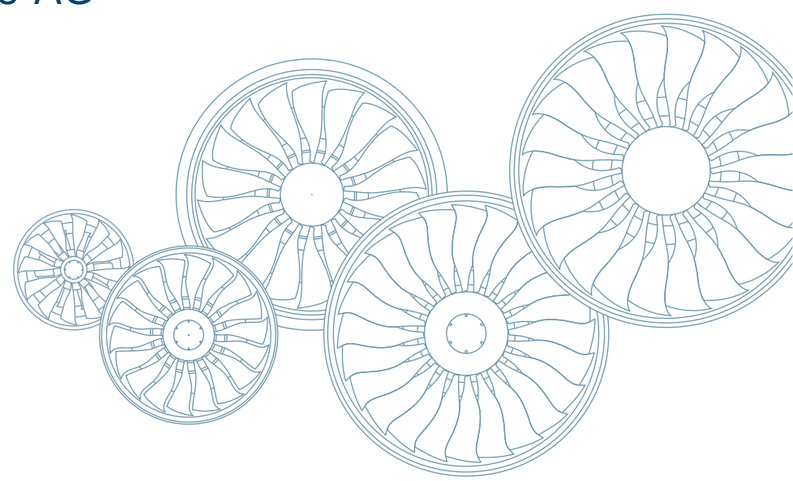
Sustainability Report 2013/2014
MTU Aero Engines AG



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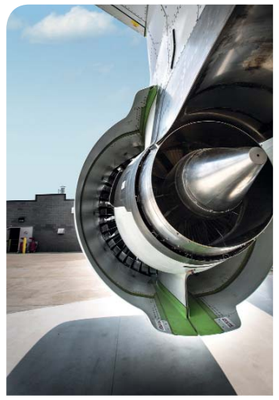

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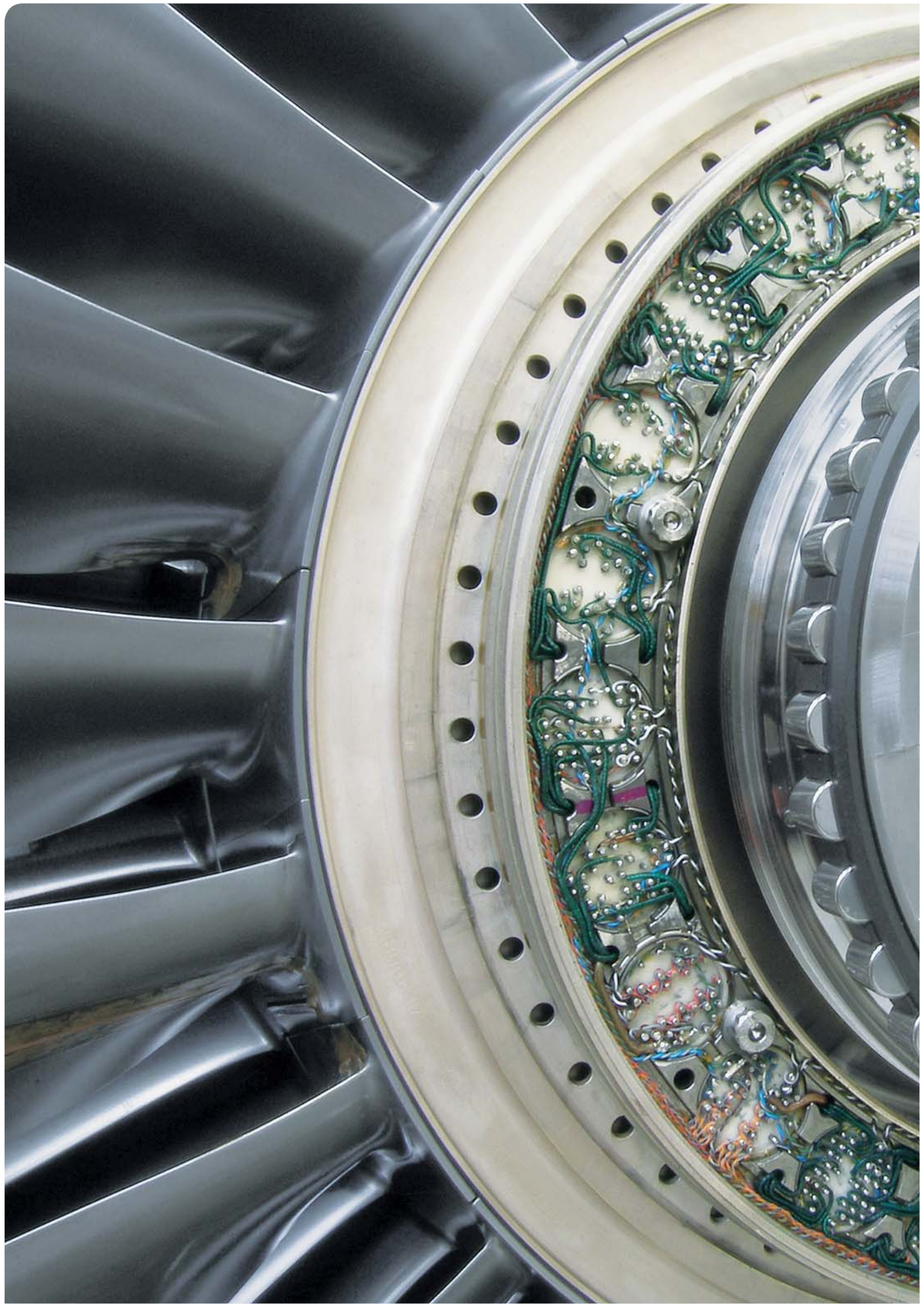


Foreword by the Chief Executive Officer

Dear readers,

Developing aircraft engines that consume less fuel and produce less pollution such as CO_2 and noise–this tops our list of priorities. The Geared Turbofan™ exemplifies our product responsibility. We are playing a decisive role in the development of this clean, quiet and fuel-efficient engine technology, which will be used in five new aircraft families. The Geared Turbofan is the linchpin of our Clean Air Engine technology agenda, on which we have made further progress over the past two years.

Sustainability requires targets. *Our aim with the Clean Air Engine agenda is to use our engine products to substantially improve the environmental sustainability of aviation by 2050. Climate change, mobility and scarcity of resources are global megatrends of our time, and we want to actively respond to these challenges with Clean Air Engine. Our roadmap for the future targets a 65% reduction in noise emissions and a 40% reduction in CO_2 emissions. The CO_2 emissions of our products will therefore continue to be a main theme of our sustainability work. We want to make our position on climate change even clearer for stakeholders, and last year we devised and published a separate climate strategy based on Clean Air Engine.*

Sustainability requires values. *We place a high value on the sustainability of our business practices. We have committed ourselves to upholding the ten principles of the UN Global Compact on human rights, fair working conditions, environmental protection and anti-corruption, and we want to further improve their implementation within our sphere of responsibility. Our solid performance in international rankings–our Prime Status from oekom research AG is a good example–confirms that we are on the right track. Receiving the German Investors' Award for Responsible Business Practices in 2014 was an especially gratifying validation of the progress we have made.*

Sustainability requires partners. *At MTU, employees are very much a part of corporate responsibility. Together we work hard to make progress in sustainable development inside and outside the company. Sustainability-related issues such as co-determination, equality of opportunity, diversity, safety, health, and employee training and qualification are cornerstones of our HR policy and important reasons why our approximately 9,000 employees work together so successfully. Currently we are giving managers greater responsibility, supported by various further training measures such as a new Leadership Feedback tool and the International Leadership Program.*

As defined by responsible sourcing, we are placing a stronger emphasis on upstream value creation. Since 2014, we have been laying down binding labor, social and environmental standards in a Code of Conduct that governs our cooperation with our worldwide suppliers. These standards are based on the principles of the UN Global Compact.

Sustainability requires dialog. *We have compiled this third Sustainability Report, which for the first time contains our UN Global Compact Communication on Progress, in order to provide transparent information about our achievements and goals. Through our initiatives to facilitate communication on sustainability, we have learned more about stakeholders' opinions and expectations. We incorporate this valuable input into our sustainability management.*

Yours sincerely,

Reiner Winkler
Chief Executive Officer
MTU Aero Engines AG

Reiner Winkler

About this report

MTU Maintenance Hannover
MTU Maintenance Berlin-Brandenburg
MTU Aero Engines Polska

MTU Aero Engines AG Sustainability Report 2013/2014

The new MTU Aero Engines sustainability report provides information about corporate responsibility (CR) within MTU. The report details the company's CR strategy and objectives and describes the main thrust of its sustainability performance in 2013 and 2014. It continues where the last sustainability report in 2012 left off and is available for download on our website as a PDF in both German and English.

Click here for the sustainability report (German version)

Click here for the sustainability report (English version)

Reporting in accordance with GRI

The 2013/2014 Sustainability Report was drawn up in compliance with the Global Reporting Initiative guidelines, GRI G3.1. In our estimation, the report satisfies the requirements for Application Level B. We report on selected indicators from all categories of the guidelines (to facilitate comparison, tables and diagrams are cross-referenced to the corresponding indicator) and explain our management approach for the six principle spheres of activity as defined by GRI. The GRI Index at the end of the report provides an overview of the indicators and the extent of reporting. A materiality matrix presents the topics relevant to sustainability for MTU and how they are weighted from an internal and external perspective. It serves as the basis for selecting the performance indicators and topics for this report. MTU has commenced preparations for the new reporting standard G4, which will be binding from 2016.

UN Global Compact– Communication on Progress

For the first time, Communication on Progress according to the principles of the UN Global Compact has been integrated into this sustainability report. We have done this to give stakeholders a better overview of CR-relevant information. In the GRI Index at the end of the report, you will find cross-references to the UN Global Compact's ten principles. The integrated sustainability report is due to be published annually in the future.

Scope of validity

The reporting period spans the 2013 and 2014 calendar years (January 1 to December 31 in each case), which also correspond to the 2013 and 2014 financial years for MTU Aero Engines AG. In order to better organize how information is presented and to provide explanatory context for readers, activities from outside the reporting period are also cited in some cases. The report covers MTU's European locations that are treated as fully consolidated in the company's fiscal reporting. This includes MTU Aero Engines, the company's headquarters in Munich, MTU Maintenance in Hannover, MTU Maintenance Berlin-Brandenburg in Ludwigsfelde near Berlin, and MTU Aero Engines Polska in Rzeszów, covering the majority of the MTU Group. As regards the workforce, the report applies to almost 90 percent of employees.

The joint venture MTU Maintenance Lease Services B.V. in Amsterdam, the Netherlands, is not included in the report, because it has no measurable effect on MTU's sustainability performance. The JV is responsible for leasing aircraft engines, with MTU Maintenance Hannover handling operational implementation of the leasing agreements. The key performance indicators in the report refer to the scope of validity specified above; any deviations from this are indicated.

We are gradually broadening the scope of our reporting and are striving to encompass all the MTU Group's fully consolidated locations step by step over the next few years.

Key performance indicators (KPIs)

All data and information was collected by the responsible departments for the reporting period using representative methods. Environmental KPIs were collected via the environmental management systems at the individual locations and then consolidated in the CR database according to agreed criteria. Using an electronic HR management system, the HR KPIs were collected and evaluated centrally at the headquarters in Munich for Germany and at the Rzeszów location for Poland. Once the data was evaluated, it was sent to the CR database. All other data was requested from the CR center coordinators in the relevant departments and compiled centrally in the CR database. Financial KPIs were collected and published in accordance with the International Financial Reporting Standards (IFRS).

External validation of report

The CR reporting for this sustainability report is not subject to external auditing or validation. The majority of corporate processes that underlie data collection for CR reporting are certified.

View all Certifications

Further information

You can find supplementary information, more detailed analyses and older sustainability publications online:

Corporate Responsibility at MTU

Our Corporate Responsibility Reports

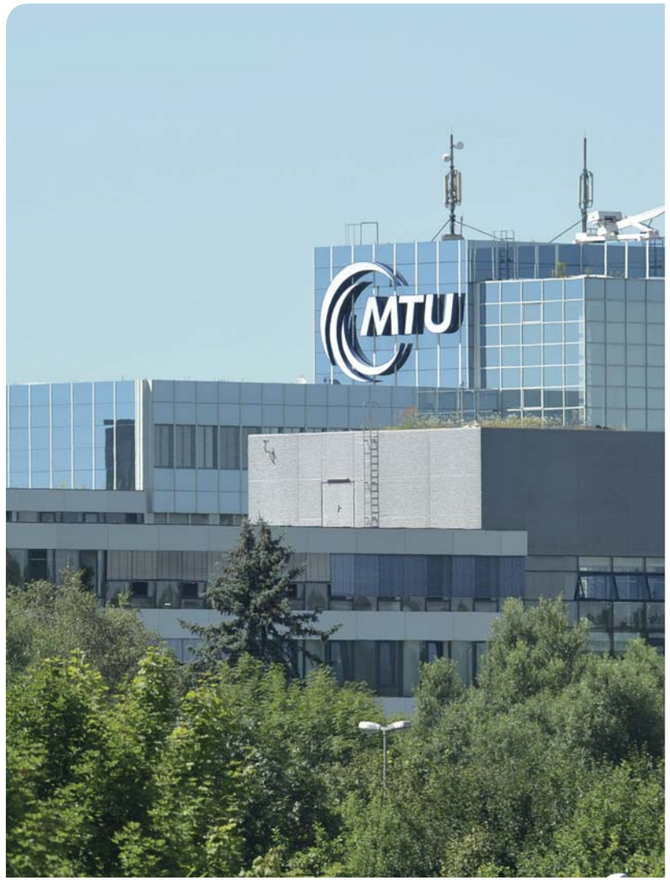
Compliance at MTU

MTU's Quality Standards

MTU's portfolio of technologies for the future

Work at MTU

In addition, we regularly report on important sustainability topics in central MTU publications and communication channels.



MTU Aero Engines headquarters in Munich.

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 are associated with risk and uncertainty. Consequently, the actual future results of MTU Aero Engines may deviate substantially from the expectations and assumptions expressed here for a variety of reasons. MTU Aero Engines assumes no obligation to update the statements contained in this communication.

MTU's next integrated sustainability report is expected to be published in the summer of 2016.

MTU Aero Engines AG

In the aviation industry, three simple letters stand for top-notch engine technology: MTU. Germany's leading engine manufacturer has been providing propulsion systems to power aircraft for more than 80 years now, having become an established global player. The company engages in the development, manufacture, marketing and support of commercial and military aircraft engines and industrial gas turbines. Operating affiliates all over the world, MTU has a local presence in major regions and markets.

MTU Aero Engines in figures

9,000 employees and
3.9 billion euros in sales in fiscal 2014

Commercial engine business

As part of its commercial activities, MTU Aero Engines designs, develops and manufactures engine modules and components. Its technological expertise in the field of low-pressure turbines, high-pressure compressors and turbine center frames as well as manufacturing processes and repair techniques have made MTU a leading manufacturer of subsystems and components in the global engine business.

The engine programs of MTU that currently yield the highest sales

V2500 for the A320 familiy of aircraft
GP7000 for the A380
GEnx for the B787 and B747-8
PW2000 and CF6-80 for medium- and long-haul airlines

With its products, MTU has content on engines in all thrust and power categories, from powerplants for small business jets to the world's most powerful jetliners. The company is a risk-and-revenue-sharing partner in the major commercial engine programs. Under the partnership arrangements, MTU assumes full development and production responsibility for the components and modules forming part of its work share. Its cooperation partners are the world's big-league players in the engine industry—Pratt & Whitney, GE Aviation, and Rolls-Royce.

MTU program work shares depending on the valuation of the module

4–25%

To gird for the future, MTU has taken stakes in a number of significant engine programs and is well positioned in the marketplace. Among these future programs are the GEnx engine to power the Boeing 787 Dreamliner and Boeing 747-8 long-range wide-body airliner and the GE9X for Boeing's 777X.

The advanced geared turbofan™ technology is applied in Pratt & Whitney's PurePower® engine family. To date, five major aircraft manufacturers have selected the PW1000G models to power their latest aircraft. Airbus is offering the PW1100G-JM for the A320neo. Bombardier has chosen the propulsion system as the sole engine choice for its CSeries, as has Mitsubishi for its MRJ regional jet. Irkut will equip its MS-21 with the engine. Last, but not least, Embraer has opted for the PW1000G family as the exclusive powerplant for its second-generation E-Jets.

In the military arena, the company is the German Armed Forces' major industrial partner for practically all engine types flown by them. MTU provides a full range of services, from maturing enabling technologies through developing and manufacturing engines and engine components, to providing maintenance and comprehensive customer support services.

Global player for commercial engine maintenance

MTU Maintenance, a division of MTU Aero Engines, is one of the top five providers of maintenance services for aircraft engines and industrial gas turbines. With more than 30 engine types, it boasts one of the largest portfolios worldwide, including the bestsellers V2500 and CFM56, and the world's largest engine, the GE90-110/-115B. New engine programs are continuously added to offer customers the most popular variants and to secure the company's position in the aftermarket for next generation engines.

MTU Maintenance in figures

About 4.000 employees
Over 15.000 shop visits
35 years of company history

Apart from its outstanding technical and engineering know-how, customer proximity is one of MTU's greatest strengths. A network of locations in Europe, Asia and North America as well as representative offices, IGT service centers and joint ventures around the globe ensure that its customers' expectations are fulfilled timely and with the same high standard of quality. These include dedicated centers of excellence, e.g. for parts and accessory repairs. In addition, on-site teams are able to carry out repair jobs at every corner of the world at short notice.

The Munich headquarters

Munich is home to MTU Aero Engines' corporate headquarters. This is from where the group's subsidiaries and most of its research and development activities are controlled and where engine components are produced in various shops. Munich also is home to MTU's military programs. A new leading-edge blisk manufacturing system, combined with one of the world's most advanced machine pools, is accommodated at the company's headquarter. The new blisk competence center will allow MTU to expand its production capacities from currently 800 to as many as 4,000 blisks a year by 2016.

The Munich site in figures

500.000 square meters
4.700 employees








Our main topics:
eco-efficient engines,
innovation,
product safety

- Code of Conduct for approx. 9,000 employees worldwide
- Code of Conduct for approx. 4,000 suppliers worldwide
- Member of UN Global Compact

1 Strategy

"MTU is a sustainable company. Commercial success isn't the only thing that matters to us– social and environmental concerns are important too."

Reiner Winkler,
Chief Executive Officer
MTU Aero Engines AG

1.1 Management approach

We can look back on more than 80 years of company history, a period over which MTU Aero Engines has established itself as a major player in the industry. As well as being the number-one engine manufacturer in Germany, we also play a decisive role internationally as one of the world's leading subsystems provider. We have grown to become a global high-tech company and technology leader, which calls for particular corporate responsibility (CR) on our part. Here we take an integrative approach that incorporates environmental and social considerations into the company's economic performance. Responsible corporate management strengthens the bond of trust with stake-holders and guides the MTU brand successfully into the future.

We have integrated sustainability into the company and established it as an overriding principle. The main tools for implementing this approach are group-wide MTU Principles, a binding Code of Conduct for all employees, managers and Executive Board members, and CR management that is rooted in organizational practices.

Sustainability strategy
We can make our biggest contribution to sustainable development through eco-efficient engine technologies. Aircraft engines have a service life of several decades; compared against their entire life cycle, it is during this usage phase that the effects of our products on the environment and climate are the greatest. Climate change, mobility and scarcity of resources are three global megatrends that affect our business. Consequently, we have placed product responsibility at the heart of our sustainability strategy. We pursue product-oriented environmental and climate goals in our Clean Air Engine (Claire) agenda. In a climate strategy embedded within Claire, we pursue concrete, staggered climate protection objectives. We have already made very good progress toward our first target to be achieved by 2020. Other areas that MTU is focusing on include product safety and long-term value creation.

> For more on MTU's climate strategy, see chapter 3 Product Responsibility, page 28.
> For more on long-term value creation, see chapter 2 Economics, page 20.

Materiality analysis
We identify important sustainability topics using a materiality analysis. This involves correlating significant economic, environmental and social challenges for our business with their relevance for stakeholders. At the same time, the materiality matrix forms the basis for our sustainability strategy. Priority activity areas are those that are very important both from an internal company perspective and from the point of view of the main stakeholders. In 2014, we reviewed the materiality matrix and updated the list of topics from an internal perspective as part of a workshop (involving the CR steering committee, CR coordination and CR specialist coordinators) and from an external perspective based on the results of a stakeholder survey.

> The stakeholder survey is described in the Stakeholder Dialog section on page 18.

"We are guided by the following questions: What topics are important for us and our stakeholders? Where can we achieve the most? Product responsibility is therefore at the heart of our sustainability strategy."

Eckhard Zanger,
CR Steering Committee and Senior Vice President Corporate Communications & Public Affairs MTU Aero Engines AG

For the most part, topics remained in the same order of priority following the reassessment, although there were shifts in the evaluations made by stakeholders. The current survey revealed that stakeholders attributed greater importance to health management, human rights, site development, occupational safety and research collaborations than before. These topics were already rated as having high to very high relevance for MTU in our 2012 publication. The focal points of the CR strategy in the categories of product responsibility (safety, innovation and eco-efficiency) and long-term value creation were confirmed as the most important topics. However, the topics of demographic change and diversity were weighted differently this time around. Demographic change is becoming increasingly important for MTU in light of the aging workforce in Germany. Accordingly, we consider the integration of all age groups to be an ongoing challenge that will gain even more importance over the coming years. At the same time, it is a decisive part of our efforts to create a diverse workforce and is currently the focus of the company's work on this topic. We have therefore strengthened the relationship between the topics of diversity and demographic change in the matrix. MTU will continue to promote equality of opportunity in the future, which includes other important aspects such as different genders and cultures.

Current developments show that supplier management is being accorded ever greater importance regarding responsible business practices. For this reason, MTU has decided to include it in the company's CR strategy and to elevate responsible sourcing to its own category. In earlier reports, this topic was subsumed under other categories, such as human rights, compliance and environmental protection.

CR management
Clear structures are the means by which sustainability is established within the MTU Group's organizational practices. A CR management system that encompasses the company's sustainability strategy, achievements and goals has been in place since 2009. A CR steering committee responsible for sustainability strategy is made up of the directors of the Corporate Communications/Public Affairs and Corporate Quality departments and reports directly to the Executive Board at regular intervals; the board then makes decisions about the sustainability strategy. A centralized CR coordination team, under the auspices of the Corporate Communications department, directs the sustainability strategy's implementation in CR activity areas and is responsible for reporting.

Meanwhile, the CR specialist coordinators in the various business areas play a key role: namely, to implement CR activities in their department or location and to play a major part in designing and developing the company's CR strategy. They are also responsible for measuring the success of the defined goals within their areas. The network was expanded during the reporting period, and the site in Rzeszów, Poland was integrated in 2014. Our long-term goal is to incorporate all MTU sites.

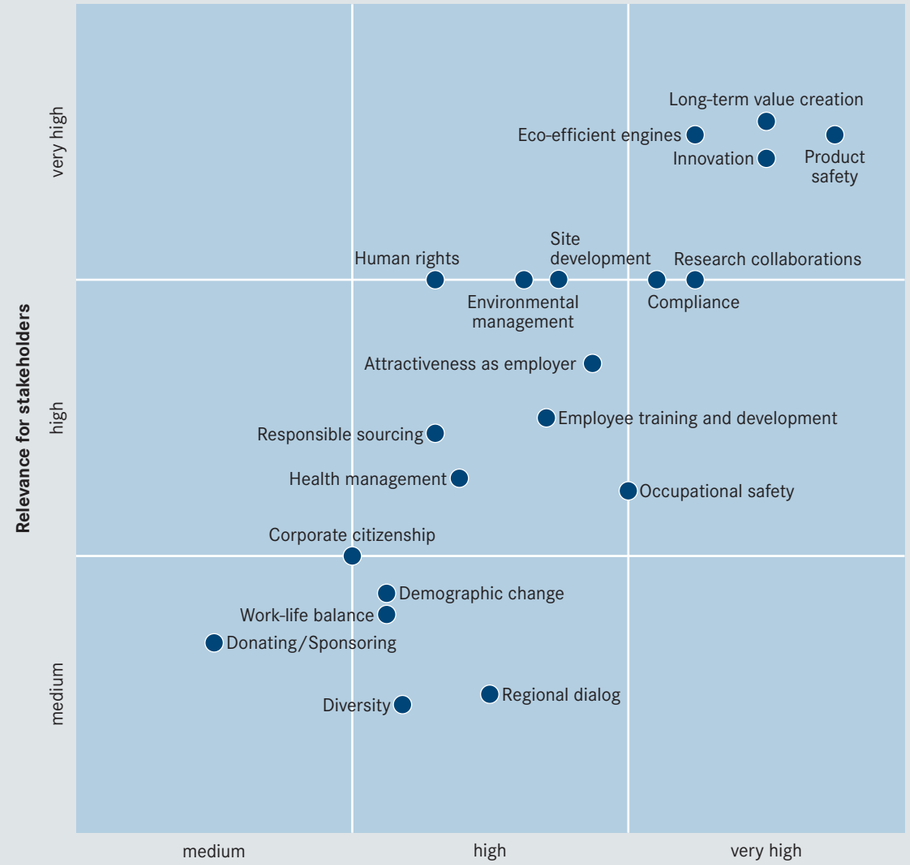
Relevant data and information regarding MTU's commitment to sustainability and the progress it has achieved are collected by the CR specialist coordinators and then pooled together by the CR coordination team into an integrated database for combining, verifying and evaluating key CR data and information. The CR corporate bodies meet regularly to exchange information, agree on measures and approve goals.

At the end of 2014, MTU's CR coordinators took part in a Europe-wide workshop to familiarize themselves with the requirements of the new reporting standards of the G4 Global Reporting Initiative, which will replace the existing GRI 3.1 standard starting in 2016. In 2015, MTU will start the preparations needed to ensure that the company continues to comply with the internationally established standard and guarantee transparency in reporting in the future.

To raise employees' awareness of sustainability issues and inform stakeholders about our CR strategy and management in a more structured way, we are planning CR training courses for selected employee categories. Training courses for HR managers and purchasers are in preparation and are due to start by the end of 2015.

MTU's CR management system

Materiality matrix: important sustainability topics for MTU Aero Engines



Principles and guidelines
All MTU employees and business units are expected to uphold binding ethical principles. Of fundamental importance to us is the need to safeguard human rights; to observe labor laws; to maintain fair working conditions, business relationships and high health and safety standards at work; to refrain from corruption; and to ensure employees have suitable qualifications. Managers have a particular responsibility and act as role models when it comes to observing laws, regulations and internal guidelines.

MTU Principles
An overarching set of principles is a major component of MTU's corporate culture and helps the company to act in a consistent, reliable manner. It was created in its current form in 2009 and articulates the aspiration that guides our business activities: "We help shape the future of aviation."

It is based on five pillars:
- Products, technology and growth
- Cooperation and conduct
- Staff and management
- Partners, customers and shareholders
- Environment and society

Subordinate principles flesh out the MTU Principles and formulate values such as responsibility, diversity and mutual respect and appreciation. They apply for all employees worldwide.

Codes of Conduct
A Code of Conduct ensures sustainable and responsible behavior throughout the MTU Group, both within the company and in its dealings with the outside world. The principles laid down there cover topics such as integrity, conflicts of interest, insider trading, responsibility in industrial relations, environmental protection and fair business practices and apply to all employees, managers and board members. Behavior that violates laws or regulations is not tolerated by MTU, and we investigate any indications that such breaches might have occurred. To facilitate the flagging of improper behavior, employees and external stakeholders can contact an ombudsman confidentially. MTU is committed to punishing violations with appropriate penalties.

These internal norms are supplemented by the Code of Conduct for Suppliers, which was designed to establish these standards in the supply chain as well.

The Codes of Conduct for employees and for suppliers

International standards
We have been a member of the UN Global Compact since 2011; as such, we have undertaken to uphold the ten principles of this important worldwide sustainability initiative to protect human rights and the environment, promote fair working conditions, and combat corruption. As an active member, we report annually on our observance of these internationally recognized principles and on the progress we have made in the company. The present Sustainability Report integrates this Communication on Progress. A cross-referencing of the report's contents to the principles of the Global Compact can be found in the GRI Index on page 80.

We are guided by the following internationally recognized principles:
- The ten principles of the UN Global Compact
- The UN's Universal Declaration of Human Rights
- The principles set out in the International Labour Organization's (ILO's) core labor standards
- German Corporate Governance Code

We create fair working conditions throughout the company. An MTU employee inspects the largest aircraft engine in the world, the GE90 Growth.

Our success is founded on the commitment and know-how of our employees. An MTU expert checks the fan of a CF34 engine.

Human rights
MTU respects the human rights internationally recognized in the United Nations Universal Declaration and ensures that they are safeguarded within the company. MTU is committed to respecting the individuality and dignity of all, maintaining equality of opportunity in recruitment and preventing discrimination. The company promotes employment diversity and the integration of employees with disabilities. As the employer of some 9,000 people worldwide, we create fair working conditions based on legally binding employment contracts. Protecting human rights is a cornerstone of our social responsibility. As such, it is built into our Codes of Conduct for employees and for suppliers.

> For more information on diversity and working conditions in the company, see Chapter 5 Employees.

MTU considers the risk of human rights violations occurring in the company's business operations at its European locations (Munich, Hannover, Berlin and Rzeszów) to be low, because they are governed by the provisions of German and Polish law, which vouchsafe human rights. In the reporting period, there were no complaints relating to human rights infringements.

Created in 2014 and incorporated into MTU's contracts, the Code of Conduct for Suppliers requires partners to refrain from using child labor. Should it emerge that a supplier has used child labor in the manufacturing process for goods they deliver, MTU is entitled to terminate all existing legal transactions with the supplier without notice. During the reporting period, MTU introduced various measures and a monitoring system to prevent conflict minerals from getting into the supply chain. Some conflict minerals come from Central African mines and can be used to finance armed conflicts that involve human rights violations.

> For more information, see Chapter 2 Economics, Supplier Management, pp. 26-27.

No business activity containing a risk of compulsory or forced labor could be detected during the reporting period.

1.2 Stakeholder dialog

We involve stakeholders in our commitment to sustainability. Our continuous interaction with them allows us to identify the expectations and requirements they have of the company and develop suitable responses. Systematic stakeholder dialog, which we structure based on openness and mutual trust, helps us identify and set trends.

Our key stakeholders include employees, customers, business partners, suppliers and shareholders. We are also in regular contact with representatives from science and research, analysts, journalists, politicians, industry associations, employee representatives, our neighbors and local government authorities. We use various communication channels and

MTU exhibits its innovations at international air shows.

In dialog with shareholders: Annual General Meeting of MTU Aero Engines AG.

forms of dialog to interact with different target groups in ways that are suitable specifically for them. To engage with our stakeholders, we use online and print media, surveys, expert discussions, workshops, conferences and trade fairs, for example. One important tool is our regular employee survey; the next one will take place in 2015. In addition, we participate in associations, committees and sustainability initiatives such as the German UN Global Compact Network. Through numerous memberships, we contribute our expertise to a range of specific issues. We are a founding member both of the Bauhaus Luftfahrt think tank and of the Aviation Initiative for Renewable Energy in Germany (aireg e.V.).

Business partners and customers

Topics
- Product quality and safety
- Sustainable technologies (noise, CO_2, emissions)
- Product efficiency in terms of fuel economy
- Human rights
- Compliance

Communication channels
- ➔ Voice of the customer
- ➔ Trade fairs
- ➔ Customer magazine
- ➔ Sustainability Report
- ➔ Internet

Suppliers

Topics
- Product quality and safety
- Environmental protection
- Responsible sourcing
- Compliance with MTU standards (above all the Code of Conduct)

Communication channels
- ➔ Supplier portal
- ➔ Audits
- ➔ Supplier surveys
- ➔ Sustainability Report

Employees

Topics
- Health and safety
- Career and further education opportunities
- Compensation and benefits
- Work-life balance
- Equality of opportunity
- Co-determination
- Diversity

Communication channels
- ➔ Employee newspaper, intranet
- ➔ Sustainability Report
- ➔ Surveys
- ➔ HR services
- ➔ MTU Principles events
- ➔ Company suggestion scheme
- ➔ Health management

Region

Topics
- Social commitment
- Environmental protection
- MTU as employer
- Site development
- Compliance

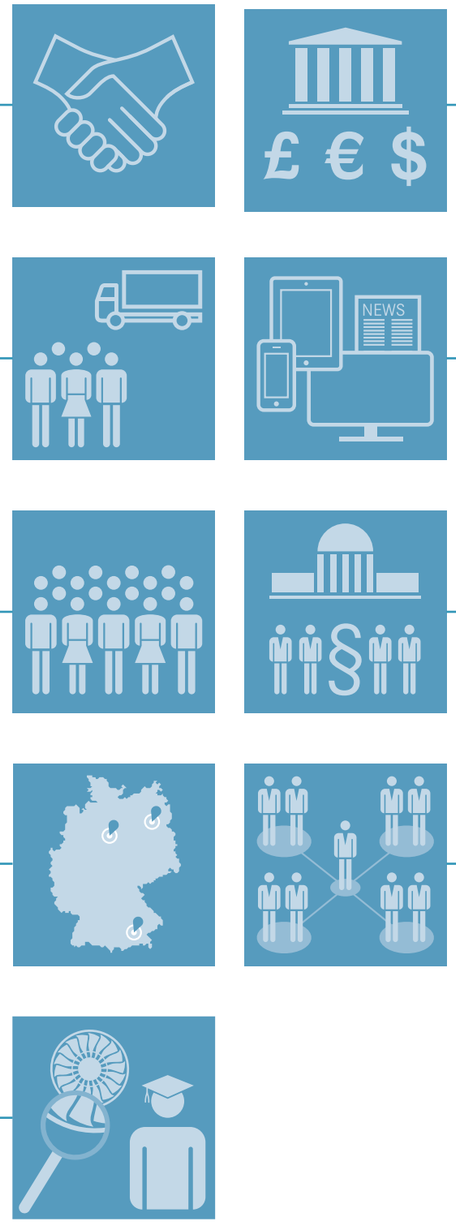
Communication channels
- ➔ Corporate communications media
- ➔ Sustainability Report
- ➔ Museum open house days
- ➔ Collaborations
- ➔ Internet/ Social Media

Science and research

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

Communication channels
- ➔ Joint research projects
- ➔ Work in MTU centers of excellence
- ➔ Trade fairs
- ➔ Sustainability Report
- ➔ Work experience, student research projects
- ➔ Work-study programs

Sustainability topics in dialog with key stakeholders



Capital market

Topics
- Product innovations/ eco-efficiency
- Responsible corporate governance
- Product responsibility
- Human rights
- Compliance (e.g. Executive Board compensation)
- Environmental management (e.g. resources)
- Risk management
- Supplier management

Communication channels
- ➔ AGM
- ➔ Investor and analyst conferences
- ➔ Investor discussions, road shows
- ➔ Trade fairs
- ➔ Press releases
- ➔ Sustainability Report and Annual Report
- ➔ Ratings
- ➔ Internet

Media

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

Communication channels
- ➔ Press releases
- ➔ Press conferences and briefings
- ➔ Plant tours
- ➔ Sustainability Report
- ➔ Internet/Social Media
- ➔ Trade fairs

Politics, public agencies

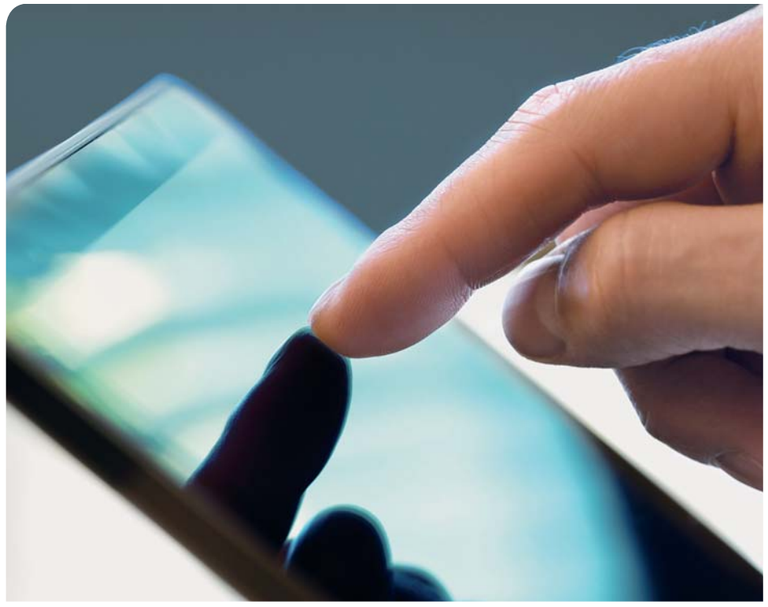
Topics
- Developing and promoting technology
- Environmental regulations, climate protection, eco-efficiency
- Policies on aviation taxes and duties
- Mobility concepts
- Site development
- Demographics, ensuring the continued supply of skilled labor
- Economic, labor market and educational policies Globalization
- Compliance

Communication channels
- ➔ Parliamentary evening
- ➔ Plant visits by politicians
- ➔ International trade fairs, air shows
- ➔ Sustainability Report
- ➔ Political discussions
- ➔ MTU SkyLounge (background talks)
- ➔ Bonn Evening
- ➔ Visits by political delegations
- ➔ Internet

Associations and organizations

Topics
- Eco-efficiency in aviation
- Innovations and technologies
- Promoting technology

Communication channels
- ➔ Meetings and committees
- ➔ Sustainability Report
- ➔ Internet



We are in continuous dialog with our stakeholders and increasingly use social media for this purpose.

We have expanded our dialog with stakeholders during the reporting period, and for the first time we organized an online survey to ask stakeholders for their perceptions and opinions of corporate responsibility at MTU. As we wanted to reach as many stakeholder groups as possible, we decided to make the survey open and international. More than 100 people took part. In a second step, we asked over 200 selected representatives from all MTU's relevant stakeholder groups to evaluate the company's sustainability topics and achievements and CR reporting. Here we were keen to ensure that all stakeholder groups were covered. In the eight-part questionnaire, we also asked stakeholders to weight the topics in our materiality matrix on a multi-level scale in order to identify relevant sustainability topics. The survey achieved a response rate of approximately 32%, and its results are reflected in the updated materiality analysis and are factored into sustainability management.

> For more on the results of the stakeholder survey, see the Materiality Analysis section in this chapter.

We also have more detailed information on our website about our compliance activities, our compliance structures, and our rules regarding conflicts of interest and insider trading.

Compliance at MTU

Communicating with stakeholders via social media is gaining in importance. During the reporting period, MTU further reinforced and internationalized its social media presence. In 2014, the company added the international LinkedIn network to the platforms it uses and now has over 4,200 followers there. We have also attracted new fans on Facebook, who now number just under 9,000. In 2014, MTU joined Kununu **(www.kununu.com)**, the German-language portal for rating employers, and has already received over 80 ratings. We foster an open feedback culture, treat criticism with seriousness and respect, and respond constructively to suggested improvements.

Social Media@MTU

We want to intensify our dialog even further in the future through CR training courses for employees in roles that involve direct contact with relevant stakeholder groups.

Political dialog

The German aviation industry is greatly affected by political decisions at the national, European and international levels—more so than many other sectors. It is therefore important for companies to keep informed about developments in the political-administrative sphere that are relevant to their businesses. Contact persons are legislators and decision-makers in ministries at the EU, federal and state levels as well as in subordinate government agencies and the German armed forces. Maintaining dialog with politicians and administrative bodies about the company's interests is one of the responsibilities of MTU's office in Berlin. Relevant topics include innovation, technology development and promotion, sustainability, eco-friendly technologies, noise reduction, the social relevance of air transport, site development, economic and labor market policies, and support for exports.

We represent industry-specific interests through membership in associations, including the German Aerospace Industries Association (BDLI) and the Bavarian business association (Vereinigung der Bayerischen Wirtschaft).

All activities are subject to the applicable laws and guidelines and the MTU Code of Conduct. As a fundamental principle, political dialog is conducted on a non-partisan basis, with all parties and factions. We do not make any financial donations.

Memberships

- Algae Biomass Organization (ABO)
- Association of German Engineers (VDI)
- Aviation Initiative for Renewable Energy in Germany e.V. (aireg)
- Bauhaus Luftfahrt e.V.
- BavAIRia e.V.
- Employers' Associations for the Bavarian Metalworking and Electrical Industries (bayme and vbm)
- Chamber of Commerce and Industry for Munich and Upper Bavaria
- Deutsches Verkehrsforum e.V. (industry association for all modes of transport)
- Enterprise for Health
- European Aerospace Quality Group
- Federation of German Security & Defence Industries (BDSV)
- Forum Luft- und Raumfahrt e.V. (forum for the aerospace industry)
- Friends and Sponsors of the Deutsches Museum
- German Aerospace Center (DLR)
- German Aerospace Industries Association (BDLI)
- German Association of Environmental Management
- German Society for Aeronautics and Astronautics (DGLR)
- IATA Strategic Partnerships
- Münchner 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.
- UN Global Compact
- Vereinigung der Bayerischen Wirtschaft e.V. (Bavarian business association)

MTU places high value on open and trust-based dialog. Michael Schreyögg, Chief Program Officer, talks with media representatives.

Our main topics:
sustainable investment, compliance, supply chain

- German Investors' Award for Responsible Business Practices 2014
- Company-wide compliance structures
- 31.5% of employees in Germany received compliance and anti-corruption training in 2014
- Sustainable guidelines for working with suppliers based on 10 principles of UN Global Compact

2 Economics

2.1 Management approach

MTU has 14 principal sites across the globe. As an employer, purchaser and investor, we promote economic development in the regions where we operate. Our operations are sustainable, responsible and geared toward long-term value creation. Forward-looking investment and adequate financial room for maneuver form the basis for profitable growth. Our commercial activities are backed up by a risk and opportunity management strategy that opens up new areas of business, minimizes risks and punctually addresses economic, environmental and social challenges. Responsible corporate governance throughout the company is reliant on the observance of the applicable laws, regulations and internal guidelines and is implemented through compliance structures. For MTU, sustainable management incorporates the supply chain. As the first step in doing so, the company's supplier management enshrined corporate responsibility (CR) standards for cooperation in supplier contracts. Only through sustainable management will MTU achieve lasting economic success and competitiveness in the engine manufacturing market, which is based on long-term plans and goals.

Economic performance
As a company that is listed on the stock exchange, we are committed to increasing the value of our business over the long term and want to be an attractive capital investment for our shareholders. MTU achieved this goal in the reporting period. The company was able to continue its strong economic performance and build on its record-breaking successes of 2012. Revenue increased to 3.6 billion euros in 2013 and on to 3.9 billion euros in 2014—both of which represented all-time highs. In 2014, adjusted earnings were also higher than ever before. Shareholders—institutional and private investors—are an important stakeholder group for MTU, and we were delighted to reward their trust in our securities with the highest dividend in the company's history in 2014. In total, MTU paid out around 74 million euros to shareholders for the business year. Since the company went public ten years ago, the value of its shares has roughly quadrupled, while revenue has grown by 6.9% on average. This demonstrates the long-term success of MTU's business model and the company's growth potential.

For 2015, we have targeted an increase in revenue of around 4.4 billion euros, and we estimate that operating profit will be around 420 million euros and earnings after tax will be around 285 million euros. This will keep MTU on a solid, long-term growth course.

Key financial figures
EC1

Revenue (EUR bn)

2013	3.6
2014	3.9

Operating profit* (EUR bn)

2013	377
2014	383

Earnings after tax* (EUR bn)

2013	239
2014	253

Earnings per share** (EUR)

2013	3.27
2014	3.84

Dividend per share (EUR)

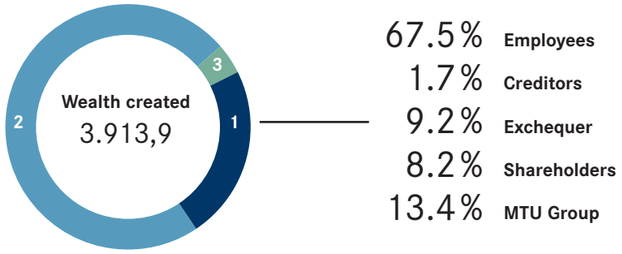
2013	1.35
2014	1.45

* Adjusted
** Undiluted, reported

Value added in 2014 (in million euros)
EC1

1 Net value added	903.4
2 Material costs/Other expenditure	2,839.5
3 Depreciation	158.0

Breakdown of where value added went



In 2014, MTU Aero Engines' net value added increased to 903.4 million euros (792.8 million euros in 2013). The lion's share of 67.5% goes to employees.

Sustainable investment
MTU is also regularly assessed by the capital market and independent experts in respect of non-financial indicators. During the reporting period, the company was listed in sustainability indices and received various awards that objectively accredit our achievements, among them the German Investors' Award for Responsible Business Practices in December 2014. Citing the company's systematic progress in CR performance, the jury recognized MTU's impressive leap in the rankings.

MTU improved its Environment Social Governance (ESG) ranking from 61st to 8th. The award is presented annually by the German publishing house DuMont Verlag and Deutsche Asset & Wealth Management to companies that are particularly responsible in their treatment of the environment, employees, society and other stakeholders.

MTU was included in the STOXX ESG Leaders indices for the first time in September 2014.

The company achieved above-average ratings in all categories (Environment: 76.9%, Social: 82.2%, Governance: 92.7%).

In addition, oekom research AG, one of the world's leading rating agencies in the sustainable investment segment, awarded MTU Prime Status with a C+ rating at the end of 2013. By doing so, oekom certified that MTU met the minimum standards defined by the agency. The analysts evaluated environmental and social performance based on over 100 selected sustainability criteria as applied to the aviation sector.

MTU is also regularly evaluated by the consultancy imug in cooperation with EIRIS, by the leading European rating agency Vigeo, and by Transparency International. For 2015, MTU is planning to take part in the Dow Jones Sustainability Index for the first time.

For more on MTU's ratings and awards

MTU CEO Reiner Winkler (left) received the Investors' Award for Responsible Business Practices in Frankfurt at the end of the year 2014.

2.2 Risk management

Risk is part and parcel of any entrepreneurial activity, and seizing opportunities always involves a certain degree of risk. MTU's integrated opportunity and risk management system, which is embedded in the company's organizational and management structures, is designed to eliminate risks that threaten the company's existence, circumvent avoidable risks and limit necessary risks. The system ensures that legal regulations are observed and is based on the leading international COSO II ERM framework.

For the MTU Group, the systematic consideration of significant risk factors is a fundamental basis for value-oriented management and sustainable business success. MTU identifies risks, analyzes their possible consequences and develops measures to limit them.

We consider management philosophy, integrity and ethical values as well as comprehensive employee qualification to be crucial factors for successful risk management. Under the "Staff and Management" heading in the MTU Principles, the following principle for a no-blame culture within the company states: "We capitalize on opportunities, assess risks and deal constructively with mistakes." This promotes an open attitude to weak points and enshrines a no-blame culture as the basis for successful risk management. The company's constant efforts to better itself are reinforced by our CIP (Continuous Improvement Program) structures.

Control and monitoring
MTU's risk assessment encompasses all business units and all the risk factors to which the company is exposed. At the corporate level, a cross-divisional Risk Management Board performs centralized control and monitoring functions. At its quarterly meetings, the board discusses the interactions between individual risks, ensures that all risks have been reported in full, and assesses the risk exposure of the group as a whole. The Executive Board receives a risk report once a quarter about the group's current risk situation.

The risk management system is monitored and continuously refined through measures such as regular checks by the internal auditing department and monitoring by the Supervisory Board and by external auditors.

Risks and opportunities in CR spheres of activity
MTU's risk management incorporates sustainability topics, such as product responsibility, the environment and compliance, into risk assessment.

> For more on how MTU assesses the risk situation and identifies risk factors, see 2014 Annual Report, p. 115 ff.

Our sustainable business relationships are based on compliance with laws and regulations.

MTU mitigates the risks of the aviation sector with a long-term business model, a balanced product mix with stakes in various market segments and engine types, and a technological edge. Moreover, we regularly analyze the opportunities and risks of climate change. For example, Bauhaus Luftfahrt, a research institution funded by MTU and other partners, is currently preparing a study on climate change's technological, environmental and social impacts on aviation up to 2050. During the reporting period, we discussed and evaluated what climate change will mean for MTU in an internal CR workshop. The workshop concluded that the company was on the right track with its sustainability strategy focused on product responsibility and its existing risk and opportunity evaluation. The greatest risks for MTU reside in air transport restrictions because of environmental pollution. Yet at the same time, stricter environmental regulations for aviation present opportunities. Our products substantially reduce the emissions, fuel consumption and noise of aircraft engines. The company views climate protection as an important driver of innovation in the market. A further outcome of the CR-workshop is to strengthen MTU's positioning in relation to climate change by drafting and publishing a climate strategy based on existing eco-efficiency goals in product development.

> For more on MTU's climate strategy, see Product Responsibility chapter on pages 33-36.

On top of this, MTU is subject to a large number of environmental laws and regulations. Our use of chemical substances in manufacturing and the emissions from our test benches could see us faced with additional investment costs or make it necessary to replace substances we currently use if the relevant environmental protection and industrial safety restrictions are tightened. MTU requires special authorizations for certain production equipment and the associated restrictions and documentation requirements have to be strictly observed. Our environmental management system, which is certified to EMAS and to DIN EN ISO 14001, minimizes these risks.

> For more information on our environmental management system, see page 44.

Compliance risks can arise in all areas of the company. We can define them as the danger of managers or employees failing to observe laws or regulations or violating internal company guidelines. Compliance measures instituted by MTU include a central Compliance Board, a company-wide Code of Conduct and special training courses that address particularly sensitive topics and teach employees how to avoid compliance breaches.

MTU is not currently involved in any legal or arbitration proceedings that might have a significant influence on its general economic situation.

> For information on possible risks in the value chain, see also the Supplier Management section in this chapter.

“At MTU, compliance is for everyone. Board members and managers lead by example, and we support employees in key positions with training courses on prevention. This approach has been successful: we don’t have a single breach to report.”

Reiner Winkler,
Chief Executive Officer
MTU Aero Engines AG

“We don’t tolerate any violations, and we don’t use unfair practices to be successful. We gain our advantage solely through first-class products and the outstanding work of our employees.”

Ulrich Passow,
Member of the Compliance Board and Senior Vice President and General Counsel
MTU Aero Engines AG

2.3 Compliance and corporate governance

For MTU, it is self-evident that we should respect the prevailing laws and regulations when conducting our business. It is an important basis for responsible dealings with our employees and business partners. The binding legal frameworks MTU imposes on all parties that operate on our behalf strengthen the confidence of our stakeholders, bolster our good international reputation and safeguard our long-term success.

The company acts as a fair employer, business partner and client, and advocates transparent competition where all parties are on an equal footing. Integrity and responsible behavior are key values in our corporate culture and are binding for all employees and managers by virtue of our Code of Conduct. These obligations also explicitly apply to board members.

MTU denounces corruption, including bribery and extortion, and all other forms of white-collar crime. It observes all applicable competition, antitrust and commercial legislation as well as all laws and regulations relating to consumer and data protection.

Compliance structures
As the chief operating decision maker, the CEO is responsible for business ethics and anti-corruption policies in the company. The key instrument for rooting compliance in organizational practices is an MTU-wide Compliance Board, which is made up of the heads of the legal department, Corporate Audit and Corporate Security. The Compliance Board reports directly to the Executive Board and the Supervisory Board every quarter. Working alongside the central Compliance Board are group officers for individual topics, such as data protection, environmental protection or IT security.

While the Compliance Board regularly inspects all divisions for signs of possible legal breaches or compliance risks, the group officers are responsible for making sure that specific statutory regulations are observed and that uniform standards are established across the whole company and that these meet the relevant legal requirements. In addition, MTU’s internal auditors conduct regular compliance audits, in which they scrutinize business processes and procedures in the company for legal conformity and adherence to internal guidelines. In 2013, MTU’s internal auditing department was itself audited by the German Institute of Internal Auditing (DIIR) and achieved an overall average score of almost 90%.

In our global whistleblower system, an ombudsman acts as a confidential point of contact to whom employees and external stakeholders can report suspicions of corruption or illegal activities or breaches of the Code of Conduct. The ombudsman can be contacted from anywhere in the world by e-mail (**ombudsmann@mtu.de**). Employees can also visit the ombudsman in person or make contact through any of the usual communication channels. The identity of the whistleblower and the information he or she imparts are treated in strict confidentiality. And it goes without saying that whistleblowers acting in good faith are not penalized by the company in any way. In addition, employees can confide in the familiar contact points within the company, such as their superiors, the legal department and security officers.

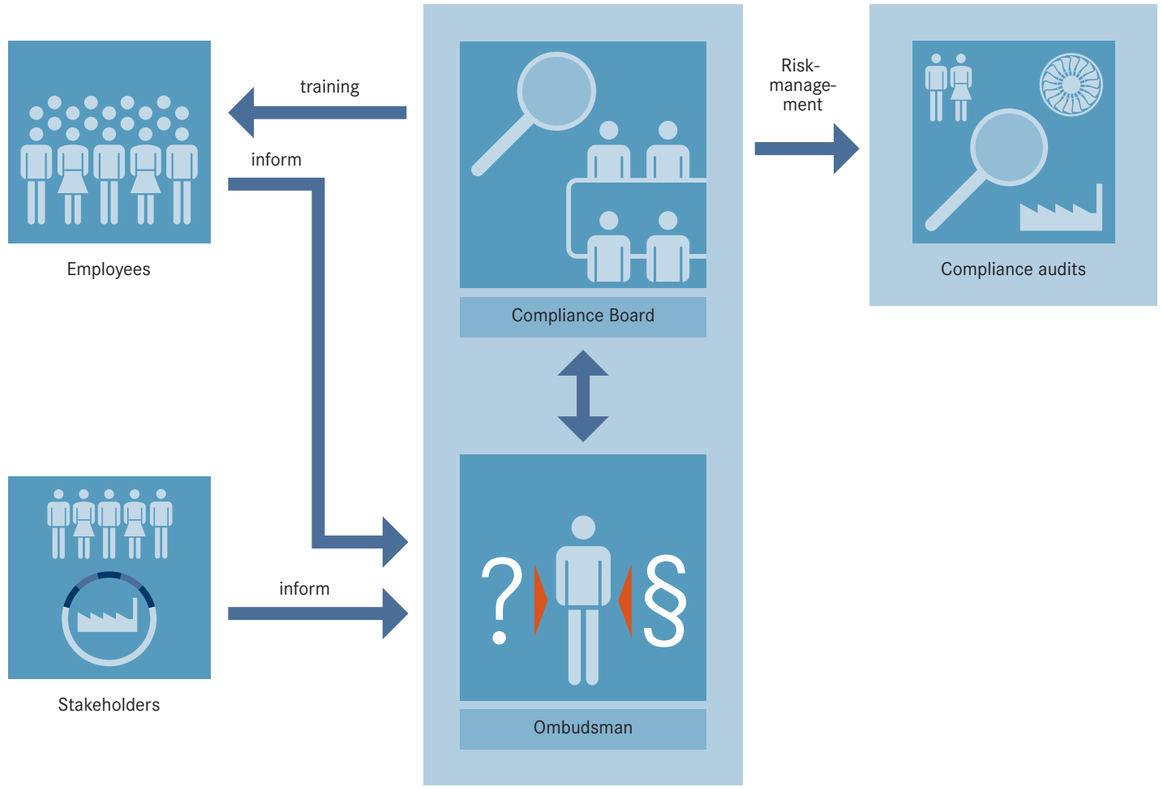
No breaches of the Code of Conduct were discovered during the 2013/2014 reporting period, and once again there were no indications of possible corruption at MTU.

Furthermore, MTU was not the object of any significant monetary fines or criminal proceedings, nor were such proceedings pending. Whenever violations are proven, we always duly punish them. Breaches of the law or of internal guidelines are not tolerated by MTU.

Compliance and anti-corruption training
Another of the Compliance Board’s key duties is to prevent misconduct and raise employees’ awareness of what constitutes misconduct. First and foremost, this takes the form of compliance and anti-corruption training courses for all employees, with special courses for employees and managers in positions of trust. These courses are repeated at regular intervals. During the reporting period, compliance and anti-corruption training courses for managers and employees in positions of trust took place in Germany; in 2014, this training took place at MTU’s site in Rzeszów, Poland. In addition, special compliance and anti-corruption training is compulsory for all new employees working in areas with customer contact. In 2014, around 31.5% of administration employees in Germany and 10.5% of employees at the MTU site in Poland took part in compliance and anti-corruption training. The Compliance Board also offers individual advice and training to all employees and Executive Board members as required.

In 2015, a compliance and anti-corruption training course will take place Germany-wide for around 2,000 employees from corporate units. The Executive Board will be explicitly included in these training courses. Another plan for 2015 is to provide training to employees from selected units at all MTU’s sites in the Americas.

Compliance instruments



Business partners and compliance
To ensure that business relationships are sound and dependable, the Compliance Board inspects consultancy contracts for potential corruption risks before they are signed. These contracts are also assessed by TRACE, an independent organization specialized in business practice transparency and due diligence reviews of agents, intermediaries and consultants. Only once the Compliance Board has given a positive recommendation does the CEO approve the conclusion or extension of a contract. Independently of these assessments, TRACE also carries out an audit every three years.

We also expect our business partners to respect the law. Since 2014, a binding Code of Conduct for Suppliers has been a fixed part of contracts. The code prohibits corruption in all its forms when cooperating with MTU, including the offering and acceptance of bribes and other improper benefits. Should a supplier engage in any such practices while dealing with or carrying out orders for us, MTU is entitled to terminate the cooperation without notice.

> For more on MTU’s sustainable business relationships, see the Supplier Management section in this chapter.

Compliance in dialog with stakeholders
As part of the rating process carried out by oekom research–which awarded MTU Prime Status for its overall social and environmental performance–the external analysts rated MTU’s compliance measures as “good.”

In 2014, MTU was evaluated and compared against other companies by Transparency International, a non-governmental organization that promotes transparency and the fighting of corruption. The findings were published in April 2015 in the form of the Defence Companies Anti-Corruption Index, and MTU was able to repeat its good result from the first rating in 2012. In particular, MTU’s careful approach when dealing with intermediaries and sales consultants was classed as very good.

"We want to create sustainable products with the cooperation of our suppliers in long-term relationships based on trust. That is why the same internal standards for responsible business practices also apply to the supply chain."

Rudolf Michl,
CR Coordinator,
Procurement & Logistics

Memberships in anti-corruption initiatives
- Aerospace and Defence Industries Association of Europe
- UN Global Compact
- TRACE

During the reporting period, we also expanded our dialog with stakeholders in order to boost awareness of the importance of compliance issues. See our website for detailed information about our compliance organization and related measures we have undertaken.

Compliance at MTU

Responsible corporate governance
Corporate governance is all about company management and control guided by the principle of responsible-minded, long-term value creation. It is an integral part of MTU's identity and encompasses all areas of the company. As a company with global operations, MTU observes national and international standards. In Germany, where MTU has its headquarters, the bulk of these rules are laid down in the Stock Corporation Act, the Co-Determination Act and the German Corporate Governance Code. MTU complies with all recommendations of the German Federal Ministry of Justice's Corporate Governance Code in its version dated June 24, 2014.

> For the full corporate governance report, see 2014 Annual Report, p. 28 ff.

Following the recommendations of the German Corporate Governance Code, we have aligned Executive Board remuneration with the long-term success of the company.

> For details on Executive Board remuneration, see 2014 Annual Report, p. 33 ff.

The Supervisory Board, which appoints, oversees and advises the Executive Board, is made up of shareholder representatives and employee representatives in equal measure in accordance with the German Co-Determination Act. In total, it comprises twelve members.

The composition of the Executive Board and the Supervisory Board

2.4 Supplier management

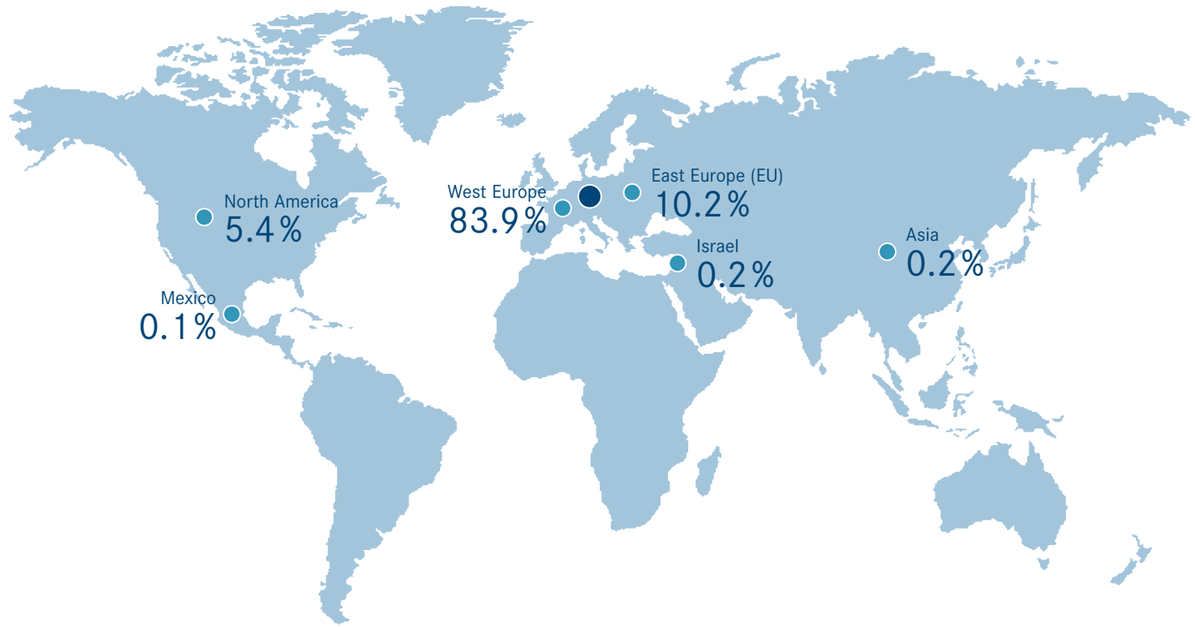
MTU has expanded its sustainable business strategy to the supply chain in order to take better account of value creation upstream. In early 2014, a binding Code of Conduct for Suppliers entered into force. The purchasing and legal departments drew up suitable guidelines that were included in our contracts with all suppliers throughout the MTU Group. In all, the European locations work with around 4,000 suppliers worldwide. Among the criteria to be fulfilled as part of the Code of Conduct for Suppliers, and in compliance with the ten principles of the UN Global Compact, are respecting human rights, condemning and avoiding any form of forced or child labor, refraining from corruption and protecting the environment. Suspicions that the Code of Conduct may have been breached can be reported to MTU's ombudsman (**ombudsmann@mtu.de**). Should a supplier be implicated in corruption, extortion, the granting of improper benefits or child labor while dealing with or carrying out orders for us, MTU will terminate the cooperation 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.

Code of Conduct for Suppliers

Conflict-free raw materials
MTU is committed to using socially responsible raw materials in its value chain and to ensuring the traceability of conflict minerals, such as tantalum, gold, tin and tungsten. Many of these are mined in the Democratic Republic of Congo or neighboring states. Tantalum, tin and tungsten can be found in some MTU engine components. MTU does not procure any conflict minerals directly; they reach our production sites through a complex, multi-stage global supply chain.

Since the adoption of the Dodd-Frank Act in the USA in 2010, listed U.S. companies are required by Section 1502 to disclose the origin of conflict materials and to acquire them only from mines or master alloy producers that are found on the Compliant Smelter List (**www.conflictfreesourcing.org/**). The goal of this regulation is to prevent the financing of armed groups–and the associated human rights violations–in the Democratic Republic of Congo or in neighboring states via the extraction and trading of raw materials. U.S. partners have passed on this requirement to MTU as a supplier of engine components and parts. In an assessment carried out during the reporting period, the company identified all direct suppliers who provide components

Suppliers for MTU's European sites in 2014, by region



All suppliers of production material and indirect material for OEM segment (manufacture of engines, engine modules and spare parts) at the Munich, Hannover, Berlin and Rzeszów sites. In total: 4,011 suppliers. Status: 15/6/30

potentially containing conflict minerals and asked them to present all the necessary information about where the minerals came from as stipulated in the EICC-GeSI conflict minerals reporting standard. In addition, MTU has adjusted its procurement guidelines accordingly in order to ensure that the value chain also contains only conflict-free raw materials beyond the direct supply stage. This includes systematic monitoring. Every year, MTU surveys all suppliers about their observance of the company's guidelines. MTU is unaware of any breaches of the Dodd-Frank Act.

We have expanded our sustainable business strategy to cover the supply chain. A binding Code of Conduct for MTU suppliers has been in place since 2014.

Our main topics:
climate strategy, aircraft noise, safety and quality

- 40% reduction in CO_2 by 2050
- 65% reduction in aircraft noise by 2050
- EUR 195.3 m spent on Research & Development in 2014
- 2,779 patents in 2014

3 Product responsibility

3.1 Management approach

MTU Aero Engines is Germany's leading engine manufacturer, and our core competencies lie in low-pressure turbines, high-pressure compressors and turbine center frames–all key components of aero engines. We understand our product responsibility in the broadest sense, encompassing development, manufacture and repairs in all applications, processes and systems. However, for us it is first and foremost about developing new engine concepts and technologies that meet the most rigorous quality and safety demands and environmental standards. This priority is reflected in the materiality matrix for identifying relevant sustainability topics: eco-efficient engines, product safety and innovations were attributed the greatest importance by the company and its stakeholders.

> For more on the materiality matrix, see Chapter 1 Strategy, page 12.

Product responsibility is therefore our primary corporate responsibility objective. We can make our biggest contribution to society by developing outstanding innovations to make eco-efficient, safe engines and increase the resource efficiency of aviation. This sustainable product development is enshrined in the MTU Principles: "Our products for the aviation industry burn less fuel and cut down on noise and harmful emissions." Accordingly, every new engine we work on is more fuel-efficient, produces lower emissions, and makes less noise than its predecessor model.

Eco-efficiency
Mobility, globalization and climate change are 21st-century megatrends that have an impact on aviation. Rising passenger numbers, increasing scarcity of resources, and growing environmental consciousness among travelers pose challenges for the aviation industry. On average, passenger numbers worldwide are rising by around 5% every year. According to current estimates, between 60,000 and 70,000 aircraft will be in operation in 2050–more than twice as many as today. Sustainable and innovative solutions for the future are needed to minimize the impact of this growth on our environment. As a recognized technological leader, we want to play an active role in finding these solutions. Consequently, we have put eco-efficiency at the heart of our product strategy and are pursuing it through concrete objectives laid down in our Clean Air Engine (Claire) technology agenda. With a climate strategy that is embedded in Claire, we are responding specifically to the challenges of climate change and reducing the carbon emissions of our products. CO_2 carbon emissions and noise are the main levers for MTU and make up the main thrust of the Claire agenda; its far-reaching targets are to be achieved by 2050 and help us in our long-term product orientation. Such long-term planning is necessitated by the long production times and service lives–more than 20 years in each case–of aircraft and engines.

> More information on the Clean Air Engine agenda and our climate strategy can be found in this chapter from page 33.

We are taking our first major step toward accomplishing the goals of our Clean Air Engine agenda and climate strategy with the Geared Turbofan™ engine we are developing together with Pratt & Whitney. In 2013, we won two prestigious awards for the high-speed low-pressure turbine, a key component of the new engine concept: the F.A.Z. Institute's 32nd German Industry Innovation Award and the German Innovation Prize.

"The Geared Turbofan sets new standards in environmental friendliness. As the engine for the new A320neo family, it reduces CO_2 emissions by 15 percent and cuts perceived noise levels by almost half!"

Dr. Stephan Bock
Chief Engineer for Geared Turbofan, MTU Aero Engines AG

Clean Air Engine: The Geared Turbofan

- New engine concept in which a gear couples the fan and low-pressure turbine
- Selected for five new aircraft families for short- and medium-haul routes (Airbus A320neo, Mitsubishi Regional Jet, Bombardier CSeries, Embraer E Jets, and Irkut MS-21)
- Significant improvements in eco-efficiency: -15% CO_2*, -55% NO_X**, -20 dB dB noise***
- Some 7,000 orders and options ahead of market launch in 2015
- Milestones in 2013/2014: first flight of A320neo in September 2014; U.S. Federal Aviation Administration (FAA) certification in December 2014; Transport Canada Civil Aviation (TCCA) certification in February 2013

* compared to predecessor
** below current statutory CAEP/6 limit
*** compared to statutory Chapter 4 noise standard

www.mtu.de: PW1000G

We combine the Clean Air Engine technology agenda with comprehensive research activities and initiatives. MTU invests substantial amounts of money in research and development—195.3 million euros in 2014. The intensity of our research and development efforts for eco-efficient engine technologies is impressive, particularly when quantified as a proportion of our revenues.

Our system of intellectual property management ensures that we protect our technological expertise. At the end of 2014, the MTU patent portfolio encompassed 2,779 property rights covering various areas of technology, including manufacturing, compressors, turbines, maintenance and engines in general. Each year we register some 400 new patent applications. Approximately one thousand MTU employees work directly in engineering worldwide.

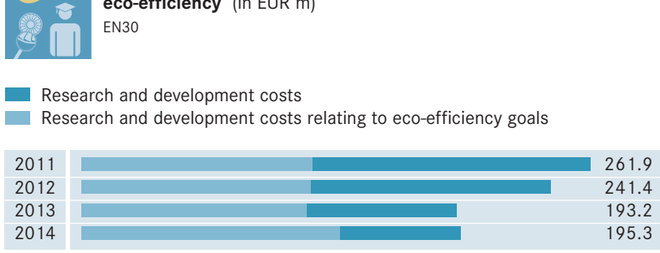
As aviation involves cooperation to a large extent, and given MTU's leading role in the sector, the company sees it as its duty to contribute its expertise to collaborative efforts that shape the industry's future. For example, MTU played a major part in drawing up the technology roadmap presented by the German Aerospace Industries Association (BDLI) in 2014. The goal of the roadmap is to better coordinate and network industry projects and research activities by 2050.

Product quality and safety

As the world's largest subsystem provider on the aircraft engine market, MTU sets the highest quality and safety requirements for products, services and suppliers. MTU guarantees consistent quality and safe operation over our products' entire lifecycles. The company has all the requisite approvals and certifications from national aviation authorities to develop, manufacture and maintain flight-ready engine parts and modules.

MTU's approvals and certifications

Investment in product and technology development to improve eco-efficiency (in EUR m)
EN30



The lion's share of MTU's investment in the development of new technologies and engines goes toward the objectives of saving fuel and reducing weight. This directly improves the environmental performance of new MTU products, as it reduces emissions of CO_2 and other pollutants. Special technology programs and developments focus on reducing noise.

We respect our customers' individual requirements, legal and regulatory stipulations and internal demands along the entire value chain. We also work constantly to improve and develop our products, processes and services—and this is what guarantees our competitive advantage. At all of MTU's sites and at each stage of production, rigorous quality standards are closely monitored. Our integrated management system (IMS) makes sure that legal and regulatory stipulations are respected and that responsibilities are clearly assigned within the company. This allows us to guarantee our customers the same level of quality at each MTU site across the world. Regular official monitoring and internal and external audits make sure that these quality standards are being upheld.

Over the past two years, we carried out a total of 1,136 audits at the European locations containing quality aspects. In 2013 and 2014, there were no breaches of statutory regulations in connection with the purchase or operation of our products, nor were any fines imposed on MTU.

> For more on product safety and quality, see pages 39-43.

3.2 Mobility today: efficient engine technologies

Commercial aircraft transport people and freight over continents in a matter of hours. Reliable and powerful engines are essential for the operation of fleets. Moreover, engine efficiency is a decisive factor in an aircraft's environmental performance. We are a partner in numerous modern engine programs–from short-haul to long-haul and from business jets to widebody aircraft. Some 30% of all aircraft in service worldwide today have MTU modules on board. In addition to key components such as high-pressure compressors and low-pressure turbines, the company develops and manufactures many other engine components such as innovative brush seals. Our components are highly efficient, and our products have played an important role in improving the efficiency of aircraft engines by 40% over the past decades. As far as specific fuel consumption is concerned, engines with MTU involvement have always been at the top of their respective thrust class. As well as the economic benefits to aircraft operators, there are also environmental advantages to increased efficiency, as there is a direct correlation between lower fuel consumption and lower CO_2 emissions.

The Airbus A380 has an average fuel consumption of less than three liters per hundred passenger kilometers. At the beginning of the 1990s, average consumption was around the six liter mark. Our highly efficient low-pressure turbine contributes significantly to the A380's fuel efficiency. Many turbine technologies have gone into the A380's GP7000 engine. The quad-jet aircraft also meets the most stringent ICAO Chapter 4 noise standard. Moving over to Boeing, its 787 Dreamliner also features a major engine component from MTU: the turbine center frame for the airplane's GEnx engines. By using the most up-to-date materials and the latest processing techniques, we have significantly reduced the weight of this structural component. The GEnx generates 15% less CO_2 and is significantly quieter than its predecessor model.

We also offer upgrades that improve the energy footprint of established engines. The V2500 SelectOne and V2500 SelectTwo are upgraded versions of the basic V2500 engine and consume 1 and 1.5% less fuel respectively while also boosting time on wing by 20%. Among other things, we are responsible for the low-pressure turbines, which we have optimized in terms of improved environmental technology ratings.

> For more information, see Sustainable product lifcyle in this chapter.

MTU technology on board: the A380 consumes less than three liters per hundred passenger kilometers.

3.3 Mobility in the future: MTU's climate strategy

Climate change is one of the greatest global challenges of our time. It is generally accepted that CO_2 emissions caused by human activity are largely responsible for global warming, and that the increasing mobility of the human population is a contributing factor. According to the Intergovernmental Panel on Climate Change (IPCC), global air traffic accounts for approximately 2% of all man-made CO_2 emissions.

Industry analysts predict that the aviation sector will grow by 5% each year until at least 2020. In response, the aviation industry has set specific targets to reduce its impact on the environment through various initiatives (SRIA, IATA). MTU aims to meet this goal by designing engine components that in the medium term will help the aviation industry to grow without increasing its CO_2 emissions, and even reduce them in the long term. Our responsibility to protect the planet is anchored in our MTU Principles, where we state our commitment to reducing emissions and limiting consumption of natural resources and energy. These principles apply in equal measure to our products and our production processes.

Our goal is to design our engine products so that they help bring about a long-term reduction in CO_2 emissions from aviation.

Our climate change strategy will enable us to gain a decisive edge over our competitors. This is because engines with a lower carbon footprint consume less fuel and thus help reduce customers' costs, as kerosene fuel accounts for 30% of an airline's total operating costs. In addition, the strategy will help us meet the emissions requirements defined by aviation authorities.

Impact of aviation on climate

Flying has an impact on our climate. The Intergovernmental Panel on Climate Change (IPCC) investigated how aviation affects climate and identified several mechanisms for how it does so: generating carbon dioxide (CO_2) and nitrogen oxide (NO_x) emissions and producing cirrus clouds and contrails. Of these, the greatest impact on climate change is produced by CO_2 emissions, which have already fallen by 70% per passenger kilometer over the past 50 years. Modern turbofan engines have played a major role in bringing about this reduction. Higher bypass and overall pressure ratios have cut the CO_2 emissions of these engines by over 40%. Pollutants such as NOx, carbon monoxide (CO), unburned hydrocarbons and soot are produced when kerosene is burned in the combustion chamber. Emissions of these pollutants have also fallen over the past decades and can be further reduced by means of new combustion chamber designs. Since flight altitude is one of the main factors behind the creation of contrails and cirrus clouds, they can be either avoided or significantly reduced by modifying flight routes or flying at a lower altitude. But that is a job for air traffic management; the main leverage point for MTU consists in reducing CO_2 emissions through eco-efficient compressor and turbine modules. As the combustion chamber is not a core competence of the company, emissions of NO_x, CO, hydrocarbons and soot during flight lie outside MTU's sphere of influence.

Targets of the Strategic Research and Innovation Agenda (SRIA)

CO_2 emissions and fuel burn	SRIA 2020	SRIA 2035	SRIA 2050
Air traffic per passenger-kilometer	-43%	-60 %	-75 %
of which airframe	-20%	-30 %	-68 %
of which propulsion system	-20 %	-30 %	
of which air traffic management	-7%	-12 %	-12 %
of which operation	-4 %	-7%	-12 %

NO_x emissions	Vision 2020	SRIA 2035	SRIA 2050
Air traffic per passenger-kilometer	-80 %	-84 %	-90 %
Margin rel. to ICAO CAEP6 requirement	-60 %	-65 %	-75 %

as against the year 2000 in each case

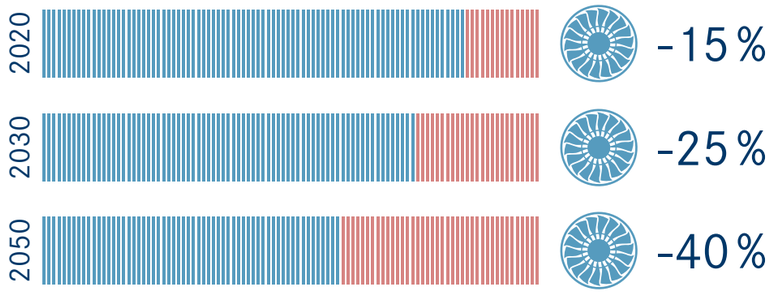
The improvements will necessiate innovations in the fields of aircraft and engine design and air traffic management (e.g. flight routes), and will also demand the cooperation of the airlines concerning their daily airport operations.

"As part of our climate strategy, we're working to improve the carbon footprint of aircraft engines. Our goal: a 40 percent reduction in CO_2 emissions by 2050."

Michael Schreyögg,
Chief Program Officer
MTU Aero Engines AG

Our goals for a Clean Air Engine*

Carbon reduction of aircraft engines



* We have set these goals in our technology roadmap Clean Air Engine (Claire). They are in line with the targets of the Strategic Research and Innovation Agenda (SRIA) by the European aviation industry and the research community.

Climate protection goals
The European aviation industry and research community has committed itself to ambitious climate protection goals, which it has laid down in the Strategic Research and Innovation Agenda (SRIA).

Back in 2009, the International Air Transport Association (IATA), the world's leading airline representative body, formulated long-term targets for the global aviation fleet, which take expected growth into account:
- Efficiency to be improved by 1.5% per annum (2009-2020)
- CO_2-neutral growth starting in 2020
- Total CO_2 emissions from aircraft to be halved by 2050 (baseline 2005)

Strategic Research and Innovation Agenda
International Air Transport Association

No other sector of the transportation industry has taken on such a wide-ranging voluntary commitment to mitigate climate change. As the required improvements are substantial, they will necessitate innovations in the fields of aircraft and engine design and air traffic management, and will also demand the cooperation of the airlines.

Clean Air Engine 2050
We measure our performance on the basis of the European SRIA agenda, which accords to a large extent with the IATA requirements and forms a binding part of our climate change strategy. Our product strategy pools all our research and development activities in sustainable engine concepts and new technologies under the Clean Air Engine (Claire) agenda. Through Claire, we have set ourselves ambitious goals regarding future passenger aircraft, including that of reducing CO_2 emissions by 40% between now and 2050.

Stage 1
As well as the ultimate 2050 goal, there are also interim targets, the first of which we intend to achieve this year. In the first stage, the Geared Turbofan will reduce fuel consumption–and therefore CO_2 emissions–by up to 15% by the end of 2015.

Stage 2
For the next stage, conceptual studies have shown that further improvements are possible based on the Geared Turbofan. By 2030, the engineers want to achieve an even higher bypass ratio, for instance, and further improve the thermal efficiency of the core engine by means of higher pressure and temperature ratios. The goal is to reduce fuel and CO_2 by 25% in the second Clean Air Engine stage. MTU is working to achieve this target within the framework of new European research projects such as ENOVAL and Clean Sky 2, which began during the reporting period.

Stage 3
In the third and final stage of Clean Air Engine, revolutionary new features will make their first appearance, such as integrated and distributed fans to increase thrust efficiency or highly efficient heat engines. The latter combine gas turbines with piston engines for extremely high pressures and temperatures or recuperate energy from exhaust gas using heat exchangers. The goal is to reduce CO_2 by 40% by 2050, and initial studies have already begun at MTU.

Alternative fuels
Sustainably sourced alternative fuels with a positive net carbon footprint constitute another important approach in efforts to reduce aviation-induced CO_2 emissions. At present, two synthetic fuels are authorized for standard flight operations–as so-called drop-in fuels, they meet the specifications for conventional kerosene and can therefore be used in all aircraft. The decisive factors determining CO_2 reduction are the base substances and the manufacturing processes used to produce these fuels. Bio-based fuels absorb the same amount of CO_2 from the atmosphere while the biomass is growing as they release again during combustion, permitting significant CO_2 reductions compared to conventional kerosene. However, the crops involved must not have a negative impact on food production or compromise biodiversity. Such problems can be addressed by selecting suitable species.

MTU promotes efforts to spread the use of biofuels in numerous ways: by commissioning studies at Bauhaus Luftfahrt, by supporting engine and combustion chamber tests, and as a founding member of the Aviation Initiative for Renewable Energy in Germany (aireg e.V.). This non-profit association was established by MTU along with airlines, manufacturers and research organizations to bring together all relevant activities and technical expertise in Germany.

www.bauhaus-luftfahrt.net
www.aireg.de

As part of the burnFAIR research project, we helped Lufthansa introduce biofuels in scheduled flights for the first time. MTU's propulsion system specialists analyzed the engines' behavior during test flights and confirmed the fuel's conformance with requirements. The final report was published with the cooperation of MTU in September 2014.

Final report of burnFAIR (German version only)

Scientists in the EU-funded SOLAR-JET research project successfully manufactured synthetic kerosene from sunlight for the first time in 2014. MTU is involved in researching this innovative production process for renewable aviation fuel. Since 2014, the company has also been supporting the InnoTreib project sponsored by the German Federal Ministry for Economic Affairs and Energy. Due to run until 2016, the project was set up to research synthetic fuels with enhanced properties such as reduced pollutant emissions and higher energy densities for greater ranges.

MTU actively promotes the introduction of sustainable fuels in aviation and helped Lufthansa carry out a field test.

The Bauhaus Luftfahrt think tank came up with a particularly interesting aircraft concept for the future in the Claire Liner. "Claire" stands for Clean Air Engine.

Research activities
As an integral part of our research activities, we regularly compile interim reports in which we compare our progress to our objectives and measure our goal attainment. Long-term technology development programs are conducted ahead of product development, mainly within the framework of national or EU research projects. In addition, we have built up a nationwide network of research partners in which we cooperate with selected universities on subject areas of special interest.

> For more detailed information, see Chapter 6 Commitment to Society/Research & Education.

A new European research project, ENOVAL, was launched in the reporting period; led by MTU, it will run for four years. Its objective is to reduce CO_2 emissions by 5% by developing new technologies for the low-pressure system in aero engines. In addition, the Clean Sky 2 program was launched in July 2014 as a follow-up to the current Clean Sky initiative. MTU is one of the founding members of Clean Sky 2, which is scheduled to run for eight years. In various research and demonstration projects, the program is providing the technological basis for the development of the next generation of greener and more cost-effective aircraft.

Press release: Clean Sky 2: MTU Aero Engines takes on the role of lead partner

Press release: EU technology program ENOVAL

All our Clean Air Engine agenda projects are currently on schedule and we have been able to meet our targets to date.

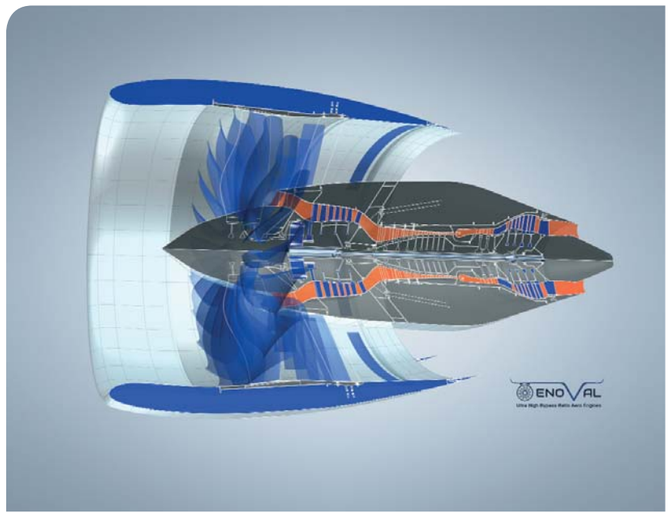
MTU participation in EU research programs (selection)
- Clean Sky, Clean Sky 2
- ENOVAL
- LEMCOTEC
- E-BREAK

MTU's technology programs and research partnerships

Through our climate change strategy, we wish to play an active role in efforts to reduce the aviation industry's carbon footprint. Our products put us in an excellent position for reaching this goal, given that by far the highest share of CO_2 emissions from aircraft engines arises during the in-service phase of the product lifecycle, which can last for several decades. But we also intend to take appropriate measures to improve the CO_2 balance of aircraft engines during the production phase.

Production
In operating our production sites around the world, we consume raw materials and electricity and use various resources to generate energy. Our long-term goal is to maximize energy efficiency and minimize the consumption of natural resources. We have already taken steps to reduce greenhouse gas emissions at our Munich location by launching the Clean Air Industrial Site (CLAIR-IS) program, through which we aim to slash CO_2-emissions by 25% by the year 2020 (baseline 1990). As the largest site in our manufacturing network, Munich accounts for around 71% of the group's gross profit (2014).

> For measures taken and successes achieved in production, see Chapter 4 Environmental Protection in Production/Emissions, see Pages 50-51.



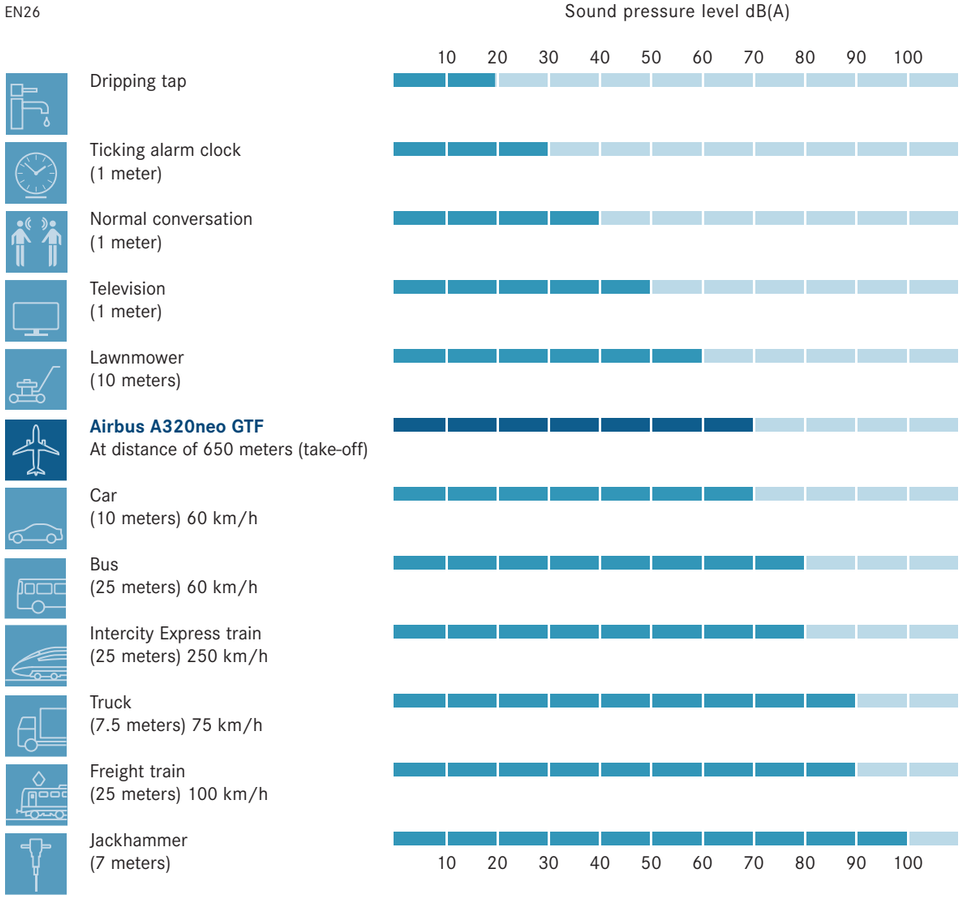
ENOVAL-Geared Turbofan of MTU Aero Engines with ultra-high bypass ratio.

3.4 Aircraft noise

The noise that aircraft produce also contributes to their environmental impact. Engines produce the most noise during takeoff, but the aircraft itself is also a noticeable source of noise because of turbulence generated at the fuselage, wings and landing gear. Most of the noise generated by the engines comes from the fan and airflow. Since the 1960s, aircraft noise has been drastically reduced thanks to engines with ever higher bypass ratios. According to figures from the German environment ministry, for example, the percentage of people in Germany who feel bothered by aircraft noise has sunk over the past twelve years from 15% to 6%–despite rising passenger numbers.

New engines with Geared Turbofan™ technology, such as the PW1100G-JM for the A320neo, offer improvements in the double-digit percentage range for fuel consumption, emissions and noise.

Aircraft noise compared with everyday noises
EN26

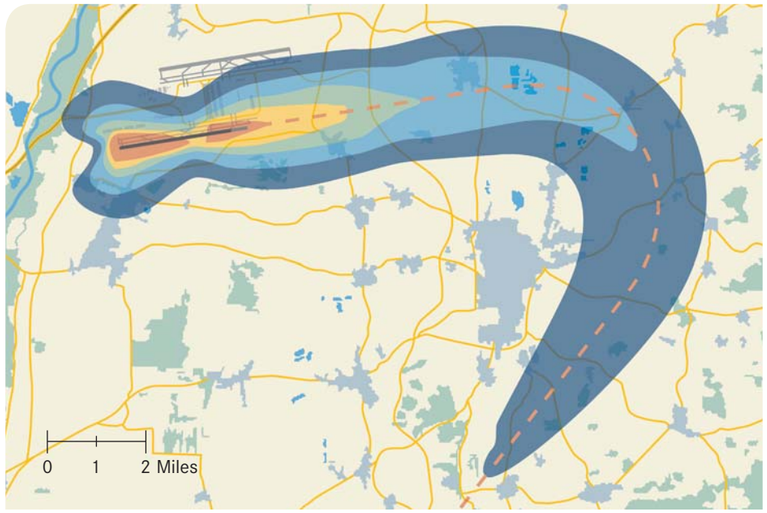


Aircraft noise compared with everyday noises: the volumes of various noise sources are expressed here as dB(A) sound pressure levels in order to obtain anapproximate frequency weighting (A-weighting filter) in line with human perception.
Source: MTU Aero Engines AG.

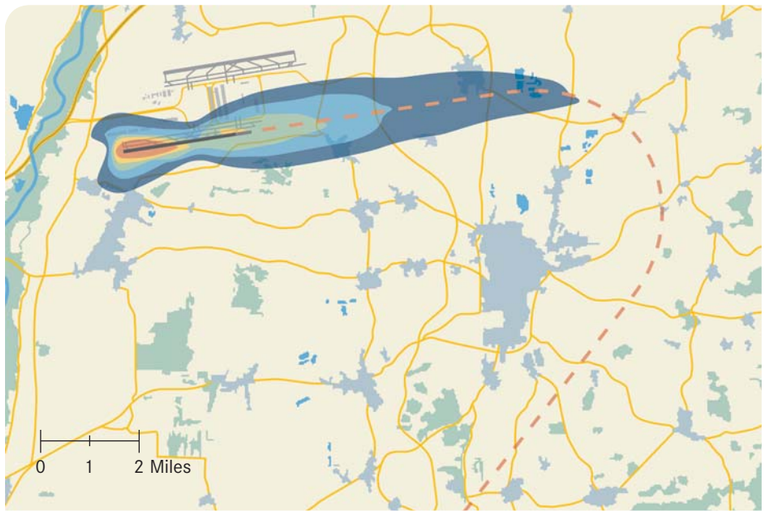
Aircraft and their engines must meet the noise emissions limits set down by the International Civil Aviation Organization (ICAO) as part of the certification process. Furthermore, at almost every airport in the world the fees charged for landing and takeoff are dependent on the noise generated by the aircraft. There are more and more restrictions on operating noisy planes. A new noise standard (Chapter 5) is currently in preparation.

Engines in which MTU is involved are always among the quietest on the market, coming in significantly below the legally prescribed limits. Both the V2500 for the A320 family and the GP7000 for the A380 represented significant advances when they came onto the market. Scheduled for launch in 2015, the PW1000G Geared Turbofan engine will also deliver substantial improvements. After all, noise reduction is an active goal for MTU engineering.

Substantial reduction of the 75-decibel noise contour area thanks to the new Geared Turbofan™ (GTF) engines (Munich Airport)
EN26



Aircraft with conventional turbofan engine



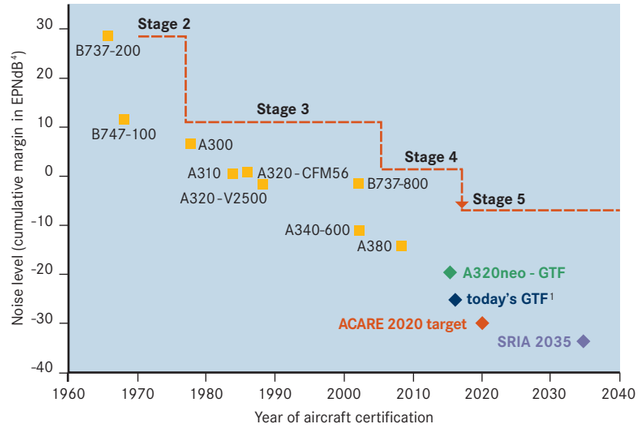
Aircraft with Geared Turbofan™

Sound Exposure Level (SEL) footprint (dB)
75 80 85 90 95
Takeoff/landing runway
Flight track

Every time MTU redesigns or optimizes an engine, it incorporates measures designed to reduce noise. Our acoustics experts are involved at every stage of product design.

Through our Clean Air Engine agenda, we are achieving a leap forward in lessening aircraft noise at the source. The new Geared Turbofan engine produces significantly less noise thanks to its large, slowly revolving fan. MTU's high-speed low-pressure turbine turns three times faster than a conventional turbine. As a result, it does not generate the low-frequency noise that is so poorly absorbed in the atmosphere. The Geared Turbonfan's noise footprint (the distribution of aircraft noise in the area surrounding an airport) is 70% smaller. This is thanks in no small part to MTU's expertise. Moreover, perceived noise levels are cut almost in half. And future generations of the Geared Turbofan will be quieter still: we estimate that noise can be reduced by as much as 50% by 2030 and 65% by 2050.

Reduction of aircraft noise (at landing and take-off)
EN26



Aircraft noise has fallen continuously since the 1970s. To be certified, engines and aircraft must meet noise emissions limits, which have become progressively stricter over time (Chapters 2-4). The Chapter 5 standards are in preparation.

[1] All-new aircraft design with first generation GTF
* The sum of the differences at all three measurement points between the maximum noise level according to the aircraft certificate and the maximum noise level according to the regulations.

3.5 Product quality and safety

All MTU products are examined for their impact on health and safety throughout their development, production and operation lifecycles. Accordingly, we cover all life stages 100%. Our aviation products are subject to very strict safety and environmental requirements laid out by the industry's regulatory authorities. These requirements must be demonstrably met in the early stages of planning new aircraft engines for later use. This includes being able to guarantee safe operation during a bird strike or hailstorm, and complying with strict limits on pollutant and noise emissions. We have to validate these capabilities using appropriate testing methods. MTU components exceed aviation authority requirements. In addition, the manufacture and assembly of engine parts and modules in our production halls meets all required standards concerning occupational safety and environmental protection.

Product safety
Comprehensive quality and safety testing is of the utmost importance in manufacturing for the aviation industry. MTU components must meet comprehensive quality specifications before they can be delivered, let alone incorporated into aircraft. Safety-critical components are subjected to particularly rigorous testing, for example using extensive non-destructive ultrasound and x-ray examination methods. Each component goes through different testing stations during the course of the production process to check that it is being manufactured in precise accordance with set tolerances. Only once these standards are verified can the component be released for further processing and so accrue more added value. Engine components increase in value throughout the course of their production, which means a lot of capital is tied up in the expensive end product. So manufacturing to the highest quality standards is not merely important for safety reasons, but also for economic ones.

We have equally high expectations of the quality provided by our suppliers and their vendor-supplied parts. As soon as any finished or unfinished parts arrive they must pass through our goods inspection department, where we examine them using a wide variety of different technical methods before releasing them for further processing. Each supplier must be approved by MTU: we pay site visits to take a close look at their manufacturing process from start to finish, and expect our suppliers to extensively document their activities. We conduct regular audits at our suppliers' locations to check that they are upholding these standards. In 2013 and 2014, our purchasers and quality controllers carried out for our European locations a total of 689 audits at all major suppliers, including inspections and interviews on site.

Strict requirements also apply to new materials and technologies. Fail-safe materials are a basic prerequisite for safe engines and aircraft. We employ comprehensive testing programs involving test builds and series tests on new engines to verify the safety and airworthiness of new technologies. All the materials we use must be approved by the appropriate aviation authority.

Our ultra-modern test rigs allow us to carry out engine tests under operating conditions. The picture shows a PW1000G being perpared for a test run.

"Product quality and product safety are key for us. The aviation sector has very high requirements, which we meet at all stages–from component development through to delivery."

Dr. Rainer Martens,
Chief Operating Officer
MTU Aero Engines AG

Certified quality
Any and all components used in an engine must be certified. Our principle is that "Safety takes priority in what we do" and that is why we use only approved, fault-free and clearly identifiable components. This refers to parts that have been approved by the appropriate aviation authority, are based on approved development documentation and have been produced or overhauled in compliance with the applicable aviation regulatory processes by a company that is authorized to do so and has the supporting documentation to prove it. The aviation sector has strict rules governing documentation requirements in order to verify the airworthiness of components and engines. There must be no gaps in documentation, a principle to which we adhere at each stage of the production process.

There are also regulations in place governing the handling and storage of documents, data and records. This applies to any documents that contain information on the following: the quality of operations or products delivered; effective, integrated management systems; the requirements of aviation authorities, partners and customers; and environmental protection and workplace safety. Specific examples of documents that fall under this rule are design reviews, design verifications, supplier assessments, inspection records, records of faulty products and certification documentation for systems or components for which MTU has design responsibility. These measures allow us to fulfill the requirements of the aviation authorities and of our partners and customers.

Export compliance
In the OEM segment, MTU partners with General Electric and Pratt & Whitney/Pratt & Whitney Canada on developing and producing engines for commercial programs. Both of these companies are among the biggest aero engine manufacturers worldwide. In the military segment, MTU develops and produces important systems and components for all the main European programs, as well as being involved in U.S. engine projects. All suppliers and recipients involved in the purchase or sale of engine components are reviewed by MTU in advance in what's called a sanctions list check. Our military customers include the defense ministries of individual customer nations as well as the companies that work with these ministries. Any delivery of military equipment must be cleared by the German federal government to ensure that the buyer and the recipient of the goods are trustworthy. Without this clearance, there can be no delivery or export of engines and parts for military use.

Safety comes first at MTU: we use only properly certified, fault-free and clearly identifiable components.

The innovative techniques that we have developed in-house enable us to repair components to an extent that is unique worldwide. Our ability to repair parts that others would simply replace means that we conserve material and resources.

Sustainable product lifecycle
Today's engines have a very long service life of some 20,000 cycles (a cycle corresponds to one flight). This means that an engine can spend up to 30 years in service. This extremely long service life is one of the design specifications for engine design, meaning that the service life of each component has to match that of the engine. Components that are subject to extreme heat and mechanical stress cannot normally be made to last throughout the engine's entire service life, and so these life-limited parts must be replaced in due course. However, by using improved materials and design tools as well as refined production and testing techniques, MTU has successfully extended–and in some cases even doubled–the service life of these life-limited parts. Making use of the latest coating techniques to offer protection against erosion, oxidation and sulfidation is also critical to a longer service life. MTU's ERCoat^{eco} erosion protection for compressor blades and vanes extends service life in desert regions while cutting fuel consumption by making the parts wear-resistant. We offer this special coating for various engine types.

Generally an engine will complete between 20,000 and 30,000 flight hours before it is taken off the wing and has to be given its first overhaul. MTU Maintenance operates a network with sites across the world to handle these shop visits. All MTU shops have the requisite certifications, such as the EN9100 series, ISO 9001 and ISO 14001. MTU Maintenance has developed its own range of innovative repair processes, which means that it can repair components in many situations where others resort to buying new ones–in fact, it is unique worldwide in terms of this capability. This translates into materials and resources saved. MTU is continually expanding this repair capability and investing in R&D to develop the special processes required.

MTU offers its own system for monitoring engines in flight: MTU^{Plus} Engine Trend Monitoring (ETM). The system monitors operating parameters to provide an overview of how all the components are functioning. The ETM systems warns of any malfunctions or drop in engine performance and means that appropriate repair work can be undertaken at an early stage. This makes engines much more efficient in operation and hence better for the environment.

Generally an engine will complete between 20,000 and 30,000 flight hours before it has to given its first overhaul.

If an engine can no longer be overhauled, it must be disposed of. Given the high value of the materials that go into aircraft engines, almost everything is recycled. As a supplier of engine modules, MTU has no direct influence over the scrapping phase, which is carried out by specialist companies. The front section of engines is made of titanium alloys, while the high-temperature area consists mostly of nickel-based alloys and, to a lesser extent, steel, aluminum and plastics. On account of the high prices for titanium and nickel and the extremely high prices for some alloying elements and coatings such as platinum and rhenium, aero engines are so full of valuable materials that they are almost completely melted down for reuse. As the engine is being dismantled, components that have not yet reached the end of their service lives are set aside and reused as spare parts. Certain materials can also be taken and directly employed in non-aviation applications. Material suppliers generally melt down the remaining materials and put them back into circulation.

Customer satisfaction has top priority—and that goes for maintenance of industrial gas turbines such as the LM6000 as well.

Customer satisfaction

Our definition of product responsibility is a question of not only guaranteeing high quality and safety in our products, but satisfying our customers and partners as well. Customer satisfaction is one of the key yardsticks of a company's success. As in previous years, MTU received the Supplier Gold Award in 2013 and 2014 from Pratt & Whitney's parent company United Technologies Corporation (UTC) in recognition of its outstanding achievements in quality, on-time delivery and customer satisfaction. Pratt & Whitney is an original equipment manufacturer (OEM) of aero engines and a strategic partner for MTU. In our new engines and spare parts business (OEM segment), we achieved an on-time delivery rate of over 90% in 2014. This figure is set to reach 96% across all engine programs in 2015.

MTU Maintenance offers maintenance and additional services for aero engines and industrial gas turbines. Customers include airlines and energy producers—in other words, its activities involve direct business to end customers. To deliver even better customer care, MTU Maintenance uses an IT-based customer relationship management system. One important component of the system is the "voice of the customer" survey, which measures current customer satisfaction. The survey takes place once a quarter and was extended to all maintenance sites and customer segments during the reporting period. Customers regularly use this opportunity to provide feedback on our product quality, service, logistics and price structures. In turn, we use the feedback to further improve our performance and to position ourselves even more closely in line with our customers' wishes. Our goal is to constantly increase levels of customer satisfaction so that we can remain competitive. We also continued "Response" corporate development program at MTU's biggest maintenance site in Hannover, which is designed to improve product quality and increase customer satisfaction.

We use feedback from our customers to further improve our performance and to align ourselves more closely with their wishes.

In 2014, MTU Maintenance won Aircraft Technology Engineering & Maintenance magazine's "Best Engine MRO Provider" award for the second time—an acknowledgement of MTU's excellence by customers and partners. The jury was made up of aviation industry experts, including top managers from international airlines.

Our main topics:
CO_2-emissions,
energy management

- 25% reduction in CO_2 at main plant in Munich by 2020
- Approx. EUR 6.6 m investment and expenditure on environmental protection in 2014

4 Environmental management in production

"We manage resources carefully and use energy, water and raw materials sparingly in production and maintenance."

Martin Schäffner,
CR Steering Committee and Senior Vice President, Corporate Quality MTU Aero Engines AG

4.1 Management approach

Protecting the environment is something we place great value on at MTU. Not only is environmental protection explicitly enshrined in our Code of Conduct and the MTU Principles, it is also a permanent feature of our annual corporate goals and the object of a dedicated program of environmental measures. We view our environmental responsibility as encompassing products themselves as well as their development, manufacture and maintenance, and this broad understanding of our environmental responsibility informs our business decisions. The biggest contribution we can make to protecting the environment is by means of ecologically efficient products. We are advancing the use of environmentally friendly aviation technologies within the long-term Claire (Clean Air Engine) technology agenda. In addition, we are pursuing a reduction in harmful CO_2 emissions as part of our climate strategy, which itself is embedded in Claire. The strategy focuses on MTU products but also includes production.

> For more on MTU's climate strategy, see Product Responsibility chapter on pages 33-36.

MTU pursues the goal of energy-efficient production and maintenance operations that minimize the consumption of raw materials and the emission of greenhouse gases and pollutants. We strictly observe the specifications for approvals of installations and the statutory emissions limits for airborne pollutants when operating manufacturing plants and test rigs and document this compliance by means of regular measurements and calculations. We also keep noise pollution as low as possible. When manufacturing and repairing products, we use re-sources such as raw materials, energy and water with care. In times of rising production volumes, MTU either maintains existing levels of energy consumption or manages to significantly limit their increase. For waste materials, the company has a systematic recycling policy that follows the circular economy principle. As a result, we have been attaining high recycling rates at our production sites for years (e.g. approximately 83% at our Munich site). Our goal is to maintain this high recycling level as capacity utilization rates increase.

We are committed to the principle of integrated environmental protection. For us, this comprises the following:

- Continuous improvements
- Precautionary approach
- Employee involvement
- Restriction of environmental impact
- Careful compliance with statutory limit values and requirements
- Processes that use resources and energy sparingly

A certified environmental management system ensures that uniformly high standards apply throughout the company.

Certified environmental management
Company-wide environmental protection is given top-level management priority through direct reporting to the Board of Management. A certified environmental management system, in which all processes, responsibilities and goals are defined, ensures that consistently high standards are upheld throughout the company. Internal standards corresponding to laws, ordinances, permissions and other regulations are binding for MTU's sites and in some instances exceed statutory compliance. The stringent environmental criteria apply to all divisions, processes and systems, extending from an engine's development through to production and repair. These criteria are described and regulated within documented process flows and special standards applying to the company's production units.

Certifications for integrated environmental, quality and occupational safety management at European sites in 2013/2014 reporting period:

Munich
- EN 9100:2008
- ISO 14001:2004
- EMAS Regulation (EC) No. 1221/2009 (Eco Management Audit Scheme)
- OHSAS 18001:2007
- GQA Certificate

Hannover
- EN 9100/91010:2008
- ISO 14001:2004
- EMAS Regulation (EC) No. 1221/2009 (Eco Management Audit Scheme)
- OHSAS 18001:2007

Berlin
- EN 9100:2008
- ISO 14001:2004
- OHSAS 18001:2007

Rzeszów
- EN 9100:2008

All certifications were successfully verified in audits during the reporting years.

Click here for an overview of certifications at all MTU sites

The environmental protection management officer holds a senior position within the company's organizational structure and is responsible for implementing the environmental management system. Individual managers are directly responsible for environmental protection and are advised and supported in occupational health and environmental protection by their site's relevant specialist departments. Independent external auditors and environmental consultants conduct annual reviews to confirm implementation of and adherence to the applicable environmental protection requirements. This monitoring is supplemented by internal inspections and audits. In its controlling and monitoring role, MTU's management carries out regular management reviews and directly steers development of the management system.

During the reporting period, there were no incidents at MTU sites with a negative environmental impact. In such cases, emergency management plans kick in. Systematic environmental management meant that once again in 2013 and 2014 the company did not have to pay any fines for breaches of statutory requirements relating to the environment. We are preparing for new legal requirements such as the EU's REACH regulation for substances of very high concern (SHVs) so that we can fully implement them on time.

MTU involves its employees in its environmental protection endeavors and promotes environmentally aware behavior by means of information campaigns, action days and similar initiatives. In addition, employees are invited to submit their ideas for improving environmental protection through the company suggestion program.

Action days for environmental protection during the reporting period
- Environmental Information Day (Hannover, annually)
- Eco Day for Apprentices (Munich, annually)
- Health, Safety and Environment (HSE) Days (Ludwigsfelde, annually)

In addition, we promote greater environmental protection in industry and business through our membership in various initiatives.

Memberships in environmental protection initiatives
- German Environmental Management Association
- Bavarian Environmental Pact
- Energy Efficiency Network for Munich and Upper Bavaria

The public is regularly informed about measures, results and successes relating to environmental issues through statements issued by MTU for its two largest sites, Munich and Hannover.

Our environmental statements (German version only)

Current expenditure for environmental protection in 2014 (in thousand euros)
EN30

Waste management	901
Water pollution control	945
Air pollution control	146
Conservation and landscape management	14
Use of renewable energy (CHP operation in Munich)	3.062
Total	5.068

Investments in environmental protection in 2014 (in thousand euros)
EN30

Energy-efficiency measures	464
Water pollution control	572
Climate protection	462
Emission prevention/reduction	73
Noise reduction	6
Total	1.577

An overall monetary quantification covering all European sites is currently not possible. Data on the German sites from 2014 onwards is compiled in a database.

Environmental protection in the supply chain
MTU's environmental protection efforts also extend to its suppliers. With the new Code of Conduct for Suppliers, which entered into force at the start of 2014, we set out environmental requirements for cooperation with suppliers, who must:
- Observe laws and international standards
- Apply the precautionary principle in dealing with environmental problems
- Commit themselves to promoting a greater sense of responsibility
- Support the development and spread of environmentally friendly technologies

> For more on the new Code of Conduct for Suppliers, see Chapter 2 Economics, 2.5 Supplier Management, pages 26-27.

During the reporting year, the oekom research rating agency awarded MTU its Prime Status, which recognizes–among other distinctions–the sustainable nature of the company's environmental achievements. MTU also achieved an above-average rating (76.9%) in the environmental category of the STOXX Leaders indices. In their award citation for MTU in 2014, the jury of the German Investors' Award for Responsible Business Practices praised the company's progress in the efficient use of raw materials and energy.

> For more information about ratings and awards, see Chapter 2 Economics, page 22.

Investing in environmental protection
MTU invests a great deal in protecting the environment, since the resources saved through energy-efficient production not only improve environmental compatibility, but also pay dividends in the form of lower energy costs. We invest primarily in modernization, the use of renewable energies, and in new buildings that are planned according to strict environmental criteria. During the reporting period, for example, we commissioned a new logistics hall in Hannover and a new logistics center in Munich, while expansion of MTU's Polish plant was completed at the start of 2015.

The new blisk hall at MTU's site in Munich is particularly energy-efficient, thanks to heat recovery, cutting-edge ventilation technology and well-water cooling.

4.2 Energy management

We are committed to the principle of energy-efficient supply in order to limit our energy demand, and we consider security of supply, cost effectiveness and environmental sustainability when choosing energy resources. As primary energy sources, we use natural gas, aviation fuel, diesel/biodiesel and to a small extent heating oil. However, we use renewable energy wherever possible. For example, a cogeneration plant that runs on vegetable oil and permanently covers a portion of the site's energy requirements has already been in operation in Munich for several years now. In addition, the Hannover site uses solar thermal technology as well as using the waste heat from compressors for heating purposes.

Consumption of electricity and gas—the chief energy sources—is managed and controlled through a comprehensive energy management strategy. We continuously measure energy consumption as the basis for using it more efficiently. This is accompanied by a concept that promotes sustainable buildings and processes: when constructing new buildings and renovating old ones, the company places high value on measures that ensure efficient energy supply. Our goal is to achieve significant improvements compared to comparable existing buildings.

Progress in energy management 2013-2014

- Efficient use of heat energy: new logistics hall heated by waste heat from the compressed-air-system (2013, Hannover)
- Energy consumption around 20% below statutory limits defined under German Energy Savings Ordinance (EnEV): special insulation of new logistics hall (2014, Munich)
- Use of well water for process cooling, heat recovery (-70% heating energy) and LED illumination in new logistics hall (2014, Munich)
- Conversion to LED illumination (since 2013; Ludwigsfelde, Hannover)
- New insulation of façades (2014, Hannover)

To save energy, LED lighting was installed in the new logistics hall at MTU's Munich site.

External wall insulation reduces heat loss from the logistics hall at the MTU site in Hannover.

Energy consumption (in MWh)
EN3, EN4

Scope 1 conventional
(natural gas, aircraft fuel, diesel/biodiesel, heating oil)

2011	120,815
2012	125,667
2013	143,929
2014	124,539

Scope 1 renewable (palm oil)

2011	9,811
2012	13,631
2013	9,812
2014	10,134

Scope 2 (electricity, district heating)

2011	108,356
2012	107,570
2013	108,362
2014	108,150

As of 2013, energy budget includes site in Rzeszów, Poland.
Natural gas, district heating, biodiesel and palm oil are used to heat buildings and water. The demand for heating energy varies considerably according to weather conditions and the severity of the colder times of year. This affects how much energy we consume. Aircraft fuel is essential for performing engine tests; the type and duration of these tests are the only factors affecting how much aircraft fuel is consumed.
Our use of green electricity is determined by the extent to which our suppliers either procure or themselves produce electricity from renewable sources (Munich: 35%, Hannover: 33%, Berlin: 29%).

At MTU Maintenance Hannover waste heat from the compressed-air-system is used to heat the new logistics hall.

MTU aims to significantly reduce CO_2 emissions produced by the manufacture and maintenance of products at its Munich site by 2020.

4.3 Emissions

MTU pursues the goal of energy-efficient production that minimizes the amount of CO_2 and other emissions that get into the air. However, the biggest positive effect we have on climate protection is achieved by our products through our climate strategy.

> For more information, see Product Responsibility chapter from page 28.

We measure emissions at MTU's European production sites in accordance with the international standard of the Greenhouse Gas (GHG) Protocol. From several sources, MTU emits greenhouse gases that have an effect on the climate as defined by the Kyoto Protocol. CO_2 emissions alone make up a sizeable part of this. The majority of CO_2 emissions (63%) comes from the principal energy source, electricity, followed by natural gas (21%). In addition, CO_2 emissions are produced by aviation fuel kerosene (15%), which is used at MTU for test runs of aircraft engines. According to the GHG Protocol, greenhouse gas emissions from natural gas and aviation fuel are classed as direct emissions (Scope 1), which arise from sources that are owned by the company. Indirect greenhouse gas emissions (Scope 2) originate from the consumption of purchased electricity or district heating. The demand for electricity, natural gas and aviation fuel is dependent on production workloads.

The Clean Air Industrial Site program (CLAIR-IS) was initiated in 2009 at MTU headquarters in Munich. CLAIR-IS sets climate objectives for manufacturing processes that are similar to the company's product-oriented climate strategy. The long-term aim is to cut CO_2 emissions from product manufacturing and maintenance activities at our main plant in Munich by 25% by the year 2020 (compared to figures from the year 1990)—and to do so despite continuously increasing production rates. The Munich headquarters generated around 71% of the group's gross profit in 2014. MTU's sustainable energy management was recognized at the "econique" networking summit in 2014, where it achieved second place in the Energy Masters Award.

CO_2 emissions from energy source (in tons)
EN16

Scope 1 (natural gas, aircraft fuel, diesel, heating oil)

2011	26,950
2012	27,401
2013	32,060
2014	27,439

Scope 2 (electricity, district heating)*

2011	50,884
2012	50,653
2013	58,479
2014	48,426

As of 2013, emissions budget includes site in Rzeszów, Poland.
* Scope 2 carbon emissions for Rzeszów cannot be determined yet. CO_2 emissions for 2011-2012 exclude district heating

Other airborne emissions (in tons)
EN20

Carbon monoxide (CO)

2011	33
2012	37
2013	38
2014	35

Sulfur dioxide (SO_2)

2011	23
2012	23
2013	24
2014	21

Nitrogen oxide (No_X)

2011	124
2012	118
2013	131
2014	103

Dust

2011	2
2012	2
2013	2
2014	2

Emissions of airborne pollutants for Rzeszów, Poland cannot be determined yet.

Measures to implement energy-efficient production in 2013/2014

- Making greater use of well water as a coolant in production processes
- Modernizing the district heating network
- Improving thermal insulation
- Deploying building automation systems
- Using renewable fuels
- Using a more energy-efficient compressed air supply
- Installing more energy-efficient lighting systems

The use of non-potable well water as a coolant for machines, for example, saves 3,900 tons of CO_2 emissions every year. Back at the start of 2007, MTU put a cogeneration plant into operation at the Munich site, which is fired exclusively by renewable raw materials and therefore does not emit any harmful CO_2. Through its heating plant, MTU reduces its climate change impact while also producing highly efficient electrical energy. The cogeneration plant is powered using climate-neutral vegetable oil, thus saving around 7,400 tons of CO_2 a year. For several years now, modernized ventilation systems featuring the latest rotary heat exchangers have gradually increased the amount of heat retained indoors, saving around 1,500 tons of CO_2 emissions each year. In total, these measures save around 23,000 tons of CO_2 (greenhouse gas) emissions annually (based on average emissions over the last three years). This equates to an average annual reduction of 1.5%. These measures are also designed to reduce electricity consumption by 30% (based on revenues in the period from 2010 to 2020). In addition, a portion of the electricity we purchase for production and maintenance comes from renewable energy sources, in other words from CO_2-neutral production (Munich 35%, Hannover 33%, Berlin 29%).

We are also seeking to make continuous improvements in our climate performance in the area of logistics. Measures include optimizing logistics routes for in-plant transportation, such as the logistics hall on the factory grounds in Hannover since 2013, and using vehicles with better environmental performance. In addition, MTU also promotes sustainable commuting practices among its employees through measures such as bus services to and from plants. From 2015, we want to introduce further sustainable logistics measures.

We are very careful in how we use resources, and our employees ensure that production is energy-efficient.

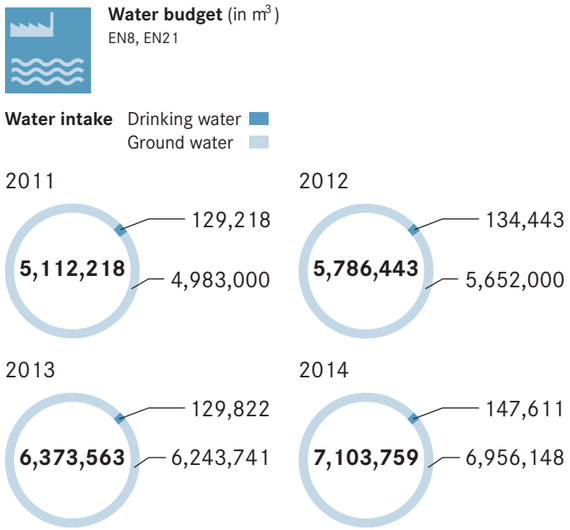
4.4 Water use

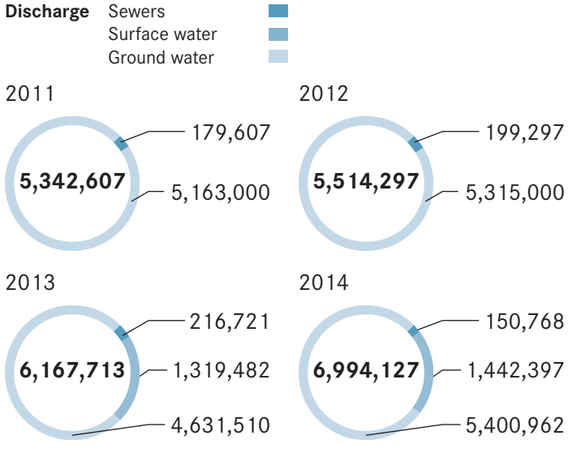
Water is an increasingly scarce natural resource that we treat responsibly when manufacturing and maintaining our products. We use water in production and maintenance processes and employ a closed-loop system for process water as much as possible. In addition, we consume drinking water chiefly in sanitary facilities and cafeterias and to a small extent in production. There has been a significant drop in water consumption over the past few years thanks to measures such as the systematic use of well water for cooling processes, the use of water-saving technology and the recirculation of process water. In 2014, we achieved a water usage ratio of 2.1% drinking water to 97.9% groundwater. MTU has increased the amount of well water used at its Munich headquarters. Groundwater is extracted from MTU's own on-site wells, and used for cooling in production processes. This Quaternary water, which is not classed as drinking water, is pumped from a depth of 25 meters and piped throughout the site. Compared to conventional cooling, this method reduces electrical power requirements and avoids the use of environmentally damaging coolants. The gradual expansion of water extraction plants means that the company can now extract 12.8 million cubic meters every year.

We want to progressively reduce the discharge of waste water into bodies of water and municipal sewers. In this regard, strict monitoring of water discharge ensures that we observe the statutory limits. In engine manufacturing, electroplating involves certain coating processes that use water-based chemical process baths. Ion exchange plants are used to create rinse water circuits that enable large volumes of water to be reused. Only 3% of the total water used is discharged into sewers as treated waste water. Process water used for crack detection facilities is also fed into the water recirculation system, whereby most of the water is reused and only a small amount of waste water is treated and discharged into municipal sewers. In addition, MTU has undertaken a systematic inspection and renovation of the well water and sewer duct networks.

In production and maintenance processes, we employ a closed-loop system for process water as much as possible.

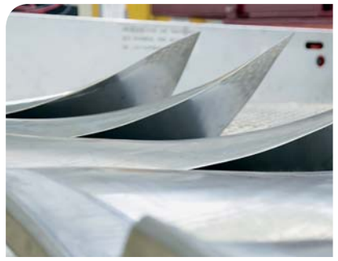
Water budget (in m^3)
EN8, EN21





More water used in 2014 due to rise in production volume. As of 2013, water budget includes site in Rzeszów, Poland. The quality of the discharged waste water meets the requirements of the official permits at the respective sites.

We manage resources like the increasingly scarce water carefully when manunfacturing and maintaining our products.



We place value on manufacturing and repair techniques that reduce the amount of material used and therefore conserve resources.

4.5 Material efficiency

MTU strives to use basic and raw materials economically in production and maintenance. Our manufacturing and maintenance processes are geared toward efficiency and waste reduction. The manufacturing and repair methods used by MTU, many of which were developed in-house, are particularly efficient in their use of energy and materials. One example of this is waterstripping, which removes thermal coatings from engine parts without using chemicals.

We have decided to harness the potential of the new additive manufacturing methods for engine production. This completely new technology involves making components directly from a powder bed via laser melting based on CAD data, which delivers major material savings. During the reporting period, MTU manufacturing specialists were able to initiate series production of the first components made using additive processes. We plan to widen the range of parts manufactured by additive methods in the future.

Wherever possible, we want to avoid using environmentally hazardous materials in manufacturing and repair processes and in MTU products. The company has developed a new chromium^{6+}-free paint for coating engines, which is now used as standard for components throughout MTU, and the use of hazardous materials such as mercury and cadmium was discontinued many years ago. The company's process experts are currently working on finding alternative solutions to replace certain substances containing chromium^{6+} that qualify as substances of very high concern (SVHCs) as defined by the EU's REACH regulation. Use of these substances is subject to authorization as of September 2017. Chromium trioxide, ammonium dichromate, sodium dichromate and potassium chromate are the substances used at MTU that are affected by the regulation. An implementation project has been launched to achieve this, and the affected components and the corresponding tools and jigs have been recorded and possible solutions analyzed. SVHCs are to be replaced insofar as possible, and new applications that use SVHCs will be rejected in the future. Implementation is progressing according to plan at all the MTU Group's European locations; the company's sites outside Europe are not affected by these regulations.

We will complete implementation of the EU's CLP regulation for the classification, labeling and packaging of chemical substances and mixtures (which aligns the EU system with the UN's Globally Harmonized System (GHS)) in 2015 as required by statutory provisions.

Progress in material efficiency 2013-2014

- Recycling of engine alloys in new collaboration with specialized companies (since 2013; Hannover)
- Approx. 585 liters of jet oil (Type II) saved during test runs annually (since 2013; Ludwigsfelde)
- Reuse of packaging materials for transporting parts (since 2013; Rzeszów)

MTU's high-tech manufacturing and repair processes are second to none. As leaders in this field across the aircraft engine industry, we achieve a depth in engine repair that is unique worldwide. Special techniques we ourselves developed enable us to repair engine parts that other maintenance shops have to replace with new ones. This saves valuable resources as well as materials that would have been used in the manufacture of new parts. We continuously develop our repair expertise and channel considerable investment into research and technology in consistent pursuit of our "repair beats replacement" approach towards identifying the processes required. Around 70% of all engine blades can already now be reused two, three or even four times.

Material consumption
EN1

Nickel-base alloys (in tons)

2011	1,979
2012	1,732
2013	1,703
2014	2,061

Technical gases (in tons)

2011	2,349
2012	2,316
2013	2,229
2014	2,309

Titanum-base alloys (in tons)

2011	121
2012	99
2013	128
2014	255

Packaging (items packaged)

2011	325,859
2012	278,712
2013	356,001
2014	397,801

Raw materials, consumables and supplies (in tons)

2011	6,032
2012	5,639
2013	5,474
2014	4,232

Consumption figures refer to the German sites; quantification for all of Europe is not yet possible.

Waste management (in tons)
EN22

Waste reused

2011	4.270
2012	3.892
2013	3.512
2014	3.599

Harmful waste reused

2011	1.027
2012	898
2013	837
2014	737

Waste disposed of

2011	430
2012	566
2013	693
2014	767

Harmful waste disposed of

2011	386
2012	528
2013	516
2014	670

Building waste reused

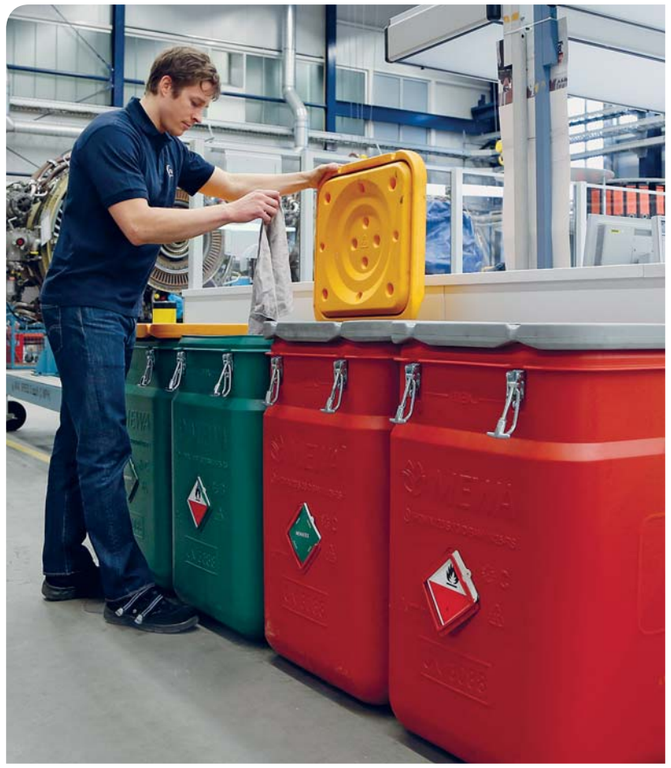
2011	8
2012	62
2013	356
2014	39

As of 2013, waste budget includes site in Rzeszów, Poland. Increased building waste in 2013 due to new building projects.

Waste accumulation
We adhere to a sustainable waste disposal concept aimed at recycling the greatest possible proportion of our waste and follows the circular economy principle wherever possible. This dovetails with the EU's five-tier waste hierarchy as implemented in Germany's Waste Avoidance, Recycling and Disposal Act (Kreislaufwirtschaftsgesetz, §6):

- Avoid the production of waste wherever possible
- Reuse any waste material
- Recover material from waste
- Recover heat from waste
- Eliminate waste

This approach allows us to achieve high recycling ratio. This figure was 83% at our Munich site in 2014 (2013: 83%).



We have a sustainable waste disposal policy that attains high recycling rates at our locations.

5 Responsibility toward employees

"Employees are our most valuable asset. In the aircraft engine industry, the know-how and skills of every individual count. For us, the qualification, motivation and job satisfaction of employees are crucial–and that's just as true in Poland as it is in Germany."

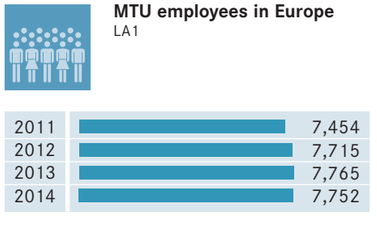
Renata Markowska,
Director, Human Resources at MTU Aero Engines Polska

5.1 Management approach

As a high-tech company and technological leader in the aviation sector, MTU's success is founded primarily on the expertise and commitment of its approximately 9,000 employees worldwide. We want to keep this knowledge in the company and attract new talent in order to remain competitive over the long term and achieve our ambitious growth objectives. We are currently approaching production ramp-up in ten programs to develop engines for new aircraft models. It is a huge task, and we will be able to master it only as a team of motivated, well trained and highly efficient employees. That is why we invest in the employability, capabilities and productivity of our employees with comprehensive qualification and development opportunities and targeted preventive healthcare. We offer attractive and secure jobs based on legally binding employment contracts and combine this with above-average compensation that rewards employee performance. MTU has various measures in place to create a tolerant working environment with a wide range of opportunities to join the company and gain promotion, as well as flexible working times and a variety of different jobs for a diverse workforce. We have devised offers specifically to encourage new female talent. To help employees achieve the right work-life balance, we give them the flexibility they need. We are continuously further developing our offers and schemes to make MTU a workplace that is ready to meet the needs of the future. Demographic change and a shortage of skilled workers in Germany are among the biggest challenges we face, and we are addressing them with a responsible long-term HR strategy.

Regional distribution
LA1

MTU employees in Europe
LA1



Total workforce at MTU's locations in Europe at year end. Personnel numbers have remained at a constant level. We want to keep our employees long term in order to secure our technological leadership and the associated know-how.

Fair working conditions
As a responsible employer, we provide socially responsible terms of employment that reward performance and respect union pay scales, and we foster a workplace atmosphere that is based on mutual respect and appreciation and excludes all forms of discrimination. MTU creates fair working conditions for its employees throughout the organization. We are committed to respecting employees' rights and safeguarding their freedom of association. When drafting employment contracts, we observe statutory requirements as well as internal company agreements. We place our trust in long-term, secure employment relationships. Our commitment to fair working conditions includes strict opposition to forced or child labor in any form along with the safeguarding of human rights. We have enshrined these employment and social standards in binding form for the entire organization in the MTU Code of Conduct. For employees in Germany, there are also internal guidelines on cooperative and fair conduct that prohibit bullying, sexual harassment and discrimination. In these guidelines, MTU undertakes to punish violations with appropriate measures. Defined processes have been established to deal with reported breaches of the Code of Conduct and internal guidelines. Employees at any MTU site who suspect infringements can report their concerns to an ombudsman, who can be contacted confidentially by e-mail at any time.

> For more on this subject, see Chapter 1 Strategy, pages 14-15.

Intercultural cooperation is valued and promoted at all MTU sites.

In Germany, moreover, the General Act on Equal Treatment (Allgemeines Gleichbehandlungsgesetz) is legally binding, which prohibits discrimination against employees. Once again in 2013 and 2014, there were no complaints under the General Act on Equal Treatment at MTU's German locations. Neither were any cases of discrimination reported at our Polish subsidiary MTU Aero Engines Polska during the reporting period.

In Germany, works agreements negotiated with employee representatives supplement the statutory foundations in defining working conditions. These collective agreements apply to all employee groups with the exception of senior management, who have their own representative body. In 2014, 98.3% of employees in Germany were covered by collective agreements (2013: 98.4%). In accordance with the German Works Constitution Act (Betriebsverfassungsgesetz), each of MTU's locations in Germany also has a works council. Management and worker representatives maintain regular, open and trust-based dialog with each other. In Poland, elected employee representatives look after the interests of the workforce in dealings with management and the applicable employee rights form the basis of employment contracts.

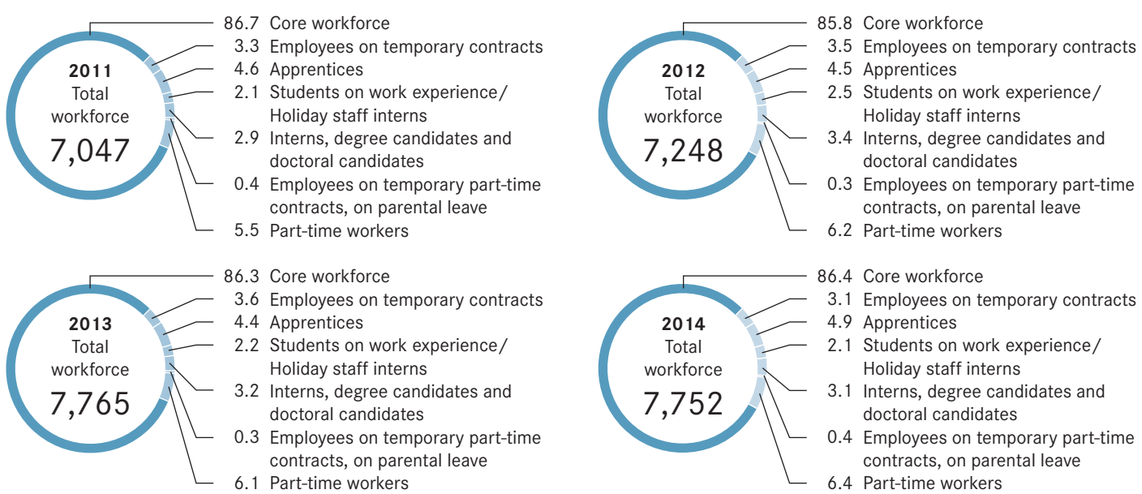
In accordance with statutory requirements, 50% of the Supervisory Board of MTU Aero Engines is composed of delegates who represent employee interests.

Click here for the composition of the supervisory board

Remuneration and benefits
The right to appropriate remuneration is one of the pillars of MTU's social policy and is enshrined accordingly in the Code of Conduct. A standardized, transparent compensation structure ensures that employees receive competitive remuneration that reflects their performance. The remuneration of pay-scale employees is based on collective bargaining agreements. Compensation for senior managers is tied to the company's long-term performance. There is a consistent methodology for evaluating performance at all levels of the hierarchy. The performance criteria are based on company, center or department objectives and measure how employees and each manager contribute to reaching these goals.

MTU also provides various supplementary benefits, such as a company pension scheme for all employees. In the fiscal year 2014, the company made social contributions totaling 96.3 million euros (2013: 98.8 million euros). The scope of these contributions derives from the company's own range of employment benefits in addition to statutory requirements. MTU enables its employees to participate in the company's success through various profit-sharing programs, which are available to the workforce as a whole and defined in special rules for each employment group. For example, an employee stock option program in place at the Munich, Hannover and Ludwigsfelde sites achieved a take-up rate of 20.6% in 2014—the highest participation since the scheme began. Employees invested a total of 9.3 million euros in 2014.

Employee structure (in %)
LA1, LA13



Encompasses almost 90% of employees in entire MTU Group from 2013 following integration of the Rzeszów, Poland site in CR reporting. The total workforce does not include temporary agency employees or member of the cooperation with the German armed forces.

Human resources policy
Responsibility for issues relating to employment lies with the executive board member in charge of human resources, finance and IT. Since 2014, this has been the CEO Reiner Winkler. The human resources center sets policy that is in line with the overall corporate goals and long-term growth targets for each year as set out in MTU's corporate strategy. Regular updates are given to the Board of Management on how human resources policy is being implemented. Responsibility for successful implementation resides with the local HR departments and the respective specialist departments and managers. All managers undergo performance reviews based on achievement of their personal targets. Leadership style is governed by the leadership guidelines laid down in the six MTU Competences, which are derived from the MTU Principles. It is the job of managers to ensure that company agreements are properly observed on a day-to-day basis in their areas of responsibility, and the company supports them through a variety of management training programs and communication forums. Since 2014, special information events have deepened communication and exchange between executive management and senior managers. In addition, a new Leadership Guide for managers at the Munich site has been communicating important information about individual management topics since 2013.

We regularly review our HR policy measures with the goal of adapting to new legal regulations. This exercise also serves us as we strive to continuously improve additional benefits and offers to facilitate a better work-life balance and increase the company's attractiveness as an employer. Secondary benefits also undergo regular external certification.

Attractive employer
It is important to MTU to be considered an attractive employer by both existing and potential employees and in comparative analyses with other companies. In the reporting period, MTU once again performed very well in the Top Employer Germany evaluation, particularly in the Secondary Benefits & Work-Life Balance category. For the first time in 2014, the MTU site in Poland also took part and achieved Top Employer Polska status at the first attempt. This acknowledges MTU Aero Engines Polska as one of the 39 best companies to work for in the country. In particular, top marks in the categories of Secondary Benefits & Work-Life Balance and Corporate Culture recognize the above-average range of additional benefits available to employees at the site, such as a health service and flexible work models to help employees attain a better balance between working and private life. We seek this status for the European countries every year and have already been able to repeat the achievement for 2015 with an even better rating.

MTU received further positive feedback from its employees in a 2013 study carried out by Focus, a German weekly news magazine, and the XING professional networking platform. Employees at all hierarchy levels were asked to rate companies in terms of working environment, career prospects, salary and leadership culture. The results put MTU 19th among Germany's best employers, while it placed fourth in the sector-specific ranking.

In 2014, MTU was able to confirm this positive perception. In the Universum Young Professionals study by the German business journal "Wirtschaftswoche," MTU was ranked the 30th most popular employer for engineers. In addition, graduates of engineering disciplines put MTU in the top third of the available companies in the employer ranking by the trendence institute in Berlin.

MTU also achieved positive ratings among potential applicants and its existing employees on kununu, the largest German-language evaluation platform for employers, where it received Top Company status for companies with positive evaluations. MTU has had its own presence on kununu since 2014.

Overall, there has been a more international slant to MTU's branding activities for employer positioning in the reporting years. For example, the company has had a LinkedIn presence since 2014, where the number of its followers has grown steadily to over 4,200. LinkedIn is a good means of better integrating the company's international locations and employees.

Audits and certifications
- Top Employer Germany
- Top Employer Poland
- trendence Graduate Barometer
- Universum Ranking
- Chief Learning Officer

For more on MTU's awards and certifications

In 2015, we plan to carry out the next employee survey at MTU's European locations in order to get important feedback on topics such as motivation, management, communication, efficiency, continuous improvement and health. For employees, regular surveys are an opportunity to further improve corporate culture and to help shape their own workplace.

Occupational safety is one pillar of our social responsibility.

5.2 Occupational health and safety

MTU places high value on occupational safety and employee health, which are anchored in our business processes and enshrined in the MTU Principles, in the Code of Conduct and in our corporate goals.

Compliance with national regulations on occupational safety is mandatory for all international MTU subsidiaries. Occupational safety officers are appointed for each of the company's European sites. The management systems in which the required measures, goals and responsibilities are defined are certified externally in accordance with international standards. In 2013 and 2014, major production sites were validated according to the standard for industrial safety management, OHSAS 18001 (Occupational Health and Safety Assessment Series), with the result that almost 90% of the workforce is covered by an OHSAS 18001 certified occupational safety management system. Internal occupational safety standards are regularly reviewed and improved. In 2014, all occupational safety officers from MTU's sites worldwide came together in Hannover to exchange experiences and information at a Corporate Environmental Health and Safety Meeting.

All certifications of MTU

Among the company's comprehensive occupational safety activities are advising and supporting managers and employees, safety training, first aid training and workplace risk assessment. Each individual workplace is thoroughly checked and evaluated for any risks and hazards present both before work begins and regularly thereafter. The entire workforce at our sites in Europe is fully represented at the locally organized occupational safety committees, the composition of which reflects the legal requirements in the respective countries.

We aspire to continuously bring down the number of work-related accidents and reach a level of prevention that seeks to eliminate any and all accidents (zero-accident vision). Our ongoing prevention work and analysis of accidents and near-misses is bringing us ever closer to this goal. In 2013, the average accident rate per 1,000 employees was 0.9 for the European sites (almost 90% of all MTU employees represented in the reporting). In 2014, we were sorry to record an increase in work-related accidents at the Munich site. Accident hotspots could not be identified there. That drove up the average number of accidents per 1,000 employees across Europe to 2.6. All accidents were recorded, evaluated and investigated. In addition, there is a system in place for recording near-misses.

Our management systems and certificates for occupational safety 2013/2014

- Munich: OHSAS 18001:2007, GQA Certificate
- Hannover: OHSAS 18001:2007
- Berlin: OHSAS 18001:2007
- Integrated Management System (IMS) for quality, occupational safety and environmental protection at all MTU locations

Our occupational safety strategy also focuses on prevention and raising awareness among employees. The local specialist departments regularly report on important occupational safety issues and promote safe behavior through consciousness-raising campaigns. An initiative starting in fall 2015 at the Munich headquarters will highlight ways of staying safe when traveling to and from work.

Prevention initiatives in the reporting period

- Safety on Foot (particularly on stairs) (Munich, 2014)
- Fit for Future (Hannover, 2014)
- Noise Level Register in Production (Rzeszów, 2013)
- "The Safest Department" competition (Rzeszów, annual)

Occupational saftey
LA7

Reportable workplace accidents*

	Munich	Hannover	Berlin	Rzeszów
2011	14	1	6	–
2012	14	6	4	–
2013	11	2	0	0
2014	22	2	2	1

There were no fatal industrial accidents at MTU's European sites between 2011 and 2014.

Days lost as a result of reportable accident**

	Munich	Hannover	Berlin	Rzeszów
2011	529	16	127	–
2012	481	286	40	–
2013	240	32	1	0
2014	483	35	24	21

Accident rate per 1,000 employees**

	Munich	Hannover	Berlin	Rzeszów
2011	3.0	0.6	9.6	–
2012	2.9	3.3	5.1	–
2013	2.4	1.1	0.0	0.0
2014	4.7	1.0	2.8	2.0

* Excluding commuting accidents
** For accidents that entail more than three days lost (not counting the day of the accident)
Encompasses almost 90% of employees in entire MTU Group from 2013 following integration of the Rzeszów, Poland site in CR reporting. In order to protect personal data, no further statistical analysis is carried out concerning accidents and days lost. Further distinctions based on such factors as gender is therefore neither possible nor intended. MTU is not aware of how many applications have been made and accepted that classify an illness as being of occupational origin.

We place great value not only on product quality, but also on the use of safe methods and processes in manufacturing and maintenance.

Dr. Rolf-Wilhelm Neuser is the chief medical officer at MTU in Munich. He and his team are responsible for preventive, occupational and emergency medicine.

Health management

Healthy employees are an important prerequisite for maintaining our company's economic performance. MTU is taking a step-by-step approach to developing holistic and sustainable health management. As the company's largest site, Munich will lead the way, but all locations will be included in the medium term. A cross-learning network has already taken its first steps toward tailoring measures and establishing uniform standards throughout MTU. Initial health-promoting offers such as the back coach and extended risk assessment are already up and running across locations. MTU is no stranger to the challenges posed by an aging population. A large proportion of its workforce (around 87%) works in Germany, where the average employee age is over 44, reflecting an increase of nearly 2% over the five years up to 2014. Yet the longer employees work for MTU, the more valuable their many years of professional experience and expertise are to our highly specialized business. This is why we want to identify strategic areas of action within the context of health management for 2015 and 2016 and develop key operational indicators for maintaining effectiveness and employability. In addition, managers are to be supported in their special responsibility for health matters with measures that raise awareness and transfer knowledge and skills.

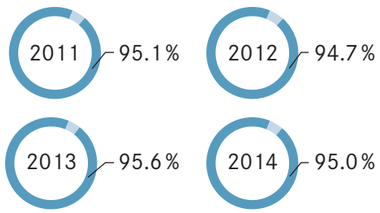
Special offers to prevent health problems and various campaigns to promote healthy lifestyles are already part of the company's health management. One focus of these efforts is healthy eating, which we promote with continuous activities. A light meal option is available at the company restaurants in Munich and Rzeszów. In Munich, this option is chosen by up to a third of employees. We are continuously developing the catering offers there at present toward an "aktiv&vital" healthy food line. At the end of 2014, new vending machines were installed across the site.

Health services cover occupational and emergency medicine as well as general preventative medicine. Counseling services offer employees support with work and performance-related issues, and answer questions on matters such as mental health. Among the additional items MTU offers are an on-site health club or special deals with gyms, physiotherapy, tips on ergonomics in the workplace and department-specific Health Days.

In 2013, we expanded the range of MTU departmental Health Days. The new structure is designed to ensure more sustainability, with the three-step modular concept (awareness, deepening of knowledge, self-reflection) stretching over three years. The Health Days program offers lectures from experts and activities in line with the individual needs of each department on topics such as nutrition, exercise, stress or relaxation.

MTU employees can rely on fast, optimum care even in emergency situations.

Health rate
LA7



We consider our effort to be successful if we are able to keep our health rate constant despite an aging workforce (since 2013 health rate including Rzeszów/ Poland).

A new addition to the program is a Health Day devoted to resilience—in other words, improving personal stamina and managing stress. This module will be offered for the first time in 2015. In Poland, a Health Week focusing on back, wrist and hearing issues is planned for 2015.

Health-related action days in the reporting period

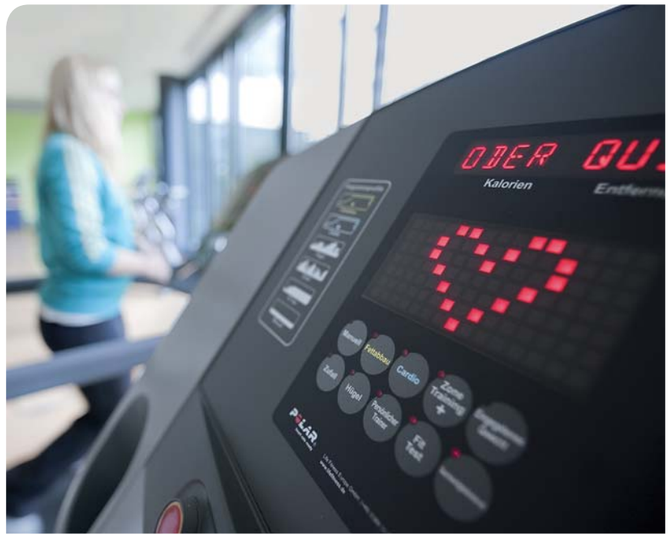
- Men's Health initiative (Munich, 2013)
- Coronary Health initiative (Munich, 2014)
- Health Day for Apprentices (Berlin, 2014)
- Health Week (Rzeszów, 2014)
- Health, Safety and Environment Day (Berlin, 2014)
- Fit for Future (Hannover, 2014)

The back coach and extended risk assessment pilot projects were continued in this reporting period and rolled out at other sites. A back coach observes work situations and analyzes employees' movements and posture in the workplace to help them identify daily activities that overtax the joints or result in poor posture. Together with the employee, a physiotherapist then develops methods to prevent these unhealthy practices and to encourage healthier behavior. To complement these measures, training in ergonomic seating positions was carried out covering a large area in the fall of 2013.

Extended risk assessment evaluates physical and psychological risk factors in the workplace. Managers work with their staff to develop and implement appropriate strategies for improving workplace health and minimizing possible negative factors. In Munich there have been six pilot teams since 2013, while a mental stress analysis was carried out in 13 departments in Hannover. The process is based on the recommendations of the German Federal Institute for Occupational Safety and Health. As an accompanying measure, the 2015 employee survey will be expanded to include mental health issues for the first time.

At the Munich site, vibration training is firmly established. Open to all employees, it gives them the opportunity to efficiently build up muscles in training courses near their workplace. MTU is unique among employers in the Munich region in offering vibration training for its employees.

Advice, prevention and campaigns to promote a healthy lifestyle all form part of the company's health management approach.



At MTU in Munich, there is a health club right beside the plant.

Highly motivated and qualified employees are essential in engine manufacturing.

5.3 Employee qualification, education and training

At MTU, we make it a priority to offer our employees a wide range of opportunities and avenues for personal development. Qualification of employees is established in the MTU Code of Conduct as a principle of corporate social responsibility. All MTU employees throughout Europe regularly receive an evaluation of their performance. To this end, management is required to conduct an interview with every single employee once a year about their training development. Our “campus” framework of staff training and career programs systematically covers all levels of employee development. The campus concept is about learning and continuous further development, and all employees can access the campus course schedule over the MTU intranet.

We want to strengthen trustful cooperation within the company and create open and constructive communication. Since 2013, a specially designed feedback tool has given managers at all levels throughout the company valuable input about their role and their personal opportunities for further development. Leadership Feedback is based on the MTU Competences, which are derived from the MTU Principles and describe the company’s main requirements for all managers. Using a multilingual online tool, compliance with these criteria is assessed by the managers, as well as their direct supervisors and the employees under their supervision. The entire feedback process is voluntary and anonymous and is supervised by an independent consulting firm. As an additional feedback tool, Team Barometer was launched in 2014. Unlike Leadership Feedback, the new tool is all about gauging the mood within a team. Managers meet with their teams in a workshop to collectively identify ways to improve how they work to-gether. For managers, Team Barometer provides regular feedback and is a useful supplement to the employee satisfaction survey.

Through a broad qualification drive in the reporting period, we have also deepened managers’ understanding of interrelationships in the financial economy and capital markets in order to bolster the business foundations of their thought and behavior. The Business Challenge initiative will be continued in 2015.

Qualification programs
- Building on Talent
- International Building on Talent
- International Leadership Program
- Leadership Feedback (new)
- Team Barometer (new)
- Business Challenge (new)

Employee qualification
LA10

Training days total

2011	21,141
2012	23,801
2013	21.507
2014	20,012

Training days per employee

2011	3.0
2012	3.4
2013	2.7
2014	2.5

Investment in further education and training* (EUR million)

2011	3.9
2012	4.2
2013	3.3
2014	2.4

* Excluding travel costs
MTU assumes the costs of continued training measures. As stipulated by a works agreement, supervisors are required to conduct an annual training interview with with each member of their staff.
Encompasses almost 90% of employees in entire MTU Group from 2013 following integration of the Rzeszów, Poland site in CR reporting.
Qualification of employees includes temporary agency employees and members of the cooperation with the German armed forces.

Apprentices at MTU
LA10

Number of apprentices at year end

2011	321
2012	328
2013	343
2014	381

Percentage of total workforce

2011	4.6
2012	4.5
2013	4.4
2014	4.9

Encompasses almost 90% of employees in entire MTU Group from 2013 following integration of the Rzeszów, Poland site in CR reporting.

At our newest location, Rzeszów in Poland, we are working on the introduction of long-term development programs for employees. In 2014, we also initiated training courses on compliance for units particularly affected by these issues and on employment law for managers. Around 20% of employees have already received training on these topics; if the demand is there, we want to continue these training courses at the site.

Investing in the future workforce
We see the fostering of new talent as an investment in the company’s future. We give trainees a solid grounding that goes beyond professional qualifications to include methodological, social and environmental components and transmits MTU’s corporate values. In this way, their training is designed to help them learn to embrace and embody the spirit of our corporate culture. Examples of such activities during the reporting period were the environmental and Health Days organized specifically for apprentices.

Traditionally, apprentices have always made up a large percentage of MTU‘s workforce. In 2014, they accounted for approximately 5% of the total workforce in Europe. As of the end of 2014, 381 apprentices were employed. All apprentices who successfully complete their training are offered a permanent contract with MTU.

MTU is actively involved in numerous educational projects and initiatives aimed at getting young people excited about technology and aviation and introducing them to science and technology professions:
- Training Night
- Science Exhibition in Hannover (IdeenExpo Hannover)
- Nature and Technology Days
- Long Night of Museums
- Teachers in Industry
- Work placements for high school students, discovery weeks
- Patronage of selected schools

In the reporting period, MTU Aero Engines Polska initiated a patronage arrangement with a vocational-technical school in Lezajsk. Within this arrangement, the theoretical education provided in the school will be more closely interwoven with practical work at the MTU site by means of workshops, internships for teachers and students in the plant, and the coordination of teaching content. The patronage is part of MTU Aero Engines Polska’s active cooperation with schools and universities to promote the give and take between business and education.

We place special emphasis on encouraging new generations of female talent, including measures aimed at schoolchildren and students (Girls’ Day, Research Camp for Girls)

> For more on this subject, see the Gender Diversity section in this chapter.

We are particularly active in fostering female talent, and provide support and encouragement through a variety of initiatives and models.

Knowledge management
MTU’s age structure, coupled with Germany’s shifting demographics, highlights the importance of knowledge management. This extends not only to top positions within the company or to individual specialists, but to a broad spectrum of posts in which MTU-specific knowledge must be safeguarded. We are responding to this demographic shift in a timely manner by continuously developing systems and methods. For example, valuable company know-how is being gathered together in electronic wikis, in which the store of knowledge is growing all the time. At the end of the reporting period, there were 49 wikis from different areas of the company. Our innovative work concepts ensure that key expertise is shared among employees of different generations, while also offering new models such as those easing the transition from work to retirement (part-time positions for older employees).

Our knowledge management strategy involves giving managers the support they need to identify which positions within their departments are of particular importance. Such positions are characterized by expertise that is unique to MTU, and by empirical knowledge built up over many years. Various measures designed to safeguard the wealth of MTU know-how have been introduced, such as a know-how buddy system and knowledge maps that help direct the exchange of expertise.

We place great emphasis on training specialist personnel ourselves.

As role models, our managers have a particular responsibility.

5.4 Diversity

MTU is committed to diversity and equal opportunities in the company and implements a variety of measures to establish the requisite structures and environment. For us, there is no better expression of diversity than employees of different generations, genders, cultures and countries all working side by side, not to mention integrating people with disabilities. When properly recognized and used, diversity within a company leads to higher performance and creativity.

Consequently, a diverse workforce enhances MTU's capacity for innovation and plays a decisive role in the company's future. MTU's Code of Conduct also explicitly commits the company to equality of opportunity and equal treatment for employees. In addition, we have enshrined the topic of diversity in the MTU Principles, where we set ourselves the goal of enhancing our innovative capability by employing a workforce that includes different cultures, different age groups and a broad base of specialist expertise. It is important for technology companies like MTU to recognize and make the most of employee potential.

Our commitments
- Charter of Diversity
- UN Global Compact
- Munich Memorandum for Women in Management

Managers have a particular responsibility here and should act as role models. Effective changes cannot be achieved by means of rules and targets alone; managers must support diversity in their area of responsibility and help incorporate diversity into everyday working life at MTU by creating a suitable working environment.

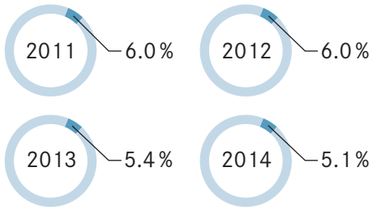
Against the backdrop of an aging population, individual employability becomes an important issue, and this includes the integration of employees with disabilities. In 2014, disabled employees made up 5.8% (2013: 5.1%) of the workforce at MTU's German locations. In Rzeszów, inclusivity is a major objective for MTU even without statutory requirements. Keeping all our employees healthy and able to work is a key part of expanding specialist and technical knowledge as well as of strengthening each individual's interpersonal and social skills.

As part of our occupational reintegration management, we help employees return to the workplace after an extended absence. At our Hannover site, we are testing a new model in a pilot project, which will also be introduced at the other MTU locations if successful.

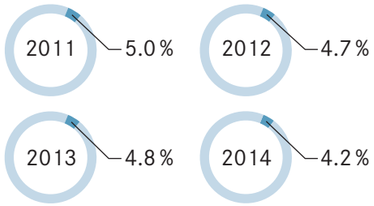
Cultural diversity
For MTU, internationality is not only an expression of diversity: it is typical for the engine business, which is strongly characterized by transnational cooperation at all stages, including development, manufacturing and maintenance. We are working to intensify internationalization through various measures. These include our international development programs, such as the International Leadership Program and International Building on Talent. Through the new International Leadership Program (ILP), MTU is expanding cooperation and communication among managers around the globe. The ILP consists of two training modules, each of which takes place at one of the MTU locations worldwide. Launched in 2013, the program sees international project teams working on tasks derived from the corporate strategy over a period of several months.

Nationalities
LA13

Total workforce



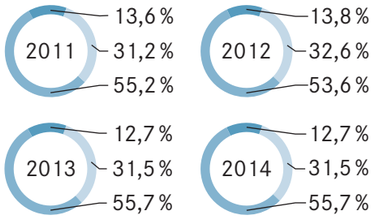
Managers



Percentage of foreign employees at the European locations at year end. Encompasses almost 90% of employees in entire MTU Group from 2013 following integration of the Rzeszów, Poland site in CR reporting.

Age groups
LA13

< 30 year olds
30-50 year olds
> 50 year olds
As a proportion of core workforce



Encompasses almost 90% of employees in entire MTU Group from 2013 following integration of the Rzeszów, Poland site in CR reporting.

We also offer intercultural training and, as a company that operates worldwide, we encourage employees to spend time working abroad during their education. Trainees and students on work-study programs have the opportunity to take part in international exchange programs. Lasting up to three months, the placement abroad takes place in the UK, Denmark, Finland, France, or the Netherlands depending on the particular studies and includes work at international partners and customers. Students on work-study programs can obtain a placement at an MTU site abroad.

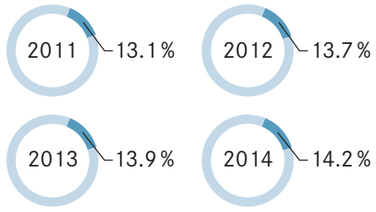
The vast majority of employees at each site come from the surrounding area and we employ local managers wherever possible. As a high-tech company, MTU needs specialist knowledge and innovative strength. Our success is built on the collective force of our employees' skills, knowledge, strengths and attitudes. We rely on our managers, both at local and non-local levels, to set the tone. At the MTU site in Poland, the management positions are filled almost exclusively by local personnel (80%). In Europe, the proportion of foreign employees in management positions was 4,2% in 2014.

Our knowledge management system helps us keep valuable know-how within the company.

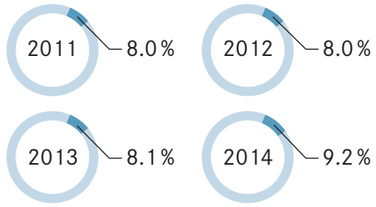
Gender diversity
The value of equal opportunities is something we consider to be self-evident. Remuneration levels and promotion prospects are determined solely by the job to be performed; qualifications are the deciding factor, not gender. This was confirmed by an internal screening we carried out. In order to better unlock talent and innovation potential, we have specific policies that foster the placement of women in technical and management roles and encourage the hiring of new female employees. At the end of 2014, women made up 14.2% of the total European workforce (2013: 13.9%). When it comes to the hiring of young employees in Germany, the figures are even more heartening: the proportion of women increased over the past few years to reach around a third of newly filled positions. For management positions, the figure was 9.2% in Europe at the end of 2014.

Women in management position
LA13

Total workforce



Managers



Encompasses almost 90% of employees in entire MTU Group from 2013 following integration of the Rzeszów, Poland site in CR reporting.

Company policies specifically foster the placement of women in technical and management roles and encourage the hiring of new female employees.

A career program for women comprises measures that will take time to bear fruit. The principal focus is on securing more female talent for the company and offering female employees better support throughout their career journeys through mentoring programs and career advice. MTU has undertaken to significantly increase the proportion of female employees at the company, including at management level. With our targeted employer branding strategy and the continuation of our measures and programs, we are committed to bringing about long-term change.

Our programs and initiatives promoting the advancement of women
- Munich Memorandum for Women in Management
- Cross-Mentoring Munich (a program organized by the city of Munich)
- The MTU “Studienstiftung” foundation to support young women studying for engineering and scientific careers
- Germany-wide Girls’ Day
- Research Camp for Girls in Bavaria
- Engineers in High Heels
- The “Niedersachsen Technikum” initiative to encourage young women to study STEM (science, technology, engineering and mathematics) subjects

At MTU’s site in the southern Polish city of Rzeszów, MTU Aero Engines Polska launched a new initiative to promote the advancement of women. Kicking off the initiative was an event aimed at female students at the academic high school in Rzeszów, who were given an inside look at technical professions at the company. The event took place as part of the European “Innovative Economy” project.

In 2014, the third-ever meeting of MTU’s German female management staff took place in Munich. On the agenda were presentations and discussions on the topics of diversity and innovation along with reflection on their own leadership role. The meeting helped female managers to network better with each other. In addition, meetings with external groups and MTU managers facilitated discussion and exchanges on diversity within the company. Over ten years ago now, MTU set up a non-profit foundation, the MTU “Studienstiftung,” with the aim of actively supporting the personal development of female students in the STEM disciplines (science, technology, engineering and mathematics) and preparing them for their careers. In addition to providing extensive professional and personal counseling, the foundation also functions as a platform for dialog and exchange. It encourages young women to make the most of their strengths in technical disciplines, thereby supporting MTU’s goal of raising the percentage of women in technical professions.

www.mtu-studien.stiftung.org

Our goal is to significantly increase the proportion of female employees at the company–both in management and in the workforce in general.

Work-life balance
MTU has a variety of offers designed to help its employees achieve a healthy work-life balance and is increasingly focused on responding to their different life phases and particular needs. These offers include:
- Flexible working hours and flextime accounts
- Part-time employment in over 50 models
- Educational leave (new from 2013)
- Teleworking
- Sabbaticals
- Part-time work for older employees
- Job-sharing
- Services that assist families (e.g. childcare, nursing services)
- Mobile working (new from 2015)

We want to press further ahead with our work-life balance goals. Consequently, we regularly monitor our offers and constantly expand and develop them in order to increase the amount of control employees have over their time and the amount of decision-making flexibility they enjoy. During the reporting period, for example, we created a measure that gives employees an opportunity to take educational leave. It is designed to support MTU employees in their individual professional development path or in achieving their career reorientation goals. The part-time model for educational leave is flexible and can be used for up to 36 months–in exceptional cases, for even longer.

In 2015, MTU concluded a works agreement on mobile working for selected job categories at the Munich location. We have taken this step in order to lay an important foundation for greater autonomy and personal responsibility within MTU’s working environment. The new model to create greater flexibility in when and where employees work is currently in force in pilot areas and is due to be further expanded following the trial period.

Our main topics:
science & education

- 24 centers of excellence and partnerships with universities
- Apprentices 4.9% of workforce in 2014
- Donations and sponsorship for almost 80 projects in 2014

6 Commitment to society

6.1 Management approach

"MTU acknowledges its social responsibility outside of the company." MTU views itself as a corporate citizen, a self-image that we find enshrined in our MTU Principles. As a corporate citizen that takes an active role in the regions in which it operates, the company accepts responsibility for the common good. This includes ensuring that we comply with applicable laws and regulations in all our business activities. A binding Code of Conduct sets out the ethical principles that provide a foundation for employees across the entire organization. These principles impact society by serving to minimize the risk of corruption and unlawful conduct within the company. MTU also has a central Compliance Board to deal with such issues. Our Code of Conduct establishes rules governing our relationships with competitors and business partners. MTU complies with all applicable commercial and antitrust laws, as well as the relevant regulations on pricing, competition and consumer and data protection.

Our Code of Conduct

At our four European sites in Germany and Poland, MTU is a key employer and provider of training in the region, offering attractive jobs and training opportunities at a fast-paced, high-tech company. We promote diversity in the workforce and aim to permanently increase the proportion of women in the company. The number of trainees within the company has traditionally been high, particularly at the German sites. Our site in Rzeszów has only been operational since 2009. We offer all our trainees a permanent job once they have completed their apprenticeships.

We opt for long-term working arrangements and are always striving to develop our sites, whether it is investing in new equipment for our production facilities or to qualify our staff. In 2014, we invested a total of 2.3 million euros in the education of our employees in Europe. 2014 also saw the opening of a new MTU logistics center in Munich, representing a local investment of around 10 million euros and securing jobs in the area. During the reporting period, work also commenced to expand the site in Poland, an investment of approximately 40 million euros that will enable us to increase our capacity and provide more employment opportunities.

Our commitment to society focuses on research, education and training activities. In a technologically advanced industry such as aviation, maintaining a continuing dialog with the scientific community and harnessing the latest research developments is fundamental to our research and development work. In terms of corporate responsibility, our focus lies on product innovation, eco-efficient en-gines and product safety–areas in which we are able to help make aviation a safer and more sustainable mobility solution. Our active pursuit of research collaborations takes high priority on the materiality matrix of key sustainability topics, just as it does for our stakeholders. And it is by linking our commitment to education with our core business that we do the most to help advance our society.

> For a materiality matrix and analysis, please see Chapter 1.

Our active commitment to research and education also strengthens our contact with potential new recruits. We maintain numerous close partnerships with universities and research institutions, and have established competence centers across Germany, each with their own specialized area of research. We also established a chair in structural mechanics in aircraft engines at the University of Stuttgart.

> For more information, please refer to the Research & training section of this chapter.

We use the resources available to us to do what we can to serve the community and support projects on a local and regional scale, working to promote, sponsor, and provide ac-cess to a network of contacts. This contribution is geared toward the long term and includes our employees' corporate volunteering activities. We actively seek out dialog on a regional level to provide information about our activities in a transparent manner. Similarly, our collaboration with local authorities and associations is based on mutual trust. Tours of our production facilities provide insights into the company, as do regular opportunities for the public to visit our company museum. Visiting groups cover the whole range of stakeholders relevant to us.

Our stakeholder groups also include representatives from the German, European and world political communities. Activities within this political dialog are managed in compliance with existing laws and guidelines, as well as with our Code of Conduct, and we adopt a non-partisan approach.

> Learn more about the groups we are in contact with on p. 44 ff.

Corporate citizenship as we understand it also means protecting the environment around our sites. We endeavor to avoid any negative environmental impact on the surroundings, or at least to limit it as much as possible. We inform the public about the ecological impact of our operations through initiatives such as the environmental impact assessments published yearly for Munich and Hannover, our two biggest sites. All engine test rigs are fitted with sophisticated soundproofing to keep noise emissions as low as possible. Once again there were no complaints from residents in 2013 and 2014. We run all our engine production and maintenance facilities in accordance with the requirements imposed by our official permits.

MTU fulfills all legally imposed thresholds and submits regular measurements to the authorities to verify compliance. This applies equally to our intake and discharge of ground water, where numerous samples have shown that results are often well below the prescribed limits.

> For details about environmental protection, please see Chapter 5, p. 44 ff.

MTU also has a management plan in place to cope with accidents and emergencies, ensuring maximum safety for employees and residents in critical situations. This includes regular staff drills and instruction on what to do in case of an emergency. MTU has comprehensive fire protection measures in place that implement all legal directives on fire protection.

During the reporting period, no relevant or reportable environmental incidents or events took place at any MTU production facilities. Similarly, no environmental fines were levied against the company.

We endeavor to limit any negative environmental impact on the surroundings: Our engine test rigs are fitted with sophisticated soundproofing equipment in order to reduce noise emissions.

6.2 Research & training

Collaborating with universities and research institutes is a mainstay of our research and development work and a clear area of priority if we are to fulfill our obligations to society. We create strategic alliances with research partners to foster the links between universities and industry and to safeguard MTU's capacity for innovation. Together with its partners from the scientific community, MTU runs six competence centers across Germany, each with its own research focus.

Together with its partners, MTU founded the internationally oriented think tank Bauhaus Luftfahrt e.V, which conducts unconventional, holistic and interdisciplinary research and in which industry and research work together under one roof. Main topics include the study of the socio-economic, political and environmental aspects of aviation, the design of visionary aircraft concepts, the search for future technologies, and knowledge management.

The company also offers support to young scientists in the form of the MTU "Studien-Stiftung" foundation, which assists talented young women studying in the scientific and technical fields. Our aim is to help them to further develop their career-relevant, personal and methodical skills as well as to learn to make the most of their strengths. In addition to financial support, the foundation offers professional and personal advice to help students launch their careers. In 2014, we organized the 14th annual development course for 16 female students. Over two days, the participants had the opportunity to learn about the multidisciplinary qualifications required for future employment and network with interesting contacts.

MTU research specialists are often invited to give lectures and guest presentations at universities. Groups of students from German and international universities regularly visit MTU to gain insights into the workings of an industrial company. The company offers students the opportunity to write their bachelor, master or Diplom theses or doctoral dissertations at the company, and offers internships and work student positions. Lectures given by MTU specialists at Brandenburg Technical University in Cottbus make up a significant part of the only engine technology degree course offered in Germany.

The company awards the annual Wolfgang Heilmann Prize, named after the former head of development at MTU and professor at the University of Karlsruhe, to young researchers active in the field of aircraft engines.

As an industrial sponsor of the renowned Deutscher Journalistenpreis für Luft- und Raumfahrt, awarded each year to a non-specialist journalist writing on aerospace topics, we also help to ensure that topics and trends in the aerospace sector are communicated to the public in a balanced and appropriate way.

Cooperation with universities and centers of competence

Centers of competence

RWTH Aachen
Compressor technology

Uni & LZ Hannover
Maintenance Repair Overhaul

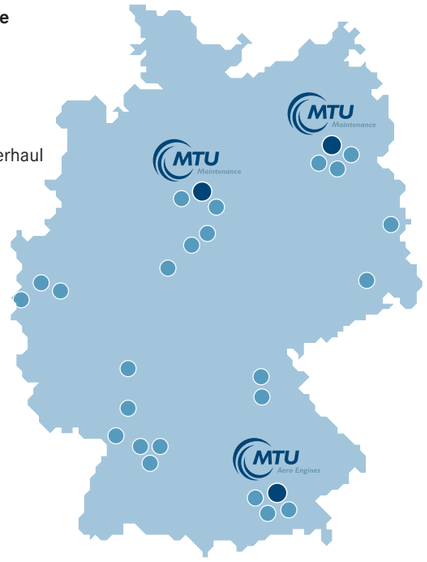
DLR Cologne
2010 plus engine

Bauhaus Luftfahrt
Munich
Future concepts

TU Munich
Structural design and production

UniBW Munich
More Electric Engine

University of Stuttgart
Turbine technology



Cooperation with universities

BAM Berlin
DLR Berlin
TU Berlin
TU Braunschweig
BTU Cottbus
TU Darmstadt
TU Dresden
Uni Erlangen
FHG Fürth
TU Göttingen
TU Hannover
TU Heidelberg
KFA Jülich
TH Karlsruhe
Uni GH Kassel
DLR Stuttgart
MPA Stuttgart

Well-grounded training

Offering equal opportunities is one of our top priorities. We are committed to providing open access to training opportunities, which we believe should first and foremost provide our own young employees with a solid grounding in their chosen profession. Our investment in their comprehensive training not only covers their professional qualification but also the social issues and attitudes that contribute to their development as individuals within our corporate culture. We familiarize our trainees with all aspects of business and working life, such as health, environmental protection, social values and our no-blame culture. MTU is also active in numerous education projects and initiatives focusing on children and young people, activities that further an understanding of technology and sustainability.

> For more on our education initiatives, see pages 64-65.

6.3 Corporate citizenship

An internal MTU directive has set out clear rules governing sponsorship and donations. MTU supports social institutions that contribute to community life—as a rule, these are non-profit organizations that preferably have a socio-cultural remit. Specific projects take priority over general institutional funding. Each organization selects and carries out its work independently, since familiarity with local conditions is essential to long-term efforts that have a genuine impact. We select our projects carefully and do our own research to assure ourselves that the organization is acting strictly in the common interests of the public. One thing we look for is that the project in some way relates to the company, be it on a regional, local or thematic level. Local activities are approved centrally by Corporate Communications and Public Affairs. This approach ensures compliance with the rules. In 2014, we supported almost 80 projects in total with cash or in-kind donations. In addition, MTU provides honorary judges for labor and social welfare courts, or examiners for Chamber of Industry and Commerce exams.

Examples of our commitment to society 2013/2014

- Funding of the parent-run initiative day-care center TurBiennchen e.V., Munich
- External rescue operations carried out by MTU's on-site fire brigade, Munich
- Support for flood victims in the Philippines
- Support for Wings of Help, a project emergency aid for refugees
- Support for "Die Arche" ("The Ark"), a project devoted to improving the lives of children, Potsdam near Berlin
- Support for Irenechildren's home, Hanover
- Support for Fundacja Wspierania Edukacji Stowarzyczeniv Dolina Lotnicza, Rzeszów

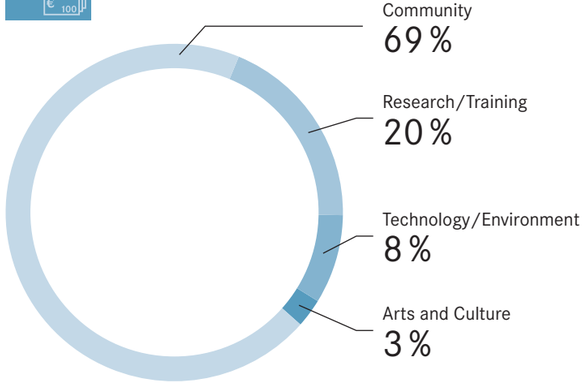
MTU supports greater compatibility of familiy and working life with a variety of measures such as providing a childcare place near the company ground at Munich.

Civic engagement: the plant fire brigade also participates in operations off of the company premises.

MTU employees regularly involve the company in their charitable activities. MTU supports their dedication to a good cause by providing our employees with paid leave if, for example, they choose to run in charity races or participate in operations coordinated by the German Federal Agency for Technical Relief.

Our commitment to corporate citizenship is centered on a long-term strategy, and is consistent with our understanding of social responsibility. Given the difficulty of measuring such activities and their effectiveness in the short term, we have yet to implement a system for monitoring our progress.

Donations and Sponsorship in 2014



2013-2014 goals and goal attainment

(based on the reporting period)

Strategy/Economics

	Goal	Status/Deadline	Comment
Dialog with stakeholders	→ Option of contacting the employee responsible for CR directly by e-mail to ask questions related to CR	Achieved	We are continuously renewing this offer.
	→ Stakeholder survey on sustainability performance and sustainability communication has been launched	Achieved	We are continuously renewing this offer.
	→ Better access to sustainability information based on an integrated report in accordance with the GRI standard and the principles of the UN Global Compact	Achieved	This Sustainability Report complies with GRI 3.1 and integrates the UN Global Compact Communication on Progress.
Compliance	→ Regular compliance audits to ensure business processes → comply with laws and guidelines	Ongoing	
	→ Employee training	Ongoing	Expansion of the program to include the location in Rzeszów in Poland. In 2015, we are training employees in Germany (refresher courses) and in North America.
Sustainability management and sustainability communication	→ Location in Rzeszów in Poland has obtained CR qualification within the MTU Group (training of local CR coordinators)	Achieved	
	→ Focus of CR report expanded to include all of Europe	Achieved	
	→ Further expansion of reporting to include locations outside Europe	Ongoing	Started for environmental reporting
	→ CR reporting in accordance with G4	From 2016	Preparation workshop in 2014
	→ Launch of CR training for employees	2016	Available to selected HR and purchasing employees
	→ Inclusion in the Dow Jones Sustainability Indices	2015	
	→ Listing in external sustainability ratings	Ongoing	
Supplier management	→ Mandatory code of conduct for suppliers	Achieved	
	→ Amendment of purchasing guidelines and supplier contracts to include provisions for conflict minerals under the Dodd-Frank Act (reporting and disclosure standards requiring companies to disclose the country of origin of the raw materials)	Achieved	
	→ Annual request to all suppliers for information related to compliance with the Dodd-Frank Act	Ongoing	

Product responsibility

	Goal	Status/Deadline	Comment
Climate strategy*	→ Reduction in CO_2 emissions according to our Clean Air Engine technology agenda: → 15% reduction in CO_2 emissions through first Geared Turbofan generation	2015	
	→ 20% reduction in CO_2 emissions through second Geared Turbofan generation	2025	
	30% reduction in CO_2 emissions through third Geared → Turbofan generation	2035	
Aircraft noise	→ 20 dB reduction in noise emissions (cumulative, measured against the ICAO's latest, most stringent 'Chapter 4' noise standard) through first Geared Turbofan generation	2015	
	→ -11 dB by 2035 (according to SRIA)	2035	
	→ -15 dB (corresponds to -65%) by 2050 (according to SRIA) (both figures compared to 2000 baseline)	2050	
Alternative fuels	→ Supporting the introduction of sustainable fuels with MTU engine expertise via participation in research projects, studies and practical tests	Ongoing	
Product quality and safety	→ Successful completion of monitoring and recertification audits for quality management systems	Ongoing	

* The year 2000 is the baseline for climate strategy targets

Environmental management in production

	Goal	Status/Deadline	Comment
Reducing consumption of energy and resources	→ 25% reduction in CO_2 emissions at Munich plant as part of Clean Air Industrial Site program (compared to year 1990)	2020	
	→ Reduction in resource consumption and CO_2 emissions from business trips through increased use of modern communication technologies such as video and phone conferencing	Ongoing	
Energy conservation measures	→ Reduction in energy needed to run buildings	Ongoing	Compared to existing buildings, MTU's new buildings used approx. 1,520 MWh less electrical energy overall in 2012/2013, saving around 310 t of CO_2 a year.
	→ Renovation and replacement of lighting installations	Ongoing	Power savings in production halls of 270 kWh and 138 t CO_2 a year
	→ Switching off machines and systems during longer stoppages	Ongoing	Savings of electrical energy of 1,710 MWh and 920 t CO_2
	→ Savings through measures to improve efficiency in compressed air generation	Ongoing	Reduced power consumption, savings of approx. 83 MWh and 45 t CO_2
	→ Use of groundwater for cooling	Ongoing	Reduced CO_2 emissions of around 3,900 t a year compared to conventional cooling
	→ Employee training courses on sustainable resource consumption and the company's environmental activities	Ongoing	
Material efficiency	→ Sustainable manufacturing concepts: applying new laser-based additive manufacturing techniques to make series-produced components directly from a powder bed using CAD data. Significant reduction in → the amount of material used	Ongoing	We plan to widen the range of parts manufactured by additive methods.
	→ Development of materials such as titanium aluminide with improved temperature resistance and weight, leading to less fuel consumption and lower pollutant emissions	Ongoing	
Material consumption	→ Implementation of EU's REACH regulation →	2017	Implementation is progressing according to plan at all the MTU Group's European locations; the company's sites outside Europe are not affected by these regulations.
Sustainable construction	→ Inauguration of new energy-efficient buildings: the logistics hall in Hannover and the logistics center in Munich	Achieved	
	→ Expansion of Rzeszów site in Poland	2015	
Environmental certifications	→ Certifications to ISO 14001 and EMAS validation	Annually	The Hannover and Ludwigsfelde sites are certified to ISO 14001; the Munich and Hannover sites have EMAS validation.
	→ Annual environmental statements for biggest locations, Munich and Hannover, documenting observance of EMAS requirements in accordance with Regulation (EC) No. 1221/2009 of the European Parliament	Ongoing	

Employees

	Goal	Status/Deadline	Comment
Occupational safety	→ Target: 21 (2013)/14 (2014) reportable workplace accidents max. within the MTU Group; actual: 24 (2013)/27 (2014)	88% goal attainment in 2013 52% goal attainment in 2014	The goal for 2014 was clearly missed as a result of an upward trend in accidents at the Munich location.
	→ Extended risk assessment to be conducted at all company locations in Germany	Partly achieved	The method has been reviewed at all German company locations and will be applied on a case-by-case basis as actually needed.
	→ Occupational safety campaign	Ongoing	
	→ Monitoring and recertification audits in accordance with OHSAS 18001 passed within the MTU Group at company locations that are already certified	Achieved	From 2015 on, the Munich location will no longer seek certification in accordance with OHSAS 18001.
Occupational health	→ Vibration training offered to all employees in Munich	Achieved	We are continuously renewing this offer.
	→ Expansion of health management services to company locations outside Germany	Partly achieved	Initial steps have been taken, and the offers are now being harmonized.
	→ "Good leadership practices to promote employee health" established	Achieved	The topic is integrated in the company's health management program.
	→ Back Health Coach services on offer to help with the ergonomic design of the workplace	Achieved	We are continuously renewing this offer.
	→ Cooperation with Ludwig-Maximilians-Universität (LMU) in Munich on vibration training for older employees (45+ project)	Achieved	
	→ Initiatives in place to promote a healthy diet	Ongoing	
	→ Development of control metrics for more specific measures to maintain the health and improve the ability to perform of all employees	2015/2016	
	→ Inclusion of a set of questions relating to mental health in the employee survey	2015	
MTU as an attractive employer	→ Employer branding with a stronger international focus	Ongoing	
	→ Further development of work-life balance offer	Ongoing	
	→ Top Employer awards in Germany and in Poland	Annual	
	→ Partner of the "Sommerkinder" holiday childcare program	Ongoing	
	→ Independent agency service for home assistance	Ongoing	Offers are constantly being reviewed and further developed.
	→ New offers for employee mobility	Ongoing	Since 2015, we have offered transit tickets e.g. for employees in Munich.
	→ Launch of Mobile Work pilot project	2015	
Diversity	Marked increase in the percentage of female employees and of women in management positions	Ongoing	
	→ Participation in initiatives designed to promote young female talent, such as the Girls' Day or Camp for Female Researchers	Ongoing	
Training and continued training	→ New qualification offers to add further momentum to the company's international drive	Partly achieved	Expansion of international cooperation as part of the International Building on Talent program
Employer/employee dialog	→ Employee surveys at the European company locations, with further developments being based on the insights gained from the last surveys conducted	2015	
	→ Company improvement suggestion scheme to put employees' ideas for improvement into practice	Ongoing	
	→ MTU Award to honor outstanding employee performance	2015	Every other year

Commitment to society

	Goal	Status/Deadline	Comment
Continuation of current social commitment measures	→ Making it easier for employees to do volunteer work, such as taking part in charity runs or helping out in missions by the German Federal Agency for Technical Relief	Ongoing	
Investing in future workforce	→ MTU foundation for female students in science and → technology courses	Ongoing	
	→ Award to support young scientists	Annually	
Sponsoring science journalism	→ Sponsoring the Deutscher Journalistenpreises für Luft- und Raumfahrt (German aerospace journalism award)	Annually	

GRI Content Index • Profile

1. Strategy and Analysis

GRI-Indicator	GC Principle	Reported		Reference*
1.1	1-10	--	Statement from the Board of Management	SR 2013/2014, p. 5
1.2		--	Description of key impacts, risks, and opportunities	SR 2013/2014, p. 23 AR 2014, pp. 115ff.

2. Organizational Profile

GRI Indicator	GC Principle	Reported		Reference*
2.1		--	Name of the organization	SR 2013/2014, p. 8
2.2		--	Primary brands, products, and services	SR 2013/2014, p. 8-9
2.3		--	Operational structure of the organization	AR 2014, pp. 64-65
2.4		--	Organization's headquarters	SR 2013/2014, p. 9
2.5		--	Countries where the organization operates	AR 2014, pp. 65
2.6		--	Nature of ownership and legal form	AR 2014, pp. 22, SR 2013/ 2014, p. 8
2.7		--	Markets served	AR 2014, p. 148
2.8		--	Company profile/Scale of the organization	SR 2013/2014, p. 8-9
2.9		-- --	Significant changes regarding size, structure, and ownership	Transformation of MTU Aero Engines Holding AG into MTU Aero Engines AG
2.10		--	Awards	SR 2013/2014, p. 22, 43, 50, 59

3. Report Parameters

GRI-Indicator	GC Principle	Reported		Reference*
3.1		--	Reporting period	2013/2014
3.2		--	Date of most recent previous report	2013 according to GRI, 2014 communication on progress UNGC
3.3		--	Reporting cycle	SR 2013/2014, p. 7
3.4		--	Contact point for questions regarding the report	SR 2013/2014, Contact information on p. 3
3.5		--	Process for defining report content	SR 2013/2014, p. 6, 11-13
3.6		--	Boundary of the report	SR 2013/2014, p. 6
3.7		--	Limitations on scope of the report	SR 2013/2014, p. 6
3.8		--	Basis for reporting on joint ventures	SR 2013/2014, p. 6
3.9		--	Data measurement techniques and the bases of calculations	SR 2013/20142012, p. 7
3.10		--	Re-statements of information	SR 2013/20142012, p. 6
3.11		--	Changes from previous reporting periods in the scope, boundary, or measurement methods	SR 2013/20142012, p. 6
3.12		--	GRI Content Index	SR 2013/2014, pp. 80
3.13		--	External assurance for the report	SR 2013/2014, p. 7

4. Governance, Commitments, and Engagement

GRI-Indicator	GC Principle	Reported		Reference*
4.1	1-10	--	Corporate governance/Governance structure	AR 2014, pp. 28ff.
4.2		--	Independence of Chair of Supervisory Board	AR 2014, p. 30
4.3		--	Number of members of the highest governance body that are independent	AR 2014, p. 30
4.4		--	Co-determination right of employees and shareholders	SR 2013/2014, pp. 16-18, 57-58
4.5		--	Linkage between compensation for Board of Management and the organization's sustainability performance	AR 2014, pp. 33ff.
4.6	10	--	Processes in place to ensure conflicts of interest are avoided	AR 2014, p. 30, SR 2013/ 2014, p. 14
4.7	1-10	--	Qualifications of the members of the highest governance body in relation to sustainability topics	SR 2013/2014, pp. 11-14
4.8	1-10	--	Statements of mission or values, codes of conduct, and principles relevant to sustainability	SR 2013/2014, pp. 13-14
4.9	1-10	--	Oversight of sustainability performance and risks by the Board of Management	SR 2013/2014, pp. 11-14
4.10	1-10	--	Evaluating the highest governance body's own performance, particularly with respect to sustainability	AR 2014, pp. 33ff.
4.11	7	--	Explanation of whether and how the precautionary approach or principle is addressed by the organization	AR2014, pp. 115ff, SR 2013/2014, p. 23
4.12	1-10	--	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses	SR 2013/ 2014, pp. 14, 19, 26, 35, 36, 46, 66, 74
4.13	1-10	--	Memberships in associations and advocacy organizations	SR 2013/2014, p. 19
4.14	1-10	--	Stakeholder groups engaged by the organization	SR 2013/2014, pp. 16-19
4.15		--	Basis for selection of stakeholders	SR 2013/2014, pp. 16-19
4.16		--	Approaches to stakeholder engagement	SR 2013/2014, pp. 16-19
4.17	1-10	--	How the organization incorporates and addresses queries and concerns on the part of stakeholders	SR 2013/2014, pp. 16-19

Economic

GRI-Indicator	GC Principle	Reported		Reference*
	1, 4, 6, 7		Management approach	SR 2013/2014, pp. 11-15, 21-22, 23
EC1		--	Direct economic value generated and distributed	SR 2013/2014, p. 22
EC2	7	--	Financial implications of climate change	SR 2013/2014, p. 23
EC3	1, 6	--	Organisation's defined benefit plan obligations	SR 2013/2014, p. 58
EC7	6	--	Local hiring and proportion of senior management hired from the local community	SR 2013/2014, pp. 66-67
EC8		--	Development and Impact of infrastructure investments and services	SR 2013/2014, pp. 73, 74-75

GRI= Global Reporting Initiative
GC= United Nations Global Compact
*SR 2013/2014 = Sustainability Report 2013/2014
AR 2014 = Annual Report 2014, Page numbers refer to the print version

-- This indicator is reported in full
- This indicator is partially reported

GRI Content Index • Indicators

Environmental

GRI-Indicator	UN-Principle	Reported		Comment	Reference*
	7, 8, 9		Management approach		SR 2013/2014, pp. 45-47
EN1	8	–	Materials used by weight or volume		SR 2013/2014, p. 54
EN3	8	--	Direct energy consumption		SR 2013/2014, p. 49
EN4	8	--	Indirect energy consumption		SR 2013/2014, p. 49
EN5	7, 8, 9	--	Energy savings		SR 2013/2014, pp. 48, 50-51, 77
EN6	8, 9	--	Energy-efficient products and services		SR 2013/2014, pp. 32-33
EN8	8	--	Total water withdrawal		SR 2013/2014, p. 52
EN16	8, 9	–	Direct and indirect greenhouse gas emissions		SR 2013/2014, p. 50
EN18	7, 8, 9	--	Initiatives to reduce greenhouse gas emissions and reductions achieved		SR2013/2014, pp. 33-36, 50-51
EN20	8	–	NO_X, SO_X and other significant emissions	VOC emissions data for 2013 and 2014 are not available for all reporting sites.	SR 2013/2014, p. 50
EN21	8	--	Total water discharge		SR 2013/2014, p. 52
EN22	8	--	Total weight of waste by type and disposal method		SR 2013/2014, p. 55
EN26	7, 8, 9	--	Initiatives to mitigate environmental impacts of products		SR 2013/2014, pp. 32-39, 54
EN28	8	--	Significant fines and sanctions for non-compliance with environmental laws		SR 2013/2014, pp. 46
EN30	7, 8, 9	–	Environmental protection expenditures and investments		SR 2013/2014, pp. 31, 47

Labor

GRI-Indicator	GC-Principle	Reported		Comment	Reference
	1, 2, 3, 6		Management approach		SR 2013/ 2014, pp. 57-59
LA1		–	Total workforce by employment type, employment contract, and region	Information concerning the percentage of female employees categorized by type of employment and contract is regarded as confidential.	SR 2013/ 2014, pp. 57-58
LA4	1, 3	--	Collective bargaining agreements		SR 2013/ 2014, p. 58
LA6	1	--	Occupational health and safety committees		SR 2013/ 2014, p. 60
LA7	1	–	Rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities		SR 2013/ 2014, pp. 61
LA8	1	--	Education, training, counseling, prevention, and risk-control programs in relation to serious diseases		SR 2013/ 2014, pp. 62-63
LA10		–	Education and further training measures	Training days and costs are not broken down by gender and employment type. We consider these data confidential.	SR 2013/ 2014, pp. 64-65, 73
LA11		--	Skills management and lifelong learning		SR 2013/ 2014, p. 65
LA12		--	Regular performance and career development reviews		SR 2013/ 2014, p. 64
LA13	1, 6	–	Diversity of employees and governing bodies	Information concerning the percentage of female employees categorized by type of employment, contract or age groups is regarded as confidential.	SR 2013/ 2014, pp. 66-68

Human Rights

GRI-Indicator	GC-Principle	Reported		Comment	Reference*
	1-6		Management approach		SR 2013/2014, p. 13-15, 57-59
HR2	1-6	--	Supplier screening on human rights		SR 2013/2014, p. 15, 26-27
HR4	1, 2, 6	--	Discrimination		SR 2013/2014, p. 15, 57-58
HR6	1-5	--	Operations with significant risk for incidents of child labour		SR 2013/2014, p. 15, 57-58
HR7	1-5	--	Operations with significant risk for incidents of forced and compulsory labour		SR 2013/2014, p. 15, 57-58
HR8	1, 2	--	Security personnel training on aspects of human rights that are relevant to operations	100% Service provider employees are also given relevant instructions.	
HR11	1, 2	--	Number of grievances related to human rights		SR 2013/2014, pp. 15, 57-58

Society

GRI-Indicator	GC-Principle	Berichtet		Comment	Reference*
	10		Management approach		SR 2013/2014, pp. 71-72
SO2	10	--	Business units analyzed for risks related to corruption		SR 2013/2014, pp. 23-25
SO3	10	--	Employee training regarding anti-corruption		SR 2013/2014, p. 24
SO4	10	--	Anti-corruption measures		SR 2013/2014, pp. 23-25
SO5	10	--	Public policy positions and participation in public policy development and lobbying		SR 2013/2014, p. 19
SO6	10	--	Financial contributions to political parties and politicians		SR 2013/2014, p. 19
SO8		--	Fines for non-compliance with laws		SR 2013/2014, pp. 23-24
SO9		--	Significant potential or actual negative impacts on local communities		SR 2013/2014, pp. 71-75
SO10		--	Prevention and mitigation measures implemented		SR 2013/2014, pp. 71-75

Product Responsibility

GRI-Indicator	GC-Principle	Reported		Comment	Reference*
	1, 8		Management approach		SR 2013/ 2014, pp. 29-31
PR1	1	--	Life cycle stages in which health and safety impacts of products and services are assessed		SR 2013/ 2014, p. 39
PR3	8	--	Product and service information required by procedures		SR 2013/ 2014, p. 39-40
PR5		--	Customer satisfaction		SR 2013/ 2014, pp. 42-43
PR8	1	--	Data protection	There were no notifiable breaches of data protection in 2013 and 2014.	SR 2013/ 2014, p. 24
PR9		--	Significant fines	none	SR 2013/ 2014, p. 31

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Financial Reports of MTU Aero Engines AG

UN Global Compact

Global Reporting Initiative (GRI)