

Sustainability Report

supplementing the 2020 Annual Report



We are shaping the future.
With innovation and precision.



AIXTRON

Our technology. Your future.

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Dr. Jochen Linck, Dr. Bernd Schulte and Dr. Felix Grawert · Executive Board of AIXTRON SE



*“AIXTRON is promoting energy efficiency –
with our technologies, and with the products
our customers make such as LED
and power semiconductors.”*

Foreword

Ladies and Gentlemen,

Even though the past year was significantly influenced by the COVID-19 pandemic, we managed to achieve all our economic targets, including revenues of EUR 269 million (+4% on previous year) and a net result of around EUR 34 million (+6% on previous year). These figures underline the strength of our sustainable business model. In 2020, we were once again the leading provider of deposition equipment for the production of compound semiconductors according to our estimates.

As part of our business model, sustainability is a constituent component of our corporate strategy. Climate protection is an important aspect of our efforts and, given advancing climate change, is more relevant than ever. Our climate neutrality already shows how important this is to us.

We are now working to gradually extend our climate balance sheet by directly identifying and including further CO₂ emissions. This way, we can take suitable measures to actively reduce these emissions in future as well. It goes without saying that this is more of a marathon than a sprint.

Along the value chain, the impact of our technologies is also becoming apparent. Our customers use our equipment to develop and manufacture power and optoelectronics devices. Most of these are used to replace conventional chips. Given their enhanced efficiency, they are actively contributing to reducing CO₂. This means that, for us, sustainability already begins on the level of research and development.

The COVID-19 pandemic nevertheless shows that sustainable actions are required on numerous levels. This report, which is based on the requirements of the non-financial declaration and GRI standards, describes what measures we took, what success we had in the past fiscal year, and our targets for the future. In 2020, we initiated and implemented a whole series of measures and further shrank our ecological footprint while also meeting our responsibility towards our employees, society, and other stakeholders. Alongside environmental protection, these measures include investments in data security and IT infrastructure, as well as the further development of our HR processes.

Our employees are a key pillar of our company's success. With the dedication, creativity, and enthusiasm they show each day, they contribute to our leading position and our outstanding solutions and products. The wellbeing of our employees is therefore of crucial importance to us.

During the pandemic, we swiftly introduced protective measures and implemented hygiene concepts at all our locations, while also reducing contacts by facilitating mobile work. This way, we ensured that our employees were protected while upholding our business operations.

Another important factor is attracting and motivating qualified staff to join us. Here, we are building on various approaches that we are continually developing

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further: our attractiveness as an employer, a positive corporate culture, and our established and very close cooperation with leading universities and research institutes.

We are firmly convinced that we will emerge from these challenging times in even stronger shape. Above all, that is because our technologies facilitate pioneering solutions for information technology, smart mobility, e-mobility, Industry 4.0, and the energy transition.

Consistent with developments in all these areas, we have set ourselves an ambitious future and growth agenda for the years ahead. We will be implementing this in harmony with our responsibility for our employees, the environment, and good corporate governance. We aim to improve both our ESG performance and our ESG communications. Action has priority, but we should make sure our success is also visible!

Yours faithfully



Dr. Felix Grawert



Dr. Bernd Schulte
Executive Board of AIXTRON SE



Dr. Jochen Linck



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General Disclosures
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Ω About this report – general disclosures

In this separate Sustainability Report, AIXTRON informs its stakeholders about the Group's ecological and social performance, as well as about its sustainability strategy and the progress made in implementing its sustainability targets in the 2020 year under report.

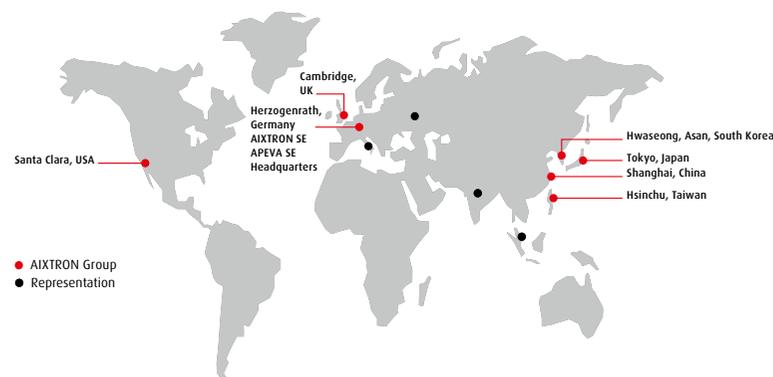
AIXTRON's economic disclosures and performance for fiscal year 2020 have been published in its Annual Report.

The reporting period corresponds to fiscal year 2020, i.e. to the period from January 1, 2020 to December 31, 2020.

The report covers the following AIXTRON Group sites and subsidiaries, mainly including:

- ▶ AIXTRON SE, Germany
- ▶ APEVA SE, Germany
- ▶ AIXTRON Ltd., UK
- ▶ AIXTRON, Inc., USA
- ▶ AIXTRON Taiwan Co. Ltd., Taiwan
- ▶ AIXTRON China Ltd., China
- ▶ AIXTRON Korea Co. Ltd., South Korea
- ▶ APEVA Co. Ltd., South Korea
- ▶ AIXTRON K.K., Japan

As of December 31, 2020, AIXTRON had manufacturing facilities and R&D sites both in Herzogenrath and in Cambridge (UK), as well as sales and service offices in Asia and the USA. Most of our employees work at our sites in Germany and the UK. Our reporting therefore focuses on these two locations.



OVPD development activities are performed at the Herzogenrath location by a standalone company (APEVA SE) with sales and services activities in South Korea.

We refer above all to the more detailed disclosures on aspects such as the structure and management of the company provided in the first two chapters of the current Annual Report of the AIXTRON Group. ■

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Site	Country	Utilization in 2020	Size (approx.)	Share of employees
Herzogenrath	Germany	Sales and service	16,000 m ²	Europe 80 %
Herzogenrath		Production, construction, R&D	12,457 m ²	
Cambridge	UK	Production, construction, R&D	2,180 m ²	
Cambridge		Customer service, construction	696 m ²	
Santa Clara	USA	Sales and service	491 m ²	USA 4 %
Hwasung	South Korea	Sales and service	1,151 m ²	Asia 16 %
Asan		Sales and service	366 m ²	
Shanghai	China	Sales and service	594 m ²	
Hsinchu	Taiwan	Sales and service	568 m ²	
Tainan		Sales and service	109 m ²	
Tokio	Japan	Sales and service	364 m ²	

Overview of sites per country, including utilization, size and regional distribution of employees

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Ω Framework and reporting

In compiling this Sustainability Report, we have been guided by the Sustainability Reporting Standards of the Global Reporting Initiative (GRI) and the principles set out in the “Core” option. The GRI content index at the end of the report provides information on the allocation of contents to the GRI framework requirements. You can find explanations accompanying the information and projects presented in this report on AIXTRON’s website.

We are endeavoring to gradually extend and expand our reporting. It was possible to record individual key figures for the first time in the 2020 reporting year and these have been included in this report. In individual cases, no data is available to us this year for previous years. It is therefore not possible to compare these key figures with previous years. Where applicable, this circumstance is indicated accordingly.

With our separate Non-Financial Report, we meet the requirements incumbent on us pursuant to § 315b (1) to (3) of the German Commercial Code (HGB). All text passages, tables, and charts in the Sustainability Report that are allocated to the Non-Financial Report are indicated by the letter omega Ω.

For this purpose, GRI-based materiality was “mapped” onto HGB-based materiality. As a result, not all of the disclosures made in this report are necessarily part of the separate Non-Financial Report. References to disclosures made in the Management Report form part of the Non-Financial Report.

We are obliged pursuant to § 289c (3) HGB to review topics in respect of “double materiality”. This requires disclosures to be made on non-financial aspects if two criteria are met:

1. The disclosures are needed to understand the company’s business performance, results, and position.
2. The disclosures facilitate understanding of how the company’s business activities impact on non-financial aspects.

We reviewed the topics identified in respect of their “double materiality”. The topics meeting this definition are indicated within the report by the letter omega Ω. These topics are linked to the respective chapters in this report.

We have not identified any “material risks” which have or will have “very probable severe negative implications” – consistent with the definitions provided in § 289c (2) and (3) and § 315c HGB – in connection with our own business activities or our business relationships, products and services.

The non-financial disclosures and key figures on our sustainability activities presented in this report were subject to an independent limited assurance audit by Deloitte GmbH Wirtschaftsprüfungsgesellschaft, Düsseldorf (Germany) with due application of the audit standard applicable to sustainability reporting (ISAE 3000 Revised). ■

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We cultivate trust-based, long-term partnerships with our stakeholders. Like in our dealings with each other within the company, in these relationships we accord priority to treating each other as partners, with respect, and on a constructive basis.

We are always vigilant in executing our business transactions prudently, responsibly, and with due consideration of the interests of all our stakeholders. Our efforts aim to build a future for our company, our customers, and society as a whole that is shaped by sustainability. We can only achieve this goal by pooling our forces, working in partnerships, and cooperating with each other.



Rainer Goeckel · CSR Manager

We see ourselves as part of the society we live in. In view of this, we are committed to social and welfare projects, particularly in the region surrounding our headquarters. We are currently compiling our new policy on “Corporate Citizenship & Sponsoring”. ■



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Dialog with our stakeholders

Maintaining a constructive exchange of ideas and dialog with our material stakeholders is important to us. In this dialog, we endeavor to understand the perspectives of our stakeholders, to build trust, and to intensify existing partnerships. This helps us to recognize which steps are possible and necessary and which steps are expected of us. At the same time, this dialog allows the company to present the scope it sees for acting on social and environmental concerns, as well as to show which requirements and conditions are important for us.

Stakeholder	Topic of dialog	Forms of dialog
Capital market	<ul style="list-style-type: none"> ▶ Business performance ▶ Product innovations ▶ Application possibilities 	<ul style="list-style-type: none"> ▶ Strategy ▶ Sustainability
Customers	<ul style="list-style-type: none"> ▶ Product quality and safety ▶ Sustainable technologies ▶ Product energy efficiency 	<ul style="list-style-type: none"> ▶ Human rights ▶ Compliance
Suppliers and business partners	<ul style="list-style-type: none"> ▶ Product quality and safety ▶ Environmental protection 	<ul style="list-style-type: none"> ▶ Responsible purchasing ▶ Compliance with AIXTRON standards
Employees	<ul style="list-style-type: none"> ▶ Health and safety ▶ Career advancement ▶ Co-determination ▶ Training opportunities 	<ul style="list-style-type: none"> ▶ Compensation and benefits ▶ Work-life balance / parental leave ▶ Diversity & equal opportunities
Science and university	<ul style="list-style-type: none"> ▶ Development of new technologies ▶ Promotion of research and teaching 	<ul style="list-style-type: none"> ▶ Networking of industry and research ▶ Recruitment / PhD students
Media representatives	<ul style="list-style-type: none"> ▶ Innovation and technologies ▶ Semiconductor technology 	<ul style="list-style-type: none"> ▶ AIXTRON as employer ▶ Finance
Associations and organizations	<ul style="list-style-type: none"> ▶ Eco-efficiency ▶ Innovation and technology promotion 	<ul style="list-style-type: none"> ▶ Economic and labor policy

Most important stakeholders, topics and forms of dialog

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AIXTRON's material stakeholder groups are:

- ▶ Customers
- ▶ Employees
- ▶ Shareholders
- ▶ Suppliers
- ▶ Government and politics
- ▶ Media
- ▶ Science and research

Identifying the most important stakeholders and their interests is crucial for any successful stakeholder dialog (cf. in chapter [Identification of material topics](#)). Stakeholders are categorized and prioritized by reference to the following criteria:

- ▶ Stakeholder interests
- ▶ Stakeholder influence
- ▶ Stakeholder expectations in AIXTRON
- ▶ Stakeholder dependence on AIXTRON
- ▶ Value for AIXTRON of entering into contact with these stakeholders

We regularly review and make any necessary adjustments to the process of identifying key stakeholders and relevant topics. ■



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Hidden Champion

Leading provider of deposition equipment for the semiconductor industry

745 (Headcount)
employees worldwide
147 women · 598 men

AIXTRON worldwide
7 countries
11 sites

2 manufacturing facilities

Herzogenrath (Germany)
Cambridge (UK)

35 nationalities
in our teams

EUR 269.2 million
Revenues in 2020

Revenues by region
73 % Asia · 15 % Europe
12 % America

EUR 58 million

Investments
in research and development

112,927,320
shares outstanding – 99 % free float

84 % equity ratio

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**Sustainable
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Ω Who we are and what we do

The AIXTRON Group (“AIXTRON” or “the company”) is a leading provider of deposition equipment to the semiconductor industry. The company was founded in 1983 and is headquartered in Herzogenrath (Aachen City Region), Germany. It has a total of 13 subsidiaries and representative offices in Asia, the USA, and Europe. In 2020, we had a total of 745 employees (total number of employees; all figures in this report are headcounts). As well as being listed in the TecDAX, since 2020 AIXTRON is also listed in the MDAX.

AIXTRON’s business activities involve the development, production, and installation of equipment for use in the deposition of complex semiconductor materials, the development of process technologies, consulting and training, and customer support and service. Our products are used worldwide by a wide range of customers to manufacture high-performance devices for electronic and opto-electronic applications based on compound or organic semiconductor materials. These devices are used in numerous innovative applications, technologies, and industries. These include, for example, LED and display technologies, data transmission, sensor technology, energy management and conversion, communications, signal and lighting technology, and many other sophisticated high-tech applications.

With revenues of EUR 269.2 million and an equity ratio of 84 percent (previous year: 82 percent), we invested a total of EUR 58 million in research and development in fiscal year 2020. Asia accounted for the major share of our revenues, at just under 73 percent, and was followed by Europe with 15 percent and America with 12 percent. ■



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Our self-image and our values

We are convinced, and this is part of how we see ourselves, that we should take responsibility equally for social, economic, and ecological topics, and that over and above mere compliance with laws and other rules and regulations.

We believe that these activities and services influence one another and produce tangible reciprocal effects. As a company which equips an important forward-looking industry, we execute our business transactions prudently, responsibly, and with due consideration of the interests of material stakeholders with the aim of ensuring sustainable development on all stages of the value chain.

For this reason, responsible action is one of our four corporate values. It forms a core component of our corporate culture and underpins everything we do at AIXTRON. The Executive Board and our managers bear a particular responsibility in this respect and act as role models.

Resource-efficient operations are part of our core business as a forward-looking technology company. Our products enhance the performance of semiconductors and make them more resource-efficient.

This in turn boosts the efficiency of a large number of products, including applications in areas such as energy supply, e-mobility, entertainment electronics, and communications. This means that our products are helping to shrink not only our own ecological footprint, but also that of our customers and of end consumers in these areas (cf. Chapter [Products and Innovation](#)). ■



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Ω Our sustainability strategy

Corporate Social Responsibility (CSR), or sustainability, has become firmly anchored as an important principle of corporate management at our company in recent years. For us, sustainability means aligning our long-term economic success to environmental protection and our social responsibility.

We are committed to continuously improving our sustainability strategy and the relevant policies, standards, and programs to enable us to meet the needs and expectations of our stakeholder groups.

Within our CSR strategy, we have accorded priority status to five topics. These are:

- ▶ environment and ecology
- ▶ society and social welfare
- ▶ employees and occupational health and safety
- ▶ combating corruption and bribery
- ▶ respect for human rights

These were defined in our “Sustainability Policy” and are also aligned to the United Nations Sustainable Development Goals (SDGs).

These goals provide guiding principles for our daily work and our strategy.



The SDG's we support relate to the goals stated above.

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Becoming climate neutral was an important decision when defining our sustainability strategy in 2018. Within the possibilities available to us, we have thus made a visible contribution to the fight against climate change.

We have been climate neutral since 2019. To achieve this, we procure our electricity from renewable energies and offset all unavoidable CO₂ emissions by way of climate protection projects. However, this was just one milestone on the path that still lies ahead.

We took a further major strategic step in the past fiscal year by deciding to compile a complete climate balance sheet that also portrays upstream and downstream production processes (Scope 3).

Consistent with our efforts to ensure transparent communications, since 2018 we have based our reporting on the core contents of the Global Reporting Initiative standards (GRI – Core Option) and have our reporting audited by an independent auditing company. ■



The five core topics of AIXTRON's sustainability strategy

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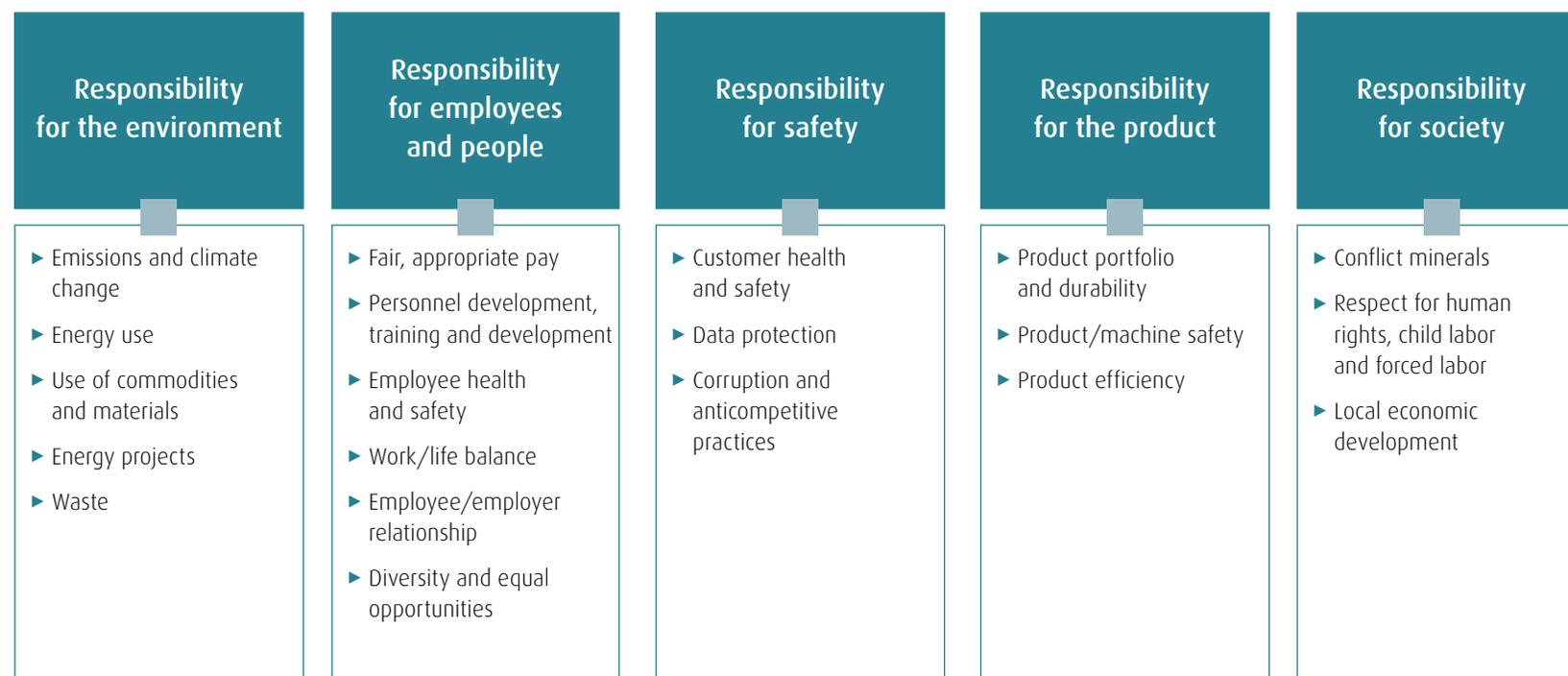
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Ω Identification of material topics

In 2018, we analyzed the main economic, ecological, and social aspects that have a material influence on the company from an internal and external perspective. In 2020, we evaluated and assessed our material topics once again in an extensive review process. To this end, we questioned those internal specialists and employees who exchange information on an ongoing basis with our material stakeholders (cf. Chapter [External Stakeholders](#)).

The findings were compared with the results of dialogs with external stakeholders and structured by reference to the GRI standards. This process ended with an iterative discussion process with internal experts and the Executive Board, which resulted in the definition of the five topic clusters presented in the chart below. ■



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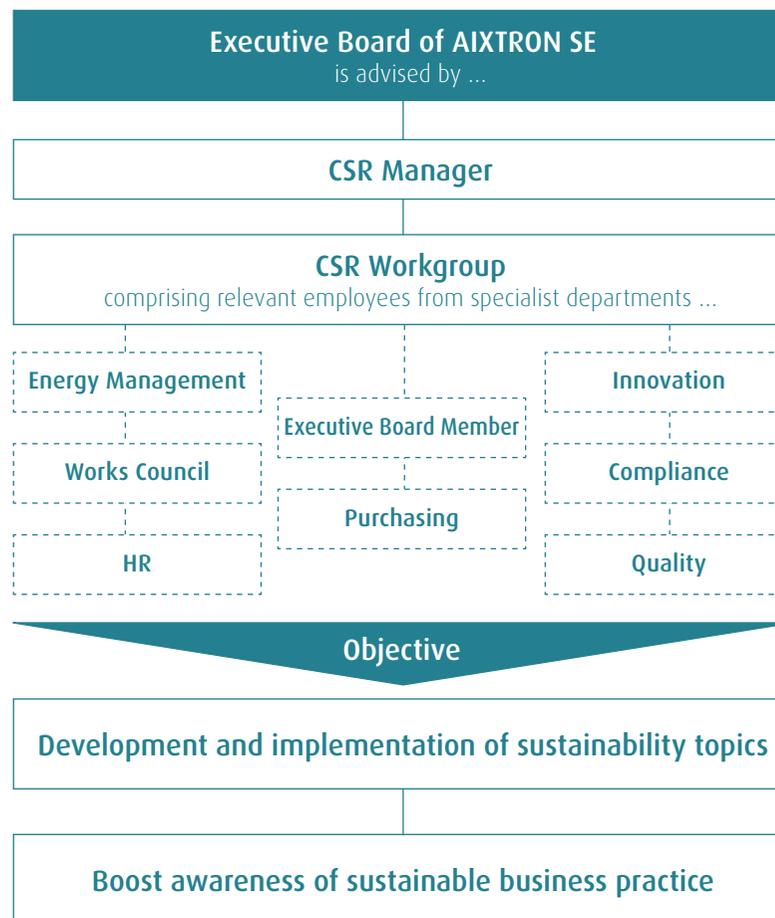
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Ω Organizational implementation

The Executive Board of AIXTRON SE bears overall responsibility for the topic of sustainability. It is advised by the CSR Workgroup and reaches decisions on key CSR-related matters. The CSR Workgroup meets several times a year and consists of members of staff who are responsible for this topic in the relevant specialist departments, including energy management, innovation, HR, quality assurance, and purchasing.

The aim is to develop relevant sustainability topics based on the corporate strategy, to raise awareness for sustainable business operations, and to anchor sustainability in all company departments. The Workgroup is informed at regular intervals on the progress made with individual projects at the company and actively promotes these projects.

Responsibility for implementing the targets and projects resolved by the Executive Board lies with the relevant specialist departments and subsidiaries of AIXTRON SE. Our CSR Policy provides a formal and mandatory definition of the key principles underlying our sustainability management for all units at AIXTRON SE. ■



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Legal conformity and compliance

As the highest decision-making body, the Executive Board takes due account of the precautionary principle in all its business decisions. Alongside compliance with legal requirements, due account is also taken of our company-internal policies and of the interests of material stakeholder groups. ■

■ Company-internal codes, policies, and standards

AIXTRON does not tolerate any corrupt or criminal behavior and expressly distances itself from any human rights violations. Over and above legal requirements, our company-internal codes, policies, and management systems provide the framework for our actions in this respect.

AIXTRON's Code of Ethics, which has been in force since 2006, governs the actions of the Finance department, and in particular of members of the Executive Board and of managers working in the Finance department and thus promotes honest and ethical conduct. Finance department managers each year confirm their acknowledgement of and compliance in their area of responsibility with the rules set out in the Code of Ethics signed by the Executive Board.

Furthermore, AIXTRON has a Compliance Code of Conduct, which is applicable to the Executive Board, the Supervisory Board, the Senior Management Team, and to all employees throughout the company and requires them to ensure that their actions are responsible and conform to the law.

This Code of Conduct is underpinned by the Compliance Manual, which sets out specific action guidelines and is regularly updated and communicated in training sessions. In their quarterly written declaration of compliance, managers and

employees in key positions are required to confirm compliance with the Code of Conduct. Participation in compliance training is mandatory for all company employees. This training is managed and monitored by our Compliance Office.

Any reports of potential infringements of international and national laws, or of the principles and codes of conduct at AIXTRON SE, can be addressed directly to AIXTRON's Compliance Office or via AIXTRON's whistleblowing channel.

Our company-wide Anti-Corruption Policy sets out rules and principles of conduct for combating corruption and bribery in a formal, specific, and binding manner for all employees. Raising awareness for the early detection of potential corruption and bribery risks in day-to-day work and promoting preventive anti-corruption measures are also fundamental components of our company-wide compliance training.

As in the previous year, no incidents of bribery or corruption were reported anywhere in the entire AIXTRON Group in the 2020 year under report.

AIXTRON deploys specialist management systems to manage topics such as resource protection, work safety, respect for human rights, and climate protection. ■

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Code of Conduct for suppliers

AIXTRON places the same expectations and conditions in its suppliers as it does in itself. For suppliers, these are defined in a binding Code of Conduct.

This sets out the ethical and legal framework for social and ecological standards, such as those relating to human rights, corruption, or conflict materials such as commodities and mineral resources that are mined or extracted in conflict areas.

Alongside the price and quality of purchased goods, compliance with these standards is a prerequisite for any ongoing cooperation and is mandatory (cf. Chapter [Occupational health and safety](#)). ■



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Tracking potential conflict minerals

Competition for natural resources, such as minerals, oil, and charcoal, is promoting systematic human rights abuses and pollution worldwide. Revenues from the mining of commodities help to fuel armed conflicts and finance civil wars. The production or mining of these materials is often performed illegally and outside the sphere of government control and is managed by rebel or militia groups at the expense of mineworkers.

AIXTRON is firmly committed to doing business fairly and with decency and respect in all the countries in which we operate. AIXTRON therefore supports the objectives of the US Dodd-Frank Act, as well as the EU regulations on conflict minerals to disclose the origin of risk minerals used in our products.

As part of its duty of care, AIXTRON has therefore implemented a management system based on the OECD Guideline for Responsible Supply Chains of Minerals from Conflict and Risk Regions. All direct suppliers who may supply minerals with potential conflict minerals are contacted and asked to identify and report to AIXTRON the countries of origin of the minerals. If there are indications of the use of a raw material supplier associated with human rights violations and pollution, we react consistently and take action to ensure that this supplier critically examines the raw material supplier in question and removes it from the joint supply chain.

AIXTRON has established a complaints mechanism to allow internal and external individuals and stakeholders to anonymously raise concerns and complaints about conflict minerals.

AIXTRON only has a limited ability to work towards a completely conflict-free global smelt landscape in its supply chain. To maximize the influence and impact of our conflict-free procurement policy, we decided many years ago to join the Responsible Minerals Initiative (RMI). We are actively involved in this organization and, among other aspects, support smelters in sustainably meeting their documentary evidence requirements with regard to the conflict-free purchase of minerals and in connection with the RMI certification process. ■



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Compliance with data protection

We attach the utmost importance to treating the personal data of our customers, partners, and employees confidentially and in accordance with legal requirements. Data protection has been firmly anchored at our company with suitable guidelines, standards, and processes in place for many years now. Upon the introduction of the General Data Protection Regulation of the European Union (EU-GDPR), which has been in force in all member states since May 2018, we reviewed our existing processes and improved these where necessary.

Attacks on IT infrastructure may paralyze companies and lead to the theft of valuable and sensitive data. Permanently protecting our sensitive data, even in the absence of acute situations, is the basic prerequisite for successful digitalization at AIXTRON.

Dr. Bernd Schulte · Executive Board member



In implementing legal requirements, we are also supported and advised by an external and independent data protection officer. For the fiscal year 2020, we are not aware of any incidents that would indicate any infringement of data protection and require report here. ■

Information security

We are a highly innovative technology company with international operations. This means that the suitable protection of our business and operating secrets and sensitive data is a matter of existential importance. As we make advances in digitalizing and networking our company, the threat posed by cyber espionage and sabotage is also growing in parallel. Information security has played a crucial role for years now and enjoys very high priority. After all, any attacks on the IT infrastructure could result in the loss or compromised integrity of this sensitive and confidential data.

Together with our IT department and other specialist departments, our “Information Security” department is charged with continually detecting, analyzing, and evaluating any potential weak points. Based on their findings, suitable protective mechanisms are integrated into our existing information security environment and their effectiveness is subsequently monitored.

Alongside technical and organizational measures, our employees also have a very important role to play in terms of their awareness in dealing with sensitive and confidential data. The training program we have implemented throughout the Group and the mandatory participation of all employees in regular training sessions make an important contribution towards raising awareness. We are permanently improving our information security environment in order to provide the best possible protection for our business and operating secrets. ■

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3 fields of technology

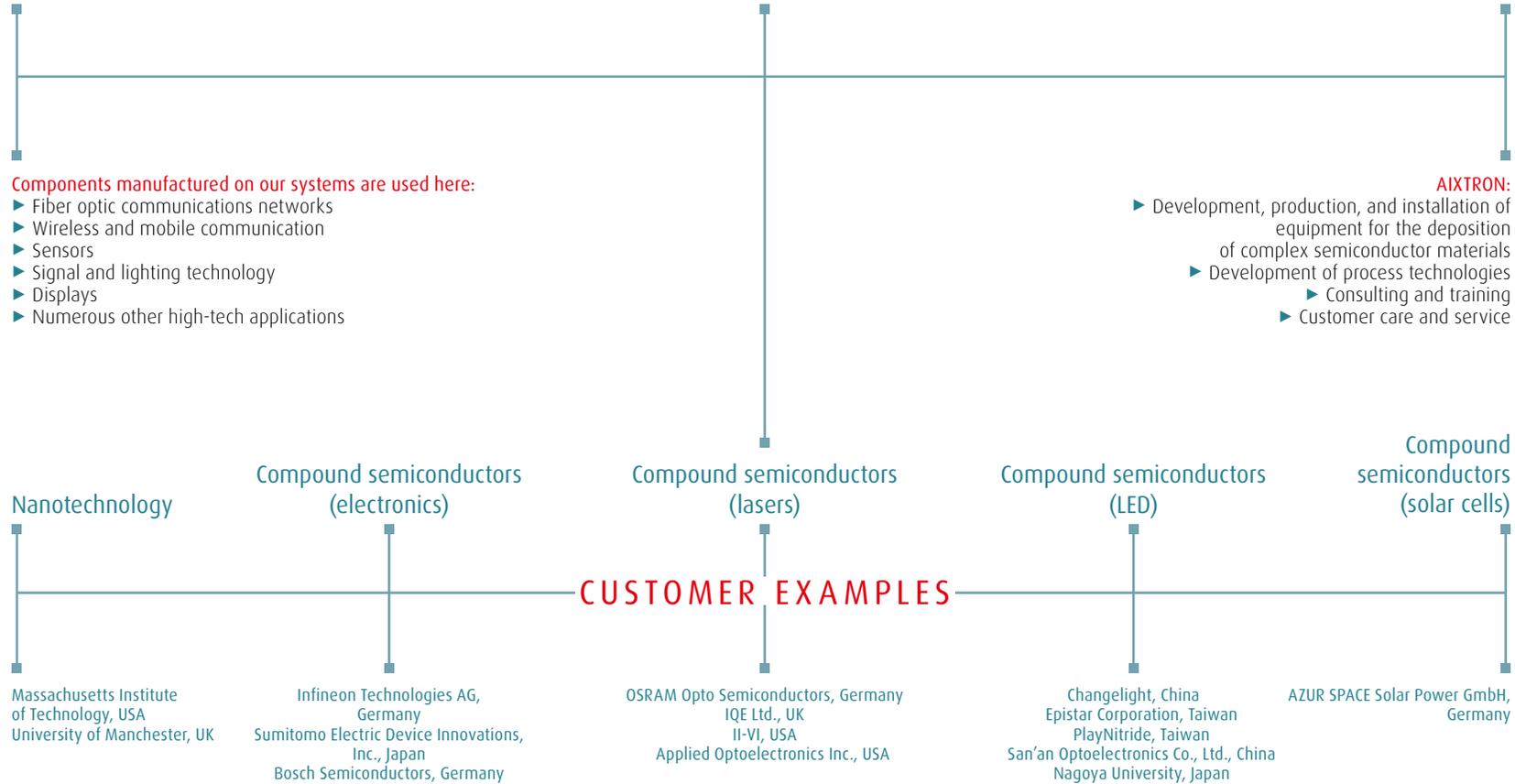
Worldwide customers use our products to **manufacture high-performance components** for electronic and optoelectronic applications based on compound and organic **semiconductor materials**.

Components manufactured on our systems are used here:

- ▶ Fiber optic communications networks
- ▶ Wireless and mobile communication
- ▶ Sensors
- ▶ Signal and lighting technology
- ▶ Displays
- ▶ Numerous other high-tech applications

Increasing **processing speeds**, growing **energy efficiency** requirements, and the need to **reduce costs** are driving demand for **AIXTRON's unique material deposition technologies**

- AIXTRON:**
- ▶ Development, production, and installation of equipment for the deposition of complex semiconductor materials
 - ▶ Development of process technologies
 - ▶ Consulting and training
 - ▶ Customer care and service



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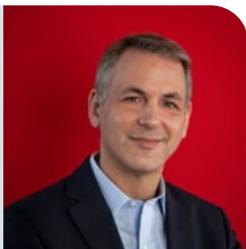
03

Products
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Products and Innovation

As a leading technology company, innovations which promote energy efficiency and protect natural resources are not only in our interest – they are our core business. AIXTRON's products enable our customers to save energy, cut their costs, reduce their CO₂ emissions, and thus shrink their own climate footprints.

Dr. Felix Grawert · Executive Board member



AIXTRON's success is driven by its innovative products. Our customers benefit from groundbreaking solutions that also save costs, protect resources, and are energy efficient.

This is how we have built up our position as one of the world's leading developers and manufacturers of deposition equipment for the semiconductor industry.

Our customers include companies operating in seminal sectors such as e-mobility (powertrains, charging infrastructure), energy (network switching), entertainment electronics (3D sensor technology, fast charging), and telecommunications

(5G networks). We are also making a substantial contribution to advances in the digital transformation of the hygiene, lighting, and display technologies (mini and micro LEDs) segments.

For us, new technologies are the result of extensive research efforts, for example in one of our numerous research cooperations with universities, research institutes, and other industrial companies. These give rise to pioneering solutions with the potential to make the world more quickly become sustainable, efficient, and better.

Our machines and solutions help our customers to gain a competitive edge with their products and to convince their own customers, not least from a sustainability perspective. ■

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Quality management and product safety

Our high quality standards, the safety of our products, and their operating reliability are the hallmarks of all AIXTRON systems and are an essential factor in our long-term business success.

Dr. Jochen Linck · Executive Board member



We have a strong reputation in the market and enjoy the trust of our customers. We see this as both obliging us and motivating us to safeguard our technical excellence, our first-class services, and our high quality standards at all times in all existing and future business relationships. The market for compound semiconductors is undergoing permanent technological change, as are our customers' requirements. To ensure that our equipment complies with all country-specific rules and regulations in all of our markets, we have to be permanently up to date and account for all requirements during the product development process already.

When it comes to our commitment to quality and the safety of our equipment, we consistently pursue a zero defect strategy. This is the standard we set ourselves and also our suppliers. For us, satisfying all statutory requirements, standards, and norms, meeting safety requirements, and ensuring suitable labeling

is just the start. Over and above this, we have set ourselves the standard of implementing all local requirements in our customer markets in good time. That is why our product safety begins in the product development stage already and continues throughout the purchasing and production process.

Formal responsibility for product safety and quality is incumbent on the Executive Board, which has assigned the targets and tasks involved to the Head of Quality Management. Our Quality department is responsible for establishing and maintaining a quality management system, issues company-wide regulations, and regularly checks that these are complied with. The Quality Manual and Quality Policy describe the core of our activities and are publicly available. We have policies and processes governing aspects such as product safety, product development, the handling of defective products, and the corresponding escalation levels. Operative responsibility for implementing statutory and internal product safety and quality requirements lies with the Executive Board. The Head of Quality Management reports directly to the Executive Board at regular intervals in respect of major developments. In the event of a quality-related incident, the Executive Board is informed by the Head of Quality Management immediately if such incident is classified as critical.

No notable quality defects with any material impact on the health and safety of our customers were identified in fiscal year 2020. ■

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Setting new standards with products – also for climate protection

Experts estimate that power electronics can save up to 35 percent of current energy needs.

Prof. Dr. Michael Heuken
Vice President of Research and Development



AIXTRON equipment is used to produce devices that are making a major contribution to the development of numerous innovative applications, technologies, and industries relevant to the megatrends of the future.

Examples include laser, LED, and display technologies, energy management and conversion, communications, signal and light technology, and numerous other sophisticated high-tech applications that facilitate pioneering, high-performing, and energy-efficient use. ■



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Power electronics: the electronics of the future

One key to more efficient energy use involves power electronics, for which the market is growing at an enormous pace. Based on new materials such as gallium nitride (GaN) and silicon carbide (SiC), these allow technologically sophisticated applications to be run while also reducing energy requirements.

Examples include running servers and data centers more efficiently, charging mobile devices such as smartphones and laptops more rapidly and on a wireless basis, powering electric vehicles, exchanging data between machines in real time, and very fast video transmission (“streaming”).

AIXTRON’s technologies are the centerpiece of next generation power electronics and can make an important contribution towards combating global climate change.

One example: They are core components in the powertrain technology needed for smart e-mobility. It is an AIXTRON device which facilitates a more efficient switching process between drive and battery. ■

The utmost precision in manufacturing power electronics

The secret of power electronics lies in the production process, in the development of which we have played a key role as a technology leader for more than 30 years now.

This involves vaporizing the decisive components and feeding these with other ultrapure gases, in extremely small doses, into the reaction chambers of our systems, which are heated to very precise high temperatures. Minor errors, even if they affect just one layer of a package that often comprises several hundred layers, can already have a great impact on the performance of the resultant component.

We work with excellent universities, research centers, and industrial partners worldwide in order to implement challenging projects on both national and international levels.

Our close exchange of ideas with renowned scientists has enabled us, for example, to achieve new results in nanotechnology and to research ever new materials and technologies. ■

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LED & micro LED – we are lighting the future

Compared with conventional LED display technology, micro LEDs offer longer lifetimes, greater brightness, higher switching speed, and a broader spectrum of colors – all these advantages mean they have a pioneering role to play in numerous current and future application scenarios. What makes micro LEDs particularly special is their low energy consumption, a characteristic that makes them virtually predestined for use, particularly in the coming generation of smaller mobile appliances with little space for batteries.

In Herzogenrath near Aachen, AIXTRON has been pressing ahead for years now with developing suitable production equipment that can also be used for micro LEDs and has assumed a pioneering role in the production of this next generation of displays. ■

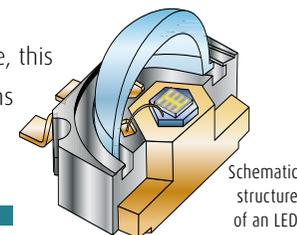


The history of LEDs: efficiency increased by a magnitude of three

It certainly took time for light-emitting diodes (LEDs) to move from basic research to becoming an everyday means of lighting. Even though LED technology started replacing other forms of lighting relatively recently, the beginnings of the technology and the insights leading to the development of today's LEDs can be traced back more than a century.

In 1876, Ferdinand Braun discovered that electricity can flow through crystals. This was the starting point for all LED technology. In the years that followed, however, this groundbreaking insight was initially ignored by scientists. In 1951, the Russian physicist Oleg Vladimirovich Losev found that inorganic materials can emit light when a suitable circuit is installed. The first commercial diode emitting light, in this case red, to come to market, was developed by Nick Holonyak in 1962. This laid the foundation for the industrial production of modern LEDs.

At the end of 1997, the first commercially successful white LED based on this technology was launched onto the market. To date, this technology is still standard in the industry. At the beginning of the new millennium, the first LEDs reached a light yield of 50 lumens per watt. By 2009/2011, the yield was already 6 times higher (300 lumens per watt). As of now, the efficiency has increased so greatly that the yield amounts to around 86 percent, a level unmatched by any other form of lighting. LEDs have completely ousted the lightbulb. Even energy-saving bulbs cannot keep up with this efficiency, which is almost twice as high as their own. ■



Schematic structure of an LED

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Interview with Prof. Michael Heuken · Vice President for Research and Development

Research and development is a crucial competitive factor for a high-tech company such as AIXTRON. Where does AIXTRON currently stand?

I can give you a clear answer there: We are at the forefront when it comes to research and innovation. That is reflected, for example, in our academic publications, where we have held a leading position for years now. Our publications are read and respected throughout the world. Our research findings mostly result from cooperations with universities, research institutes, and other companies. We ourselves have more than 200 staff working in the field of research and development.

Our innovations make megatrends more sustainable.

Prof. Dr. Michael Heuken
Vice President for Research and Development



We see our industrial research and innovation as a core success factor for our business model. That is why we work on different levels to generate innovations. It involves using new materials, but also permanently enhancing materials already in use and optimizing the technology used to produce them.

Do you see any risk of international competitors catching up in terms of their technology?

Yes, that is something we monitor very closely. After all, we can see the regions in which patents are newly registered and which findings are published. We are very cautious in this respect and are endeavoring to permanently extend our leading role. This year, we made targeted investments in our information and data security so as to limit the risk of any theft of data or know-how.

We are also observing the market very precisely and are in close contact with our customers and the overall environment so as to detect any potential new trends and potential improvements in our own activities at an early stage. This also involves maintaining close contacts and sharing ideas with the academic world.

Your solutions help customers to operate more sustainably. So where do you start?

There is a direct approach and an indirect approach. On a direct level, our products can help customers to reduce their material and energy use and raise their production yield. On an indirect level, however, our products help to make our customers output, i.e. the products they manufacture, more energy-efficient and facilitate new energy-saving approaches. By reducing material use and increasing the yield, we save resources and customers can cut their costs.

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There too, sustainability always goes hand in hand with major trends in society and the standards set by politicians. Top-level political goals are then broken down to individual sectors, such as mobility in electric cars.

That is where we come into play, because we can significantly improve the technologies used in charging infrastructure and e-mobility. We are also supporting the topic of autonomous driving with our products. The environment is scanned using devices manufactured on our systems. In the energy sector, we hold a leading position for special solar cells with particularly high efficiency. Another major topic involves special LEDs used, for example, for disinfection with UV light. ■



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Innovation as a competitive factor

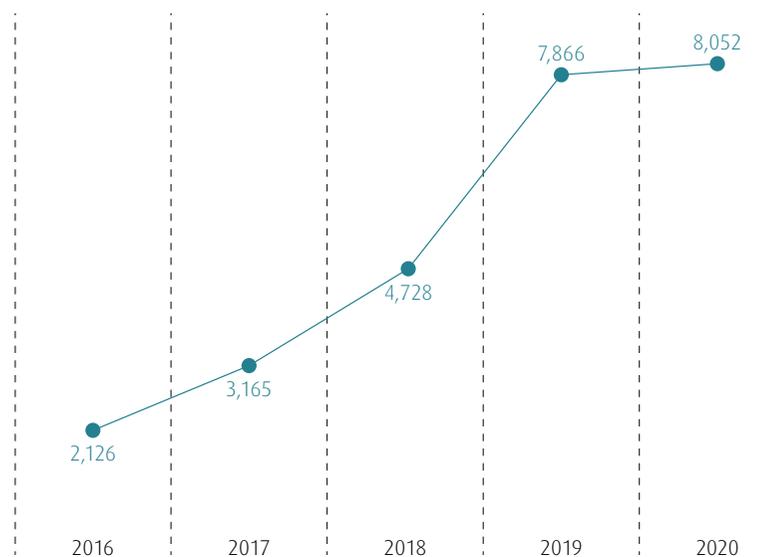
Innovation is the starting point of our business model. The R&D process begins in basic research with materials and then moves to processes and procedures. The purpose of our research activities is to enable us to offer better and more efficient products and solutions to our customers while at the same time securing and extending our leading international position. Innovation at AIXTRON is the result of teamwork. In our research projects, we mostly work together with national and international partners. To this end, AIXTRON has built up an extensive network with universities, research institutes, companies, and customers for the purpose of developing future technologies. The projects are developed on a basis of cooperation between equals. This way, we benefit from the fact that we are on the lookout for partners for our projects and equally in demand as a partner for other projects.

Our latest research projects include UltimateGaN, MOCVD 4.2, and MehrSi. Here, we are contributing our knowledge and expertise and can also deploy the results in our technologies.

To promote the consistent further technological development of our product portfolio, we once again invested EUR 58 million in research and development (R&D) during 2020, equivalent to more than one fifth (approx. 22 %) of our total revenues. At the end of 2020, more than 200 of our employees were involved in research and development tasks. ■

Public funding of research projects

In developing innovations for materials and processes, we work very closely in joint projects with other companies, research institutes, and universities that receive funding on national or European level. These close cooperations give rise to solutions that ultimately lead to marketable products. ■



Overview of public funding received for research and development (EUR million)

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UltimateGaN: researching the next generation of power semiconductors

The technology used in power semiconductors on gallium nitride (GaN) basis is an important resource in tackling the challenges presented by the digital transformation of our society. Electronic components and systems are deployed in applications, information highways, and data centers. They form the basis and act as the driving force for digitalization. Given constantly rising demand for data traffic, storage, and processing, the volume of energy consumed in this area is set to increase significantly. This is equally true for communication and for energy conversion in areas such as smart grids and smart mobility.

The semiconductor devices currently used, which are on a silicon (Si) basis, are in many cases reaching their limits and have to be viewed critically, particularly in terms of their energy efficiency. GaN-based technologies have the potential to push back the boundaries and offer better performance with lower consumption. They facilitate significantly higher switching frequencies while at the same time showing the highest energy conversion efficiency.

The next generation – called UltimateGaN – is already being planned. A total of 26 partners from several European countries are together researching this new and more sustainable technology – higher performance with better energy efficiency. This European initiative is also intended to boost Europe as a technology location in the international competition for sustainable technologies. ■

Advanced UV lamps – UV-LEDs

Another topic that is gaining in significance due both to the coronavirus pandemic and to rising global demand for clean drinking water is the development of UVC-LED lights. Treating water with UVC light is already widespread around the world. Mercury lamps were previously used for this purpose.

The objective of the research is to use LED lights with UVC light to purify the water. These lights shall exceed the conversion efficiency and lifetime of mercury lamps. Not only that, they do not contain any harmful substances and use less energy. Over and above this, unlike traditional mercury lamps LED lights offer extra technical options in terms of optimizing settings. ■



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Improved efficiency of multi-junction solar cells

We have reached a key milestone in developing economically viable solutions for the industrial use of tandem solar cells to generate electricity in a joint project with Fraunhofer Institute for Solar Energy Systems (ISE), Ilmenau University of Technology, and Philipps Universität Marburg. These special solar cells convert various wavelengths of light into electrical energy and are thus significantly more efficient.

Tandem photovoltaics is a key technology for the energy transition. An efficiency rate of 25.9 percent has now been reached for the first time with a multi-junction solar cell grown directly on a silicon substrate. This record value was achieved in the subsidized "MehrSi" project. AIXTRON's contribution to the project involved enhanced equipment technology which facilitates significantly higher precision. Given less expensive processes in combination with the use of silicon as the bottom single-junction cell, tandem technology is to be made available to the broader photovoltaics market as well in future. ■



AIXTRON – we accompany Nobel prizewinners

Our technologies – "Made in Germany" – are among the best in the world. Leading scientists throughout the world use the process technology provided by our precise and flexible equipment to perform their research. Researchers such as Prof. Dr. Andre Geim and Prof. Dr. Konstantin Novoselov, who were awarded the Nobel Prize in Physics in 2010 in recognition of their groundbreaking insights in graphene research, and Prof. Dr. Zhores Alferov, who received the Nobel Prize in Physics in 2000 for developing semiconductor heterostructures for high-speed electronics and optoelectronics, are supported by AIXTRON. ■

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Environment and Climate

Environment and Climate

Climate change affects us all. Together, we have to accept this responsibility. AIXTRON sees itself as being responsible for consistently reducing the CO₂ emissions resulting from its business activities and supply chain.

This also involves making sparing use of our natural resources and avoiding waste wherever possible.

Climate protection plays a major role for AIXTRON. One of our priorities is to make sure the ecological footprint left by our business activities is as small as possible and to minimize the volumes of climate-harmful CO₂ emissions released.

Dr. Bernd Schulte · Executive Board member



We are making constant efforts to shrink our ecological footprint, both with our products and solutions and with our efficient processes and production methods. In 2019, we set ourselves the target of becoming the leading player in terms of energy efficiency in our industry and our region.

At our customers, our products and equipment help to reduce resource consumption levels compared with older technologies. To account for this contribution to efficiency enhancement when assessing our climate balance sheet, we have decided to present these developments in relation to our revenues. ■

Indirect lever for energy efficiency

According to a report issued by the United Nations, the annual volume of energy consumed merely by lighting, fridges and freezers, air conditioning systems, electric motors, and transformers is set to more than double between 2015 and 2030 (+125 percent).

With our technological innovations, we are making efforts to continually optimize our products and equipment in terms of their energy efficiency and resource-saving capacity. This way, we aim to enable our customers as well to further reduce their CO₂ footprints.

By developing sustainable and energy-efficient products and applications, we are also contributing indirectly to reducing global energy consumption and to meeting the targets set out in the United Efficiency Program of the United Nations. ■

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📌 Innovative energy management

Confirmation of our energy management certification

To provide a basis for our efforts to further reduce our energy needs, in 2014 we implemented an energy management standard meeting the requirements of ISO 50001:2011 at the German locations of AIXTRON SE (and subsequently also at our subsidiary APEVA SE). Our successful conversion to the requirements of ISO 50001:2018 was confirmed in the recertification audit performed in 2020. Given the particularly energy-intensive operations at our production and research and development sites in Germany and the UK, the certification refers exclusively to these locations. ■

Electricity from renewable energy sources and photovoltaics

Since 2019, we have procured the electricity used at our European sites and in the USA exclusively from renewable energies. Due to the minimal volumes involved in Asian countries, the purchase of electricity from renewable energy sources is currently not economically viable. Furthermore, we installed a photovoltaics system at our Kaiserstrasse site many years ago already. All electricity generated by the system, which in 2020 amounted to 3,476 kWh (2019: 3,293 kWh), is fed into the electricity grid. ■

Further development of award-winning energy management concept

In 2017, we received the “Energy Efficiency Award” of the German Energy Agency (dena) for our pioneering resource-effective energy management concept. The award was made in recognition of our digital measurement and remote monitoring of energy data and to acknowledge the implementation of extensive energy efficiency measures in our heating and cooling plants in the “Energy Efficiency 4.0” category.

The highly detailed presentation and allocation of meters to departments and items of equipment make it possible to perform extensive evaluations that facilitate targeted management and optimization of the systems and processes.

To further enhance these evaluations, we are currently compiling a cloud-based dashboard which optimizes control technology at the energy management center. The total of 144 electricity meters are read and evaluated at ¼-hourly intervals. As well as recording the data, the system also offers an extensive calculation, evaluation, and documentation tool. Moreover, the system enables targeted measures to be taken to reduce CO₂ emissions and the success of these measures to be directly assessed. ■

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Practical Examples

Building on its systematic approach to energy management, AIXTRON has already initiated numerous projects and measures to sustainably reduce its energy consumption. The three most important projects implemented in the past year are provided as examples below. ■



Conversion to 100 percent LED lighting completed*

In 2020, we completed the conversion of our production site in Kaiserstrasse to 100 percent LED lighting. In total, this conversion will save up to around 428,000 kWh a year, corresponding to savings of around 225 tonnes of CO₂ equivalents. We initiated this project in 2017 already and then made further progress in 2018. Lighting in the production department was gradually switched to energy-saving LEDs. This was followed in 2019 by the outdoor facilities and the year 2020 by the conversion of our second production site in Kaiserstrasse. This means that, over the past three years, we have converted all conventional lights to LED lighting at our main site in Herzogenrath (Dornkaul and Kaiserstrasse), as well as at our research and development site in Cambridge (UK).

Overall, the LED conversion enabled us to save 526,000 kWh, corresponding to around 4.3 percent of our energy consumption at these two locations in the reporting period. Further positive effects include lower maintenance costs due to the durability of the bulbs and the higher light yield and quality (color fidelity), a factor which benefits our staff in their work environments. ■



Exchange of two frequency inverters*

Replacing two generators with one high-efficiency inverter at our Dornkaulstrasse site in Herzogenrath enabled us to save around 57,600 kWh and 30.4 tonnes of CO₂ equivalents a year by the end of 2020. This corresponds to a saving of around 3.7 percent of the electricity used in production.

Furthermore, the lower temperature load means that we have enhanced operating safety while also reducing noise levels compared with the previous generators. This in turn has helped to reduce the amount of noise to which our employees are exposed to. ■



Optimization of control technology at the energy management center at the Dornkaulstrasse site*

In 2017, we began continually adjusting and optimizing our measurement and control technology by introducing monitoring in our energy management center. This project, which has been performed in cooperation with a nationwide company, will run to the end of 2021 and has an energy savings potential of around 30,000 kWh in total (calculated over four years). ■

*) In calculating our energy and CO₂ savings, we were assisted by external companies who provided us with technical advice based on their engineering skills and specialist expertise. All calculations have been based on a systematic and scientifically substantiated approach with specific assumptions for the individual calculations.

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Energy saving target exceeded again in 2020

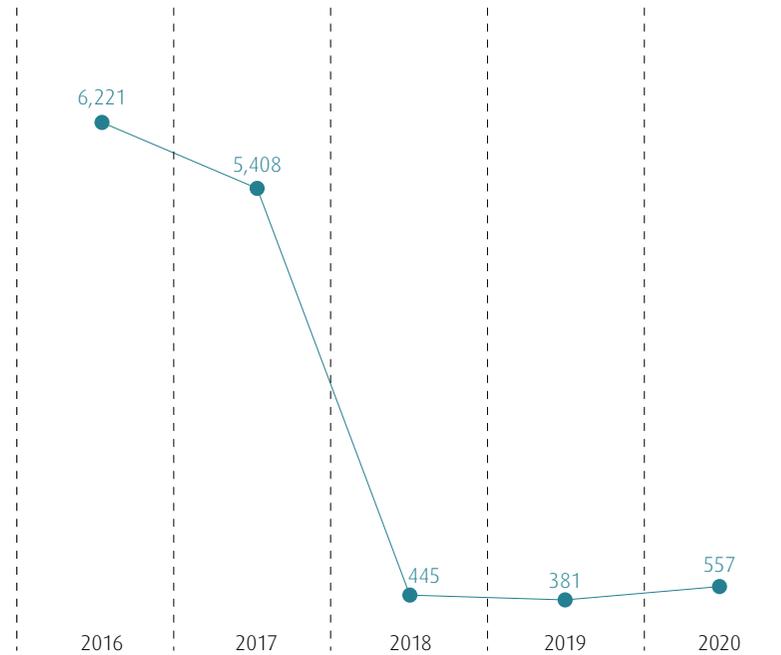
We exceeded our targets once again in 2020 by saving more than 463,600 kWh and thus more than 261 tonnes of CO₂ equivalents. This corresponds to a 4.2 percent reduction. We have set further reduction targets for 2021 and aim to meet these by renewing a further inverter (approx. 200,000 kWh) and deploying energy-efficient filters in our ventilation systems (approx. 60,000 kWh).

Our detailed energy management concept means that we are able to specifically control consumption volumes at our individual sites and plants. We are not simply satisfied with our success to date. Each year, we review our status quo and set new and ambitious energy saving targets. Economic considerations naturally also play a role, as lower consumption volumes enable us to reduce our costs.

As our research and production sites are located in Germany and the UK, our targets mainly refer to these locations. In Asia and the USA, we mainly lease office space and, as lessors, have hardly any scope to introduce energy saving measures.

Wherever possible, AIXTRON will continue to initiate and implement projects to further reduce its energy consumption in future as well. The results confirm the approach we have taken, as is very clearly apparent from the table and chart below. ■

Total CO₂ equivalent emissions (in t) in Germany



Development in CO₂e emissions at the Herzogenrath site. The 46 percent increase in the 2020 year under report was due a significant rise in sulfur hexafluoride (SF₆). To validate a new test, we had to perform several tests in 2020 and also simulated larger-scale leakages. We simulate a gas leakage within our equipment and test how efficiently the ventilation evacuates this gas and how much of this gas escapes into the room and/or users' breathing zones. For this, we require SF₆ as this gas does not occur in the natural atmosphere. This is the only way to exclude the possibility of inaccurate measurements. Larger volumes of SF₆ were required than originally planned. In this respect, the volume stated for the 2020 year under report represents an exception. Regrettably, no alternatives to SF₆ are currently available.

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Table with key figures for energy use (Herzogenrath site) ^{Scope 1 + 2}

	2017	CO ₂ e in tonnes	2018	CO ₂ e in tonnes	2019	CO ₂ e in tonnes	2020	CO ₂ e in tonnes
Electricity (kWh)	9,595,253	5,056.7	10,033,811	0	10,658,090	0	10,444,472	0
Natural gas (kWh)	568,181	125	685,610	151	608,462	122.88	858,594	173.44
District heating (kWh)	1,821,360	218.6	2,406,370	289	1,957,130	234.86	1,400,260	268.23
Sulphur hexafluoride (SF6) in kg	---*)	---*)	---*)	---*)	0.772	17.6	4.8	109.4
Nitrogen (N ₂) in tonnes	2,050	0	2,290	0	2,612	0	2,616	0
Argon (tonnes)	375	0	23	0	24	0	11	0
Hydrogen (H ₂) in m ³	10	0	11.3	0	13	0	15.6	0
Water total (in m ³)	18,961	7.7	11,833	4.8	13,288	5.4	14,799	6.0
Waste water at cooling towers (in m ³)	2,656	0	1,035	0	1,112	0	1,058	0
Total (kWh)/CO₂e in tonnes	11,984,794	5,408	13,125,791	445	13,223,682	381	12,703,281	557

Consumption of energy and other significant resources at AIXTRON in Herzogenrath. *)
Of perfluorinated and polyfluorinated chemicals, sulfur hexafluoride (SF6) was included in the calculation for the first time in 2019

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Key figures for energy use (UK, Asia, USA) ^{Scope 2}

2018							
	UK	USA	China	Japan	South Korea	Taiwan	Σ
Electricity (kWh)	887,727	42,414	26,937	50,942	70,267	73,800	1,152,087
CO ₂ e in tonnes	0	22.4	14	27	37	39	139.4

2019							
	UK	USA	China	Japan	South Korea	Taiwan	Σ
Electricity (kWh)	856,253	41,413	27,201	42,160	173,783	75,472	1,216,282
CO ₂ e in tonnes	0	0	16.94	22.02	93.37	39.41	171.74

2020							
	UK	USA	China	Japan	South Korea	Taiwan	Σ
Electricity (kWh)	972,946	25,607	22,883	38,531	102,497	65,590	1,228,054
CO ₂ e in tonnes	0	0	14.33	19.21	55.30	41.07	129.91

Energy consumption at the AIXTRON Group (excluding Germany). The significant reduction in energy consumption in the USA in 2018 was due to the sale of the ALD business and a relocation to new premises. The reduction in CO₂ emissions in the UK and the USA was achieved by converting to green electricity. The substantial increase in South Korea in 2019 was due to the extension of the site by our subsidiary APEVA Korea in 2019.



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Waste reduction

In producing its equipment, AIXTRON uses numerous materials whose purchase, transport, use, and disposal have an impact on people and the environment. Potential negative implications have to be avoided or reduced to a minimum. Our top priority is to avoid waste. In our waste management, one factor that is therefore important to us – depending on the type of waste and recycling method involved – is to ensure separation and safe disposal of waste. The waste volumes incurred and then sent for recycling or disposal are recorded and classified on a local basis, with a distinction being made between hazardous and non-hazardous waste. Wherever possible, residual materials are reused. Waste is reused in terms of its materials or incinerated. Where this is not possible, the waste is correctly disposed of. Due to both cost and environmental considerations, our aim is to minimize the volumes of materials used and waste disposed.

Disposal of hazardous waste

We are aware of the great environmental risks and legal obligations associated with hazardous materials and chemicals. We therefore take all suitable measures to ensure that our operations are always safe. Hazardous substances and materials are used in the processing chambers of our equipment, and in some cases in the pipes as well. These substances and materials have to be disposed of separately. In the first stage, the respective components have to be removed at the end of their lifetimes. When removing these components, employees wear suitable protective

clothing and collect the individual components and modules in special containers that are secured in such a way that the hazardous substances cannot escape. At our Herzogenrath and Cambridge sites, we work with specialist local companies that dispose of the waste appropriately at regular intervals.

The materials, some of which highly valuable (e.g. stainless steel), are recycled wherever possible and subsequently reused in the interests of a recycling-based economy. One example here involves the pipes used in the exhaust gas system. For exhaust gas cleaning, we rely wherever possible on catalytic cleaning processes which largely avoid the incurrance of hazardous waste. Our exhaust gas cleaning system avoids all wet-chemical processes, which means that no contaminated wastewater is incurred anywhere in our operations.

	Hazardous waste (in kg)		Non-hazardous waste (in kg)	
	2019	2020	2019	2020
Germany	1,042	2,183	54,380	47,530
UK	46	50	17,023	26,573
Asia/USA	0	0	---*)	32,468
Total	1,088	2,233	71,403	106,571

Table: Hazardous and non-hazardous waste by region.

*) The volumes of non-hazardous waste for Asia/USA could not yet be determined for 2019.

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At our location in Cambridge (UK), we decided at the end of 2019 to abolish non-reusable plastic and paper cups. In 2020, this saved the use of 4,000 plastic cups.

The increase in **hazardous waste** in Germany was due to the significant rise in the necessary number of test runs, as well as to various conversion measures required in the laboratory. The waste incurred during the runs and the contaminated components resulting from the conversion measures had to be correctly disposed of as hazardous waste.

There was an increase in the volume of **non-hazardous waste** in Cambridge (UK) as, despite lockdown policies, volumes rose significantly in the production department. Furthermore, to avoid production bottlenecks on account of the pending Brexit deadline, this site purchased multiple volumes of components and stockpiled these. This also led to a substantial increase in packaging waste. Furthermore, cleanup and clearing out work was necessary at the site and also led to higher waste volumes.

The volume of non-hazardous waste at the Herzogenrath site decreased, as deliveries were increasingly made to a sub-supplier. This meant that waste was incurred at that supplier, rather than at our location. ■

Paper consumption ^{Scope 2}

In the course of digitalizing our business processes, we converted our incoming and outgoing invoices to digital, and thus paperless, processes in 2016 already.

Paper consumption	2019	2020
Number of sheets	1,823,591	1,044,291
CO ₂ e emissions [t]	12.1	6.9

Furthermore, we are encouraging our employees to reduce paper consumption. During the year 2020, a total of 1,044,291 sheets of paper were used throughout the company (2019: 1,823,591 sheets). This reduction of almost 43 percent was attributable to our efforts to avoid printouts and further digitalize our business processes. ■

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Mobility

Given the nature of our technological equipment, we have to provide our customers with targeted advice on location. Our presence is also required to develop equipment together in some cases and to support customers in optimizing their use of the equipment or in training their staff. This generally requires our employees to travel. Our customers are located outside Germany, a factor which influences the number of kilometers traveled and the means of transport selected. ■

E-mobility

In 2019, we installed a total of 12 electric car charging points and 24 e-bike battery chargers on our company premises. In the 2020 year under report, nine further colleagues decided to use this service, as a result of which the number of participants has risen to 16 (2019: 7). In addition, Executive Board members also make use of the available charging infrastructure. We aim to promote these developments in future as well. One pleasing factor is that, due to our regional location, numerous colleagues also come to work by bike. ■



Flights Scope 3

We avoid air travel wherever possible. For intercontinental journeys, however, flying is the only realistic option in day-to-day business. In 2020, we traveled a total of 4,683,159 air kilometers (2019: 14,518,438 km), corresponding to a reduction of 68 percent.

This gave rise to emissions of 1,215.4 tonnes of CO₂ equivalents (2019: 3,767.9 tonnes of CO₂e). This drastic reduction was chiefly due to the coronavirus pandemic and the resultant restrictions on travel and substitution by video conferences. ■

Flights	2019	2019 ^{*)}	2020
Total kilometers flown	14,518,438	14,518,438	4,683,159
Emissions CO ₂ e [tonnes]	3,566	3,767.9	1,215.4
Emissions CO ₂ e [kg/km]	0.25	0.26	0.26

Note: The calculations involving flights were converted to a new uniform calculation basis in 2020. *) To facilitate comparison, the figures for 2019 have also been calculated using the new uniform calculation basis and additionally stated.

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Company vehicles Scope 1

Our company car pool comprised 15 cars in 2020 (2019: 13), of which 4 vehicles with hybrid drive systems. Of the other cars, 7 are powered by gas, 3 by diesel, and one is a purely electric vehicle.

Consistent with our internal policy, since 2020 all new purchases have involved hybrid or electric vehicles. We are also endeavoring to expand the small to medium-sized vehicle classes in order to reduce the fuel consumed by the car pool thanks to the lower weight involved. A total of 179,702 km was traveled in 2020 (2019: 192,386 km), corresponding to a reduction of almost seven percent. ■

Company vehicles	2019	2019 ^{*)}	2020 ^{*)}
Number of vehicles	13	13	14.75
Total kilometers driven	192,386	192,386	179,702
Emissions CO ₂ e [tonnes]	30.3	42.8	40.0
Emissions CO ₂ e [kg/km]	0.16	0.22	0.22

Note: The calculations involving company vehicles were converted to a new uniform calculation basis in 2020. ^{*)} To facilitate comparison, the figures for 2019 have also been calculated using the new uniform calculation basis and additionally stated.

Rental cars Scope 3

During the 2020 year under report, company employees used rental cars to drive a total of 359,079 km (2019: 508,787 km). This corresponds to a reduction of 29 percent. This was due above all to the severe restrictions imposed by governments on travel in response to the coronavirus pandemic. ■

Rental car	2019	2019 ^{*)}	2020
Total kilometers traveled	508,787	508,787	359,079
Emissions CO ₂ e [tonnes]	64.6	113.12	79.8

Note: The calculations involving rental cars were converted to a new uniform calculation basis in 2020. It was possible to record the number of vehicles rented and kilometers traveled for the first time in full in the 2020 year under report. The figures for the year under report are therefore not comparable with those for the previous year. ^{*)} To facilitate comparison, the figures for 2019 have also been calculated using the new uniform calculation basis and additionally stated.

Rail travel Scope 3

We encourage our staff to undertake as many business trips as possible by train. In 2020, our employees traveled a total of 199,714 km by rail, corresponding to an increase of 18 percent (2019: 168,530 km). ■

Rail travel	2019	2019 ^{*)}	2020
Total kilometers	168,530	168,530	199,714
Emissions CO ₂ e [tonnes]	0.583	0.583	2.0

Note: The calculation of rail travel was converted to a new uniform calculation basis in 2020. ^{*)} To facilitate comparison, the figures for 2019 have also been calculated using the new uniform calculation basis and additionally stated. In this case, however, no changes arose in the volume of CO₂ emissions.

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Promoting biodiversity

We have converted an area of around 12,500 m² at our company premises into bee and insect pastures. In 2020, we added a “Benjes” hedge and sowed further seed mixtures, including Hönningenbienen seeds. This way, we are supporting the accumulation of wild bees in accordance with the recommendations of the Nature and Biodiversity Conservation Union (NABU).

Building a “Benjes” hedge involves planting several wooden stakes in two rows in the ground and then stacking deadwood, brushwood, and other garden waste to form a hedge. Insects, amphibians, reptiles, and spiders benefit from the deadwood, as do birds, bats, hedgehogs, dormice, and other animals. As a general rule, the thicker the deadwood is, the better suited it is as a habitat and the more nutrition can be found. And deadwood is particularly rich in species if it receives sunshine or is positioned upright. In the summer, there is an endless bustle of insects, such as blue carpenter bees, and lizards and other thermophile species can also be seen. ■



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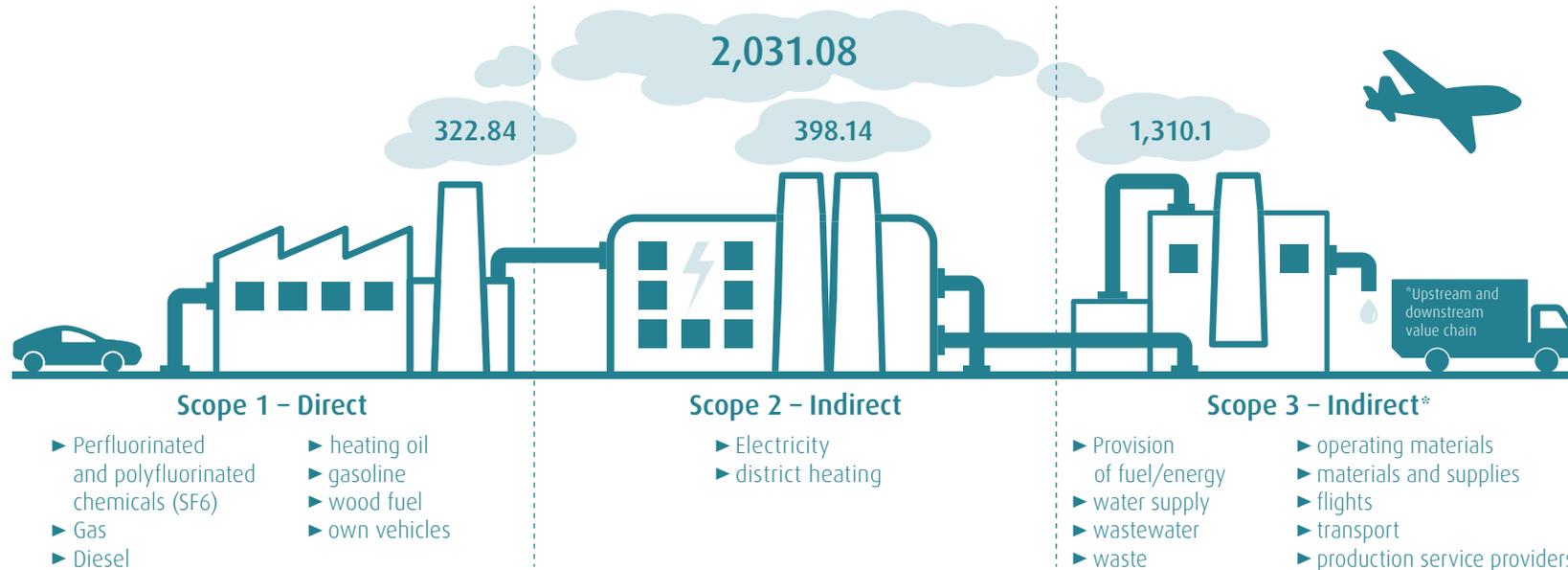
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Climate balance sheet successfully consolidated

Consistent with our aim of continually reducing our CO₂ emissions, since 2018 we have also recorded the key figures for our international subsidiaries around the world. In 2019, we presented a comprehensive balance sheet for the first time for AIXTRON SE and our subsidiary APEVA SE. This balance sheet initially recorded Scope 1 and 2 emissions. With the aim of compiling a complete climate balance sheet including all scope emissions relevant to the GHG Protocol, in 2020 began recording Scope 3 emissions in the company's upstream and downstream business activities as well. These figures will gradually be included in our future reporting and will play a major role in the development of our sustainability targets for the future.

At our customers, our products and equipment help to reduce the volume of resources used compared with older technologies. To account for this contribution to efficiency enhancement in any assessment of our climate balance sheet, we have decided to present developments in relation to our revenues. ■



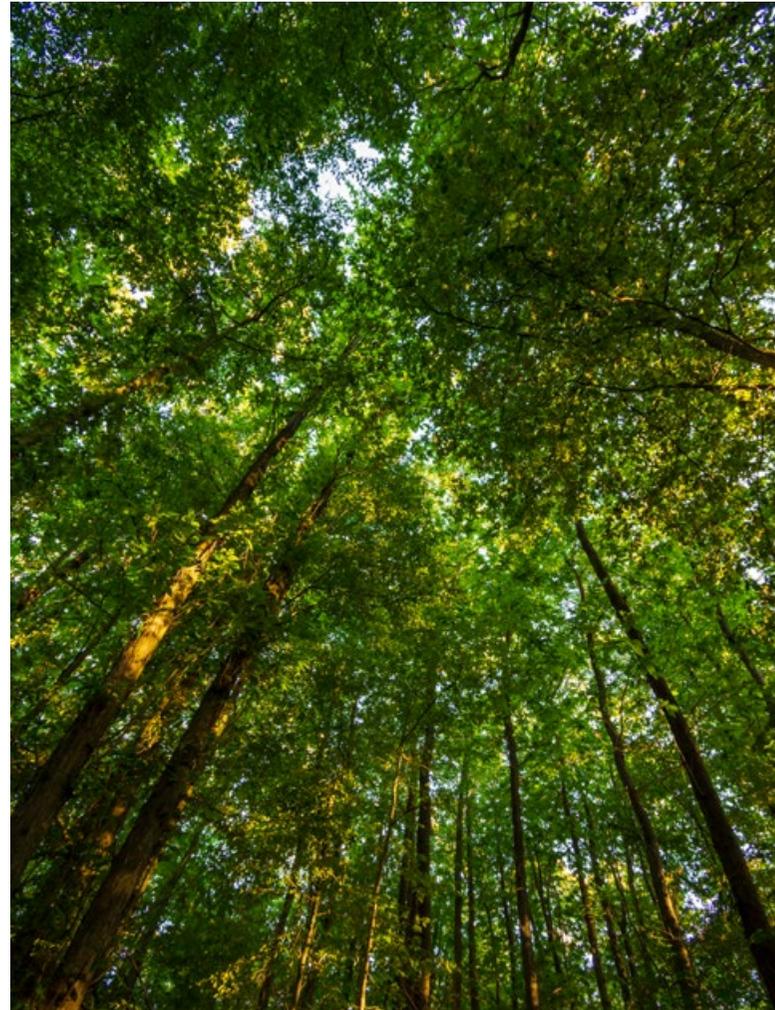
CO₂e emissions in absolute figures and in relation to revenues

In total, we emitted 2,031.08 tonnes of CO₂ equivalents in 2020 (2019: 4,215.37 tonnes), which corresponds to a reduction of almost 52 percent. Emissions comprise Scope 1 emissions of 322.84 tonnes (2019: 170.8 tonnes), Scope 2 emissions of 398.14 tonnes (2019: 406.6 tonnes), and Scope 3 emissions of 1,310.1 tonnes (2019: 3,637.97 tonnes) (cf. chart on page 49).



In relation to revenues at AIXTRON SE, emissions fell to 7.54 tonnes per EUR 1 million of revenues (2019: 16.24 tonnes/EUR 1 million).

This reduction is due to the measures taken by the government and resultant restrictions in connection with the coronavirus pandemic, which were reflected in substantially reduced travel activities by our employees. This factor offset the slight increase in Scope 1 emissions. ■



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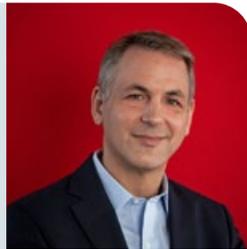
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Offsetting projects in Peru and Uganda

Since 2019, we have offset the unavoidable CO₂ emissions resulting from our business activities, which have been recognized to date in our climate balance sheet, by supporting two certified climate protection projects.

By supporting these two projects, we offset exactly that amount of CO₂ equivalents which corresponds to those emissions from our business activities that we cannot avoid. In selecting the projects, we made sure that the two projects meet the highest certification standards and thus satisfy strict, internationally recognized norms.



Dr. Felix Grawert · Executive Board member

We selected the projects due to their positive impact on the environment, climate, and local populations. The emissions saved are regularly reviewed and confirmed by independent experts.

In the interests of sustainable development, we decided in 2020 already to extend the period for which we are supporting the two projects by a further three years to 2023. ■

We support certified climate project projects

Protecting rainforests

The sustainable forestry project in the “Madre de Dios” region of Peru works with local residents to implement measures and initiatives to use the Amazon forest on a sustainable basis and to access alternative sources of income for the local population. ■



Energy-efficient and healthier stoves

In Uganda, we are supporting the distribution of energy-efficient stoves in private households. These enhanced stoves help families to save up



to 50 percent of the fuel they use and thus to reduce the concentration of harmful substances in the air in their kitchens and living rooms. Further details about the projects we support can be found on our [website](#). ■

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Our position as one of the leading providers on the global market and AIXTRON's remarkable technologies are the result of our innovative capacity and competitiveness, as well as our ability to continuously enhance our productivity. We owe this mostly to the skills and expertise of our employees, as well as to their great commitment and willingness to perform.

We owe our leading position on the global market and our innovative capacity to the commitment and outstanding expertise of our staff. Our HR activities aim to create an inspiring, safe, and exciting environment and to foster mutual appreciation and cooperation in our dealings with one another.

Markus Urban · Director Human Resources



To maintain our rapid pace of innovation, we depend on the commitment shown by our employees and our ability to attract ambitious upcoming talent to our company. By accompanying, supporting, and challenging our employees on an individual basis, we safeguard the quality of our products and processes, our innovation potential, and thus also our ability to create long-term value. Well-structured HR activities and working conditions that are safe, healthy, and employee-friendly – these are essential factors. After all, to achieve best performance in the long term the company needs satisfied and dedicated employees. ■



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Interview with Markus Urban · Director Human Resources

Since March 2020, the measures taken to contain the COVID-19 pandemic have had a significant impact on the daily working lives of your employees and on processes at the company. How did AIXTRON's HR department react to the pandemic?

For us as an international company, coronavirus was and still is a challenge on many levels. First and foremost, it involves protecting our staff at the company, where we acted very quickly to switch many activities to mobile working. For those activities which absolutely require staff presence, we implemented necessary hygiene measures.

The pandemic has led to an acceleration in digitalization and agile processes.

Markus Urban · Director Human Resources



In parallel, we deployed a coronavirus taskforce which includes the Executive Board and various departments. In this body, we take decisions as to the measures required and continually share information on the latest developments. Overall, by introducing extensive measures we very quickly managed to create a safe working environment for our staff.

With regard to our customers, we were obliged to try new approaches. Before the pandemic, our employees were on location to offer services when the equipment was installed. However, coronavirus led to extensive restrictions on global travel. For some of these tasks, we are planning to use digital solutions such as augmented reality and remote work in future and thus enable customers to perform specific activities with our remote support. For those employees who nevertheless traveled to customers, we offered more specific support in planning and execution of their journeys.

You have been at the company for two years. What aspects have struck you positively and where do you see a need for further development?

AIXTRON is permanently changing. We have grown very rapidly and compete in a global league. We are a high-tech company operating on the global market and have enormous opportunities in numerous markets. We are also benefiting from numerous megatrends, such as energy efficiency, mobility, and digitalization. To make the most of these opportunities, we have to become faster and more agile as a company and more up-to-date in terms of the way we work and our structures.

Last year, the Executive Board and management team compiled a clear strategy for the future and for growth. If we are to implement this successfully, we will have to take our staff with us and provide targeted support, for example in the

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field of training and development, where we are building on a comprehensive concept for HR and organizational development.

To support our further growth, we will further expand the attractiveness of our brand as an employer. This will require a modern corporate culture with efficient processes, a mature management culture, and sustainable HR management. We have therefore developed a roadmap for our HR activities which we will now gradually implement. Putting AIXTRON's vision for the future into practice will require substantial changes to be made.

One topic for the future is attracting the next generation of staff. What is AIXTRON doing to enhance its attractiveness in the competition for talented specialists and managers?

That is certainly a highly topical question and a key task for the HR department. Some of the measures I referred to are clearly targeted at potential employees. We aim to attract employees with an open and modern corporate culture, one backed up by fascinating products, our status as a global market leader in numerous markets, and the advantages of working at a medium-sized company. Our business model is intact, which means we took on staff even during the pandemic, while numerous other sectors had to lay off staff. To underline AIXTRON's brand as an employer even more clearly, we have revised our internet presence and our job adverts, for example.

We now show more clearly what makes our company special, what the particular appeal of a specific job is, how we generate added value for customers and

society, and what future employees can expect with us. On the one hand, we provide potential and existing employees with meaning in their work, a factor that is increasingly in demand these days, as well as attractive salaries and additional benefits, development opportunities, or a company pension scheme. And of course there is also the opportunity of working in an international environment with people of more than 30 nationalities while still enjoying the advantages of a medium-sized company.

And then there are the cooperations with universities and the memberships in research cooperations, which help to raise awareness of our company and its staff. And at job fairs, we specifically approach those students who have the sophisticated technical expertise we need. Here, we deliberately focus on towns and cities that have a good reputation for technical study programs, but only a limited number of permanent jobs available.

What role does sustainability have to play in terms of HR management?

A company is only ever as good as its employees – and as how it treats its staff. We know how important our staff is. By offering flexible working hour models and generous working time accounts, we directly support our employees and account for different ways of life. We see ourselves as a good employer, and often receive feedback to that effect.

For us, though, sustainable HR management also means planning and implementing our measures and activities in line with the company's long-term strategy and making sure that staff view us as reliable partners. ■

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Occupational health and safety

We base our occupational health and safety on the motto “zero tolerance for accidents” and therefore apply a prevention-based approach in our work safety measures. The top priority is always to avoid all potential risks of injury. For this reason, we investigate all work accidents in order to detect and consistently remove any potential risks in our technical and organizational processes. Occupational health and safety are a particular responsibility of our managers. It is also important for us to make sure that all employees understand that they too are responsible for supporting our objectives and measures in the field of occupational health and safety.

The consistent and targeted implementation of suitable operating measures to avoid coronavirus infections among our staff during the pandemic also reflects our understanding of occupational health and safety. These measures were strictly based on recommendations made by the federal and state governments and the Robert Koch Institute. ■



“Safety First!” – thanks to our Health and Safety Committee

The members of the Health and Safety Committee (ASA), which comprises a representative of the management, two members of the works council, the company physician, safety specialists, and the safety officers, hold quarterly meetings to discuss a predefined agenda. ASA meetings are also attended by a representative of the severely disabled, as well as by one representative each from the Facility Management, Human Resources, and Compliance departments.

We instruct all our employees on topics relating to occupational health and safety protection on a regular basis, and at least once a year, and also include factors of current relevance, such as the protective measures required during the coronavirus pandemic.

In the ASA group, three employees have been appointed as internal safety specialists. Together with the company physician, they are responsible for advising managers, the works council and employees, as well as for training safety officers.

The ASA is assisted in its activities by a total of 111 company first-aiders at our sites in Germany (2019: 147). ■

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Employee health and safety

A total of 18 working days were lost due to accidents in 2020 (2019: 230). There were also two accidents on the way to or from work in 2020 (2019: 3) and a total of 18 injuries entered in the first-aid manual (2019: 29). Thankfully, none of the accidents in 2020 had fatal consequences (2019: 0).

Around 26 percent of AIXTRON’s employees work in production and around 32 percent in research, both areas in which the highest safety standards apply and all actions, even unconscious moves, have to be safe and correct. This being so, we attach great importance to providing regular instructions and optimal protective equipment and to making sure that employees look out for one other and pay attention to each other’s safety.

	2019		2020	
	Men	Women	Men	Women
Working days lost (work-related sickness and accidents)	230	0	18	0
Number of injuries	20	9	12	6
Accidents on way to/from work	3	0	2	0

Working days lost due to work-related sickness and accidents (excluding accidents on way to/from work) and number of work-related injuries.

For AIXTRON, maintaining a company integration management system to enable employees to return to work after extended periods of sickness or reintegrate them after accidents is not just a legal obligation. It is also a self-evident part of the company’s efforts to uphold the working capacity and employability of its staff. ■



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Health protection is an issue of management

We accord the utmost priority to the health and wellbeing of our employees. In our health program we provide employees with access to various preventative measures, such as regular and ongoing occupational medical examinations, flu vaccinations, and range of sports opportunities.

We are aware that working conditions, a trusting and constructive environment, and a cooperative management style have an essential impact on employees' wellbeing and health. To account for this, we attach great importance to a constructive feedback culture based on partnership.

Our managers encourage individual employees to take responsibility for themselves and their colleagues and, when planning work duties, provide employees with the greatest possible flexibility in combining their private and working lives to the extent permitted by operating requirements. ■



Response to coronavirus pandemic calls for flexibility and consistent hygiene

In 2020, the coronavirus pandemic forced AIXTRON to rethink its approach and to make substantial adjustments to its work routines in some areas. Our company was already affected by infections among individual employees at an early stage of the pandemic. In close cooperation with employee representatives, all prescribed and necessary measures to protect our workforce were implemented swiftly and with due care.

Trips to and from China were discontinued, for example, while staggered lunchtimes were organized in the canteen, with partitions and disinfectant dispensers installed. Between March and June, all employees whose activities could be performed from home were encouraged to work in their home offices and equipped with mobile work equipment. The introduction of shift-based work in production departments reduced the number of employees present at the same time.

These measures aimed at avoiding contacts created additional safety for employees and the company during the pandemic. The exemplary conduct of all employees and consistent implementation of and compliance with all measures enabled us to avoid further infections while upholding normal business operations. ■

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Ω Diversity boosts our competitiveness

For us, diversity does not just mean ensuring equality of opportunity, but is a way of boosting our innovative strength and competitiveness. For the AIXTRON Group, a workforce made up of people from different cultures, an appropriate gender balance, and a balanced age structure are an active part of our corporate culture.

AIXTRON is explicitly committed to equality of opportunity and promotes cooperation in mixed teams. This way, we are able to understand the needs of our international customers more closely and can assess potential solutions from a variety of perspectives.

Our commitment is also official: By signing the “Diversity Charter” in 2018, we committed AIXTRON to creating and maintaining a working environment that is free of prejudice and discrimination.

In 2020, AIXTRON employed 745 people (2019: 703) from 35 nations (2019: 52) worldwide. Overall, our male employees came from a total of 26 nations, while our female employees came from 20 nations (2019: men: 43, women: 17 nations). Despite various efforts to increase the share of female employees, the ratio is not balanced. As of December 31, 2020, men made up 80 percent of our workforce, while women accounted for 20 percent. We attribute this to the company’s strong focus on technology and to the difficulties in attracting women in Germany to careers in this area. ■



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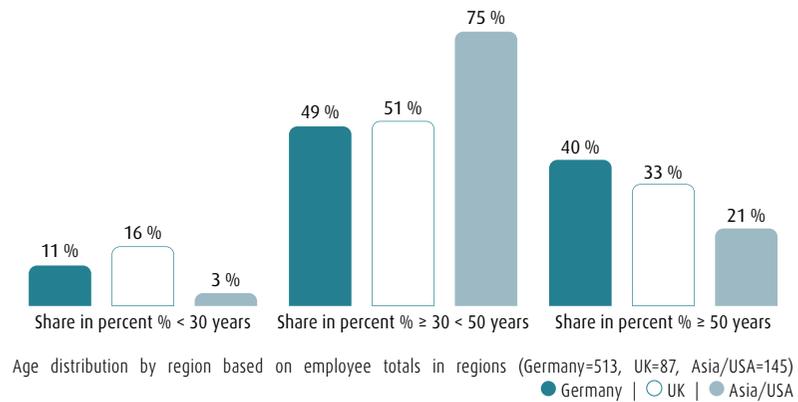
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Flexibilization of daily working life

Efficient and digital processes

We have digitalized an ever greater share of our processes in recent years, a trend which accelerated further in 2020 due to the coronavirus pandemic. Mobile workplaces have been offered wherever operating requirements permit. During the coronavirus crisis, staff were enabled to perform up to 100 percent of their working hours from home. Due to travel restrictions, we converted part of our customer service to digital solutions such as augmented reality. A further current development focus involves digitalizing our processes with the help of efficient SAP tools. In 2020, we introduced “Fiori”, a new SAP time management system. This modern web-based tool simplifies documentation, handling, and change notices for the employer, while also enabling employees to provide various information themselves. ■



Country	Age group	2019		2020	
		Number	Total	Number	Total
Germany	< 30 years	47	464	57	513
	≥ 30 < 50 years	238		252	
	≥ 50 years	179		204	
UK	< 30 years	13	87	14	87
	≥ 30 < 50 years	46		44	
	≥ 50 years	28		29	
USA	< 30 years	0	33	0	30
	≥ 30 < 50 years	20		16	
	≥ 50 years	13		14	
KOR	< 30 years	3	34	2	31
	≥ 30 < 50 years	29		26	
	≥ 50 years	2		3	
JP	< 30 years	0	14	0	13
	≥ 30 < 50 years	7		5	
	≥ 50 years	7		8	
CN	< 30 years	3	38	3	41
	≥ 30 < 50 years	35		38	
	≥ 50 years	0		0	
TWN	< 30 years	1	33	0	30
	≥ 30 < 50 years	27		24	
	≥ 50 years	5		6	
Σ		703 ^{*)}		745 ^{*)}	

Distribution of employees by age group and region *) Headcount

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Transparent communications

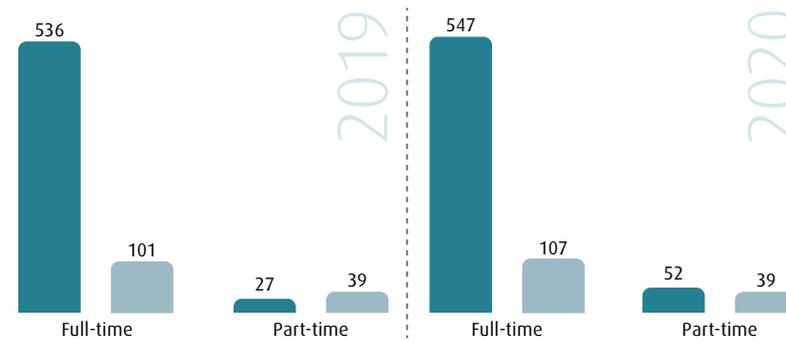
Communication is key to any successful cooperation. That is why we accord great importance to a cooperative communication and to providing regular and transparent information to the whole workforce. In digital staff meetings held each quarter, the Executive Board informs all colleagues worldwide about the company's business performance, customer wishes, market developments, and new company agreements. Recordings of these events mean that colleagues who are unable to watch them live can also keep track of developments. Furthermore, all relevant information is promptly published in suitable media channels. As required, our newsletter provides extensive information about current topics and the latest developments at the company. A project involving targeted staff surveys on a wide variety of topics was also initiated in 2020. ■

		2019		2020	
		Full-time	Part-time	Full-time	Part-time
Germany	Men	348	23	382	31
	Women	59	34	67	33
UK	Men	73	3	74	2
	Women	6	5	6	5
Asia/ USA	Men	115	1	91	19
	Women	36	0	34	1
Σ	Men	536	27	547	52
	Women	101	39	107	39
Total (Headcount)		703		745	
Total (FTE)		688		728	

Employee totals, broken down by type of employment relationship.

Flexible work models and leave

Today's world of work places many demands in employees and their families. We therefore make every effort to ensure, where possible, that the company's business interests are compatible with the private and family needs of our employees. Mobile work and video telephony are on the advance, and not just because of the coronavirus crisis. Since 2020, we have offered mobile workplaces and flexible working hours to our employees.



Overview of men and women, broken down into full-time and part-time employment, at the AIXTRON Group in the year under report compared with the previous year. ■ Men | ■ Woman

Since 2020, employees have been allowed to perform up to 20 percent of their weekly working hours from home, with this restriction being lifted during the coronavirus pandemic. Using individual time accounts, each employee can individually design and largely determine their working hours in accordance with operating requirements. We also offer individually tailored part-time employment options. In 2020, a total of 91 employees were employed on a part-time basis (2019: 66), of which 39 women (2019: 39) and 52 men (2019: 27).

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At our sites around the world, we also support the desire on the part of parents to take parental leave after the birth of their children. A total of 745 employees were entitled to parental leave (2019: 703). Fifteen employees in Germany and the UK drew on this option. We are pleased to report that, once again in 2020, all employees returned to work after their parental leave.

	Employees taking parental leave		Employees returning to work after parental leave	
	2019	2020	2019	2020
Europe	20	15	100 %	100 %
Asia / USA	2	0	100 %	---

Since 2012, we have supported a nearby childcare facility (TP Hasen) with an annual donation of EUR 1,800. This is intended to help staff and parents at the Herzogenrath site in their efforts to find a childcare facility close to their workplace. ■

Temporary employment and contracts

Given the great importance of specialist skills and expertise in its activities, AIXTRON has a strong interest in retaining its employees at the company on a long-term basis. Having said this, AIXTRON's products are subject to great fluctuations in market demand. To secure our profitability, we have to be able to react flexibly to these fluctuations and, in exceptional cases, agree temporary contracts or work together with established engineering service providers and temporary employment agencies.

		2019		2020	
		Permanent	Temporary	Permanent	Temporary
Germany	Men	353	18	381	31
	Women	81	12	89	12
UK	Men	76	0	76	0
	Women	11	0	11	0
Asia/USA	Men	100	16	91	19
	Women	34	2	34	1
Σ	Men	529	34	548	50
	Women	126	14	134	13
Total (Headcount)		703		745	
Total (FTE)		688		728	

Permanent and temporary employees in the AIXTRON Group broken down by gender and region.

At our German locations, we have firmly anchored the relevant procedures in a company agreement and additionally committed ourselves on a global basis to the "equal pay" principle and compliance with the "equal treatment" principle

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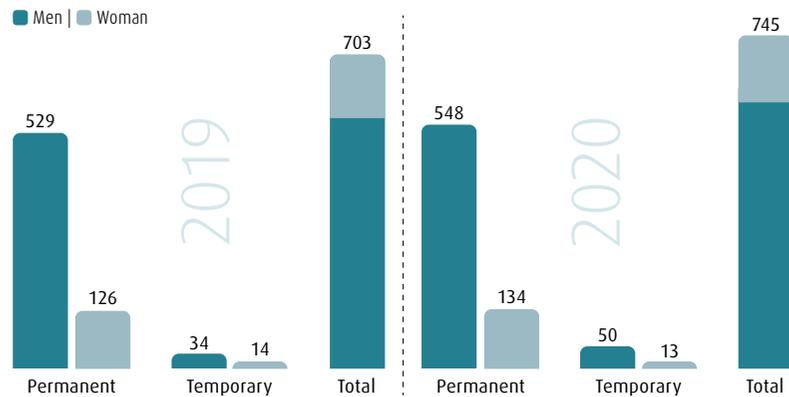
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for temporary and permanent employees. All employees therefore benefit from the grants provided to use our canteen. It also goes without saying that all our employees are equally welcome to attend company events such as employee and Works Council meetings and summer and Christmas parties.



Overview of men and women in temporary and permanent employment at the AIXTRON Group.

In 2020, AIXTRON had an annual average total of 38 temporary employees (2019: 54), corresponding to a reduction of just under 30 percent. Of these, 30 were in Germany (2019: 44), 5 in the UK (2019: 7), and 3 in Asia (2019: 3). A total of 63 employees had temporary contracts in the year under report (2019: 48), corresponding to an 8.5 percent share of the overall workforce. Of these, 13 were women (2019: 14) and 50 men (2019: 34). ■

Ω Attracting and retaining highly qualified staff as key success factor

AIXTRON operates in a rapidly changing business climate and is dependent on highly qualified and motivated specialist and management staff. In the competition to attract the best talents, our attractiveness as an employer is a key success factor.

Our business has grown in recent years, which is reflected in the fact that almost 13 percent of our employees have been newly hired. Despite the more difficult economic climate resulting from the coronavirus pandemic, we were able to hire a total of 95 employees once again in 2020 (2019: 162). These new staff hires, which were mainly in Germany, Asia, and the USA, included 18 women (2019: 52) and 77 men (2019: 110). The overall personnel turnover rate over the same period amounted to 6.6 percent (2019: 6.1 percent).

Due to the high number of employees newly hired last year, we further stepped up our efforts to target graduates, trainees, and interns at career and training fairs. In our selection and hiring process, we attach great importance to transparency and equal opportunities. As a general rule, we offer permanent employment contracts to new colleagues. We naturally comply at all times with national legal requirements concerning the protection of employees' rights, company-internal agreements, and statutory notification deadlines.

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One core element of our external presence as an employer is our careers website, where we provide interested parties with extensive information and motivate them to apply. Based on a specific requirements profile, AIXTRON selects its employees in accordance with their specialist and personal qualifications and their previous experience. Due to the coronavirus pandemic, we held numerous online interviews in 2020 and only invited applicants to meetings on site once the application process had reached an advanced stage. The success and effectiveness of this approach ultimately convinced us to adopt this change in our selection process on a permanent basis.

One important aspect for us is to integrate new employees quickly and well into our processes and their new group of colleagues. To manage the growing numbers of new staff, we decided in 2019 to implement a preplanned and well-structured on-boarding process.

		< 30 years	Share in %	≥30 < 50 years	Share in %	≥ 50 years	Share in %	Women Σ	Men Σ
2019	Germany	20	32 %	34	55 %	8	13 %	17	45
	United Kingdom	7	37 %	10	53 %	2	10 %	1	18
	Asia / USA	3	5 %	39	71 %	13	24 %	34	47
2020	Germany	20	27 %	44	59 %	10	14 %	16	58
	United Kingdom	3	27 %	5	45 %	3	27 %	1	10
	Asia / USA	2	20 %	7	70 %	1	10 %	1	9

Age structure of newly hired employees at AIXTRON SE. A total of 95 employees were newly hired at the AIXTRON Group in 2020 (2019: 162), of which 18 women and 77 men.

	2019		2020	
	non-local	local	non-local	local
Germany	100 %	0 %	80 %	20 %
United Kingdom	0 %	0 %	0 %	100 %
Asia/USA	22 %	78 %	6 %	94 %

Share of management staff hired locally and non-locally at the AIXTRON Group.

Here, the responsible departments provide a fixed structure with topics for individual discussion and personal meetings in advance and formulate these plans in writing. This is intended to ensure that our new colleagues very quickly feel at home at our company and are able to find their way round and integrate as soon as possible.

	< 30 years		≥ 30 < 50 years		≥ 50 years		Turnover rate	
	2019	2020	2019	2020	2019	2020	2019	2020
Germany	4	2	11	21	4	2	4,1 %	4,9 %
United Kingdom	3	2	4	4	2	4	10,3 %	11,5 %
Asia/USA	1	0	13	14	1	0	9,9 %	9,7 %

Breakdown of employees leaving the company by age group and personnel turnover rate as a proportion of employee totals for each region. The overall personnel turnover rate for the AIXTRON Group amounted to 6.6 percent in the 2020 year under report (2019: 6.1 percent)

Further information about employee selection can be found in the Group Management Report in the “Employees” section of the “Business Model” chapter. ■

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Ω Jointly promoting and supporting progress

Life-long learning on the part of our employees and measures to safeguard our expertise in the specialist fields in which we operate, including the latest developments in research, are essential if we are to maintain our market position in the long term. We therefore accord great importance to accompanying our staff competently and as partners, supporting them individually, and challenging them with forward-looking projects. Ongoing comparisons with the company's needs are just as important as the measures taken by employees to actively shape their own development and regular feedback from manager to employee with regard to his or her performance and strengths.

Year	Total hours	Number of employees	Average hours per employee	Number of hours for men	Average hours for men	Number of hours for women	Average hours for women
2019	14,873	703	21	12,739	23	2,134	15
2020	6,273	745	8	4,981	8	1,292	9

Overview of training measures at the AIXTRON Group.

As part of our company-wide personnel development concept, we provide our employees with numerous measures for ongoing training, as well as individual training measures and development opportunities. One core component of this approach is the in-house AIXTRON Academy, which offers a diverse range of training measures, such as discussion, time, and stress management skills.

Furthermore, we promote the development of executives and employees with external individual coaching programs, including techniques for management development, as well as internal coaching programs and conflict resolution services. We are also increasingly encouraging employees to share ideas in their peer groups and offer each other coaching. We currently have five groups of this kind.

Since 2013, personnel development and career planning have been based on the annual employee appraisal meeting, at which the employee's training needs for their current and future roles are identified and the employee's personal interests and wishes are discussed. Based on a company-wide standard, managers and employees can give each other feedback and discuss measures to enhance their cooperation, if appropriate, and promote the employee's strengths. A further major component of the employee appraisal meeting is the agreement of development goals.

In 2020, AIXTRON invested an average of EUR 324 per employee in personnel development and training (2019: EUR 563). On average, each employee trained for eight hours in the 2020 year under report (2019: 21). ■

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Offering training to secure the next generation of staff

We see the training we offer to the next generation of staff in technical and commercial vocations and in dual study programs not only as part of our responsibility to society, but also as the basis for our company's ongoing success.

This way, we give young people the opportunity to prove themselves, to develop their strengths, and to contribute their ideas. We are proud that AIXTRON trainees have repeatedly been singled out by the Aachen Chamber of Industry and Commerce in recognition of their outstanding performance.

		2019	2020
Herzogenrath (Germany)	System integration IT specialist	6	7
	Math-technical software developer (MATSE)	3	2
	Industrial clerk	3	4
	Bachelor of Science (BWL+)	2	1
	Mechatronics engineer	2	2
Cambridge (UK)	Design engineer	1	1
	IT specialist	1	0
	Production trainee (technicians)	2	1
Total		20	18

Numbers of trainees per training programme



In fiscal year 2020, we employed a total of 18 trainees and students in dual study programs in Germany and the UK (2019: 20). It is important to us to offer young people a perspective upon the successful completion of their training. Consistent with this, in recent years AIXTRON has accepted all of the trainees and dual study program students wishing to remain at the company. ■

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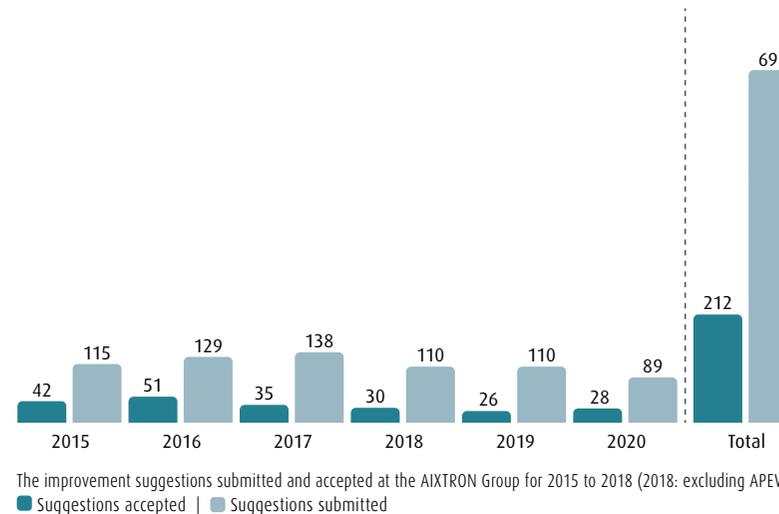
Innovation management

In a structured working environment characterized by well-planned daily processes, new ideas and wishes on the part of staff do not always receive the attention they deserve. To nevertheless encourage and show our appreciation for these ideas, in 2015 we established a company suggestion scheme based on uniform principles worldwide as part of our innovation management process. All employees are encouraged to submit their ideas on how to improve processes, save costs, enhance products, etc.

If the suggestions are accepted, then the company pays a reward to the employee. This year, a total of 89 suggestions were submitted, of which 28 were accepted. Since the scheme was introduced, the number of improvement suggestions submitted has been pleasingly high. Since 2015, we have acknowledged and rewarded the suggestions thereby submitted at a consistently high level. ■

Type of improvement suggestion submitted	2019		2020	
	submitted	accepted	submitted	accepted
Business process	15	10	12	4
Product	35	7	28	13
Application	4	2	3	0
Transformation	2	1	1	0
Other	54	6	45	11
Total	110	26	89	28

Improvement suggestions submitted and accepted by topic area



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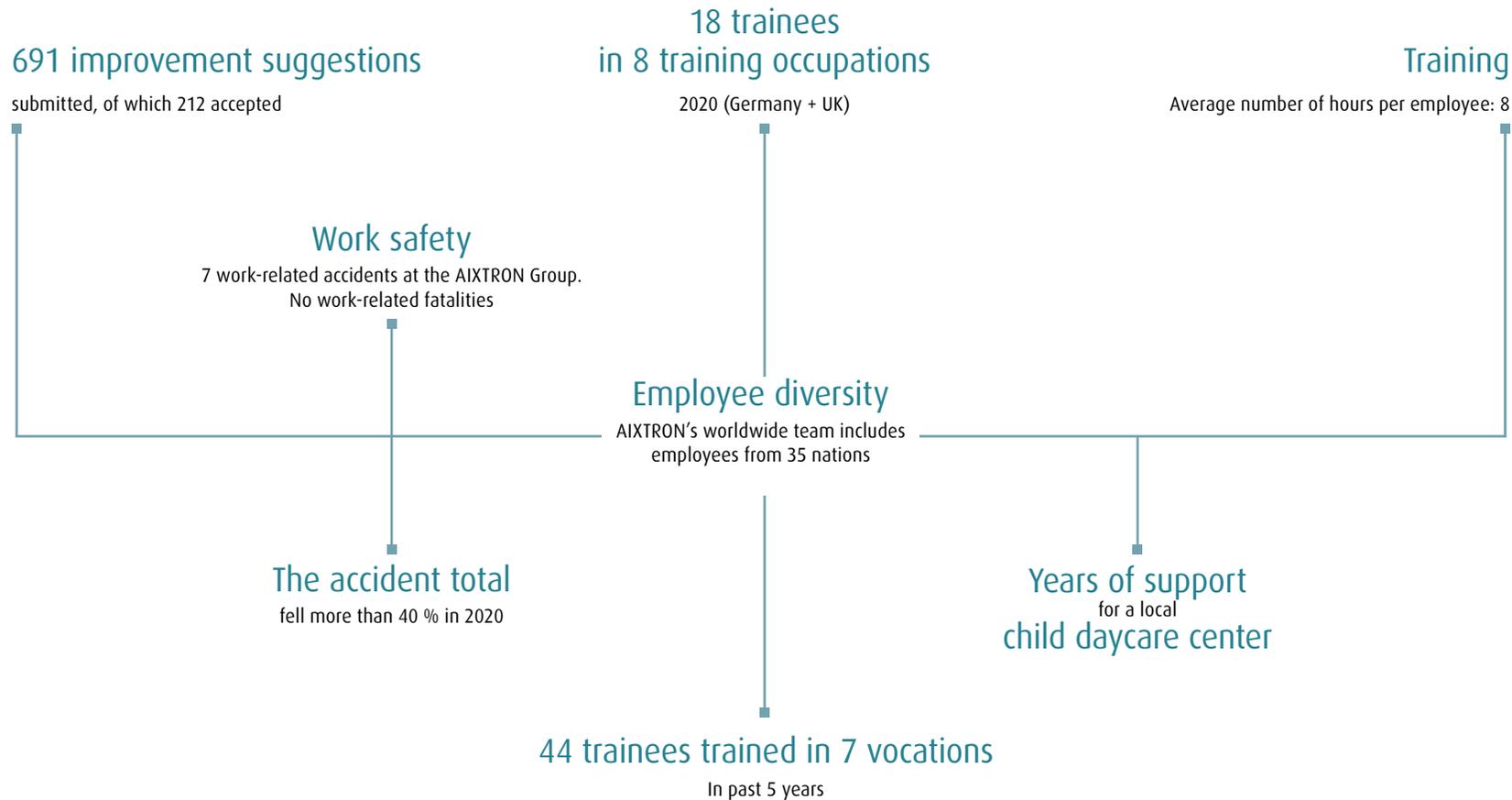
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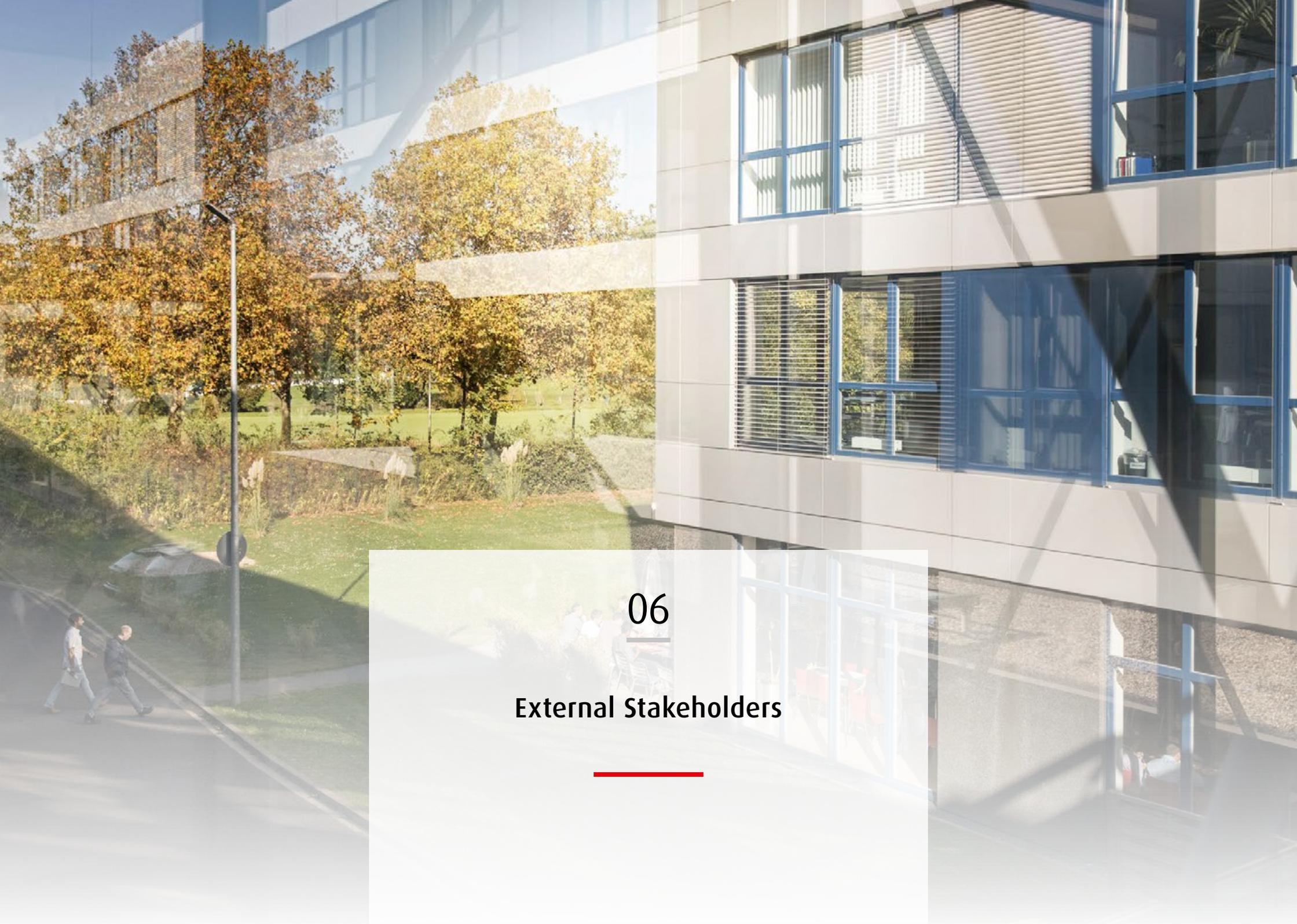
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Value chain and social commitment

Key figures of supplier relations

Given the high share of value contributed by the supply chain, the purchasing process is a very significant factor in AIXTRON's long-term success. AIXTRON does not produce any mechanical or electrical systems and components itself, but rather focuses on development, configuration, and final assembly.

We attach great importance to working together with our suppliers on a basis of partnership. This is reflected, for example, in development partnerships in which we develop components and modules in cooperation with suppliers. The key factors determining our selection of suppliers are primarily quality, production competence, supply reliability, and price. We also require our suppliers to comply with applicable laws and legal requirements pursuant to our Supplier Code of Conduct, as well as with international minimum standards in the area of sustainability, such as the core labor standards of the International Labour Organization (ILO). We do not tolerate any use of conflict minerals within the supply chain (cf. Chapter [Tracking potential conflict minerals](#)).

We currently work with a total of 1,102 suppliers from 30 countries and have purchasing volumes of EUR 179.9 million. Compliance with sustainability aspects is monitored using a risk-oriented approach. In the first stage, compliance with environmental and social standards at all suppliers is reviewed by the infor-

mation they provide in a survey. This requires suppliers to explain the processes established at their companies to safeguard compliance with the standards.

Material disclosures made by suppliers also have to be documented with suitable evidence. All relevant documents are provided to our existing and potential suppliers via our company website. In the course of expanding our Quality department, we had planned to increase the frequency and extend the scope of our audits on location. Due to the pandemic, however, it has not been possible to conduct on-site audits to the extent originally planned.

We encourage our suppliers to establish management systems in the areas of work safety, health protection, and environmental protection that conform to the DIN EN ISO 90021, ISO 14001, and BS OHSAS 18001 standards or to similar standards.

	2019	2019*	2020
Number of suppliers (worldwide)	1,335	1,051	1,102
Purchasing volumes (EUR million)	226.3 Mio.	123.2 Mio.	179.9 Mio.

Note: Number of suppliers and purchasing volumes at the AIXTRON Group. Since 2020, we only report purchasing volumes excluding intragroup transactions. *) To facilitate comparison, the figures for 2019 are stated firstly including intragroup purchases (right 2019 column) and secondly excluding these transactions (left 2019 column).

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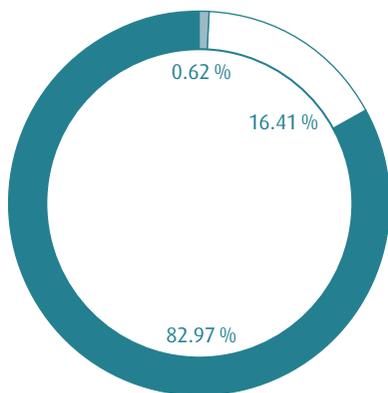
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Distribution of suppliers by region - Number of main suppliers:
 ● Europe | ○ North-/Southamerica | ● Asia

The cooperation extends to suppliers, e.g. from the mechanical and plant engineering sector, the electrical engineering sector, as well as to engineering service providers, suppliers of technical gases, and energy suppliers.

AIXTRON is an international company but nevertheless has local roots. Despite global purchasing, local value creation plays a very important role due to the high technical requirements placed in suppliers. In Germany, more than 82 percent of procurement is local, while in the UK this share is as high as 94 percent. The precondition for cooperation is in all cases compliance with the company’s high quality standards and the supplier’s ability to ensure the necessary production competence at a comparable price. AIXTRON procures its production and non-production materials predominantly in those regions in which it operates. ■



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Associations and initiatives

We are involved in a large number of organizations and associations with the aim of advancing sustainable developments and resource efficiency in photonics and semiconductor technology. We were founding members of Photonics21, now a private public partnership (PPP), with the European Commission and the International Solid State Lighting Alliance (ISA) in China, and have been actively promoting its further development for years. ■

Sharing ideas with other energy experts from different industries, particularly on topics such as heating energy, cooling energy, compressed air generation etc. is certainly helpful. This is apparent, for example, in the energy structure of our laboratory facilities and the air conditioning based on heat pumps.

Horst Repschläger from the Facility Management department

Carbon Disclosure Project (CDP)



As part of our involvement in the Carbon Disclosure Project (CDP), we have been reporting once a year since 2010 on the ecological impact of our business activities and our corporate strategy to reduce CO₂ emissions.

This way, AIXTRON is promoting transparency for investors, companies, political decision-makers, and the media. We will be making further efforts to improve our assessment in the years ahead. ■

Part of the nationwide initiative “Energy Efficiency Network”



In 2020, we extended our membership in the Energy Efficiency Network for another two years. As founding members, we have been involved in this initiative with eight other companies in the Aachen region since 2016. The objective of the network is to identify and implement economic energy savings potential at the companies. Over the past three years, it has already managed to save 41,000 megawatt hours of energy and thus avoid more than 11,000 tonnes of CO₂ emissions. AIXTRON too has been able to draw on the advantages of the network and its quarterly meetings for its own energy balance sheet.

The network forms part of the nationwide initiative “Energy Efficiency Networks” founded by the Federal Government and leading German business associations and organizations. By establishing and implementing around 500 new energy efficiency networks at companies, the initiative aims to achieve savings of up to 75 PJ of primary energy by the end of 2020 or 5 million tonnes of GHG emissions by 2020. ■

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Involvement in associations and organizations

Organizations / Associations	Function/Committee	Thematic focus	Headquarters of organization / association
ISA, International Solid State Lighting Alliance	Founding member	Promoting sustainable development and application of LED solid state lighting.	Shanghai, China
Responsible Minerals Initiative	Active member of the "Smelter Engagement Team" for Europe and Africa	Identification of all worldwide melts aimed at ensuring responsible mineral procurement by the companies.	Alexandria, USA
DGKK, Deutsche Gesellschaft für Kristallwachstum und Kristallzüchtung e.V.	Member	Promoting research, teaching, and technology in crystal growth, crystal breeding, and epitaxy.	Erlangen, Germany
DPG, Deutsche Physikalische Gesellschaft	Supporting member in Industry and Business Workgroup (AIW) *)	Promoting contacts and dialog in physics and industry with a focus on training physicists during their studies. Participation in the DPG's "Tag vor Ort" (Day on Site) visit and lecture program for young physics students.	Bad Honnef, Germany
IVAM e.V.; Internationaler Fachverband für Mikrotechnik	Member	Technology marketing for innovative technologies and products of high-tech industries.	Dortmund, Germany
EPIC, European Photonics Industry Consortium	Member	Promoting the sustainable development of photonics in Europe.	Paris, France
OE-A - Organic and Printed Electronics Association (VDMA)	Member	Promoting the development of a competitive production infrastructure for organic and printed electronics.	Frankfurt/Main, Germany
OLED Association (OLED-A)	Member	Promoting the faster development of OLED technology (Organic Light Emitting Diodes) and OLED products.	Houston (Texas), USA
Photonics-21 (European Private Public Partnership)	Founding member and member of Board of Stakeholders	PPP aimed at securing Europe's leading role in the development and introduction of photonics technologies in various fields of application.	Düsseldorf, Germany
SEMI/FlexTech, Semiconductor Equipment and Materials International	Member	Promoting access to regional markets and opening up diversified business opportunities, as well as promoting the growth and progress of emerging economies and adjacent technology markets.	Milpitas (California), USA
NanoMikroWerkstoffePhotonik e.V. NMWP e.V.	Member of Board	Promoting the development of new ideas, projects and partnerships in the fields of nanotechnology, microsystems technology, tools, materials, and photonics.	Düsseldorf, Germany

List of most important memberships in industry or other associations.

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Regional and social commitment

We see our company as part of society and, consistent with this, also aim to meet our responsibility towards society. For this reason, we have for many years promoted welfare projects, supported the voluntary commitment shown by our employees in the annual company run, and provided school pupils and students with the opportunity to gain insights into our company and form ideas about their own future careers. ■

Promotion of science, education, and career development

Supporting young people in science, education, and their career development is important to us. Since 2017, we have therefore cultivated a long-term cooperation with Einhard-Gymnasium, a high school in Aachen.

By offering presentations, company tours, and internships, we also provide school pupils and students with the opportunity to gain insights into the various career options on offer at our technology company. As a supporting member in the Industry and Business Workgroup (AIW) of the German Physics Society (DPG), we have also offered the “Day on Site” for many years now. Regrettably, due to coronavirus-related restrictions, this could not take place in 2020. ■



Cooperation with Einhard-Gymnasium in Aachen

Since 2017, a learning partnership has been in place between AIXTRON and Einhard-Gymnasium, a high school in Aachen. Within the “KURS” initiative (cooperation network of companies and schools in the region), these partnerships give schools the opportunity to provide their pupils with vivid and tangible examples of how business actually works by reference to a specific partner company. At the same time, companies have the chance to present themselves as employers and “good neighbors”.

Examples of the opportunities given to pupils include the “Vocation Information Days” and the “Girls and Boys Day”, where pupils visit the company and have the chance to talk to our trainees. Here, the young people share their experiences of careers choices and find out more about vocational training and the resultant career opportunities at AIXTRON. Moreover, the advantages and disadvantages of dual training and study programs as an alternative to college study are presented and a selection process is simulated in an assessment center. In “Road to Jobs”, another regular event, we provide the boys and girls with detailed explanations of the training vocations on offer at AIXTRON and are on hand to answer their individual questions. ■

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First “AIXTRON Global Virtual Run”

Since 2011, we have taken part in the annual Aachen Company Run and have also repeatedly participated in the “Chariots of Fire” relay race in Cambridge. The company promotes the motivation shown by its employees to do something for their health and covers the entry fees, which then benefit several charities in the region. This year, the organization of the annual charity run was dominated by the measures taken by the Federal Government to contain the coronavirus pandemic. At the suggestion of a staff member, in the 2020 year under report we successfully held the first virtual company run in our history. A total of 116 employees at all AIXTRON locations worldwide, and thus nearly one sixth of the workforce, took part in the “1st AIXTRON Global Virtual Run”.

With our first virtual run, we managed to motivate more colleagues to take part in this joint event than in the runs on location in previous years. Using digital options also enabled us to include all locations worldwide for the first time. We have already decided to repeat this next year.

Guido Pickert
Head of Investor Relations
and Corporate Communications



Participants were free to decide where and when they would run in the period from September 28 to October 4, as well as whether they would run alone or with others. Aged between 20 and 59, the runners could also opt for one of three distances (5, 10 and 15 kilometers).

The runners then documented their times and the distance chosen with the help of customary digital tracking apps or tracking devices. ■

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Our employees donate blood for a good cause

In cooperation with the Institute for Transfusion Medicine at RWTH Aachen University Hospital, AIXTRON employees at the Herzogenrath site donate blood each year and thus support the medical care system, e.g. by facilitating the production of blood reserves. In addition to blood donation, most of the allowances paid to blood donors also benefit charitable organization.

The amount donated by AIXTRON employees is then doubled by the company. The in-house blood donation has taken place since 2015 and is repeated each year. Due to the exceptional situation in 2020, all donation activities were regrettably cancelled by the organizer. However, we plan to hold a blood donation event once again in the coming year. ■

Contemporary art at AIXTRON

Since September 2020, we have shown pictures by the artist Andrea Künkele at our headquarters in Herzogenrath (see photo on the right www.ank-art.de). This marked the launch of our “Contemporary Art at AIXTRON” series, in which we plan to regularly exhibit pictures by contemporary artists at AIXTRON’s premises. We are being supported in this by the company Little Van Gogh (www.littlevangogh.de). ■



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GRI 102:	GENERAL DISCLOSURES 2016		
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GRI 102-2	Activities, brands, products and services	8-9, 18	Annual Report, At a 2 nd glance ...
GRI 102-3	Location of headquarters	7, 8, 84, Imprint	
GRI 102-4	Location of operations	7, 8	
GRI 102-5	Ownership and legal form	7, 84	
GRI 102-6	Markets served	25	Annual Report
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GRI 102-11	Precautionary principle or approach	21	More detailed information in Annual Report
GRI 102-12	External initiatives	59, 72	<ul style="list-style-type: none"> ▶ Diversity Charter ▶ Responsible Minerals Initiative (RMI) ▶ GRI ▶ Energy Efficiency Network Aachen
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GRI 102-14	Statement from senior decision-maker	4-6	
3.	Ethics and integrity		
GRI 102-16	Values, principles, standards, and norms of behavior	16, 58	
4.	Governance		
GRI 102-18	Governance structure	20	Annual Report

GRI Content Index

GRI Content Index

GRI disclosures	Disclosures/topic	Page in 2020 Sustainability Report	Note
5.	Stakeholder engagement		
GRI 102-40	List of stakeholder groups	11, 12	
GRI 102-41	Collective bargaining agreements	No reference	AIXTRON is not subject to any collective bargaining agreement. In the subsidiary APEVA SE there are efforts to conclude a collective bargaining agreement.
GRI 102-42	Identifying and selecting stakeholders	11, 12	
GRI 102-43	Approach to stakeholder engagement	11, 12	
GRI 102-44	Key topics and concerns raised	11, 12, 19	None
6.	Reporting practice		
GRI 102-45	Entities included in the consolidated financial statements		Annual Report
GRI 102-46	Defining reporting content and topic boundaries	19	Materiality analysis and sustainability strategy significantly influence the reporting content.
GRI 102-47	List of material topics	19	
GRI 102-48	Restatements of information	46–49	Die Berechnungsmethodik der CO ₂ -Emissionen für Papierverbrauch, Flugreisen, Firmenfahrzeuge, Mietwagen und Bahnfahrten geändert. Es wurden anspruchsvollere Werte bei der Berechnung zugrunde gelegt.
GRI 102-49	Changes in reporting	44–45	Das Thema Abfall wurde neu in die Berichterstattung aufgenommen.
GRI 102-50	Reporting period	Imprint	
GRI 102-51	Date of most recent report	Imprint	
GRI 102-52	Reporting cycle	Imprint	
GRI 102-53	Contact point for questions regarding the report	81	
GRI 102-54	Claims of reporting in accordance with the GRI Standards	9	
GRI 102-55	GRI content index	78, 79, 80	
GRI 102-56	External assurance	81	Audit Opinion in Notes to Financial Statements.
GRI 200:	Economic		
GRI 103	Management approach	17, 18	Annual Report Compliance & Whistleblowers, Customer Hotlines
GRI 103-1	Explanation of the material topic and its boundary	19	
GRI 202-2	Proportion of senior management hired from the local community	63–64	Betrag muss noch genannt werden.
GRI 202-4	Proportion of spending on local suppliers	70	
GRI 205-2	Communication and training about anti-corruption policies	21	
GRI 205-3	Confirmed incidents of corruption and actions taken	21	As in the previous year, no incidents of bribery or corruption were reported anywhere in the entire AIXTRON Group in the 2020 year under report.

GRI Content Index

GRI Content Index

GRI disclosures	Disclosures/topic	Page in 2020 Sustainability Report	Note
GRI 300:	Environmental		
GRI 302-1	Energy consumption within the organization	42, 43	
GRI 302-2	Energy consumption outside of the organization	45, 46, 47	
GRI 302-4	Reduction of energy consumption	40	
GRI 305:	Emissions		
GRI 305-1	Direct (Scope 1) GHG emissions	42, 49	
GRI 305-2	Energy indirect (Scope 2) GHG emissions	42, 43, 49	
GRI 305-3	Other indirect (Scope 3) GHG emissions	49	
GRI 306:	Effluents and waste		
GRI 306-2	Waste by type and disposal method	44, 45	
GRI 400	Social topics		
GRI 401	Employment		
GRI 401-1	New employee hires and employee turnover	64	
GRI 401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	62	No distinction is made between full-time and part-time employees. We comply with national legal requirements for the protection of employees' rights. The company is bound, also in terms of the contract structures for employment relationships, by national legal requirements, company-internal agreements, and mandatory statutory notification periods.
GRI 401-3	Parental leave	62	
GRI 403	Health and safety		
GRI 403-1	Workers representation in formal joint management-worker health and safety committees	57	
GRI 403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	57	
GRI 404	Training		
GRI 404-1	Average hours of training per year per employee	65	
GRI 404-3	Percentage of total employees by gender and by employee category who received a regular performance and career development review during the reporting period	65	
GRI 405	Diversity and Equal Opportunity		
GRI 405-1	Diversity of governance bodies and employees	64	Gesamtzahl der Mitarbeiter, aufgeschlüsselt nach Altersgruppe.

*) Reference is made within this document to those pages addressing the respective GRI content. References to which "AR" is added refer to our 2020 Annual Report

Independent Auditor's Report

Independent Auditor's Report

The Supervisory Board of AIXTRON SE commission an independent audit service provider to review the legally relevant information in the separate non-financial report. The external audit conducted by Deloitte assists the Supervisory Board in fulfilling its audit duty pursuant to § 171 (1) of the German Stock Corporation Act (AktG). The disclosures made and key figures provided in this report with regard to our sustainability activities were subject to an independent limited assurance audit by Deloitte GmbH Wirtschaftsprüfungsgesellschaft, Düsseldorf (Germany).

Note

Numerous employees support the development of AIXTRON's CSR program, whether in devising our targets, defining programs, or collecting and calculating the necessary figures. We would like to thank them for their ongoing contributions as we continue to integrate sustainability into our corporate culture and further extend our leading position as the most sustainable company in our market.

Contact partner for questions about this report

E-Mail: communications@aixtron.com

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Independent
Auditor's Report

LIMITED ASSURANCE REPORT OF THE INDEPENDENT PRACTITIONER¹

To AIXTRON SE, Herzogenrath/Germany

Engagement

We have performed a limited assurance engagement on the separate consolidated non-financial report pursuant to Section 315b German Commercial Code (HGB) of AIXTRON SE, Herzogenrath/Germany, (hereafter: “the Company”) for the period from January 1 to December 31, 2020 (hereafter: “separate non-financial report”). This separate non-financial report comprises the text passages, tables and graphs contained in the sustainability report of AIXTRON SE marked with the symbol „Ω”.

Our engagement did not cover any contents not marked with an „Ω” symbol nor any other disclosures contained in the sustainability report of AIXTRON SE nor any references to websites or expert opinions mentioned in the separate non-financial report.

Responsibilities of the Executive Directors

The executive directors of AIXTRON SE are responsible for the preparation of the separate non-financial report in accordance with the requirements of Sections 315b, 315c HGB in conjunction with Sections 289c to 289e HGB.

In preparing the separate non-financial report, the executive directors used the Sustainability Reporting Standards of the Global Reporting Initiative (GRI) stated under the “Core” option and indicated these in the separate non-financial report.

These responsibilities of the Company’s executive directors include the selection and application of appropriate methods to prepare the separate non-financial report and the use of assumptions and estimates for individual disclosures which are reasonable under the given circumstances. In addition, the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of the separate non-financial report that is free from material misstatement, whether due to fraud or error.

The accuracy and completeness of the environmental data in the separate non-financial report are subject to inherent boundaries resulting from the nature and type of data collection, data calculation and respective assumptions.

¹ We have performed a limited assurance engagement on the German version of the consolidated non-financial report and issued an independent practitioner’s assurance report in German language, which is authoritative. The following text is a convenience translation of the independent practitioner’s assurance report.

Responsibilities of the Independent Practitioner

Our responsibility is to express a conclusion on the separate non-financial report based on our work performed within our limited assurance engagement.

We are independent of the Company in accordance with the requirements of German commercial and professional law, and we have fulfilled our other professional responsibilities in accordance with these requirements.

Our audit firm applies the German national legal requirements and the German profession’s pronouncements for quality control, in particular the Professional Charter for German Public Auditors and German Sworn Auditors (Berufssatzung für Wirtschaftsprüfer und vereidigte Buchprüfer) as well as the Quality Assurance Standard: Quality Assurance Requirements in Audit Practices (IDW QS 1) promulgated by the Institut der Wirtschaftsprüfer (IDW), which comply with the International Standard on Quality Control 1 (ISQC 1) issued by the International Auditing and Assurance Standards Board (IAASB).

We conducted our work in accordance with the International Standard on Assurance Engagements 3000 (Revised): Assurance Engagements other than Audits or Reviews of Historical Financial Information (ISAE 3000 (Revised)), issued by the IAASB. This standard requires that we plan and perform the assurance engagement so that we can conclude with limited assurance that nothing has come to our attention that causes us to believe that the separate non-financial report has not been prepared, in all material respects, in accordance with Sections 315b, 315c in conjunction with Sections 289c to 289e HGB. The procedures performed in a limited assurance engagement are less in extent than in a reasonable assurance engagement; consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. The choice of assurance work is subject to the practitioner’s professional judgment.

Within the scope of our limited assurance engagement, which was mainly performed in January and February 2021, we notably performed the following work and other activities:

- Obtaining an understanding of the structure of the sustainability organization and of the stakeholder engagement
- On-site visits as part of an investigation into the processes for collecting, analyzing and aggregating selected information at the Group’s seat in Herzogenrath/Germany
- Interview of relevant employees that participated in the preparation of the separate non-financial report about the process of preparation, about the measures and arrangements (system) in place for the preparation of the separate non-financial report as well as about the information contained in the separate non-financial report

- Identification of the risks of material misstatement within the separate non-financial report
- Analytical evaluation of disclosures contained in the separate non-financial report
- Comparison of the disclosures contained in the separate non-financial report with the respective data in the annual financial statements, the consolidated financial statements as well as the combined management report
- Evaluation of the presentation of the disclosures contained in the separate non-financial report
- Review and using as evidence of the work of an expert of the executive directors

Practitioner's Conclusion

Based on the assurance work performed and evidence obtained, nothing has come to our attention that causes us to believe that the separate non-financial report of AIXTRON SE for the period from January 1 to December 31, 2020 has not been prepared, in all material respects, in accordance with the requirements of Sections 315b, 315c HGB in conjunction with Sections 289c to 289e HGB. This separate non-financial report comprises the text passages, tables and graphs contained in the sustainability report of AIXTRON SE marked with the symbol „Ω“. Our conclusion does not refer to any text passages nor any other disclosures contained in the sustainability report of AIXTRON SE not marked with an „Ω“ symbol nor to any references on websites or expert opinions mentioned in the separate non-financial report.

Purpose of the Assurance Report

We issue this report as stipulated in the engagement letter agreed with AIXTRON SE. The limited assurance engagement has been performed for the purposes of AIXTRON SE and the report is solely intended to inform AIXTRON SE on the results of the assurance engagement.

Liability

The report is not intended to provide third parties with support in making (financial) decisions. We are liable solely to AIXTRON SE, and our liability is governed by the engagement letter dated August 26, 2020 / September 21, 2020 agreed with AIXTRON SE as well as the "General Engagement Terms for Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften (German Public Auditors and Public Audit Firms)" in the version dated January 1, 2017 of the Institut der Wirtschaftsprüfer (IDW). We do not assume any responsibility to third parties.

Düsseldorf/Germany, February 24, 2021

Deloitte GmbH
Wirtschaftsprüfungsgesellschaft

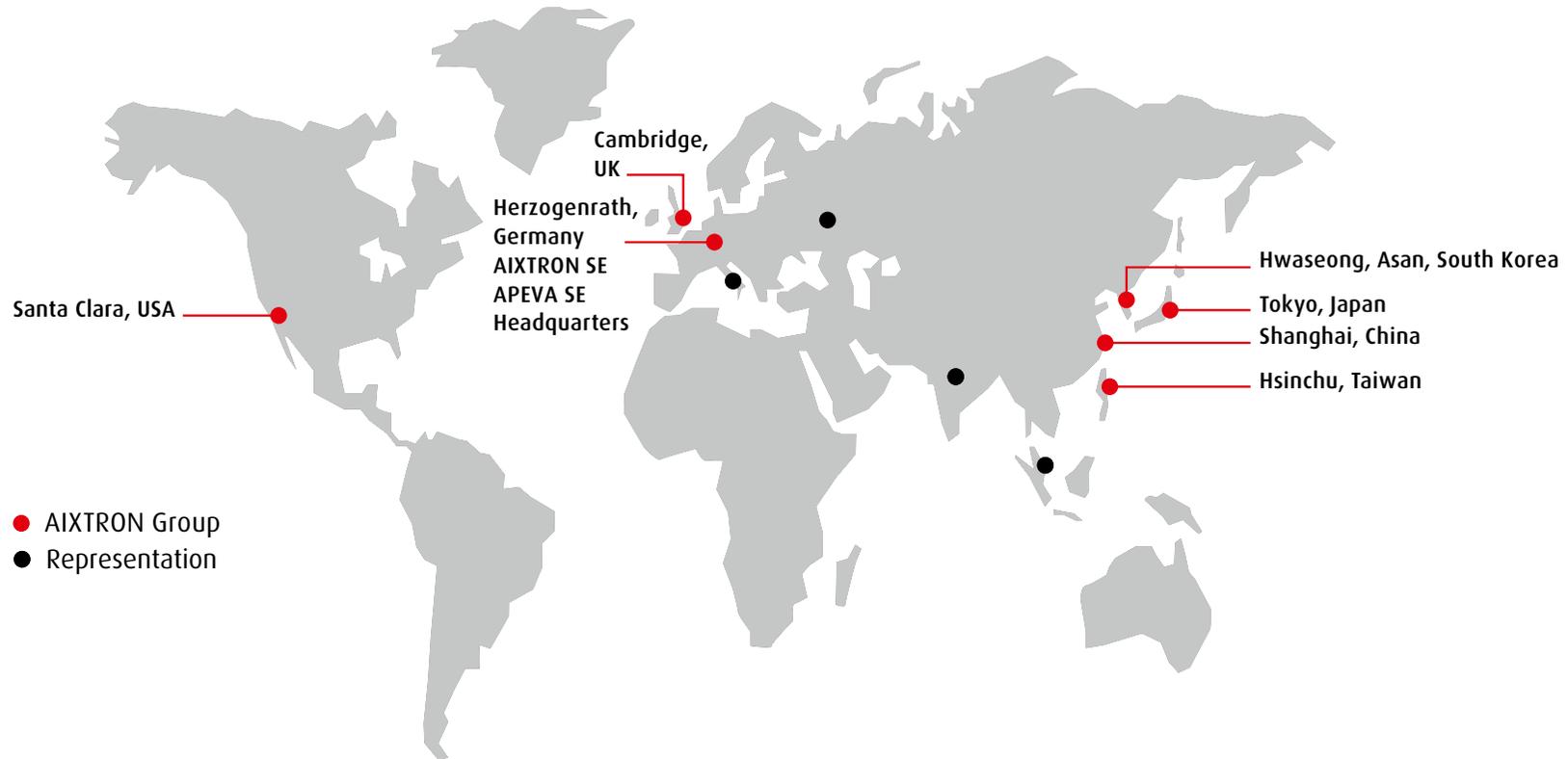


Signed: (André Bedenbecker)
Wirtschaftsprüfer
(German Public Auditor)



Signed: (ppa. Dr. Matthias Schmidt)

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Imprint

Imprint

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Reporting period: The reporting period is the calendar year 2020, which corresponds to the reporting period of the Annual Report. The previous report was published in February 2019.

Reporting cycle: The Sustainability Report is compiled and published annually together with the company's Annual Report.

Auditor: Deloitte GmbH, Wirtschaftsprüfungsgesellschaft, Düsseldorf

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