or climate change, we depend on bright minds with ideas, dedication and experience. Moreover, New Work is an important topic for us, and one that we are continuing to drive forward in various projects–from the design of modern workplaces and opportunities to new forms of collaboration and future-proof knowledge management.

10,313 employees at MTU

We draw on a global workforce of motivated and highly qualified employees who are committed to pulling together to tackle tasks and challenges–including sustainability.

MTU's global workforce decreased slightly in 2020, reaching 10,313 employees at the end of the year (2019: 10,660). In view of the economic crisis, we had to initiate measures to adjust our human resources capacity to the current situation. A reduction of 10–15% is 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 older employees a phased reduction of their hours as they approach retirement, reducing working hours and leaving vacant positions unfilled. At the end of the reporting year, 93.4% of MTU's total workforce was employed in Europe, and 84.4% in Germany alone. The share of the workforce in North America was 6.6%. The number of permanent contracts remains very high (93.9%).

MTU's employees by region



GRI102-8: 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. MTU's shareholdings in joint ventures in Europe and Asia are not fully consolidated and are therefore not included.

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 the annual and long-term growth targets laid down in our corporate strategy. It also assists in efforts to achieve these 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. We have a human resources strategy that we use to position MTU as a sustainable employer for existing and new employees alike.

Our contribution to SDGs 4, 5 and 8

The following UN Sustainable Development Goals (SDGs) are relevant to MTU's human resources work: SDG 4 on "Quality education"; SDG 5 on "Gender equality"; and SDG 8 on "Decent work and economic growth." We offer challenging high-tech jobs in all areas and are sticking to our apprenticeship program, which continues to offer young people reliable prospects for the future.

→ Learn more about our contribution to the SDGs of the UN's 2030 Agenda

Employee groups by region
GRI 102-8

	2020	2019	2018
Blue collar workers	**48.5%**	**49.5%**	**48.5%**
Germany	48.5%	49.3%	49.4%
Rest of Europe	45.9%	50.9%	51.5%
North America	52.1%	49.1%	49.5%
White collar workers	**51.5%**	**50.5%**	**50.5%**
Germany	51.5%	50.7%	50.6%
Rest of Europe	54.1%	49.1%	48.5%
North America	47.9%	50.9%	50.5%
Employees on temporary contracts	**634**	**865**	**866**
Germany	541	706	701

Rest of Europe	88	154	154
North America	5	5	11
Apprentices	**324**	**293**	**306**
Germany	317	280	279
Rest of Europe	0	0	0
North America	7	13	27
Temporary agency staff	**180**	**395**	**514**
Germany	180	395	513
Rest of Europe	0		1
North America	0	0	0

Blue-collar and white-collar employee groups measured as a proportion of the 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)

Social working standards apply for all

As an employer, MTU shows responsibility toward its employees by creating long-term, secure employment based on principles of corporate social responsibility. These 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

Reporting procedures for suspected breaches of this Code of Conduct, statutory requirements, plus our internal company guidelines and our principle of zero tolerance are described in detail in the chapters → Compliance and → Human rights. The chapter Human rights also details the anti-discrimination measures we take. 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, and we also undertake to implement fair working conditions in accordance with the International Labour Organization's (ILO's) core labor standards.

MTU respects employees' rights and safeguards their freedom of association through the Code of Conduct. When drafting employment contracts, we observe national statutory requirements as well as internal company agreements and notice periods as laid down by law. It is the duty of managers to ensure that company agreements are properly observed on a day-to-day basis in their areas of responsibility. In 2020, 89% of the people employed by the company were covered by collective agreements (e.g. collective bargaining agreements), a figure that stood at 78.1% worldwide in the same year. (Each figure relates to the active workforce.)

Leadership values: Leading in times of change

Since 2018, the MTU leadership values ("We transform, we empower, we create trust") have stood as a shared basis for managers' values and conduct. The values are intended to provide orientation and formulate expectations for leadership behavior. In times of change, the leadership values have taken on a special relevance—especially the value "We create trust." In a crisis such as the current pandemic, which features an increasing number of employees using mobile working to comply with hygiene measures, there is a need for an increased level of trust between managers and employees. We are constantly providing our managers with orientation and inspiration for this task. These offers are detailed under Employee development.

We believe in commitment and feedback

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.

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. Given the dynamic and sometimes profound changes that began in 2020, we introduced a new survey format to obtain feedback on the current situation more quickly. We used these PulseChecks twice in the reporting year to survey the mood of the workforce on topics such as commitment, information, leadership, team, perspective and mobile working. The results indicate that participants are confident about MTU's future and that the company is responding appropriately and adequately to current requirements from the employees' point of view. Suggestions are taken up and implemented at Group and team level. We will continue the PulseChecks in 2021.

Moreover, we have established further employee involvement forums 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. We use an idea management system to obtain and evaluate improvement suggestions from employees. Another way for employees to contribute is by submitting ideas for smart solutions as part of our regular Ideation Challenges. We take particularly promising suggestions and test their potential and feasibility in projects in our Inno Lab.

Attractive employer awards

In comparative analyses with other companies, MTU received several employer awards again in 2020.

Certifications and rankings in 2020

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

- TOP Employer Poland

- TOP Employer British Columbia (Canada)
- Canada's Top Employers for Young People
- Canada's Best Employer for Recent Graduates

- Women's Career Index
- Top Company and Open Company on Kununu
- TOP Training and apprenticeships 2020

→ More about MTU's awards

Staff turnover and retention

4.2 %
staff turnover

Our turnover rate remains at a low level. It is important for our long-term business to retain experts and their valuable knowledge within the company. After all, our specialists and managers are key to MTU's success.

Although the crisis obligated us to make personnel adjustments, in 2020 our turnover rate remained low. In the reporting year, this was 4.2% for the MTU Group (previous year: 3.4%), which shows that we carefully consider the measures we take and that we aim to make them as acceptable to all sides as possible. Moreover, we achieve a high degree of loyalty to our company with an average length of service of around 14 years (Germany).

Staff turnover
GRI 401-1

	2020	2019	2018
No. of employees that left the company	**385**	**289**	**313**
Germany	204	192	228
Rest of Europe	104	37	39
North America	77	60	46
Turnover rate (%)	**4.2**	**3.4**	**4.0**
Germany	2.7	2.7	3.5
Rest of Europe	12.1	4.6	5.9
North America	11.2	8.9	7.6

Turnover rate measured as a proportion of core workforce, annual average, figures include retirements; no data is available on new hires and turnover by age group. We report on new hires in the chapter on Diversity & inclusion

Honoring employee achievements

For us, fair wages are part of an appreciative and respectful approach. The right to appropriate remuneration is one of the pillars of MTU's Code of Conduct. A standardized, transparent compensation structure ensures 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. Compensation for senior managers is tied to the company's long-term performance. We reexamine our remuneration structures regularly.

MTU applies a consistent methodology 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 (milestone meeting) and at year-end (goal attainment meeting). All managers undergo performance reviews to evaluate achievement of their personal targets, and in 2020, 96% of all MTU employees worldwide received a regular appraisal of their performance (at least once a year).

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. The company has a pension scheme for all its employees, who can opt to top up the share contributed by the company themselves on a voluntary basis. This gives them the flexibility to manage their own pension funds as they see fit. At our international locations we offer a range of benefits such as private life insurance, health insurance and retirement planning support.

143
million euros

In addition to their salary, we offer our employees a wide range of social benefits such as a company pension scheme; in 2020, we invested EUR 143 million in such benefits.

MTU enables its employees to share in the company's success. Each site does this using different regulations and programs. We also offer an annual employee stock option program in Germany, in 2020 as well (participation rate: 41.5%). 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).

Solidarity in the crisis

In spring 2020, the coronavirus pandemic reached Europe and MTU was forced to respond. Following a suspension of operations in April, during which most of our activities were suspended throughout Europe, we resumed with short-time working arrangements at our German sites. Because short-time working can lead to cases of particular hardship among colleagues, MTU has set up a solidarity relief fund worth EUR 4 million. The Executive Board and well over 90% of senior management have waived a significant slice of their variable remuneration for the record year of 2019. This solidarity fund enables us to help ensure that we all share the burden.

New Work – Flexible and digital working

We recognize the specific needs and various life phases of our employees and respond to these by providing various offers and opportunities for flexible working through a range of part-time models and mobile working arrangements. This way, we help achieve a better work-life balance. Part-time work increased again slightly in the reporting year to 7.6% of employment (data collected only in Germany, 2019: 7.4%). The number of employees on parental leave in Germany in 2020 also rose again to a total of 416 (2019: 395).

Alternative working arrangements (Germany)
GRI 102-8, 401-3

	2020	2019	2018
Part-time employees (in %)	**7.6**	**7.4**	**6.8**
Employees on parental leave, total	**416**	**395**	**324**
Employees on parental leave, female	156	143	127
Employees on parental leave, male	260	252	197

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.

To put collaborative work at MTU on a more sustainable footing, we're increasing our use of digital working models. To this end, we switched to a social intranet in 2020. With its digital communication channels, the new MTUnet promotes the exchange of knowledge throughout the company, links employees from different areas and at different locations with each other, and offers greater participation in the company's day-to-day business.

45%
mobile working

In 2020, we quickly equipped around 45% of our employees for mobile working. While this increase in flexibility was initially intended to protect against infection, the plan is to retain it for the future.

In 2020, we converted our IT infrastructure to enable mobile working for employees whose tasks did not require them to be present on-site. Within a short period of time, some 45% of the workforce was working mobile. We offer additional days off (known as the collectively agreed "T-Zug") to parents with children up to the age of 12 or employees with dependents in need of care.

Our initiatives include

- Flexible working hours and flextime accounts
- Wide variety of part-time working arrangements
- Educational leave
- Teleworking
- Sabbaticals
- Part-time work for older employees
- Parental leave Job sharing
- Support for families (advice on arranging childcare, care services)
- Mobile working

Outlook

As part of our HR strategy, we are currently working to provide managers at all levels with even more guidance by developing clear guidelines for what form collaboration should take in the future. The focus is also on the digitalization of collaboration between employees, managers and human resources.

Services and tools

Download center and report archive

Online survey about sustainability@MTU

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

Adequately protecting our employees

Occupational health and safety

At MTU, our employees should have a safe and healthy environment in which to work. This not only forms a key part of our corporate social responsibility, but over the past year it was hugely important in view of the coronavirus pandemic. In addition to preventing occupational accidents, we also focused on protecting our employees against infection and actively containing the pandemic.

We attach great importance to safe working environments. That is why we provide our employees with personal protective equipment and regularly raise awareness of its use.

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, so all locations are responsible for implementing their own, which enables them to tailor it to their local needs and requirements. At the individual production sites, occupational safety is the responsibility of the site managers; occupational safety officers are appointed at 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.

Our contribution to SDG 8

A secondary objective of SDG 8, “Decent work and economic growth,” calls for safe working environments for all employees. We can contribute directly to achieving the SDGs with high occupational safety standards and ongoing prevention work. We succeeded in doing this again in 2020: with comprehensive protection against infection in the workplace and low accident rates. The Group-wide accident rate was 2.1 reportable workplace accidents per 1,000 employees (entailing more than three days lost).

→ Learn more about our contribution to the SDGs of the UN’s 2030 Agenda

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 new ISO 45001 international standard for occupational health and safety management systems, which has replaced OHSAS 18001. → MTU’s current certifications Accordingly, 84.4% 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.

2.1

accidents per 1,000 employees

That is far ahead of the industry. At 2.1 per 1,000 employees in 2020, the number of reportable accidents at MTU was once again significantly below the metalworking industry average of 33 accidents.

We strive to prevent health and safety risks to our employees and third parties. In addition to the steps we are currently taking to protect against infection during the pandemic, we regularly assess workspaces for any risks and hazards they present for employees. Where necessary, we implement appropriate measures to prevent or at the very least minimize potential stresses. That also applies to workspaces occupied by temporary workers. 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. Regular safety training for all employees and temporary workers is mandatory across the Group. 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. 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. We include temporary workers in occupational safety to the same extent as permanent employees.

Safe workplaces – Protected employees

Accident-free and low-stress workspaces form part of our IMS policy. Each year we define maximum tolerance thresholds at each location for category 4 reportable workplace accidents (accidents that entail more than three days lost, not including commuting accidents). For 2020, these range from 0 to 10 depending on the location. Regrettably, we were not able to meet this threshold at just one of our five production sites. With 22 reportable workplace accidents entailing more than three days lost across the Group, 2020 was well below the previous year's figure of 47. This was not only due to the reduced presence of employees on-site. The focus of our preventive measures in production on further mitigating hazards or raising awareness of the need to wear personal protective equipment also had an impact. We implemented area-specific occupational health and safety programs and introduced a monthly action plan on a range of topics in manufacturing. As a result, the Group-wide accident rate fell from the previous year's 4.4 reportable workplace accidents per 1,000 employees to 2.1 in 2020. We have thus once again achieved a high level of safety compared to the average in the German metalworking industry (Wood and Metal Trade Association—BG Holz und Metall, data for 2019) of 33 accidents. As in previous years, there were no fatal accidents in 2020. We also record and analyze accidents involving temporary workers on our premises; no category 4 accidents occurred in 2020.

Workplace accidents and days lost
GRI 403-9

	2020	2019	2018
Reportable workplace accidents (category 4, more than three days lost)	22	47	42
Non-reportable workplace accidents (category 3, 1–3 days lost)	28	32	37
Non-reportable workplace accidents (category 2, requiring medical attention)	29	21	12
Fatal workplace accidents (category 5)	0	0	0
Days lost as a result of reportable accident (category 3+4)	679	1,226	922
Accident rate per 1,000 employees (category 4)	2.1	4.4	4.3
Workplace acidents temporary workers (category 4)	0	4	7
Fatal workplace accidents temporary workers (category 5)	0	0	0

Accident statistics relate to total workforce at fully consolidated sites including apprentices, interns, thesis students, doctoral candidates, students and holiday staff, employees on fixed-term contracts, and marginal workers. Workplace accidents do not include any commuting accidents. The day of the accident does not count as a day lost.

As a result of the lower number of lost-time accidents (category 3 and 4 accidents), the total number of days lost by employees has also decreased–by almost half to 679 days (2019: 1,226).

Increasing safety through proactive measures

We derive proactive measures from regular risk assessments, routine inspections of workstations, and audits in production and administration. These were conducted in 2020 as before. Our measures continue to focus on promoting safety-conscious working so as to continuously refine the safety culture. These include, for example, the occupational safety campaign at the Munich site under the motto “Safety First–work safely, get home healthy.” In addition, due to the current pandemic situation, we are increasingly relying on e-learning and video formats for safety briefings to raise awareness of risks; last year we placed a stronger focus on ergonomics.

We aim to raise awareness among the workforce by erecting signs on the plant premises relating to occupational safety. There is now also a ticker displaying accident-free days and the number of accidents.

Health protection was of particular importance in 2020

We have put extensive measures in place across all sites to protect our employees' health during the coronavirus pandemic. These technical and organizational measures apply both to the actual workstations and to daily workflow processes. We want to offer our employees the best possible protection against the coronavirus and minimize the risk of infection as far as possible. The aim is to prevent infection in day-to-day working life. To this end, we drew up guidelines that are binding for all employees. We immediately instructed the workforce on the new regulations. These were always in line with publicly announced measures and were set to be at least as strict as official limits, but were often stricter.

We increasingly rely on mobile working, virtual conferences and alternating presence in the office to limit the number of employees present on-site at one time. Within a short period of time, some 45% of the workforce was able to work mobile. We were quick to largely dispense with business trips as of March 2020. On-site hygiene measures such as increased cleaning of contact surfaces or the distribution of disinfectant are intended to help prevent the spread of the virus. We have issued distancing and hygiene regulations that must be strictly adhered to during any unavoidable meetings of small groups requiring physical attendance as well as in communal areas and canteens. The wearing of protective masks is mandatory especially in buildings outside an employee's normal workplace but also wherever a minimum distance of two meters cannot be maintained, for example in production. MTU provides masks for this purpose; since 2021, these have been FFP2 masks. If necessary, we take workplace-related measures or individual measures to protect employees who belong to risk groups. As an employer, MTU supports efforts to make undetected infections visible through increased testing, thereby breaking chains of infection. Self-tests now complement existing protection and hygiene measures. In addition, we are preparing for MTU to perform vaccinations.

We are running a comprehensive in-house communication campaign to keep employees continuously up to speed with important changes and processes, raise their awareness of infection risks and appeal to their sense of responsibility, for instance by way of a comprehensive poster campaign. MTU's crisis committee, on which various functions of the company are represented, initiates company-wide measures to protect employees. The committee also ensures that all the German sites coordinate with one another. In 2020, we used our new PulseCheck survey on current sentiment to ask employees for feedback on our coronavirus protection requirements. The result was very positive with an index value of 82—the majority of employees felt sufficiently protected.

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 open to all employees and temporary workers. For 2020, we have once again offered to vaccinate our employees against influenza at MTU to minimize the spread of influenza in times of Covid-19.

Counseling services offer employees and temporary workers support with performance and work-related issues as well as 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, ergonomics training and on-site vibration training—to the extent possible during the pandemic in 2020.

Health rate

	2020	2019	2018
Germany	94.8%	94.4%	94.6%

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.

Services and tools

Download center and report archive

Online survey about sustainability@MTU

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

Education is the future – also for our company

Employee development

Our success depends on the skills and expertise of our workforce. That's why we believe our employees should be given every opportunity to give their best. In this time of social change and in the current crisis, we want to remain innovative and sustainable, to continue promoting life-long learning and to actively support our managers as they lead MTU through the pandemic and to a successful future.

We support our managers in their work with their teams to successfully transition MTU into the new decade and shape sustainable technological change.

Innovative strength and competitiveness are key factors for success in the aviation industry. We firmly believe that continuous, intensive employee development is essential for MTU. This is why we are investing specifically in the training and development of our talent. We have never wavered from this, not even during the coronavirus pandemic. In many areas in which we are active, aviation authorities prescribe additional qualification measures, such as mandatory training on human factors (failure through human error). The opportunities for personal and professional development of our employees also make us an attractive employer for new minds 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. Promoting vocational training opportunities and avenues for personal development for employees and managers is also enshrined in the MTU Principles and Group-wide HR strategy.

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

Our contribution to SDG 4

We actively support SDG 4 on “Quality education” as an important goal for sustainable development. High-quality employee development featuring attractive training opportunities continues to play a key role in securing our long-term position as a technology leader. In addition, we contribute to the SDG by training young people in various professions– ensuring they have reliable career opportunities especially in this time of uncertainty.

→ Learn more about our contribution to the SDGs of the UN’s 2030 Agenda

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). The directive applies to 84.4% 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, all employees receive an annual development plan.

3.0
million euros

That is how much we invested in employee training in 2020. Last year, it was important for us to ensure that skilled workers at all levels continued to receive training. To this end, we made increased use of digital and hybrid learning formats.

A welcome-on-board program provides new employees with important information about working at MTU. In the spirit of life-long learning, we then continue to support them in widening their know-how and developing their potential. 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 or divisional / company-level interviews). Employees evaluate training courses they have completed in a personal meeting with their manager, or in some cases via a feedback form. A training history documents completed training and development courses. Training officers are on hand to answer questions relating to needs-focused training.

An online learning portal gives employees the opportunity to organize their own development in consultation with their manager. Featuring multilingual training content in German, English and Polish, it is the cornerstone of multimedia learning, which in the current climate has become even more important. In Rzeszów, Poland, we have established an “MTU positive thinking & action” platform that provides links to free webinars, courses, specialist articles and podcasts relating to various aspects of training and development.

Are you ready?

In October 2020, we launched the Future Readiness Program (#FRP) to guide our employees into MTU's digital future, in particular to show them the possibilities and opportunities digitalization has to offer. There are all kinds of offers available. For instance, employees can discuss specific topics such as machine learning with MTU experts and connect with colleagues at other locations. In addition, the #FRP provides insights into new applications that MTU already uses or are hot topics outside the company. The aim is to continuously promote a digital mindset among the workforce.

In 2020, we continued our extensive investment in employee training–despite the coronavirus pandemic and the resultant suspension of operations in spring. We invested EUR 3.0 million in training schemes Group-wide (2019: EUR 5.4 million; costs for internal and external training, excluding vocational training). The drop in training costs is due to the cancellation of many face-to-face courses and to the rapid development and increased uptake of online training and e-learning opportunities. In the first half of the year we first had make the tools ready for use so that they could almost entirely replace face-to-face training in the second half. As a result, the total number of training days was 17,717, which was lower than the previous year (2019: 27,174) and is also due to the upswing in digital short formats. This means that each employee completed an average of 1.6 training days in 2020.

Employee training
GRI 404-1

	2020	2019	2018
Training days (total)	17,717	27,174	29,468
Training days per employee (Group-wide)	1.6	2.5	3.0
Training days according to employee category (Germany) per manager	2.1	3,2	
Training per employee category (Germany) per employee included in collective bargaining agreements	1.6	2,7	
Proportion of women in training courses (Group-wide)	16.3%	16.1%	14.3%

Figures exclude Vericor (USA); we started recording training days by employee category in 2019 for Germany, 2020: Group.

Supporting managers to develop – now more than ever

A focus in our employee development is on anchoring sustainable leadership skills in management. 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 "virtual leadership nuggets." These offers address current challenges such as remote leadership, virtual teamwork and resilience in times of crisis. Change leadership has become one of the most important management skills. It follows that developing "managers of change" should be an integral part of our understanding of leadership with a view to strengthening MTU's performance for the future.

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 process defined as part of the Development Center is designed to objectively evaluate talented individuals and promote their visibility throughout the company. Some 74% of new managers with leadership responsibilities appointed in 2020 had participated in Development Center activities. In the reporting year, Development Center activities could not go ahead as planned due to the coronavirus pandemic.

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. These offers were supplemented by the Leadership Curriculum 2020, for which training was held either online or in person in small groups.

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

We also offer programs for managers that are specific to the individual sites:

- Management Growth, Rzeszów (Poland)
- Engineering Management (Shaping R&D Leadership), Rzeszów (Poland)

Knowledge management for the future

To ensure we offer our employees sustainable training, we are currently examining what new skills are needed most. As part of a preliminary study on the new Future Skills project, MTU is aiming to identify future essential skills for employees in production and assembly–in particular as relates to digitalization–by May 2021. In 2020, we successfully completed a knowledge management development project at our locations in Germany by producing an initial prototype. This project provided valuable insights for our next steps in designing New Work and sustainable knowledge management at MTU.

At MTU Aero Engines North America, our U.S. engineering facility, we have a program for entry-level engineering 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 pursue a master's degree as part of their development plan.

We are committed to training continuity

At MTU, training is a central component of securing promising young employees. We offer young people in Germany 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. Despite the economic crisis, we have continued training in Germany at the usual level, allowing some 100 young people to start their apprenticeships in 2020. According to the latest OECD education report, this correlates with good career prospects. In the study, vocational training in Germany following the dual-track approach was well-received.

Apprentices have made up a constant proportion of MTU's workforce for many years; last year they accounted for 3.1% of the total workforce (2019: 2.8%); in Germany, where most of our apprenticeships take place, the share was 3.6%. As of the end of the year, MTU employed a total of 324 apprentices (2019: 293). 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, we are establishing a training concept based on the dual system used in Germany. MTU has signed an initial cooperation agreement with the Aviation Academy in Belgrade for this purpose.

Education 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

Additional concepts for hybrid events are being prepared, e-learning and face-to-face training courses are to become more interlinked, and new, web-based training courses for Germany, Poland and the location under development in Serbia are in the pipeline.

When it comes to talent management, MTU is working to further improve the process to promote the visibility of talented employees across departments and locations and harness their potential.

Services and 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 and inclusion

Diversity makes us more successful and is therefore an integral part of our corporate culture. We consider a diverse workforce to be a real asset. Different ideas and experiences broaden our horizons and make us more flexible and innovative. At MTU, we are always working to increase diversity and inclusion, championing a culture of impartiality.

We benefit from having a diverse workforce. Bringing different experiences, perspectives and employee backgrounds together in a team provides a springboard for the best ideas and concepts to emerge.

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, especially from the younger generation. And especially in times of transformation, diversity and integration are crucial to effecting successful and sustainable change.

Promoting diversity is a key component of the corporate culture and business success that 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. Everyone has 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.

Reiner Winkler
Chief Executive Officer of MTU Aero Engines AG

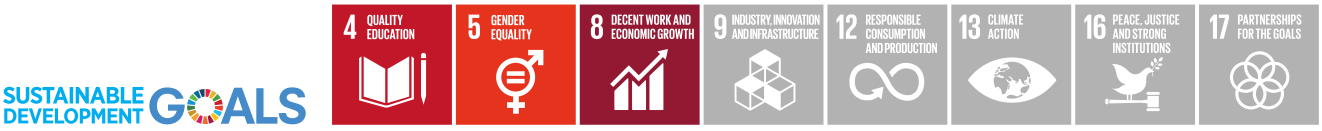
"Our company is committed to **diversity and equality of opportunity**. Aviation is an international industry that connects cultures and people. We firmly believe that a diverse workforce bolsters our **innovative capabilities and collaborative culture**, which in turn ensures our **competitiveness**. 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."

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 in this area and exchange information with organizations and networks in expert forums on current measures. As a signatory to the UN Global Compact sustainability initiative, we commit to preventing discrimination in the workplace.

charta der vielfalt
UNTERZEICHNET

Our contribution to SDGs 4, 5 and 8

Our commitment to diversity is an aspect of our responsibility to the UN's 2030 Agenda for Sustainable Development. In particular, this commitment will help achieve SDG 5 on "Gender equality." MTU's inclusion policy supports SDG 4 on "Quality Education" and SDG 8 on "Decent work and economic growth," whose secondary objectives include promoting the participation of employees with disabilities.



→ Learn more about our contribution to the SDGs of the UN's 2030 Agenda

Achieving every kind of diversity

Our diversity concept takes into account various kinds of diversity, including the criteria of gender, cultural background, age and experience, disability, and sexual orientation and identity. A diversity officer has been officially appointed and is responsible for diversity issues throughout the Group. The diversity officer report directly to the HR manager and thus to top management. The diversity officer works closely with HR policy/strategy and is 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.

Our efforts are rewarded: in a Financial Times ranking of diversity leaders, where employees rank their employers, we made it into the top 50 out of a total of 850 European companies in 2020.

We support employee networks within MTU in which specific groups exchange information, make their concerns visible and provide impetus for collaboration within the company, thereby actively supporting diversity. This helps us better incorporate diverse experiences and perspectives from the workforce into our decision-making. Despite the coronavirus pandemic in 2020, the Network of Engine Women (NEW), founded under the auspices of MTU's Chief Technology Officer, was able to generate momentum within the organization and highlight various perspectives, including monthly digital lunch meetings in randomly assembled groups to support networking within NEW, even across locations. Exchanges with networks from other companies (MBDA-Space2B, MAN-Löwinnen) brought new inspiration for MTU as well as new ideas and impetus for the organization, as did a round-table discussion with Chief Technology Officer Lars Wagner on the company's business development and current situation. In addition, there are informal networks within MTU, for example of Spanish-speaking employees.

A conversation with MTU's diversity officer in our video series ***"Let's talk about!"***

→ You can find this film at https://youtu.be/yC0gtspt4Yg

We are committed to equality of leadership and gender

Aviation has always offered numerous career opportunities of a technical nature and has therefore traditionally been a male domain. We are determined to embrace change and create a culture of innovation within the company–and we want to help achieve this corporate objective by promoting gender diversity, which we deem particularly important. We see fostering female talent and equality of leadership as our greatest innovation potential. This view is supported by an ILO study that concluded that having more women in management positions enhances a company's performance and its appeal as an employer. 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 level.

We are pursuing a separate goal for the Executive Board: by 2022 the number of female members is to reach 25%. The Supervisory Board already has two female members each from the employee and shareholder sides. More information available in MTU's corporate governance report for 2020 (p. 106f.)

15.1%

proportion of women

Upward trend: MTU employed more women last year than in previous years. We want to further increase this share in the future. We are confident that we will meet our quota of 21.5% women among new employees.

The Executive Board is kept regularly informed about the fostering of female talent and the measures that have been initiated. 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. We also offer internal and external training opportunities in gender equality.

The principal focus of our initiatives is to secure more female talent for the company and offer female employees greater support throughout their careers. A key part of this is our participation 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

	2020	2019	2018
Workforce	**15.1%**	**14.7%**	**14.4%**
Germany	14.9%	14.7%	14.2%
Rest of Europe	16.4%	14.3%	15.3%
North America	15.1%	15.1%	15.6%
Managers	**11.3%**	**11.5%**	**10.7%**
Germany	10.7%	11.2%	10.2%
Rest of Europe	21.4%	23.1%	20.0%
North America	18.8%	14.3%	16.0%
Apprentices	**16.7%**	**18.2%**	**17.2%**
New Hires	**21.5%**	**16.9%**	**14.7%**

Share of women in the workforce and in management positions as a proportion of the 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); for trainees/apprentices, relating to the Group (2020) or Germany (2018–2019); 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 gentle upswing. The current share is 15.1%. The proportion of women in management fell marginally to 11.2% at the end of 2020. We recognize this as an area of improvement if we are to achieve our goal of 13% women in management in Germany by the end of 2022.

We take diversity aspects into account when filling new positions and selecting employees within MTU. In 2020, the proportion of women in the Development Center, a personal development program for talented employees with the potential to assume key roles, was 22.6% and thus greater than our current proportion of women in management positions. The share of women among new employees across the workforce was 21.5%, above the current rates for women in the workforce and in management positions. The next generation of apprentices fulfills a quota of 16.7% female apprentices. We have revised our employer branding campaign to help attract more women and inspire them to take up STEM professions.

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. Ever since it first participated in **2016**, MTU has always been among the top ten; for **2020**, we once again achieved a good result with sixth place.

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–and to ensure it could be held in 2020, it went online: eight female pupils were able to gain an insight into the working world of female engineers and researchers at our company.

Young talent in the online camp: Virtual tour of MTU's training workshop with our "tour guide" at the Women Researchers Camp in November 2020.

Programs and initiatives (internal and external)

- Talent management
- Development Center
- Network of Engine Women
- Munich Memorandum for Women in Management
- Program Cross-Mentoring Munich
- 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.

Creating a working environment in which everyone can realize their potential

As an early member of 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 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. At the end of 2020, we decided to introduce gender-neutral language and developed a guide for this purpose (for our company language German), which summarizes recommendations, examples and reasons for use. Since spring 2021, we have used inclusive language in corporate publications.

As part of our inclusion efforts, we recognize the importance of integrating employees with disabilities. In 2020, the proportion of our employees in Germany with disabilities was 5.1%, which meets statutory requirements. At our locations 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. New buildings at our locations are designed with universal access in mind. A case in point is the new canteen 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. However, we face challenges associated with the ageing 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, 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.

Age groups
GRI 405-1

	2020	2019	2018
< 30 years	16.4%	18.2%	16.9%
30 – 50 years	53.7%	52.8%	52.4%
> 50 years	29.9%	29.0%	30.7%

Measured as a proportion of the 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) and recorded at the end of each year.

Cultural diversity provides us with opportunities

As a globally active company, we consider internationalization to be a key indicator of diversity. Our engine business has a global outlook, and having an intercultural workforce helps us to succeed in different markets. A study by the Bertelsmann Stiftung (2018) argued that cultural diversity among employees has a positive effect on a company's innovative strength. We have strong roots in Germany, but our character draws on a variety of cultural backgrounds. Employees of 55 different nationalities work together in Germany alone. In the face of rising xenophobia, we take an unambiguous position and call on everyone, for instance as part of International Day for the Elimination of Racial Discrimination, to take an active stand in favor of diversity and equality. Various activities (such as our in-house International Building on Talent program) help us to enhance the international nature of our business. → Find out more about our training programs Secondments to international locations form an important part of our HR policy for promoting intercultural skills. At the end of 2020, some 70 employees were working for MTU abroad. We run an in-house information campaign to promote a change of location as a way to look beyond our own horizons. Apprentices are also given the opportunity to gain professional experience abroad.

55
nationalities

MTU is diverse: We have employees of 55 nationalities successfully working together in Germany and adding their individual cultural background to the mix.

Services and 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

In all that we do to contribute to social development, our focus is on research and education. As we drive aviation technology forward, we rely on a new generation of skilled employees and an innovative business environment. In addition, we support social projects that have a local impact close to our locations.

We offer young people apprenticeships at MTU–for instance to become aircraft maintenance mechanics–in specially set up training workshops. In addition to technical qualifications, we place a focus on the development of methodological and social skills.

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 continue to invest in the expansion of our plants, as we are currently doing in locations such as Munich and Hannover; in Serbia, we are preparing to build a new repair shop. 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 contribute to society through income tax, too. → How we add value through our economic output

Our contribution to SDGs 4, 5 and 17

Our commitment to social responsibility moves us closer to attaining several Sustainable Development Goals (SDGs). We see this as a contribution to achieving SDG 4 on “Quality education”; SDG 5 on “Gender equality”; and SDG 17 on “Partnerships for the goals.” With our educational initiatives, we are engaged in increasing the number of girls and women who pursue scientific and technical careers and promoting equality of opportunity. We create equal access to high-quality education irrespective of gender or other characteristics. Through intensive collaboration with universities and research institutions, we enter into partnerships aimed at achieving common goals of sustainable development. We support major sustainability initiatives such as the UN Global Compact and the Paris Agreement.

→ Learn more about our contribution to the SDGs of the UN’s 2030 Agenda

Our corporate social responsibility

As a company that engages heavily in research, 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.

324
apprentices

New cohort of aviation experts: We had just over 300 apprentices on board with us at MTU last year–more than the previous year. 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 2020, we had a total of 324 apprentices (2019: 293), which corresponds to 3.1% of our total workforce (2019: 2.7%). In Germany, where most of our apprenticeships take place, the share was 3.6%. Our integrated approach combines technical qualifications with methodological and social skills. It involves our apprentices in all aspects of the company, including health management, environmental protection, social values and our no-blame culture. At our planned new site in Serbia, we want to establish 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 and inclusion, → Employee development).

Strengthening knowledge economies: Our technology network

Collaborating with universities and research institutions is a mainstay of our research and development work and a key part of fulfilling our responsibility to society. We have built strategic alliances with research partners to foster links between universities and industry and to safeguard our capacity for innovation.

We run six scientific centers of competence at different universities across Germany, each with its own research focus. The German Aerospace Center (DLR) is building a test and simulation center for gas turbines in Augsburg, of which MTU will make intensive use. We want to use this center to validate numerical simulation processes (virtual engine) with experimental procedures in test cells in such a way that it is possible to draw up new designs in the future with considerably less testing. In addition, we co-founded Bauhaus Luftfahrt, a visionary think tank to address longer-term topics that pursues novel, unconventional, holistic and interdisciplinary research, bringing industry and science together under one roof. Among other things, the Bauhaus researchers devise visionary aircraft concepts and investigate ecological aspects and socio-political drivers in aviation. Collaboration with various Fraunhofer Institutes in Germany is a key area of activity in our cooperative ventures—particularly when it comes to production and materials technologies. With its broad spectrum of expertise, the Fraunhofer-Gesellschaft works on industry-related research contracts on our behalf.

→ Our technology network

Getting the next generation passionate about science and technology

We run a series of sponsorship schemes at the University of Stuttgart and at DLR 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 what is known as 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.

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) Cottbus. MTU has endowed a chair for aircraft engine structural mechanics at the University of Stuttgart as well. We also give national and international university groups the opportunity to gain insights into how an industrial company works (in 2020 this was not possible owing to the pandemic). 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 2020, there were 228 students working with us as part of their undergraduate or postgraduate program, on work experience or as holiday staff.

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 the Karlsruhe Institute of Technology. In the reporting year, one student was singled out for his master's thesis, which he completed at MTU. The talented researcher has since joined our ranks as a full-time employee. We are also an industry sponsor of a prestigious German award for aerospace journalism that is awarded annually to non-specialist journalists for outstanding articles on aerospace trends and issues.

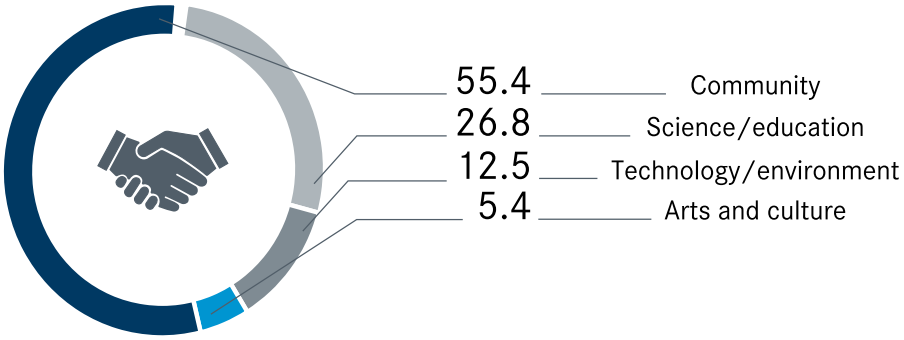
Jugend forscht – competition for talented youngsters with green ideas and MTU backing

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. "You can do it!" was the motto for the 2020 edition. Ahead of the award ceremony, the 140 budding scientists who took part paid a visit to our site in February. We are glad of this additional means of promoting sustainability through education, as many of the projects in the competition for young talent were about climate action and environmental protection.

Our commitment in action

We support various social institutions. These are generally 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 2020 (distribution in %)



In the reporting year, we supported around 60 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. During the pandemic, we also helped out the TurBienchen e.V. daycare center, a parent-led initiative situated close to the company gates in Munich, through various measures such as donating new laptops. MTU continuously supports the non-profit association with donations of money and materials.

Moreover, we have also been directly involved in local efforts to fight the pandemic through aid and other donations. In Munich, we provided more than 50,000 protective masks for use in Bavarian emergency facilities and hospitals. MTU Maintenance Berlin-Brandenburg donated 10,000 masks to the Brandenburg chapter of the German Red Cross. The masks were mainly put to use in local care facilities. Our site in Rzeszów, MTU Aero Engines Polska, supported the regional health system in combating the pandemic and handed over donations to the nearby hospital in Łańcut, one of the clinics in Poland providing intensive care for coronavirus patients. Employees and management felt it was important to help first and foremost those people working in hospitals and care settings, who are giving their all.

In **2020**, the Bavarian network of emergency responders “Helfernetz Bayern” named **MTU** as a **“rescuer-friendly company.”** The Helfernetz awards this title to companies whose employees volunteer in various relief and emergency response organizations. One of the criteria was the releasing of employees during working hours to go on emergency management missions.

Examples of our social responsibility projects in 2020

- Luftfahrt ohne Grenzen (Wings of Help) e.V.
- Sponsorship for childcare while schools are on vacation
- Funding of the TurBienchen e.V. child daycare center initiative, Munich
- Off-site deployment of MTU's company fire department and doctor, Munich
- Initiative krebskranker Kinder München e.V. (initiative to help children with cancer who are being treated in Munich, along with their families)
- Pediatric clinic in München-Schwabing
- Dachau Concentration Camp Memorial Site, 75th anniversary of the liberation of the concentration camp
- Mukoviszidose Landesverband Berlin-Brandenburg (organization to help people affected by cystic fibrosis in Berlin-Brandenburg region)
- Die Arche (The Ark), a project devoted to improving the lives of children in Potsdam
- Hospital No. 2 (ultrasound machine for pediatric hematology/oncology and equipment for online teaching of children in the hospital), Rzeszów
- Centrum Medycznew Łańcucie, Łańcut

Wide range of activities at our locations

Local involvement–for example, Pink Shirt Day at our site in Canada (top left) against bullying and discrimination, a donation of masks from MTU Maintenance Berlin-Brandenburg to the German Red Cross (top right), MTU Maintenance Hannover supported the "Krebskranke Kinder Hannover e.V." association for children with cancer with a donation arising from a company suggestion scheme initiative (bottom left), and apprentices at the Munich site again collected donations and were able to donate them to three organizations.

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. The action day was cancelled in 2020 due to the coronavirus, but took place again this year. Employees in the United States collected food donations for food banks or money for families in need, and took part in virtual charity runs. In Germany, meanwhile, the company allows staff to undertake projects with the German Federal Agency for Technical Relief or the volunteer fire department during their paid workday, and offers the services of lay justices for labor tribunals and social justice courts and of examiners for the Chamber of Industry and Commerce.

In 2020, the joint **MTU and MAN fire department** conducted over 3,200 operations–and in the event of a particularly high number of emergencies in the surrounding area, it also supports the nearby control centers. Our story about the day-to-day work of the fire department in AEROREPORT, MTU's aviation magazine

Services and tools

Download center and report archive

Online survey about sustainability@MTU

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

UNGC: 7

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	MTU Aero Engines
102-2		Activities, brands, products and services	MTU Aero Engines
102-3		Organization’s headquarters	MTU Aero Engines
102-4		Countries where the organization operates	MTU Aero Engines
102-5		Nature of ownership and legal form	MTU Aero Engines 2020 Annual Report, p. 20
102-6		Markets served	2020 Annual Report, p. 139
102-7		Scale of organization	MTU Aero Engines
102-8	6	Total workforce	Collaboration and leadership Diversity and inclusion *Information on the proportion of women by employment type and employment contract is treated as confidential at MTU.*

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	Compliance
			Climate impact of aircraft engines
			Environmental management
			Collaboration and leadership
			Diversity and inclusion
102-13		Memberships	Selection: • Aviation Initiative for Renewable Energy in Germany e.V. (aireg) • Bauhaus Luftfahrt e.V. • Bavarian Employers' Associations for the Metalworking and Electrical Industries (bayme) • bavAIRia e.V. • Bund der Freunde TU München • German Environmental Management Association (B.A.U.M.) • 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
- Association of German Engineers (VDI)

Strategy (102-14)

GRI standard	UNGC principle		Reference/Comment
102-14	1-10	Statement from the Executive Board	Foreword by the Chief Executive Officer

Ethics and integrity (102-16)

GRI standard	UNGC principle		Reference/Comment
102-16	10	Values, principles and codes of conduct	Compliance
			Collaboration and leadership

Corporate governance (102-18)

GRI standard	UNGC principle		Reference/Comment
102-18		Governance structure	2020 Annual Report, p. 8-9, 16-17

Stakeholder engagement (102-40 – 102-44)

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

Reporting practice (102-45 – 102-56)

GRI standard	UNGC principle		Reference/Comment
102-45		Consolidated Group entities	About this report
102-46		Material aspects identified	Sustainability strategy and organization
102-47		List of material topics	Sustainability strategy and organization
102-48		Restatements of information	*If climate figures from previous years have been recalculated, this is indicated alongside the data in question in the report.*
102-49		Changes in reporting	About this report
102-50		Reporting period	About this report
102-51		Date of most recent report	About this report
102-52		Reporting cycle	About this report
102-53		Contact point for questions regarding the report	About this report
102-54		Option to apply GRI standards	About this report
102-56		External assurance	About this report

Management approach

Management approach (103-1 – 103-3)

GRI standard	UNGC principle		Reference/Comment
103-1		Boundaries to material topics	Materiality principle *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.*
103-2	1-10	Management approach and its components	*The management approaches are presented for each material topic.*
103-3	1-10	Evaluation of the management approach	Sustainability strategy and organization Stakeholder dialogue *Management approaches to the material topics*

Topic-specific standards

Economic standards (201-1 – 207-2)

GRI standard	UNGC principle		Reference/Comment
		Economic performance	
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	2020 business year
			Corporate social responsibility *Key figures are not broken down by market or region*
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
		Procurement practices	
103-2, 103-3		Management approach	Supplier management
204-1		Proportion of spending on local suppliers	Supplier management *The company's major sites are in Germany, Poland and Canada.*
		Anti-corruption	
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
		Taxes (GRI 2019)	
103-2, 103-3		Management approach	2020 business year
207-1		Approach to tax	2020 business year
207-2		Tax governance, control and risk management	2020 business year

GRI Standards 2016, unless otherwise stated

Environmental standards (301-1 –308-2)

GRI standard	UNGC principle		Reference/Comment
		Materials	
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
			Product quality and flight safety

301-3	8	Recycled products and their packaging materials	Conservation of resources
		Energy	
103-2, 103-3	7, 8	Management approach	Environmental management Conservation of resources
302-1	7, 8	Energy consumption within the organization	Conservation of resources
302-4	7, 8	Reduction of energy consumption	Conservation of resources
302-5	8, 9	Reductions in energy requirements of products and services	Climate impact of aircraft engines
		Water and effluents (GRI 2018)	
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
		Emissions	
103-2, 103-3	7-9	Management approach	Environmental management Emissions
305-1	7, 8	Direct (Scope 1) greenhouse gas emissions	Emissions
305-2	7, 8	Energy indirect (Scope 2) greenhouse gas emissions	Emissions

305-3	7-9	Other indirect (Scope 3) greenhouse gas emissions	Emissions Climate impact of aircraft engines
305-4	7, 8	Intensity of greenhouse gas emissions	Emissions
305-5	8, 9	Reduction of greenhouse gas emissions	Emissions
305-7	7, 8	Significant airborne emissions	Emissions *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.*
		Waste	
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
		Environmental compliance	
103-2, 103-3	7	Management approach	Environmental management
307-1	7	Non-compliance with environmental laws and regulations	Environmental management
		Supplier environmental assessment	

103-2, 103-3	8	Management approach	Supplier management
308-1	7	New suppliers that were screened using environmental criteria	Supplier management
308-2	8	Negative environmental impacts in the supply chain	Supplier management

GRI Standards 2016, unless otherwise stated

Social standards (401-1 – 419-1)

GRI standard	UNGC principle		Reference/Comment
		Employment	
103-2, 103-3	6	Management approach	Collaboration and leadership
401-1	6	Employee turnover	Collaboration and leadership
			Diversity and inclusion
401-2		Benefits provided to full-time employees	Collaboration and leadership
401-3	6	Parental leave	Collaboration and leadership
		Labor/management relations	
103-2, 103-3		Management approach	Collaboration and leadership

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.*
		Occupational health and safety (GRI 2018)	
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
		Training and education	
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
		Diversity and equality of opportunity	
103-2, 103-3	6	Management approach	Diversity and inclusion
405-1	6	Diversity of governance bodies and employees	Diversity and inclusion
405-2	6	Ratio of basic salary and remuneration of women to men	Collaboration and leadership
		Non-discrimination	
103-2, 103-3	6	Management approach	Human rights
406-1	6	Cases of discrimination and corrective actions taken	Human rights
		Freedom of association and collective bargaining	
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 Supplier management
		Child labor	
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 Supplier management
		Forced or compulsory labor	
103-2, 103-3	2, 4	Management approach	Human rights Supplier management
409-1	2, 4	Operations and suppliers with significant risk for incidents of forced and compulsory labor	Human rights Supplier management
		Human rights assessment	
103-2, 103-3	1, 2	Management approach	Human rights Supplier management
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 Supplier management
		Supplier social assessment	
103-2, 103-3	2	Management approach	Human rights Supplier management

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

418-1		Substantiated complaints concerning breaches of data protection	Compliance
		Socioeconomic compliance	
103-2, 103-3		Management approach	Compliance
419-1		Non-compliance with laws and regulations in the social and economic area	Compliance

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The ten principles of the UN Global Compact

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