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Report profile

Our company has a long history of corporate responsibility. This is also reflected in our reporting practices. We have been publishing reports on our efforts to live up to our corporate responsibility since 1993, focusing initially on environmental topics. In 2003, we began reporting on sustainability topics every two years. Since 2016, we have been publishing a report annually.

In this Sustainability Report, we describe the **strategic direction** of our sustainable entrepreneurship as well as focus areas in which we intend to achieve our sustainability goals. We want to inform our **stakeholders** transparently and comprehensively about our activities and successes as well as the challenges we face. This also includes classifying actual and potential positive and negative **impacts** of our business activities.

Effective immediately, we report our progress towards implementing the principles of the United Nations Global Compact via the **portal** dedicated to this purpose. For this reason, our Sustainability Report no longer includes Communication on Progress.

Reporting framework

This report covers fiscal 2023 and pertains to our entire Group including its 225 fully consolidated legal entities with personnel in 65 countries. Any deviations from this reporting framework are indicated on a case-by-case basis.

Determining report content

We align the content of our report with the internationally recognized sustainability reporting standards of the Global Reporting Initiative (**GRI**). In doing so, we observe prescribed reporting principles, such as accuracy, balance, topicality, and verifiability. The report has been prepared in accordance with the current **GRI-Standards 2021**.

Moreover, we are integrating our disclosures pursuant to the requirements of the Task Force on Climate-Related Financial Disclosures (**TCFD**) and of the **SASB** standards (Sustainability Accounting Standards Board) into the Sustainability Report. In doing so, we intend to meet the increasing transparency expectations of various investor groups and other stakeholders.

Every year, we carry out a materiality analysis to determine the sustainability topics of relevance to our Group. We have derived the content of this sustainability report from the results of the materiality analysis, which can be found together with the materiality matrix under **Materiality analysis**.

Our Executive Board has reviewed and approved the Sustainability Report for 2023.

Data collection and consolidation systems

The 2023 Sustainability Report generally provides non-financial indicators for the entire Group. The majority of the figures we publish reflect the status as of December 31, 2023. We explicitly state when, in individual cases, the information provided deviates from these parameters.

We use a Group-wide electronic data collection system to collect environmental and occupational health and safety data. The data are recorded at site level and are subject to approval in accordance with the dual-control principle. To improve the quality of these data, we support the sites both in optimizing their collection processes and their corresponding quality assurance measures. Moreover, our Corporate Sustainability, Quality and Trade Compliance function takes measures, such as internal EHS audits, to review both the processes and the data provided.

We collect environmental performance indicators across all our production sites. We also record these indicators for the warehouse, research and office locations that are relevant in terms of their environmental impact.

All employee master data is continually updated in an SAP database. Some employee data are only disclosed for select sites or countries, which are indicated accordingly in the respective text passages.

We use community data management software to track data pertaining to our community engagement activities.

Non-financial statement pursuant to the German Commercial Code

The combined management report of Merck KGaA, Darmstadt, Germany and the Group for fiscal 2023 includes a combined non-financial statement in accordance with sections 315b and 315c in conjunction with 289b to 289e of the German Commercial Code (HGB) in the form of a separate chapter. The scope of consolidation of this non-financial statement corresponds to that of the Annual Report for 2023. The concepts and results presented relate to both Merck KGaA, Darmstadt, Germany and the Group. Our non-financial statement orients towards the requirements of the Global Reporting Initiative (GRI) standard. It also includes reporting in accordance with the EU Taxonomy Regulation. The content of this non-financial declaration has also been reviewed by the Supervisory Board in accordance with section 111 (2) of the German Stock Corporation Act (AktG).

External audit

Deloitte GmbH Wirtschaftsprüfungsgesellschaft has audited the consolidated financial statements and combined management report of our company for the fiscal year spanning January 1 to December 31, 2023 and has issued an unqualified opinion. The combined **non-financial statement** contained in the management report underwent a separate audit by Deloitte GmbH Wirtschaftsprüfungsgesellschaft in order to obtain limited assurance.

This voluntary Sustainability Report for 2023, including the information in the **TCFD** index was also audited by Deloitte GmbH Wirtschaftsprüfungsgesellschaft in order to obtain limited assurance.

The additional content provided on both the company's websites as well as external web pages that are linked in this report are not part of the information assured by Deloitte GmbH Wirtschaftsprüfungsgesellschaft.

Contacts:

We welcome your feedback and would be happy to answer any questions.

Merck KGaA, Darmstadt, Germany

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The current report was published on April 11, 2024.

Gender-neutral language:

It is our aim to ensure that our communication is inclusive and so we strive to use language that is both nondiscriminatory and easy to read. This report attempts to use gender-neutral language, which may not yet be consistent in all instances.

Indicators

Economics

Net sales, operating result (EBIT) and research and development costs, by business sector¹

€ million	Life Science	Healthcare	Electronics	Group
2022				
Net sales	10,380	7,839	4,013	22,232
Operating result (EBIT)	2,808	1,895	572	4,474
R&D costs ²	399	1,694	308	2,521
2023				
Net sales	9,281	8,053	3,659	20,993
Operating result (EBIT)	1,850	2,225	248	3,609
R&D costs ²	396	1,657	297	2,445

1 As a non-operating segment, Corporate and Other is not shown here as a separate item, but rather under Segment Reporting in our [Annual Report 2023](#) (p. 252-256).

2 Not presented are research and development costs of € 94 million (2022: € 119 million) allocated to Corporate and Other.

Business ethics

Compliance training

	2020	2021	2022	2023 The Group ¹	2023 thereof Merck KGaA, Darmstadt, Germany
Total number of persons trained on anti-corruption guidelines²	28,827	5,790	5,082	6,688	486
Total number of employees trained on anti-corruption guidelines	28,805	5,772	5,071	6,671	486
% of employees trained on anti-corruption	50	10	8	11	12
by employee category³					
Number of Role 2+ employees trained on anti-corruption	27,123	5,284	4,658	6,325	463
% of Role 2+ employees trained on anti-corruption	90	17	14	18	18
% of employees below Role 2 trained on anti-corruption	6	2	1	1	2
by region (%)					
Europe	51	8	7	10	2
North America	45	11	8	8	not applicable
Asia-Pacific (APAC)	44	12	9	14	not applicable
Latin America	44	8	7	13	not applicable
Middle East and Africa (MEA)	66	12	9	16	not applicable

1 The anti-corruption e-learning rolled out in 2020 was replaced by a new training course on November 1, 2023. The data for 2023 includes the completion figures for both the old and the new e-learning. A total of 2,177 employees completed the old e-learning course.

2 Includes contractors, external supervised workers (e.g. temporary workers) and contract partners working on-site who were trained on anti-corruption guidelines (2023: 13).

3 Employees whose role level had not yet been recorded in our database by December 31 of the respective reporting year have been allocated to "employees below Role 2".

The (employee) target audience for a specific training is related to the risk level associated with employee positions and Role levels. Target audiences therefore may not include all Group employees and also may vary from training to training.

In order to address the special responsibility held by management personnel, and staff with HR responsibility, trainings on anti-corruption guidelines for these employees are in focus. This applies to all employees rated Role 2+.

At the beginning of 2020, the old e-learning course on anti-corruption was rolled out for a broad target group. The majority of this target group already completed the e-learning in 2020. The number of employees trained is comparatively lower in 2021 and 2022, as the training was only assigned to new joiners, internal transfers or employees who did not yet complete the e-learning. In 2023, we record an increase again as we replaced the

former e-learning course with a new one in November. In addition to anti-corruption, the new training also covers the topic of money laundering.

Internal audits on corruption

	2020	2021	2022	2023 The Group	2023 thereof Merck KGaA, Darmstadt, Germany ¹
Number of audits relating to corruption	52	56	55	53	17
% of audits relating to corruption	66	67	70	66	21

1 Includes global audits which are conducted at the headquarters in Darmstadt and/or the management of the audited function is reporting into KGaA.

Human rights violations

	2020	2021	2022	2023
Number of reported violations of Social and Labor Standards Policy	108	121	136	184
Number of confirmed violations of Social and Labor Standards Policy	29	41	68	60
thereof number of incidents of discrimination	2	6	7	7 ¹

1 As of 2023, the incidents of discrimination also include cases of harassment as a specific form of discrimination.

Reported compliance violations

	2020	2021	2022	2023 The Group	2023 thereof Merck KGaA, Darmstadt, Germany
Total number of reported compliance violations					
Number of reported compliance incidents	81	79	79	106	9
Number of confirmed cases	41	42	28	32	1
Confirmed cases by category					
Bribery and corruption	6	1	2	1	0
Violation of cartel laws and fair competition rules	0	0	1	0	0
Fraudulent actions against the Group	11	6	11	3	0
Other violations of the our Compliance Principles for the relations with business partners	0	0	2	3	0
Other violations of our values, internal guidelines or legal requirements	24	35	12	25	1

Data Privacy

	2020	2021	2022	2023 The Group	2023 thereof Merck KGaA, Darmstadt, Germany
Reported violations of Data Privacy Guidelines	3	3	4	7	0
Customer Privacy¹					
Total number of substantiated complaints received from outside parties	0	0	0	0	0
Total number of complaints from regulatory bodies	0	0	0	0	0
Total number of identified leaks, thefts, or losses of customer data	0	0	0	1	0

¹ These data only reflect incidents classified as significant.

Legal actions

	2020	2021	2022	2023 The Group	2023 thereof Merck KGaA, Darmstadt, Germany
Total number¹ of legal actions pending or completed (for anti-competitive behavior, violations of anti-trust or violations of monopoly legislation)	4	4	3	2	1
pending	4	3	2	1	1
completed	0	1	1	1	0

1 As published in the annual reports, the herein listed total number of legal actions refers to the significant legal risks as per the company's definition. The significance of legal risks is based on potential negative effects on projected financial objectives as well as on the probability of occurrence.

For further information please see our annual reports:

[Annual Report 2020](#), pages 125-127 and pages 252-256, No. 27

[Annual Report 2021](#), pages 100-101 and pages 280-284, No. 27

[Annual Report 2022](#), pages 97-98 and pages 282-285, No. 27

[Annual Report 2023](#), pages 90-91 and pages 284-287, No. 27

Employees

Total number of employees

As of Dec. 31	2020	2021	2022	2023 The Group ¹	2023 thereof Merck KGaA, Darmstadt, Germany ²
Total number of employees	58,127	60,348	64,243	62,908	3,924
Men	33,204	34,274	36,452	35,499	2,387
Women	24,923	26,074	27,791	27,409	1,537

1 The Group also employs people at sites of subsidiaries that are not fully consolidated. For the 2023 reporting year, we have aligned the scope of consolidation also for the employee data in the non-financial reporting with the financial reporting. As of now, the figures relate to all employees who are employed in fully consolidated subsidiaries with personnel.

2 The sharp decline in comparison with the previous year (8,485 employees) is attributable to the fact that in addition to Healthcare KGaA, which was hived off in 2019, the two other business sectors, namely Life Science und Electronics, have now also been transferred to separate legal entities.

Number of employees by hierarchical level

As of Dec. 31	2020	2021	2022	2023 The Group ¹	2023 thereof Merck KGaA, Darmstadt, Germany ²
Total employees	58,127	60,348	64,243	62,908	3,924
Senior management (Role 6+)	193	194	191	200	48
Middle management (Role 4 & 5)	3,637	3,831	4,018	4,139	600
Low management (Role 3)	10,286	10,880	11,877	11,907	1,275
Other employees (below Role 3)	44,011	45,443	48,157	46,662	2,001
% of women (total)	43	43	43	44	39
thereof number of women in senior management (Role 6+)	42	49	51	58	15
thereof number of women in middle management (Role 4 & 5)	1,284	1,413	1,550	1,622	214
thereof number of women in low management (Role 3)	4,352	4,669	5,123	5,150	475
thereof number of women in "other employees (below Role 3)"	19,245	19,943	21,067	20,579	833
% of men (total)	57	57	57	56	61
thereof number of men in senior management (Role 6+)	151	145	140	142	33
thereof number of men in middle management (Role 4 & 5)	2,353	2,418	2,468	2,517	386
thereof number of men in low management (Role 3)	5,934	6,211	6,754	6,757	800
thereof number of men in "other employees (below Role 3)"	24,766	25,500	27,090	26,083	1,168
by age group					
Up to 29 years old (%)	15	15	15	14	14
thereof number of employees in senior management (Role 6+)	0	0	0	0	0
thereof number of employees in middle management (Role 4 & 5)	6	8	12	8	2
thereof number of employees in low management (Role 3)	199	241	263	249	39

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2 The sharp decline in comparison with the previous year (8,485 employees) is attributable to the fact that in addition to Healthcare KGaA, which was hived off in 2019, the two other business sectors, namely Life Science und Electronics, have now also been transferred to separate legal entities.

As of Dec. 31	2020	2021	2022	2023 The Group ¹	2023 thereof Merck KGaA, Darmstadt, Germany ²
thereof number of employees in "other employees (below Role 3)"	8,365	8,880	9,651	8,484	494
30 to 49 years old (%)	60	60	60	60	53
thereof number of employees in senior management (Role 6+)	68	63	58	65	19
thereof number of employees in middle management (Role 4 & 5)	2,032	2,172	2,235	2,283	367
thereof number of employees in low management (Role 3)	6,926	7,298	8,007	7,963	805
thereof number of employees in "other employees (below Role 3)"	25,948	26,624	28,124	27,697	894
50 years or older (%)	25	25	25	26	33
thereof number of employees in senior management (Role 6+)	125	131	133	135	29
thereof number of employees in middle management (Role 4 & 5)	1,599	1,651	1,771	1,848	231
thereof number of employees in low management (Role 3)	3,161	3,341	3,607	3,695	431
thereof number of employees in "other employees (below Role 3)"	9,698	9,939	10,382	10,481	613

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2 The sharp decline in comparison with the previous year (8,485 employees) is attributable to the fact that in addition to Healthcare KGaA, which was hived off in 2019, the two other business sectors, namely Life Science und Electronics, have now also been transferred to separate legal entities.

Average number of employees by functional area¹

	2020 ²	2021	2022	2023
Group	57,612	58,731	62,565	63,000
thereof women	24,746	25,295	27,123	27,461
Production	17,624	19,782	22,086	23,827
thereof women	6,043	6,541	7,510	8,429
Logistics/Supply Chain	4,298	4,557	4,850	4,946
thereof women	1,734	1,838	1,928	1,970
Marketing and Sales/Commercials	14,127	14,318	15,095	14,021
thereof women	6,787	6,906	7,349	7,099
Administration	11,342	11,824	11,889	11,924
thereof women	5,499	5,718	5,868	5,891
Research and Development	7,504	7,168	7,335	6,473
thereof women	3,996	3,694	3,740	3,249
Infrastructure and Other	2,717	1,083	1,309	1,810
thereof women	687	598	727	824

1 The average employee headcount is calculated by adding up all employees at the end of each of the last 13 months, and dividing this total by 13.

2 The average employee headcount for fiscal 2020 incorporates the Allergopharma employees on a pro rata basis up until the end of March 2020 due to the divestment of the Allergopharma business as of March 31, 2020.

Number of employees by region

As of Dec. 31	2020	2021	2022	2023 The Group	2023 thereof Merck KGaA, Darmstadt, Germany
Total	58,127	60,348	64,243	62,908	3,924
Europe	26,587	27,217	28,244	28,304	3,924
Women	11,743	12,098	12,620	12,681	1,537
Women (%)	44	44	45	45	39
Number of employees with temporary contracts	1,105	988	882	659	73
% of employees with temporary contracts	4	4	3	2	2
North America	13,312	14,070	15,847	14,718	0
Women	5,527	5,800	6,501	6,113	not applicable
Women (%)	42	41	41	42	not applicable
Number of employees with temporary contracts	139	115	31	20	not applicable
% of employees with temporary contracts	1	1	0	0	not applicable
Asia-Pacific (APAC)	13,518	14,285	15,412	15,259	0
Women	5,425	5,874	6,351	6,357	not applicable
Women (%)	40	41	41	42	not applicable
Number of employees with temporary contracts	3,362	3,660	3,726	3,182	not applicable
% of employees with temporary contracts	25	26	24	21	not applicable
Latin America	3,387	3,529	3,490	3,458	0
Women	1,630	1,721	1,715	1,693	not applicable
Women (%)	48	49	49	49	not applicable
Number of employees with temporary contracts	67	12	8	7	not applicable
% of employees with temporary contracts	2	0	0	0	not applicable
Middle East and Africa (MEA)	1,323	1,247	1,250	1,169	0
Women	598	581	604	565	not applicable
Women (%)	45	47	48	48	not applicable
Number of employees with temporary contracts	420	59	9	9	not applicable
% of employees with temporary contracts	32	5	1	1	not applicable

Employees by business sector

As of Dec. 31	2020	2021	2022	2023
Life Science employees	23,196	25,323	28,013	27,947
thereof women	10,175	11,255	12,473	12,490
thereof women (%)	44	44	45	45
Healthcare employees	17,463	17,269	17,339	17,765
thereof women	8,788	8,717	8,805	8,997
thereof women (%)	50	50	51	51
Electronics employees	7,228	7,432	8,262	8,276
thereof women	1,666	1,704	1,870	2,000
thereof women (%)	23	23	23	24

Employees by contract type

As of Dec. 31	2020	2021	2022	2023
Total employees	58,127	60,348	64,243	62,908
Number of employees with permanent contracts	53,034	55,514	59,587	58,972
% of employees with permanent contracts	91	92	93	94
thereof women	22,500	23,640	25,418	25,388
thereof women (%)	42	43	43	43
Number of employees with temporary contracts	5,093	4,834	4,656	3,936
% of employees with temporary contracts	9	8	7	6
thereof women	2,423	2,434	2,373	2,021
thereof women (%)	48	50	51	51
full-time employees	55,220	57,091	60,127	59,074
% full-time	95	95	94	94
thereof women	22,572	23,585	24,872	24,576
thereof women (%)	41	41	41	42
part-time employees	2,907	3,257	4,116	3,834
% part-time	5	5	6	6
thereof women	2,351	2,489	2,919	2,833
thereof women (%)	81	76	71	74

New employees

As of Dec. 31	2020	2021	2022	2023 The Group	2023 thereof Merck KGaA, Darmstadt, Germany
Total number of new employee hires	6,669	8,960	10,682	5,490	220
by age group					
up to 29 years old	2,889	3,679	4,314	2,156	170
30 to 49 years old	3,347	4,610	5,397	2,944	45
50 or older	433	671	971	390	5
by gender					
Women	3,016	4,101	4,569	2,493	89
Men	3,653	4,859	6,113	2,997	131
by region					
Europe	2,160	2,567	3,015	2,028	220
North America	1,789	2,855	3,971	1,181	not applicable
Asia-Pacific (APAC)	2,206	2,803	3,071	1,710	not applicable
Latin America	396	579	460	445	not applicable
Middle East and Africa (MEA)	118	156	165	126	not applicable
Rate of new employee hires¹ (%)	11	15	17	9	6
by age group²					
up to 29 years old	43	41	40	39	77
30 to 49 years old	50	51	51	54	21
50 or older	7	8	9	7	2
by gender²					
Women	45	46	43	45	40
Men	55	54	57	55	60
by region²					
Europe	32	29	28	37	100
North America	27	32	37	22	not applicable
Asia-Pacific (APAC)	33	31	29	31	not applicable
Latin America	6	6	4	8	not applicable
Middle East and Africa (MEA)	2	2	2	2	not applicable

1 Formula for calculating the rate of new employee hires: Total number of new employee hires divided by number of employees at the end of the fiscal year.

2 Formula for calculating the rate of new employee hires by age/gender/region: New employee hires of the focus group divided by the total number of new employee hires.

Staff turnover^{1, 2}

	2020 ³	2021	2022	2023 The Group	2023 thereof Merck KGaA, Darmstadt, Germany
Total turnover rate	8.22	10.82	10.16	9.96	3.48
Turnover rate by gender					
Men	8.22	10.69	10.40	10.11	3.24
Women	8.22	11.00	9.93	9.76	3.87
Turnover rate by age group					
Up to 29 years old	11.30	16.64	15.91	14.39	5.79
30 to 49 years old	7.74	10.05	9.55	9.48	3.41
50 or older	7.52	9.22	8.05	8.49	2.62
Turnover rate by region					
Europe	5.64	6.00	5.91	5.52	3.48
North America	9.79	15.44	14.33	15.02	not applicable
Asia-Pacific (APAC)	10.60	14.66	12.84	11.90	not applicable
Latin America	11.40	12.95	13.38	13.19	not applicable
Middle East and Africa (MEA)	11.80	16.57	13.04	15.63	not applicable
Total number of leavers	4,721	6,354	6,358	6,336	152
by gender					
Men	2,697	3,575	3,673	3,639	87
Women	2,024	2,779	2,685	2,697	65
by age group					
Up to 29 years old	974	1,451	1,542	1,358	32
30 to 49 years old	2,677	3,545	3,569	3,624	82
50 or older	1,070	1,358	1,247	1,354	38
by region					
Europe	1,490	1,601	1,640	1,560	152
North America	1,281	2,078	2,182	2,305	not applicable
Asia-Pacific (APAC)	1,394	2,015	1,905	1,824	not applicable
Latin America	398	449	467	460	not applicable
Middle East and Africa (MEA)	158	211	164	187	not applicable

1 The table contains unadjusted turnover rates. The rate excludes employees who pause due to parental leave or a long-term illness, as well as employees who are transitioning to the non-working phase of partial retirement.

2 The employee turnover rate is calculated as follows: Total number of leavers from the past 12 months divided by the average employee headcount multiplied by 100.

3 The figures do not reflect the approximately 500 Allergopharma employees, who were not included in the employee turnover rate due to the divestment of the business.

In 2023, the average length of service for employees Group-wide was 9.7 years (2022: 9.2 years), with 15.2 years (2022: 15.4 years) for employees of Merck KGaA, Darmstadt, Germany.

Work-related accidents¹

	2020	2021	2022	2023 The Group	2023 thereof Merck KGaA, Darmstadt, Germany
Lost Time Injury Rate (LTIR = workplace accidents resulting in missed days of work per one million hours worked)	1.3	1.2	1.2	1.3	1.6
by region					
Europe	2.4	2.1	1.7	2.2	1.6
North America	0.8	1.2	1.7	1.4	not applicable
Asia-Pacific (APAC)	0.1	0.1	0.3	0.1	not applicable
Latin America	0.8	0.4	0.6	0.6	not applicable
Middle East and Africa (MEA)	0.4	0.0	1.1	0.4	not applicable
Number of deaths	0	0	0	0	0
by region					
Europe	0	0	0	0	0
North America	0	0	0	0	not applicable
Asia-Pacific (APAC)	0	0	0	0	not applicable
Latin America	0	0	0	0	not applicable
Middle East and Africa (MEA)	0	0	0	0	not applicable
by gender					
Women	0	0	0	0	0
Men	0	0	0	0	0

¹ Including supervised temporary staff

Through the LTIR, we record work-related accidents that involve at least one day of missed work. A work-related accident is an injury that results from the type of work, in the course of doing said work, and that has no internal cause. Work-related accidents are considered relevant if they occur on the premises, on business trips, during goods transport, as a result of external influences (e.g. natural disasters), or due to criminal acts involving personal injury. Commuting accidents and accidents during company sporting activities are not included. First-aid incidents are generally not included in the LTIR since these usually do not result in more than one day of missed work.

We aim to sustainably lower our LTIR to 1.0 by 2025.

The LTIR is the key occupational safety indicator for the Group as a whole. Therefore, we do not publish any other indicators such as workplace accidents, lost days or days of absence. The LTIR is not broken down by gender as this differentiation is not relevant to our strategic planning.

For Merck KGaA, Darmstadt, Germany (about 6% of the employees of the Group), we only report work-related illnesses if these have been certified as an occupational illness by the employers' liability insurance association. In 2023 period, one case of work-induced illness were verified.

Employees who regularly receive a performance and development evaluation¹

	2020	2021	2022	2023 The Group	2023 thereof Merck KGaA, Darmstadt, Germany
% of employees who receive a performance and development evaluation	98	98	98	98	100
by gender					
Women	98	98	99	99	100
Men	98	98	98	98	100
by employee category					
Senior management (Role 6+)	100	100	100	100	100
Middle management (Role 4 & 5)	100	100	100	100	100
Low management (Role 3)	100	100	100	100	100
Other employees (below Role 3)	98	98	98	98	100

¹ Employees whose role level had not yet been recorded in our database by December 31 of the reporting year are included under "other employees (below Role 3)".

Regular feedback and employee performance evaluations are essential to fairly ranking individual performance and to helping all employees follow their own career path at our company. Our globally uniform Performance Management Process requires annual feedback meetings and performance assessments. Apart from evaluating employee performance, this helps us to identify individual development opportunities.

In Germany, all permanent employees have been participating in the Performance Management Process since 2013. In 2023, a total of 61,863 employees worldwide were involved in the process. The Performance Management Process is coordinated via our online platform HR4You.

Internationality of employees

As of Dec. 31	2020	2021	2022	2023 The Group	2023 thereof Merck KGaA, Darmstadt, Germany
Number of nationalities	141	142	139	141	70
Number of nationalities in management positions (Role 4 or above)	75	79	78	77	30
% of non-Germans in management positions (Role 4 or above)	66	66	66	66	12

Employee age by region

As of Dec. 31

Number of employees	Worldwide	North America	Europe	Merck KGaA, Darmstadt, Germany	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
2022							
Up to 29 years old	9,926	2,753	3,530	1,181	2,999	476	168
thereof women	4,637	1,178	1,655	441	1,441	264	99
30 to 49 years old	38,423	7,811	16,216	4,549	11,174	2,333	890
thereof women	16,909	3,278	7,528	1,664	4,498	1,196	409
50 or older	15,894	5,283	8,498	2,755	1,239	681	192
thereof women	6,245	2,045	3,437	870	412	255	96
Average age	41.6	43.3	43.1	43.1	37.3	41.1	40.3
Total employees	64,243	15,847	28,244	8,485	15,412	3,490	1,250
2023							
Up to 29 years old	8,743	2,233	3,294	535	2,634	440	142
thereof women	4,150	995	1,521	213	1,323	224	87
30 to 49 years old	38,006	7,352	16,304	2,085	11,218	2,301	831
thereof women	16,798	3,084	7,565	857	4,562	1,203	384
50 or older	16,159	5,133	8,706	1,304	1,407	717	196
thereof women	6,461	2,034	3,595	467	472	266	94
Average age	41.5	43.5	42.9	43.0	37.4	40.8	40.5
Total employees	62,908	14,718	28,304	3,924	15,259	3,458	1,169

Age of youngest employee

As of Dec. 31	2020	2021	2022	2023
Age of youngest employee, excluding apprentices	18	18	18	17

Voluntary insurance benefits (voluntarily introduced and (co-) financed)

As of Dec. 31	2020 ¹	2021	2022	2023 The Group	2023 thereof Merck KGaA, Darmstadt, Germany
% of employees with healthcare benefits ²	63	64	62	73	0
% of employees with Group accident insurance ³	41	41	37	48	13
% of employees with life insurance ⁴	56	59	59	64	0
% of employees with disability insurance (short-term and long-term) ⁵	39	39	43	43	0

1 The figures exclude Versum Materials and Intermolecular since the integration process was still underway at this point of time.

2 Any spend on voluntarily introduced and (co-) financed healthcare benefits for employees and possibly their dependents. Not taking into consideration any mandatory social security cover (mostly covered by an insurance policy).

3 Any spend on voluntarily introduced and (co-) financed accident insurance that pays a defined amount in case of death or disability caused by a work-related accident (not taking into consideration any mandatory social security cover, e.g. workman's compensation).

4 Any spend on voluntarily introduced and (co-) financed life insurance cover that pays a defined amount of money in case of natural death (not accidental).

5 Any spend on voluntarily introduced and (co-) financed insurance cover that disability pays for salary continuation in case of inability to work caused by an insured incident.

All our employees are where possible covered by either statutory or voluntary accident insurance and health benefits. Employees of Merck KGaA, Darmstadt, Germany are covered by statutory insurance as stipulated by the regulations in force in Germany.

We offer a company pension in numerous countries along with various programs for supplemental company pensions and survivor's benefits.

The global benefits listed in the table above are designed to provide additional security to our workforce and their families and to improve their quality of life. Benefits represent voluntarily employer-initiated as well as employer-financed assistance to our workforce in addition to the regular compensation package.

Our benefits offer meaningful choices, where possible, to support a diverse workforce and are sensitive to the needs and customs of the employees who use them, regardless of country, age, family status, interests, or values.

Long-term pension obligations and post-employment benefits

€ million	2020	2021	2022	2023
Present value of all defined benefit obligations as of Dec. 31	6,352	5,995	4,287	4,787
Pension expenses	408	461	460	365

Depending on the legal, economic and fiscal circumstances prevailing in each country, different retirement benefit systems are provided for the employees. Generally, these systems are based on the years of service and salaries of the employees. Pension obligations include both defined benefit and defined contribution plans and comprise both obligations from current pensions and accrued benefits for pensions payable in the future. Further information can be found in the note on Provisions for employee benefits (p. 291-297, No. 33) of our [Annual Report 2023](#).

Flexible working hours in Germany

As of Dec. 31	2020	2021	2022	2023
% of employees utilizing the "mywork" working model	48	51	55	58

In coordination with their teams and supervisors, employees taking advantage of our "mywork" working model can choose when and where they work.

Parental leave¹

As of Dec. 31	2020	2021	2022	2023 ²
Number of employees with a right to parental leave	351	414	423	127
thereof women (recorded via maternity leave in the respective year)	225	255	287	87
thereof men (recorded via special paternity leave in the respective year)	126	159	136	40
Number of employees who took parental leave ³	538	617	564	189
thereof women	265	278	237	95
thereof men	273	339	327	94
Number of employees on parental leave who worked part time during their leave	104	198	164	69
thereof women	73	172	137	49
thereof men	31	26	27	20
Number of employees who returned from parental leave ³	529	597	581	182
thereof women	252	273	235	96
thereof men	277	324	346	86
Return to work rate (%)	98.3	96.8	103.0	96.3
thereof women	95.1	98.2	99.2	101.1
thereof men	101.5	95.6	105.8	91.5
Number of employees still working for Merck KGaA, Darmstadt, Germany one year after their return from parental leave	490	556	548	- ⁴
thereof women	220	250	328	- ⁴
thereof men	270	306	220	- ⁴
Retention rate (%)	92.6	93.1	94.3	- ⁴
thereof women	87.3	91.6	139.5	- ⁴
thereof men	97.5	94.4	63.5	- ⁴

1 Figures pertain only to Merck KGaA, Darmstadt, Germany (which accounted for around 6% in 2023). Figures are calculated on the basis of the data from one entire year, which also includes those employees who took parental leave during the calendar year but who had not yet returned by Dec. 31.

2 The sharp decline in comparison with the previous years is attributable to the fact that in addition to Healthcare KGaA, which was hived off in 2019, the two other business sectors, namely Life Science und Electronics, have now also been transferred to separate legal entities.

3 Since parental leave can be taken for a period ranging from one month to three years, it is possible for employees to be recorded across a period of up to four calendar years. This explains why the number of employees on parental leave exceeds the number of employees who have a right to it. It also explains why the "Number of employees who returned from parental leave" might exceed the "Number of employees who took parental leave".

4 Figure will be available on December 31, 2024.

Employees with disabilities¹ (%)

	2020	2021	2022	2023
Employees with disabilities	4.7	4.8	4.9	4.8

¹ Only pertains to the joint operation of Merck KGaA, Darmstadt, Germany (which accounted for around 19% of the Group employees in 2023, calculations based on the German Social Code IX - SGB IX).

Apprentices in Germany

As of Dec. 31	2020	2021	2022	2023
Number of apprentices	607	602	595	619
% of apprentices	4.6	4.1	4.0	4.6

Environment

Total greenhouse gas emissions (Scope 1 and 2 of the GHG Protocol)^{1, 2}

metric kilotons	2020	2021	2022	2023	
				The Group	thereof Merck KGaA, Darmstadt, Germany
Total CO₂eq³ emissions⁴	2,152	1,951	1,760	1,463	22
Thereof					
direct CO ₂ eq emissions (Scope 1) ⁵	1,827	1,626	1,518	1,236	15
indirect CO ₂ eq emissions (Scope 2) ⁶	325	325	242	227	7
Biogenic CO₂ emissions⁷	14	15	14	14	0

1 In line with the Greenhouse Gas Protocol, for all previous years greenhouse gas emissions were calculated based on the current corporate structure as of Dec. 31 of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

2 Baseline for our emission targets is 2020.

3 eq = equivalent

4 In 2023, we adjusted our Scope 1 and Scope 2 calculations to reflect minor data corrections.

5 In 2023, we adapted the Scope 1 calculations to the modified global warming potentials of the IPCC 6th assessment report (previously IPCC 5th assessment report) and restated previous years accordingly.

6 The figures presented here have been calculated in accordance with the market-based method.

7 We adapted the calculations to the complete Greenhouse Gas Protocol requirements.

Our response to the CDP Climate change contains a detailed description of our calculation methods.

We have included the following gases in our calculation of direct and indirect CO₂eq emissions:

Direct CO₂ emissions: CO₂, HFCs, PFCs, CH₄, N₂O, NF₃, SF₆.

Indirect CO₂ emissions: CO₂.

In 2023, we emitted 0.07 kg of CO₂eq per euro of net sales.

Other relevant indirect greenhouse gas emissions (Scope 3 of the GHG Protocol)¹

metric kilotons of CO ₂ equivalents	2020	2021	2022	2023
Total gross other indirect emissions	5,103	5,799	6,680	4,594
Purchased goods & services (category 1) ²	3,040	3,572	4,200	2,517 ³
Capital goods (Category 2) ²	293	291	388	340 ³
Fuel- and energy-related emissions, not included in Scope 1 or 2 (category 3)	102	143	121	115
Upstream transportation & distribution (category 4)	264	264 ⁴	319	236 ⁵
Waste generated in operations (category 5)	85	79	57 ⁶	32 ⁶
Business travel (category 6)	32	26	78	86
Employee commuting (category 7)	90	94	99	76 ⁷
Upstream leased assets (category 8) ⁸	-	-	-	-
Downstream transportation & distribution (category 9)	8	8 ⁴	6	10 ⁵
Processing of sold products (category 10) ⁹	-	-	-	-
Use of sold products (category 11) ¹⁰	1,164	1,296	1,382 ¹¹	1,137
End-of-life treatment of sold products (category 12)	23	23 ⁴	26 ¹¹	42
Downstream leased assets (category 13)	2	2	2	2
Franchises (category 14) ¹²	-	-	-	-
Investments (category 15)	0	1	2	1

1 In line with the Greenhouse Gas Protocol, for all previous years greenhouse gas emissions were calculated based on the current corporate structure as of Dec. 31 of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

2 The reported figures contain 95-97% of our total spend. The difference stems from smaller sites that are not integrated in our Group-wide purchase volume data. 2020 data are slightly over-reported (approx. 3%) as the currency conversion factor (USD to EUR) from 2021 was used. Non-categorized spends are distributed pro rate to category 1 and 2.

3 We updated environmentally extended input-output analysis (EEIO) factors, and we adjusted our emission calculation approach for service categories using primary supplier data.

4 Due to high efforts for data preparation, we reference 2020 data for 2021.

5 In 2023, we introduced a new and improved calculation methodology based on primary data from suppliers/logistics service providers and an energy-based bottom-up calculation approach.

6 We adjusted our calculation methodology to remove non-GHG relevant waste streams.

7 We adjusted our calculation methodology to take into account the results of an internal employee survey on home office use.

8 Already covered under Scope 1 and 2 emissions.

9 Our company produces a huge variety of intermediate products for various purposes. Due to their many applications and our customer structure, the associated greenhouse gas emissions cannot be tracked in a reasonable fashion.

10 In 2023, we adapted the Category 11 calculations to the modified global warming potentials of the IPCC 6th assessment report (previously IPCC 5th assessment report) and restated previous years accordingly.

11 Due to high efforts for data preparation, we partly use 2020 data for 2022.

12 This category is not relevant for us as we do not operate franchises, i.e. businesses operating under a license to sell or distribute another company's goods or services. Out-licensing in the pharmaceutical sector is not regarded as franchising.

Details on the calculation (methodology, assumptions, uncertainties) of the Scope 3 categories can be found in the [Scope 3 document](#).

Biogenic emissions (Scope 3), if present, are not being recorded.

Emissions of ozone-depleting substances

metric tons	2020	2021	2022	2023
Total emissions of ozone-depleting substances	2.2	1.5	1.3 ¹	1.0
CFC-11eq ²	0.1	0.1	0.1	0.1

1 Data were retroactively adjusted.

2 CFC-11eq is a unit of measure used to compare the potential of various substances to deplete the ozone. Reference value 1 indicates the potential of CFC-11 to cause the depletion of the ozone layer.

Substances included: R-12, R-22, R-123, R-141b, R-401a, R-402a, R408a, R-409a, R-414b, R-502, R-503.

Source for the emission factors: Montreal Protocol.

Other air emissions

metric kilotons	2020	2021	2022	2023
Volatile organic compounds (VOC)	0.3	0.3	0.3	0.3
Nitrogen oxide	0.2	0.3	0.2	0.2
Sulfur dioxide	0.004	0.004	0.005	0.004
Dust	0.010	0.020	0.020	0.010

The VOC, nitrogen oxide, sulfur dioxide, and dust emissions reported here are attributable to production activities as well as energy generation. These figures do not include emissions from vehicles. Emissions are determined partially based on measurements and partially based on calculations or estimates. Only some sites are required to measure individual parameters.

Transport of finished goods, by means of transportation

	2020	2021	2022	2023
% truck	70	71	73	74
% boat	22	21	19	19
% airplane	8	8	8	7
% rail	0	0	0.03	0.03

The figures contain the volumes of the biggest global distribution centers of our Life Science, Healthcare and Electronics business sectors. These figures pertain to the total weight of transported products and indicate the primary means of transport.

In shipping finished goods from our production sites to the local warehouses of our subsidiaries, we have been working to reduce the use of air shipping in favor of sea freight. This change aims to both reduce costs as well as lower transport-related CO₂ emissions.

Energy consumption¹

GWh	2020	2021	2022	2023	2023
				The Group	thereof Merck KGaA, Darmstadt, Germany
Total energy consumption	2,382	2,463	2,432	2,337	78
Direct energy consumption	1,269	1,321	1,294	1,245	68
Natural gas	1,182	1,235	1,188	1,164	59
Liquid fossil fuels ²	52	48	70	43	9
Biomass and self-generated renewable energy	35	38	36	38	0
Indirect energy consumption	1,113	1,142	1,138	1,092	10
Electricity	950	964	984	982	10
Steam, heat, cold	163	178	154	110	0
Total energy sold	0.2	0.1	0.0	0.00	0.0
Electricity	0.2	0.1	0.0	0.00	0.0
Steam, heat, cold	0.0	0.0	0.0	0.0	0.0
In TJ					
Total energy consumption	8,575	8,867	8,755	8,413	280
Direct energy consumption	4,568	4,756	4,658	4,482	244
Natural gas	4,255	4,446	4,277	4,190	212
Liquid fossil fuels ²	187	173	252	155	32
Biomass and self-generated renewable energy	126	137	130	137	0
Indirect energy consumption	4,007	4,111	4,097	3,931	36
Electricity	3,420	3,470	3,542	3,535	36
Steam, heat, cold	587	641	554	396	0
Total energy sold	0.7	0.4	0.0	0.00	0.0
Electricity	0.7	0.4	0.0	0.00	0.0
Steam, heat, cold	0.0	0.0	0.0	0.0	0.0

1 In line with the Greenhouse Gas Protocol, for all previous years energy consumption has been calculated based on the current corporate structure as of Dec. 31 of the reporting year and retroactively adjusted for acquisitions or divestments of (parts of) companies, or for changes in emission factors (portfolio-adjusted).

2 Light and heavy fuel oil, liquefied petroleum gas (LPG), diesel, biodiesel, gasoline and kerosene

We use photovoltaics to produce power at multiple sites.

We currently only record purchased secondary energy – this is primarily electricity and, to a lesser extent, heat/steam/cold. Details on the local energy mix, including the respective percentage of primary energy, renewable

energy, etc. are not available. Data on local energy efficiency in electricity or heat generation are not available either. Our production sites are located in countries with a widely varying energy mix.

Our Darmstadt and Gernsheim sites in Germany consume the most energy, representing 23% of our Group-wide total. Here, fossil energy (coal, gas, etc.) accounts for approximately 45%, nuclear energy approximately 6% and renewable energies approximately 49% of the energy mix. Renewable energies account for a higher share of electricity generation at production sites in Switzerland, with nuclear energy taking the lead in France. Based on an estimated global energy efficiency of 37% for the conversion and distribution of generated electricity, this results in a primary energy consumption of 2,654 GWh for 2023. Based on an estimated global energy efficiency of 85% for heat/steam/cold, this results in a primary energy consumption of 129 GWh for 2023. This yields a total primary energy consumption of 2,783 GWh for 2023. (The calculation is based on factors stated in the "Manual for energy management in practice - Systematically reducing energy costs" published by DENA, 12/2012).

In 2023, our energy intensity relative to net sales totaled 0.11 kWh/€.

Water withdrawal

millions of m ³	2020	2021	2022	2023	2023
				The Group	Water stress areas
Total water withdrawal	14.0	13.5	13.2	12.1	0.16
Surface water (rivers, lakes)	1.8	1.9	1.8	1.4	0.002
Groundwater	6.7	6.3	6.3	5.8	0.002
Drinking water (from local suppliers)	5.4	5.2	5.0	4.8	0.16
Rain water and other sources	0.06	0.06	0.06	0.06	0.002

These figures do not include the ground water that we use for safety measures at our Gernsheim site in Germany. Here, the water is fed back directly into natural circulation.

The volume of seawater and produced water withdrawn is not significant and is therefore not reported separately.

Water reused

millions of m ³	2020	2021	2022	2023
Water reused	22.0	23.5	20.7	20.5

The recirculating cooling system at our Darmstadt, Germany facility accounts for the majority of reused water as it allows the water to be re-utilized multiple times. The volume of reused water is thus greater than the total volume of consumed water.

Wastewater volume

	2020	2021	2022	2023 The Group
Total wastewater volume (millions of m³)	13.4	13.3	12.4	11.1
Wastewater discharged directly	9.2	9.5	8.6	7.6
Wastewater discharged to third parties	4.1	3.8	3.8	3.4

The volume of seawater and groundwater discharged is not significant and is therefore not reported separately.

Discrepancies between total wastewater volume and the sum of directly discharged wastewater and wastewater sent to third parties arise from other disposal methods, which, however, only result in minor amounts of wastewater. Direct discharges correspond to the “freshwater” classification of the GRI. Indirect discharges correspond to their “other water” classification.

Wastewater quality¹

	2020	2021	2022	2023
Chemical oxygen demand (metric tons of O ₂)	1,482	1,426	1,013	1,039
Phosphorous (metric tons)	15	11	10	9
Nitrogen (metric tons)	291	392	363	184
Nickel (kg)	30	32 ²	38 ²	104
Lead (kg)	37	15	16	21
Cadmium (kg)	6	3	5	4
Mercury (kg)	0	1	0	0

1 In alignment with ICCA reporting requirements specified by Cefic, we track heavy metal emissions from lead, cadmium, nickel, and mercury.

2 Data were retroactively adjusted.

The wastewater treatment plant at our site in Gernsheim, Germany also treats wastewater from a neighboring municipality. The communal wastewater from this municipality is included in the emissions stated in the table.

Emissions are determined partially based on measurements and partially based on calculations or estimates. Only some sites are required to measure individual parameters.

These figures reflect the wastewater as it is when it leaves our facilities. Some of the substances in the water are then later removed by third-party purification plants before the water is ultimately discharged into the ecosystem.

Hazardous and non-hazardous waste

metric kilotons	2020	2021	2022	2023
Total waste	229	214	371	291
Hazardous waste disposed ¹	38	34	36	35
Non-hazardous waste disposed ¹	34	33	31	18
Hazardous waste recycled ²	90	84	84	81
Non-hazardous waste recycled ²	67	63	220	157

1 Disposed = incineration (without energy recovery) and landfill

2 Recycled = incineration (with energy recovery) and material recycling

Exported/Imported hazardous waste

metric kilotons	2020	2021	2022	2023
Exported ¹	4.0	4.6	3.7	3.3
Imported	0.000	0.000	0.000	0.000

1 Disposal primarily within the EU and the United States.

In 2023, approx. 3% of hazardous waste was shipped internationally.

Waste by disposal method

	2020	2021	2022	2023
Total waste (metric kilotons)	229	214	371	291
Disposed waste	72	66	67	53
Landfilled waste	17	18	20	9
Incinerated waste	55	48	47	44
Recycled waste	157	148	304	238
Material recycling	133	124	274	214
Waste-to-energy	24	24	30	24
Recycling rate (%)	69	69	82	82

As in previous years, the total waste generated continues to be heavily influenced by the waste from construction and remodeling activities. Construction, excavation and demolition waste accounted for 43% of our waste in 2023. Around 118 metric kilotons of construction, excavation and demolition waste was recycled.

Significant spills

	2020	2021	2022	2023
Total number of significant spills	0	0	2	0

Community

Spending on community engagement

€ million	2020	2021	2022	2023
Total spending	53.6	43.3	48.1	47.2

When calculating the value of our medicine donations, we take into account the Guidelines for Medical Donations issued by the World Health Organization; for other product donations, we apply their fair value.

The main reasons for the decline in total spending in 2021 were lower Covid-19-related donations as well as a drop in demand for praziquantel tablets in the affected countries due to Covid-19.

Community engagement spending by region¹

	Europe	North America	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
2022					
€ million	13.1	5.3	5.9	1.3	22.5
%	27	11	12	3	47
2023					
€ million	8.5	4.7	3.4	5.0	25.6
%	18	10	7	11	54

¹ This table presents the regions across the globe in which we support initiatives. For projects that benefit multiple regions, we have calculated the amount per region by dividing the project spending evenly per country.

Focus of our local community engagement¹

%	2020	2021	2022	2023
Health	36	33	33	30
Education and culture	43	45	32	30
Environment	1	2	5	8
Disaster relief	1	2	8	4
Other	19	18	22	28

¹ Based on number of projects

Motivations for our community engagement¹

%	2020	2021	2022	2023
Charitable activities	23	21	12	13
Community investment	72	76	86	82
Commercial initiatives in the community	5	3	2	5

1 Based on total spending on all projects

We categorize the motivations for our activities based on the London Benchmarking Group model as well as the guidelines of the Bertelsmann Foundation for corporate social responsibility. Projects that primarily aim to make improvements within the community are classified as community investment.

Initiatives that are predominantly aimed at company-relevant factors such as image or personnel recruitment are classified as commercial initiatives in the community. Charitable activities cover any other projects that benefit a charitable organization, but cannot be listed under either of the other two motivation categories due to missing data or their narrow scope.

GRI content index

General disclosures

GRI 2: General Disclosures 2021

GRI Standard and disclosure	Reference	Omission reason and Comment
2-1	Organizational details Company profile List of shareholdings	
2-2	Entities included in the organization's sustainability reporting Report profile List of shareholdings	
2-3	Reporting period, frequency, and contact point Report profile	
2-4	Restatements of information Report profile	
2-5	External assurance Assurance report	
2-6	Activities, value chain, and other business relationships Company profile Supply chain management Mica supply chain Report profile Fundamental information about the Group Macroeconomic and sector-specific environment	
2-7	Employees Report profile Indicators: employees	Comment: We report employee figures in line with internal management categories, possibly independent of the region. The employment format "non-guaranteed hours employees" stipulated by the GRI does not represent a relevant employment category for us and is therefore not reported.
2-8	Workers who are not employees Career with us	Omission reason: Information unavailable/incomplete Comment: Workers who are not employees (e.g. supervised temporary

GRI Standard and disclosure	Reference	Omission reason and Comment
2-9	Governance structure and composition	staff) are not logged in our employee data base. We are reviewing the relevant disclosure for fiscal 2024.
2-10	Nomination and selection of the highest governance body	
2-11	Chair of the highest governance body	
2-12	Role of the highest governance body in overseeing the management of impacts	
2-13	Delegation of responsibility for managing impacts	
2-14	Role of the highest governance body in sustainability reporting	
2-15	Conflicts of interest	
2-16	Communication of critical concerns	<p>Omission reason: Confidentiality constraints</p> <p>Comment: Due to the sensitive nature of critical concerns, these figures are only for internal use (except where external reporting is legally required). Significant additions to or changes in the risk register are disclosed in due course to the Executive Board on an ad</p>

GRI Standard and disclosure	Reference	Omission reason and Comment
		hoc basis, as per stipulations in the risk policy.
2-17	Collective knowledge of the highest governance body	Sustainability strategy & goals Information on corporate governance practices
2-18	Evaluation of the performance of the highest governance body	Procedures of the Boards Articles of association Compensation report
2-19	Remuneration policies	Compensation report
2-20	Process to determine remuneration	Compensation report Voting results Annual General Meeting 2023
2-21	Annual total compensation ratio	<p>Omission reason: Not applicable</p> <p>Comment: Competitive salaries and additional benefits not only increase our attractiveness as an employer; they also motivate our people and build loyalty to the company. The compensation we offer is based on market analyses in the relevant field, the value of the respective position, and the employee's skill set and performance. Compensation and benefits across the entire Group are defined by our global HR policies and frameworks. As far as possible, we strive to offer all our employees comparable compensation structures. Furthermore, we monitor our compliance with minimum standards. We do not consider the information required under GRI 2-21 to be relevant to assessing the fairness of our compensation structures.</p>
2-22	Statement on sustainable development strategy	Letter from the CEO
2-23	Policy commitments	Governance Compliance management Human rights
2-24	Embedding policy commitments	Governance

GRI Standard and disclosure	Reference	Omission reason and Comment
	Compliance management	
	Human rights	
	Information on corporate governance practices	
2-25	Processes to remediate negative impacts	
	Sustainability strategy & goals	
	Materiality analysis	
	Compliance management	
	Human rights	
	Indicators: business ethics	
	Report on Risks and Opportunities	
2-26	Mechanisms for seeking advice and raising concerns	
	Sustainability strategy & goals	
	Stakeholder dialogue	
	Compliance management	
2-27	Compliance with laws and regulations	
	Compliance management	
	Interactions with health systems	
	Indicators: business ethics	
	Other provisions	
2-28	Membership associations	
	Stakeholder dialogue	
2-29	Approach to stakeholder engagement	
	Stakeholder dialogue	
2-30	Collective bargaining agreements	
	Corporate culture	

GRI 3: Material Topics 2021

GRI Standard and disclosure	Reference	Omission reason and Comment
3-1	Process to determine material topics	
	Materiality analysis	
3-2	List of material topics	
	Materiality analysis	

Economic standards

GRI 201: Economic Performance 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
201: 3-3 Management of material topics	Company profile Statement on corporate governance Economic performance Pension schemes Report on Risks and Opportunities	
201-1 Direct economic value generated and distributed	Indicators: employees Indicators: economics Indicators: community Consolidated income statement Consolidated cash flow statement Operating activities Personnel expenses	
201-2 Financial implications and other risks and opportunities due to climate change	Climate action Water management TCFD report CDP Climate change CDP Water Security Report on Risks and Opportunities	Comment: We report in detail on various aspects of climate change as part of our participation in the CDP.
201-3 Defined benefit plan obligations and other retirement plans	Indicators: employees Career with us Pension schemes	Omission reason: Information unavailable/incomplete Comment: We report on the value of pension liabilities and similar obligations. We are reviewing the relevant disclosures for fiscal 2024 in accordance with 201-3-d and 201-3-e.
201-4 Financial assistance received from government	Accounting: Property, plant and equipment Research and development costs	

GRI 202: Market Presence 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
202: 3-3 Management of material topics	Career with us Corporate culture	
202-1 Ratios of standard entry level wage by gender compared to local minimum wage	Career with us Diversity, equity & inclusion	<p>Omission reason: Not applicable</p> <p>Comment: This indicator is not relevant to us, which is why we do not collect data on the ratio of the standard entry-level wage compared to the local minimum wage. Our Global Rewards Policies apply to all our subsidiaries worldwide and guarantee a systematic compensation structure. Both base pay and short-term variable compensation are oriented to the median base pay of the relevant reference market. Our pay ranges are reviewed on an annual basis and reflect market conditions. We adhere to local minimum wage levels.</p>
202-2 Proportion of senior management hired from the local community	Career with us Diversity, equity & inclusion	<p>Omission reason: Not applicable</p> <p>Comment: We promote both the recruitment of local employees and their international deployment at all hierarchical levels. The jobs posted on the internal job board are visible to all employees, regardless of the country they are in. However, we do not record the proportion of local managers, as this is not relevant for the strategic personnel management of our company.</p>

GRI 203: Indirect Economic Impacts 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
203: 3-3 Management of material topics	Global Health Prices of medicines Health capacity & awareness	

GRI Standard and disclosure	Reference	Omission reason and Comment
203-1 Infrastructure investments and services supported	Global Health Health capacity & awareness Mica supply chain Community engagement	
203-2 Significant indirect economic impacts	Prices of medicines Health capacity & awareness Community engagement Materiality analysis	

GRI 204: Procurement Practices 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
204: 3-3 Management of material topics	Supply chain management Mica supply chain Human rights	
204-1 Proportion of spending on local suppliers	Supply chain management	<p>Omission reason: Not applicable</p> <p>Comment: We have no internal guidelines stipulating that preference be given to local vendors in allocating contracts and therefore do not collect this type of data. In some countries, local laws require contracts to be awarded to regional suppliers.</p>

GRI 205: Anti-corruption 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
205: 3-3 Management of material topics	Compliance management Interactions with health systems	
205-1 Operations assessed for risks related to corruption	Compliance management Indicators: business ethics Report on Risks and Opportunities	

GRI Standard and disclosure	Reference	Omission reason and Comment
205-2 Communication and training about anti-corruption policies and procedures	Compliance management Indicators: business ethics Supply chain management	<p>Omission reason: Information unavailable/incomplete</p> <p>Comment: Our anti-corruption standard applies to all employees of our company. In addition, we expect all of our suppliers to comply with our Supplier Code of Conduct, which explicitly requires the combat of corruption and bribery. We are reviewing the relevant disclosures for fiscal 2024 in accordance with 205-2-a, 205-2-c and 205-d.</p>
205-3 Confirmed incidents of corruption and actions taken	Compliance management Indicators: business ethics Report on Risks and Opportunities	<p>Omission reason: Confidentiality constraints</p> <p>Comment: As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities. Due to the sensitive nature of corruption incidents and to avoid conclusions about individual cases, we do not report on 205-3-b and 205-3-c.</p>

GRI 206: Anti-competitive Behavior 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
206: 3-3 Management of material topics	Compliance management Interactions with health systems	
206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Indicators: business ethics Report on Risks and Opportunities	

Environmental standards

GRI 301: Materials 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
301: 3-3 Management of material topics	<p>Sustainable products & packaging: Life Science</p> <p>Sustainable products & packaging: Healthcare</p> <p>Sustainable products & packaging: Electronics</p>	
301-1 Materials used by weight or volume	<p>Sustainable products & packaging: Life Science</p> <p>Sustainable products & packaging: Healthcare</p> <p>Sustainable products & packaging: Electronics</p>	<p>Omission reason: Information unavailable/incomplete</p> <p>Comment: We only record the weight of the raw materials that are directly used in our pharmaceuticals and chemicals and are measurable, which came to 387 metric kilotons in 2023 (2022: 416 metric kilotons). Additionally, we utilize operating supplies and packaging materials, such as folding boxes, glass bottles and ampules. A breakdown into 301-1-i and 301-1-ii is currently not possible. We are reviewing a corresponding disclosure for fiscal 2024.</p>
301-2 Recycled input materials used	<p>Sustainable products & packaging: Life Science</p> <p>Sustainable products & packaging: Healthcare</p> <p>Sustainable products & packaging: Electronics</p>	<p>Omission reason: Information unavailable/incomplete</p> <p>Comment: In all our endeavors, we attempt to efficiently utilize materials and recycle as much as possible. Where feasible, we use recycled materials (in packaging, for instance.). Overall, our company considers material consumption to be a major concern. There are few opportunities to use recycled material in our production processes because our business model puts us at the start of the value chain. We therefore do not collect such data at Group level. We are reviewing consolidation at Group level for fiscal 2024. Individual data and measures are reported in the respective chapters.</p>

GRI Standard and disclosure	Reference	Omission reason and Comment
301-3 Reclaimed products and their packaging materials	Sustainable products & packaging: Life Science Sustainable products & packaging: Healthcare Sustainable products & packaging: Electronics	<p>Omission reason: Information unavailable/incomplete</p> <p>Comment: Owing to the multitude of products we supply and the minimal comparability of our various initiatives, we do not collect quantitative data at the Group level. We are reviewing consolidation at Group level for fiscal 2024. The individual measures taken by our various businesses are reported in the respective chapters.</p>

GRI 302: Energy 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
302: 3-3 Management of material topics	Climate action Environmental protection Sustainable products & packaging: Life Science Sustainable products & packaging: Healthcare Sustainable products & packaging: Electronics	
302-1 Energy consumption within the organization	Climate action Indicators: environment	
302-2 Energy consumption outside of the organization	Climate action Indicators: environment	<p>Omission reason: Information unavailable/incomplete</p> <p>Comment: To date, we have not been tracking energy consumption outside our organization, but we are reporting on our Scope 3 emissions.</p>
302-3 Energy intensity	Climate action Indicators: environment	
302-4 Reduction of energy consumption	Climate action Indicators: environment	
302-5 Reductions in energy requirements of products and services	Climate action Indicators: environment	

GRI 303: Water and Effluents 2018

GRI Standard and disclosure	Reference	Omission reason and Comment
303: 3-3 Management of material topics	Water management Environmental protection	
303-1 Interactions with water as a shared resource	Water management	
303-2 Management of water discharge-related impacts	Water management	
303-3 Water withdrawal	Water management Indicators: environment	<p>Omission reason: Not applicable</p> <p>Comment: The amount of seawater and produced water withdrawn is not significant and is therefore not reported separately. The breakdown of the water withdrawal sources in accordance with the GRI categories “fresh water” and “other water” is not relevant for us owing to the high water quality required and is therefore not reported.</p>
303-4 Water discharge	Water management Indicators: environment	<p>Omission reason: Not applicable</p> <p>Comment: The volume of seawater and groundwater discharged is not significant and is therefore not reported separately.</p>
303-5 Water consumption	Water management Indicators: environment	<p>Omission reason: Not applicable</p> <p>Comment: Most of the water we use in our production streams is released back into aquatic ecosystems through direct or indirect discharges. Evaporation processes are not a material part of our manufacturing operations. At individual manufacturing sites, we incorporate small amounts of water into our products. We do not operate processes that withdraw water in relevant volumes from the aquatic environment like incorporation in products or evaporation into the atmosphere. Neither do we operate technical installations like water reservoirs with the purpose of water withdrawal. Thus, water consumption is not material to our company.</p>

GRI 304: Biodiversity 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
304: 3-3 Management of material topics	Environmental protection Sustainable products & packaging: Life Science	
304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Environmental protection	Omission reason: Information unavailable/incomplete Comment: Our land use planning takes biodiversity impacts into account, with appropriate protective measures being taken on a case-by-case basis.
304-2 Significant impacts of activities, products, and services on biodiversity	Environmental protection Materiality analysis	
304-3 Habitats protected or restored	Environmental protection	
304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	Environmental protection	Omission reason: Information unavailable/incomplete Comment: Our land use planning takes biodiversity impacts into account, with appropriate protective measures being taken on a case-by-case basis.

GRI 305: Emissions 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
305: 3-3 Management of material topics	Climate action Environmental protection	
305-1 Direct (Scope 1) GHG emissions	Climate action Indicators: environment	
305-2 Energy indirect (Scope 2) GHG emissions	Climate action Indicators: environment	
305-3 Other indirect (Scope 3) GHG emissions	Climate action Indicators: environment CDP Climate change	

GRI Standard and disclosure		Reference	Omission reason and Comment
305-4	GHG emissions intensity	Climate action Indicators: environment	
305-5	Reduction of GHG emissions	Climate action Sustainable products & packaging: Life Science Sustainable products & packaging: Healthcare Sustainable products & packaging: Electronics Indicators: environment CDP Climate change	
305-6	Emissions of ozone-depleting substances (ODS)	Indicators: environment	
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Indicators: environment	

GRI 306: Waste 2020

GRI Standard and disclosure		Reference	Omission reason and Comment
306: 3-3	Management of material topics	Waste & recycling Environmental protection	
306-1	Waste generation and significant waste-related impacts	Waste & recycling	
306-2	Management of significant waste-related impacts	Waste & recycling	
306-3	Waste generated	Waste & recycling	
306-4	Waste diverted from disposal	Indicators: environment	
306-5	Waste directed to disposal	Waste & recycling Indicators: environment	

GRI 306: Effluents and Waste 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
306-3 Significant spills	Waste & recycling	

GRI 308: Supplier Environmental Assessment 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
308: 3-3 Management of material topics	Supply chain management Mica supply chain	
308-1 New suppliers that were screened using environmental criteria	Supply chain management	Omission reason: Not applicable Comment: We do not report the “percentage of new suppliers that were screened using environmental criteria” since this information is not relevant for managing our sustainable supplier management activities.
308-2 Negative environmental impacts in the supply chain and actions taken	Supply chain management Mica supply chain	Omission reason: Not applicable Comment: We work closely with our strategic suppliers and monitor various risk domains via our supplier risk assessments. In this context, we help our suppliers to achieve improvements and to set up risk mitigation measures. The GRI disclosures 308-2-b, 308-2-d and 308-2-e are not reported since they are not relevant for us.

Social standards

GRI 401: Employment 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
401: 3-3 Management of material topics	Career with us Corporate culture Human rights	
401-1 New employee hires and employee turnover	Indicators: employees	
401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	Career with us	<p>Omission reason: Information unavailable/incomplete</p> <p>Comment: Part-time employees generally receive the same eligibility for employee benefits as full-time workers. Eligibility may require a minimum level of work hours in some countries. Employees with temporary contracts, however, may not be entitled to all company benefits, such as a company pension.</p>
401-3 Parental leave	Career with us Indicators: employees	

GRI 402: Labor/Management Relations 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
402: 3-3 Management of material topics	Corporate culture	
402-1 Minimum notice periods regarding operational changes	Corporate culture	<p>Omission reason: Not applicable</p> <p>Comment: The regulations on periods of notice vary worldwide. We apply the rules that are in force locally and do not track periods of notice at Group level.</p>

GRI 403: Occupational Health and Safety 2018

GRI Standard and disclosure	Reference	Omission reason and Comment
403: 3-3 Management of material topics	Health & safety Plant, process & transport safety	<p>Comment: The disclosures under GRI 403 pertain to our main employee groups, for example our own employees as well as supervised temporary staff. They do not include employees of contractors. Consequently, not all the employee groups specified by GRI are taken into consideration.</p>
403-1 Occupational health and safety management system	Health & safety	
403-2 Hazard identification, risk assessment, and incident investigation	Health & safety Plant, process & transport safety	
403-3 Occupational health services	Health & safety	
403-4 Worker participation, consultation, and communication on occupational health and safety	Health & safety	<p>Comment: Occupational health and safety committees are required by law in Germany. All employees of Merck KGaA, Darmstadt, Germany, are therefore represented by such committees, which operate at site level. They account for around 6% of our total workforce. The majority of sites outside Germany also have health and safety committees to represent their employees. The organization of these committees is the responsibility of our individual sites. Health and safety issues are governed Group-wide by our EHS Policy. The organizational implementation of this policy is the responsibility of our individual sites and is subject to local laws and regulations. Merck KGaA, Darmstadt, Germany, has company agreements in place on occupational health and safety.</p>
403-5 Worker training on occupational health and safety	Health & safety Plant, process & transport safety	
403-6 Promotion of worker health	Health & safety	
403-7 Prevention and mitigation of occupational health and safety	Health & safety	

GRI Standard and disclosure	Reference	Omission reason and Comment
impacts directly linked by business relationships	Human rights Plant, process & transport safety	
403-8 Workers covered by an occupational health and safety management system	Health & safety	
403-9 Work-related injuries	Health & safety Plant, process & transport safety Indicators: employees	Comment: We have identified the lost time injury rate (LTIR) as a key indicator for our company.
403-10 Work-related ill health	Health & safety Plant, process & transport safety Indicators: employees	Omission reason: Information unavailable/incomplete Comment: At Group level, we do not collect data about the types of potential work-related illnesses or fatalities. Our sites may collect data on occupational illness as needed. We are reviewing consolidation at Group level for fiscal 2024.

GRI 404: Training and Education 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
404: 3-3 Management of material topics	Career with us Diversity, equity & inclusion Corporate culture	
404-1 Average hours of training per year per employee	Career with us	Omission reason: Not applicable Comment: We do not keep track of the average hours our employees spend on vocational training and continuing education because this indicator does not have any bearing on the quality or success of our efforts.
404-2 Programs for upgrading employee skills and transition assistance programs	Supply chain management Human rights Product-related crime Plant, process & transport safety	

GRI Standard and disclosure	Reference	Omission reason and Comment
	Career with us	
	Corporate culture	
	Diversity, equity & inclusion	
	Environmental protection	
404-3	Percentage of employees receiving regular performance and career development reviews	<p>Career with us</p> <p>Indicators: employees</p>

GRI 405: Diversity and Equal Opportunity 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
405: 3-3	Management of material topics	
	Diversity, equity & inclusion	
	Career with us	
	Objectives of the Supervisory Board	
405-1	Diversity of governance bodies and employees	
	Diversity, equity & inclusion	
	Indicators: employees	
	The Executive Board	
	The Supervisory Board	
	Objectives of the Supervisory Board	
	Diversity policy	
405-2	Ratio of basic salary and remuneration of women to men	<p>Omission reason: Not applicable</p> <p>Comment: As a core principle, our compensation systems and processes do not distinguish between women and men. The salaries we offer are predicated on the respective job description and are based on our Global Job Catalog, which has fixed salary bands that are identical for men and women. Variable salary components that fall under performance-based compensation are paid based on whether mutually agreed targets have been achieved. A</p>

GRI Standard and disclosure	Reference	Omission reason and Comment
		performance management system governs this process.

GRI 406: Non-discrimination 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
406: 3-3 Management of material topics	Diversity, equity & inclusion Corporate culture	
406-1 Incidents of discrimination and corrective actions taken	Diversity, equity & inclusion Indicators: business ethics	Omission reason: Confidentiality constraints Comment: Due to the sensitive nature of discrimination cases and to avoid conclusions about individual cases, we do not report on 406-1-b-iii.

GRI 407: Freedom of Association and Collective Bargaining 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
407: 3-3 Management of material topics	Supply chain management Human rights Corporate culture	
407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Supply chain management Human rights	

GRI 408: Child Labor 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
408: 3-3 Management of material topics	Supply chain management Mica supply chain Human rights	

GRI Standard and disclosure	Reference	Omission reason and Comment
408-1 Operations and suppliers at significant risk for incidents of child labor	Supply chain management Human rights Mica supply chain	

GRI 409: Forced or Compulsory Labor 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
409: 3-3 Management of material topics	Supply chain management Mica supply chain Human rights	
409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	Supply chain management Mica supply chain Human rights	

GRI 410: Security Practices 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
410: 3-3 Management of material topics	Human rights Supply chain management	
410-1 Security personnel trained in human rights policies or procedures	Human rights	<p>Omission reason: Information unavailable/incomplete</p> <p>Comment: As part of our Security Governance Framework, we plan to integrate human rights aspects even more strongly into security-relevant processes, for instance in training courses for security personnel. To this end, we plan to offer webinars on the topic of human rights on the established Security Academy platform in regular intervals, among other things.</p>

GRI 414: Supplier Social Assessment 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
414: 3-3 Management of material topics	Supply chain management Mica supply chain Human rights	
414-1 New suppliers that were screened using social criteria	Supply chain management	<p>Omission reason: Not applicable</p> <p>Comment: We do not report the “percentage of new suppliers that were screened using social criteria” since this information is not relevant for managing our sustainable supplier management activities.</p>
414-2 Negative social impacts in the supply chain and actions taken	Supply chain management Mica supply chain	<p>Omission reason: Information unavailable/incomplete</p> <p>Comment: We work closely with our strategic suppliers and monitor various risk domains via our supplier risk assessment. In doing so, we support our suppliers with improvements and measures to minimise risk. Due to the large number of our suppliers, we do not have data for 414-2-b, 414-2-d and 414-2-e for the entire Group. We are reviewing consolidation at Group level for fiscal 2024.</p>

GRI 416: Customer Health and Safety 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
416: 3-3 Management of material topics	Clinical studies Patient safety Product-related crime Chemical product safety Report on Risks and Opportunities	
416-1 Assessment of the health and safety impacts of product and service categories	Chemical product safety	<p>Omission reason: Not applicable</p> <p>Comment: All pharmaceuticals are subject to reporting and notification</p>

GRI Standard and disclosure	Reference	Omission reason and Comment
		requirements, which we fulfill. In line with the statutory requirements, we provide our customers with relevant information on the safe handling and use of our chemical products. We report on the individual requirements in the respective chapters.
416-2	<p>Incidents of non-compliance concerning the health and safety impacts of products and services</p> <p>Clinical studies</p> <p>Chemical product safety</p> <p>Report on Risks and Opportunities</p>	Comment: As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.

GRI 417: Marketing and Labeling 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
417: 3-3	<p>Management of material topics</p> <p>Compliance management</p> <p>Interactions with health systems</p> <p>Patient safety</p> <p>Chemical product safety</p>	
417-1	<p>Requirements for product and service information and labeling</p> <p>Patient safety</p> <p>Chemical product safety</p>	<p>Omission reason: Not applicable</p> <p>Comment: All pharmaceuticals are subject to reporting and notification requirements, which we fulfill. In line with the statutory requirements, we provide our customers with relevant information on the safe handling and use of our chemical products. We report on the individual requirements in the respective chapters.</p>
417-2	<p>Incidents of non-compliance concerning product and service information and labeling</p> <p>Patient safety</p> <p>Chemical product safety</p> <p>Report on Risks and Opportunities</p>	
417-3	<p>Incidents of non-compliance concerning marketing communications</p> <p>Report on Risks and Opportunities</p>	Comment: As applicable, we report on risks from litigation and legal proceedings in our Report on Risks and Opportunities.

GRI 418: Customer Privacy 2016

GRI Standard and disclosure	Reference	Omission reason and Comment
418: 3-3 Management of material topics	Data protection & cyber security Clinical studies	
418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	Data protection & cyber security Clinical studies Indicators: business ethics	

Additional material topics

Clinical studies

GRI Standard and disclosure	Reference	Omission reason and Comment
3-3 Management of material topics	Clinical studies	

Animal welfare

GRI Standard and disclosure	Reference	Omission reason and Comment
3-3 Management of material topics	Animal welfare	

Bioethics

GRI Standard and disclosure	Reference	Omission reason and Comment
3-3 Management of material topics	Bioethics	

Digital ethics

GRI Standard and disclosure	Reference	Omission reason and Comment
3-3 Management of material topics	Digital ethics	

Access to health

GRI Standard and disclosure	Reference	Omission reason and Comment
3-3 Management of material topics	Global Health Innovation sharing Health capacity & awareness	

Prices of medicines

GRI Standard and disclosure	Reference	Omission reason and Comment
3-3 Management of material topics	Prices of medicines	

Product-related crime

GRI Standard and disclosure	Reference	Omission reason and Comment
3-3 Management of material topics	Product-related crime	

SASB index

SASB disclosure 2023

We included our Sustainability Accounting Standards Board (SASB) disclosures into our Sustainability Report 2023. In addition to our disclosures pursuant to the SASB standard “Biotechnology & Pharmaceuticals”, we voluntarily report information for the “Medical Equipment & Supplies” and “Semiconductors” industries. We thus cover our three business sectors. With our voluntary SASB disclosures, we want to meet the increasing demands of our investors and other stakeholders. The reported data provide transparent, financially material and meaningful information on sustainability of our company. To meet the evolving interests and requirements of our stakeholders in the future as well, we will continuously develop and expand our SASB reporting.

The SASB disclosures were not part of the limited assurance engagement conducted by an independent auditor for our 2023 Sustainability Report.

Biotechnology & Pharmaceuticals

Safety of Clinical Trial Participants

Code	Metrics	Reference/Comment
HC-BP-210a.1	Discussion, by world region, of management process for ensuring quality and patient safety during clinical trials	Clinical studies Patient safety R&D: Positions & Policies (Healthcare)
HC-BP-210a.2	Number of FDA Sponsor Inspections related to clinical trial management and pharmacovigilance that resulted in: (1) Voluntary Action Indicated (VAI) and (2) Official Action Indicated (OAI)	In 2023, there were no FDA Good Clinical Practice (GCP) sponsor inspections related to clinical trials. Accordingly, there are no VAI or OAI.
HC-BP-210a.3	Total amount of monetary losses as a result of legal proceedings associated with clinical trials in developing countries	Not reported due to confidentiality constraints/legal prohibitions.

Access to Medicines

Code	Metrics	Reference/Comment
HC-BP-240a.1	Description of actions and initiatives to promote access to health care products for priority diseases and in priority countries as defined by the Access to Medicine Index	Global Health Open Innovation sharing

Code	Metrics	Reference/Comment
		Prices of medicines
		Health capacity & awareness
HC-BP-240a.2	List of products on the WHO List of Prequalified Medicinal Products as part of its Prequalification of Medicines Programme (PQP)	Currently there is no product on the list.

Affordability & Pricing

Code	Metrics	Reference/Comment
HC-BP-240b.1	Number of settlements of Abbreviated New Drug Application (ANDA) litigation that involved payments and/or provisions to delay bringing an authorized generic product to market for a defined time period	Not reported due to confidentiality constraints.
HC-BP-240b.2	Percentage change in: (1) average list price and (2) average net price across U.S. product portfolio compared to previous year	<p>The following overview shows the percentage change (2023 vs. 2022) in the average list price (WAC) of our Healthcare US product portfolio compared to the previous year (numbers in brackets: 2022 vs. 2021):</p> <ul style="list-style-type: none"> • Rebif[®]: 7.3% (4.0%) • Mavenclad[®]: 4.5% (4.7%) • Bavencio[®]: 3.8% (3.3%) • Gonal-f[®]: 7.2% (6.4%) • Cetrotide[®]: 7.2% (7.3%) • Ovidrel[®]: 7.2 % (6.4%) • Serostim[®]: 6.9% (6.1%) • Tepmetko[®]: 5.5% (4.1%) <p>See also: Prices of medicines</p> <p>We do not report any net price for confidentiality reasons.</p>
HC-BP-240b.3	Percentage change in: (1) list price and (2) net price of product with largest increase compared to previous year	<p>We only report the percentage change in average list price across our U.S. product portfolio. The largest increase compared with the previous year amounted to 3.3% for Rebif[®].</p> <p>We do not report any net price for confidentiality reasons.</p>

Drug Safety

Code	Metrics	Reference/Comment
HC-BP-250a.1	List of products listed in the Food and Drug Administration's (FDA) MedWatch Safety Alerts for Human Medical Products database	See FDA website: Safety information and adverse event reporting program Adverse event reporting system (FAERS) public dashboard
HC-BP-250a.2	Number of fatalities associated with products as reported in the FDA Adverse Event Reporting System	See FDA website: Adverse event reporting system (FAERS) public dashboard
HC-BP-250a.3	Number of recalls issued, total units recalled	In 2023, we had two drug product recalls in total. None of these recalls was global they affected individual countries only. None of the recalls was related to the USA. None of the recalls was related to serious injury or fatality, all were either Class II or III. According to our internal policies, any recall type is reported and discussed with the relevant national regulatory authority, including the U.S. FDA. All recall processes are managed under a Global Standard Procedure "Product Recall and Withdrawal Management" which is applied worldwide for medicinal products (pharmaceutical prescription, biological) and devices.
HC-BP-250a.4	Total amount of product accepted for take-back, reuse, or disposal	We do not take back products for reuse. In line with legal requirements in each country we take back products for disposal. The take back for disposal is organized on a local level and not tracked at global level.
HC-BP-250a.5	Number of FDA enforcement actions taken in response to violations of current Good Manufacturing Practices (cGMP), by type	We had no such FDA enforcement actions in 2023.

Counterfeit Drugs

Code	Metrics	Reference/Comment
HC-BP-260a.1	Description of methods and technologies used to maintain traceability of products throughout the supply chain and prevent counterfeiting	Product-related crime

Code	Metrics	Reference/Comment
HC-BP-260a.2	Discussion of process for alerting customers and business partners of potential or known risks associated with counterfeit products	We have implemented processes and procedures to ensure that all suspected counterfeit medicines are assessed by a team of experts. The scope of any notification that we provide is the outcome of strategic alignment between relevant functions (e.g. Medical, Procurement, Legal, Quality, Corporate Security, Regulatory Affairs, Communications). Levels of details and format of any notification, including the HA information and collaboration, dedicated patient communication, information/awareness communication to distributors, pharmacies, physicians etc. about the presence of counterfeit or diverted products in the market, is decided on a case-by-case basis in accordance with the identified risks and taking into account corporate, legal and regulatory responsibilities. See also: Product-related crime
HC-BP-260a.3	Number of actions that led to raids, seizure, arrests, and/or filing of criminal charges related to counterfeit products	We report the number of actions that lead to filed cases related to counterfeit products to the authorities. For our Group-wide approach to counterfeit products, please see: Product-related crime

Ethical Marketing

Code	Metrics	Reference/Comment
HC-BP-270a.1	Total amount of monetary losses as a result of legal proceedings associated with false marketing claims	Not reported due to confidentiality constraints/legal prohibitions.
HC-BP-270a.2	Description of code of ethics governing promotion of off-label use of products	Patient safety

Employee Recruitment, Development & Retention

Code	Metrics	Reference/Comment
HC-BP-330a.1	Discussion of talent recruitment and retention efforts for scientists and research and development personnel	Merck KGaA, Darmstadt, Germany is a diverse company with three business sectors. Our Group approach to talent recruitment and retention efforts applies to everyone and does not differentiate between non-scientist and scientist employees.

Code	Metrics	Reference/Comment
		Career with us Diversity, equity & inclusion
HC-BP-330a.2	(1) Voluntary and (2) involuntary turnover rate for: (a) executives/senior managers, (b) mid-level managers, (c) professionals, and (d) all others	<p>We report the overall turnover rate (including voluntary as well as involuntary fluctuation) by gender, age and region.</p> <p>Indicators: Employees</p>

Supply Chain Management

Code	Metrics	Reference/Comment
HC-BP-430a.1	Percentage of (1) entity's facilities and (2) Tier I suppliers' facilities participating in the Rx-360 International Pharmaceutical Supply Chain Consortium audit program or equivalent third-party audit programs for integrity of supply chain and ingredients	<p>Our Healthcare business sector does not participate in the Rx-360 International Pharmaceutical Supply Chain Consortium. However, our facilities are frequently audited by the respective health authorities of the countries in which we distribute our healthcare products.</p> <p>As a major supplier to the pharmaceutical industry, our Life Science business sector participates in the Rx-360 audit program .</p> <p>Regarding our supplier base, we have access to sustainability audits and assessments of our suppliers through our membership in the industry initiatives Together for Sustainability and Pharmaceutical Supply Chain Initiative .</p> <p>See also: Supply chain management</p>

Business Ethics

Code	Metrics	Reference/Comment
HC-BP-510a.1	Total amount of monetary losses as a result of legal proceedings associated with corruption and bribery	Not reported due to confidentiality constraints/legal prohibitions.
HC-BP-510a.2	Description of code of ethics governing interactions with health care professionals	Interactions with health systems Compliance management

Activity metrics

Code	Metrics	Reference/Comment
HC-BP-000.A	Number of patients treated	In 2023, our Healthcare products were used to treat around 93 million patients, thereof more than 57 million patients in low- and middle-income countries. Additionally, we donated more than 210 million praziquantel tablets, enough to treat schistosomiasis in around 84 million school-aged children in 2023. See also: Global Health
HC-BP-000.B	Number of drugs (1) in portfolio and (2) in research and development (Phases 1-3)	We disclose our drug portfolio and R&D pipeline in the Annual Report and our website: Our Healthcare portfolio Research & Development (Healthcare) Our Healthcare pipeline

Medical Equipment & Supplies

Affordability & Pricing

Code	Metrics	Reference/Comment
HC-MS-240a.1	Ratio of weighted average rate of net price increases (for all products) to the annual increase in the U.S. Consumer Price Index	Not reported due to confidentiality constraints.
HC-MS-240a.2	Description of how price information for each product is disclosed to customers or to their agents	We disclose price information for our products via our website (excluding custom requests): Life Science portfolio .

Product Safety

Code	Metrics	Reference/Comment
HC-MS-250a.1	Number of recalls issued, total units recalled	We conduct monthly reviews of key performance quality indicators which include a review of multiple quality metrics including number of recalls. Quarterly trends are evaluated and reported through management reviews.

Code	Metrics	Reference/Comment
		In 2023, there were four recalls for our Life Science business.
HC-MS-250a.2	List of products listed in the FDA's MedWatch Safety Alerts for Human Medical Products database	In 2023, there were no Life Science products listed in the FDA's MedWatch Safety Alerts for Human Medical Products database .
HC-MS-250a.3	Number of fatalities related to products as reported in the FDA Manufacturer and User Facility Device Experience database	In 2023, there were no fatalities related to our Life Science products reported to the FDA's Manufacturer and User Facility Device Experience database .
HC-MS-250a.4	Number of FDA enforcement actions taken in response to violations of current Good Manufacturing Practices (cGMP), by type	Life Science received three U.S. FDA 483 forms in 2023.

Ethical Marketing

Code	Metrics	Reference/Comment
HC-MS-270a.1	Total amount of monetary losses as a result of legal proceedings associated with false marketing claims	Not reported due to confidentiality constraints/legal prohibitions.
HC-MS-270a.2	Description of code of ethics governing promotion of off-label use of products	<p>Before any products can be purchased from our Life Science platform, we use a customer screening process to guard against the purchase of our products for illegal purposes. Core steps of this process cover data sourcing, hazard assessment, safe-use/risk assessment and labels/safety data sheets. Besides our own process, we cooperate with responsible authorities in the U.S. (FBI and the Bureau of Alcohol, Tobacco, Firearms and Explosives, ATF), as well as international authorities (Interpol). If we become aware that any of our Life Science products is used beyond our marketed intention, we evaluate the situation to determine whether to continue sales or not. Proper use of our products is included in Terms and Conditions under "Use of Products".</p> <p>See also: Patient safety</p>

Product Design & Lifecycle Management

Code	Metrics	Reference/Comment
HC-MS-410a.1	Discussion of process to assess and manage environmental and human health considerations associated with chemicals in products, and meet demand for sustainable products	<p>We assess environmental, human health, and further sustainability aspects of chemical products that we are sourcing and/or producing and selling. Furthermore, we screen our entire Life Science portfolio against growing demands arising from external stakeholders. For example, in alignment with the European Chemicals Strategy for Sustainability (CSS) we work towards a more sustainable product portfolio. Our Product Stewardship Council drives the transformation of existing products by considering appropriate measures like the substitution of chemical substances. Regarding future products, the selection of benign substance alternatives is done during ideation and early R&D through our Design for Sustainability program. In support of this, we have developed a tool which monitors latest chemical regulations. Besides flagging banned substances, it also flags substances that are already considered critical but not yet regulated. In addition to this, experts of the Chemicals Regulations teams are directly consulted for further insights and advice.</p> <p>See also:</p> <p>Chemical product safety</p> <p>Sustainable Products & Packaging: Life Science</p>
HC-MS-410a.2	Total amount of products accepted for take-back and reused, recycled, or donated, broken down by: (1) devices and equipment and (2) supplies	<p>Since 2013, we have been partnering with Seeding Labs, a non-profit organization dedicated to equipping scientists in resource-limited countries with scientific equipment and support. In 2023, we donated 153 items of scientific equipment valued at more than \$243,102.</p> <p>See also:</p> <p>Sustainable Products & Packaging: Life Science</p> <p>Sustainability and Social Business Innovation</p>

Supply Chain Management

Code	Metrics	Reference/Comment
HC-MS-430a.1	Percentage of (1) entity's facilities and (2) Tier I suppliers' facilities participating in third-party audit programs for manufacturing and product quality	<p>As a major supplier to the pharmaceutical industry, our Life Science business participates in the Rx-360 audit program. The Life Science facilities are regularly audited by customers and respective health authorities for regulated products.</p> <p>(1) Rx-360 audit programs are conducted across the Life Science business on a multi-year cycle with approximately 15% of our manufacturing facilities audited annually.</p> <p>(2) Approximately 5% of our tier 1 supplier facilities participated in third party audit programs such as Rx-360.</p>
HC-MS-430a.2	Description of efforts to maintain traceability within the distribution chain	<p>Product safety (Life Science)</p> <p>Quality & regulatory management (Life Science)</p> <p>For our Group-wide approach see also:</p> <p>Product-related crime</p>
HC-MS-430a.3	Description of the management of risks associated with the use of critical materials	<p>Supply chain management</p> <p>Mica supply chain</p> <p>Chemical product safety</p> <p>Report on risks and opportunities</p>

Business Ethics

Code	Metrics	Reference/Comment
HC-MS-510a.1	Total amount of monetary losses as a result of legal proceedings associated with bribery or corruption	Not reported due to confidentiality constraints/legal prohibitions.
HC-MS-510a.2	Description of code of ethics governing interactions with health care professionals	<p>Interactions with health systems</p> <p>Compliance management</p>

Activity metrics

Code	Metrics	Reference/Comment
HC-MS-000.A	Number of units sold by product category	Not reported

Semiconductors

Greenhouse Gas Emissions

Code	Metrics	Reference/Comment
TC-SC-110a.1	(1) Gross global Scope 1 emissions	Climate action Indicators: Environment
	(2) amount of total emissions from perfluorinated compounds	CDP Climate change
TC-SC-110a.2	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Climate action

Energy Management in Manufacturing

Code	Metrics	Reference/Comment
TC-SC-130a.1	(1) Total energy consumed	We report our total energy consumed in terajoule (TJ) and gigawatt hours. (1 gigajoule = 0.001 TJ): Indicators: Environment Climate action
	(2) percentage grid electricity	42% (2022: 40%) See also: Indicators: Environment
	(3) percentage renewable	Indicators: Environment Climate action

Water Management

Code	Metrics	Reference/Comment
TC-SC-140a.1	(1) Total water withdrawn	We report our total water withdrawn in millions of cubic metres. (1 thousand m ³ = 0.001 million m ³): Indicators: Environment Water management
	(2) total water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress	Water management CDP Water Security

Waste Management

Code	Metrics	Reference/Comment
TC-SC-150a.1	Amount of hazardous waste from manufacturing, percentage recycled	We report our waste figures in metric kilotons. (1 metric ton = 0.001 metric kilotons): Indicators: Environment

Employee Health & Safety

Code	Metrics	Reference/Comment
TC-SC-320a.1	Description of efforts to assess, monitor, and reduce exposure of employees to human health hazards	Health & safety
TC-SC-320a.2	Total amount of monetary losses as a result of legal proceedings associated with employee health and safety violations	Not reported due to confidentiality constraints/legal prohibitions.

Recruiting & Managing a Global & Skilled Workforce

Code	Metrics	Reference/Comment
TC-SC-330a.1	Percentage of employees that are (1) foreign nationals and	We recruit, hire, train and promote our employees based on diversity, equity and inclusion. We report the number of employees by region, the number of

Code	Metrics	Reference/Comment
		<p>nationalities and the percentage of non-Germans in management positions on Group level.</p> <p>Indicators: Employees</p> <p>Diversity, equity & inclusion</p>
	(2) located offshore	<p>We recruit, hire, train and promote our employees based on diversity, equity and inclusion. We report the number of employees by region, the number of nationalities and the percentage of non-Germans in management positions on Group level.</p> <p>Indicators: Employees</p> <p>Diversity, equity & inclusion</p>

Product Lifecycle Management

Code	Metrics	Reference/Comment
TC-SC-410a.1	Percentage of products by revenue that contain IEC 62474 declarable substances	Not reported
TC-SC-410a.2	Processor energy efficiency at a system-level for:	Not applicable
	(1) servers,	Not applicable
	(2) desktops,	Not applicable
	(3) laptops	Not applicable

Materials Sourcing

Code	Metrics	Reference/Comment
TC-SC-440a.1	Description of the management of risks associated with the use of critical materials	<p>Research & Development (Electronics)</p> <p>Report on risks and opportunities</p>

Intellectual Property Protection & Competitive Behavior

Code	Metrics	Reference/Comment
TC-SC-520a.1	Total amount of monetary losses as a result of legal proceedings associated with anti-competitive behavior regulations	Not reported due to confidentiality constraints/legal prohibitions.

Activity metrics

Code	Metrics	Reference/Comment
TC-SC-000.A	Total production	Not reported
TC-SC-000.B	Percentage of production from owned facilities	Not reported

TCFD report

Task Force on Climate-related Disclosures (TCFD) 2023

In our TCFD-disclosure for the year 2023 we are describing the climate-related risks and opportunities that impact our business. It elucidates the potential impact of climate change scenarios on our operations and delineates our strategy to address these effects, emphasizing our commitment to resilience in the face of evolving challenges.

The structure of this report adheres to the TCFD recommendations. Consequently, it encompasses our governance structures, strategy, risk management, assessment of resilience, metrics and targets, along with a summary of our environmental performance.

Governance

Leadership and responsibilities in Climate Strategy

Our Executive Board has Group-wide responsibility for our sustainability strategy. This includes the responsibility for climate-related issues, e.g. setting our climate protection targets. Within their respective area of responsibility, each Executive Board member is also responsible for sustainability, reviews the priorities that have been set, and decides on the implementation of initiatives.

The Sustainability Board, sponsored by the CEO, steers and monitors the Group-wide **implementation of the sustainability strategy**. It aligns the strategy with the individual business strategies, defines priorities and specifies globally applicable sustainability guidelines. Amongst others, it is responsible for integrating climate-related issues into the company's strategy and monitoring progress against climate-related corporate targets.

Incentives for the Executive Board's progress towards achieving our scope 1 and 2 company targets are key elements in our overall sustainability strategy, as they will impact the entire organization (e.g., there are GHG reduction targets on various levels) and help us reach our SBTi approved 1.5°C near-term goals for 2030. For this, we have defined key indicators for the Executive Board on climate-related issues.

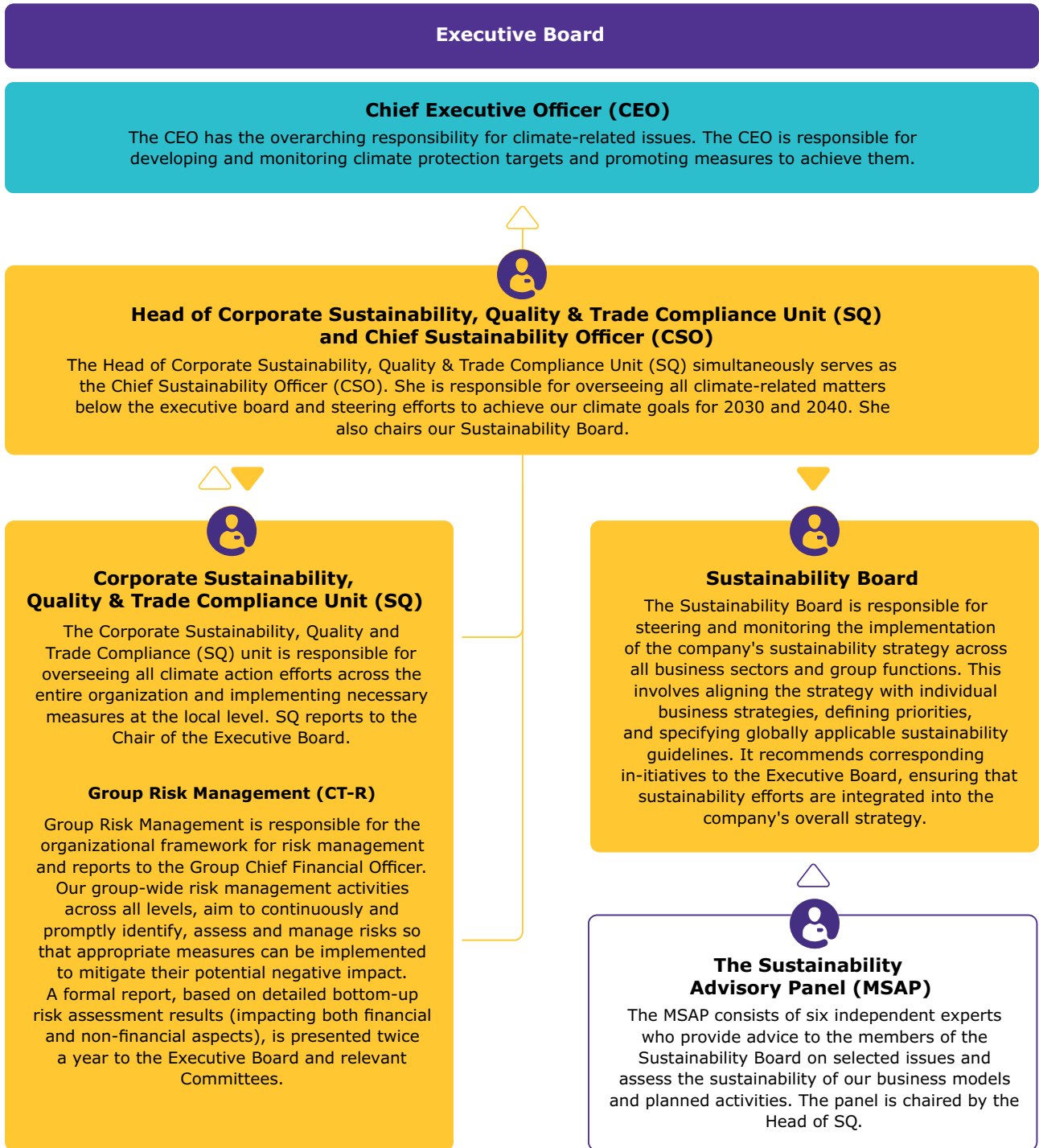
Starting from fiscal year 2022, our sustainability targets are considered in the Long-Term Incentive Plan (LTIP) by adding a sustainability factor to the existing three financial performance indicators. It measures the performance of three selected sustainability goals over a period of three years, in this way, the target achievement resulting from the financial performance indicators is adjusted up or down by up to 20%. Details on how this sustainability factor is calculated can be found in the [Compensation Report](#).







Coordinated sustainability oversight

The Sustainability Board consists of representatives from our business sectors and from key Group functions, such as Procurement, Communications, as well as Controlling and Risk Management. Members from Europe, the United States and Asia provide input on regional sustainability aspects. The Sustainability Board ensures that

initiatives of our various business sectors, Group functions and subsidiaries align with our global sustainability strategy and recommends corresponding initiatives to the Executive Board. It is led by the head of Group Corporate Sustainability, which is chaired by the Head of SQ, who simultaneously serves as Chief Sustainability Officer. The Sustainability Board meets monthly, the performance on Key Indicators is reviewed quarterly. Further, SQ coordinates and steers activities to implement our climate protection program to reach our 2030 and 2040 climate targets. For instance, SQ regularly monitors GHG emissions using a central IT platform and tracks the implementation of energy efficiency and GHG reduction projects.

Our governance structure



-  Reports to
-  Manages
-  Advises
-  Executives
-  High-Level management
-  Led by Head of SQ

Strategy

While a scenario analysis cannot predict the future with certainty, it serves as a crucial tool for understanding the potential impacts of climate change on our business. This analytical approach is essential for risk management, strategic planning, and assessing our overall resilience to potential challenges. In 2023, we dedicated efforts to enhance both qualitative and quantitative climate modeling, establishing a baseline for a comprehensive transition plan.

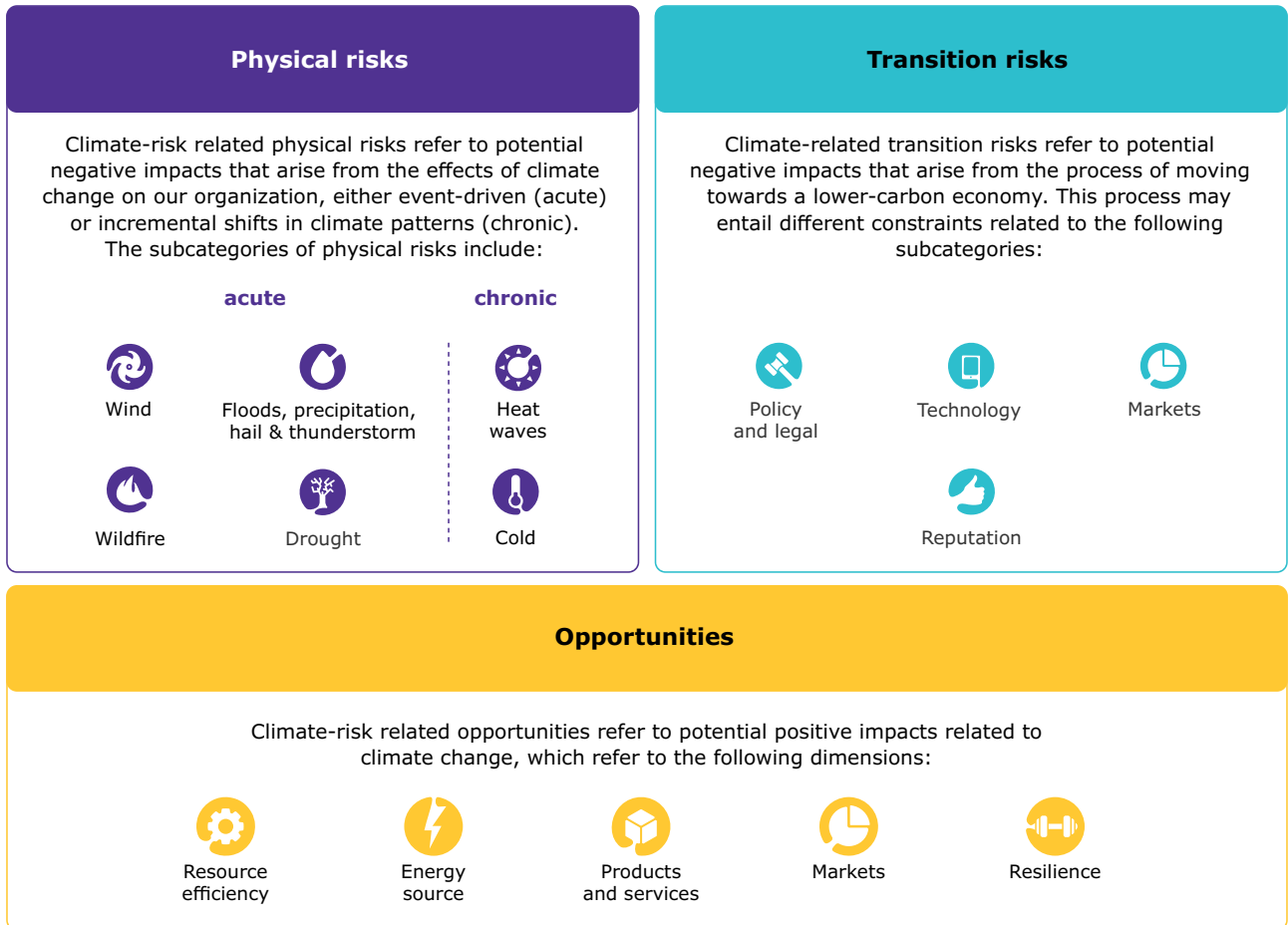
In the following, we outline our methodology, the foundational assumptions guiding our approach, and the resulting insights. The conclusion encompasses an assessment of our resilience, considering the opportunities we have explored, and outlines the strategic actions we intend to pursue.

Climate-assessment approach

Further advancing on our qualitative scenario analysis from 2022, we conducted a quantitative study in 2023 supported by external consultants. Part of this was an in-depth scenario analysis based on which we have assessed transitional and physical risks and opportunities for our business. We considered climate-related transition and physical risks across the different regions in which we operate.

Climate risks and opportunities can be defined as “potential financial value impact as a result of climate change”. According to the TCFD climate impacts are typically grouped into the following categories:

Distinguishing physical and transition risks as well as opportunities



Our forward-looking climate projections are based on assumptions about the future trajectory of greenhouse gas emissions, with different scenarios used for this analysis, as in the Intergovernmental Panel on Climate Change (IPCC) reports. Depending on global climate action, demographics, social aspects, geopolitics, and technology development (to name a few factors), the effective greenhouse gases emitted may vary from the scenarios used.

Our climate risks and opportunities were modelled along the well-established scenarios by the IPCC. We examined the risks and opportunities associated with transitioning to a 1.5°C scenario and a 4°C scenario, represented by RCP 8.5. These scenarios project temperature increases by 2100 compared to pre-industrial levels. Our modeling timeframe extended to the year 2050. We consider 2030 as the near term and 2050 as the mid-to-long-term horizons.

Our scenarios, approach and methodology

Scenario's application in our analysis	Transition risk	Physical risk
Scenario details	1.5°C warming	4°C warming (RCP 8.5)
Economic Constraints	Aligned to SSP2: <ul style="list-style-type: none"> ◆ Global population growth is moderate and levels off in the second half of the century ◆ GDP continues to grow in line with historical trends ◆ Resource and intensity of energy use declines as productivity increases due to new technologies 	No economic constraints for the physical risk
Decarbonisation trends	Global decarbonisation trajectory in line with achieving 1.5°C pathway. Emissions are expected to decrease dramatically before 2030, with net-zero reached around 2040-2050	Emissions continue to increase in line with current business-as-usual pathway. Emissions expected to double by 2050 and triple by 2100.
Policy Expectations	<ul style="list-style-type: none"> ◆ Up to 2030, Nationally Determined Contributions (NDCs) are successfully delivered by countries as pledged in the 2015 Paris Agreement and consolidated into a pledge pipeline. ◆ Post-2030, cost-effective emission reduction measures are implemented by countries to achieve the global 1.5°C target, in proportion to their pledged NDCs. 	No further climate policy intervention. Government or state intervention on climate change does not exceed current levels.
Physical Impacts	Very little increase in severe climate-related weather events. In these calculations, it is assumed zero.	Likely increased severity of climate-related weather events.

Source: KPMG Climate IQ

It should be noted that the scenarios presented herein are hypothetical constructions commensurate with a given climate outcome – for the purposes of highlighting sensitivity between climate scenarios.

For our physical risk assessment, we considered to which extent the total insured value of assets is associated with high or very high hazard levels at a certain time and warming scenario. For this, we considered hazard information, exposure data as well as forward-looking climate data, which was provided by our external partners.

We considered the importance and feasibility of accurately quantifying economic and financial impacts in our modeling. To this aim, we identified the top 100 clusters of sites in our portfolio based on their size and significance.

For each scenario, we modelled the economic transition impacts across sectors, regions and time periods. For each projection, multiple variables were calculated, including, demand and supply of labour and capital, carbon emissions, economic production, output volumes and price changes. Likewise, for the financial assessment, impacts for each area, including costs for direct labour, electricity, emissions, raw materials, and revenue were calculated.

Climate-related risks and opportunities and their impact on the organization

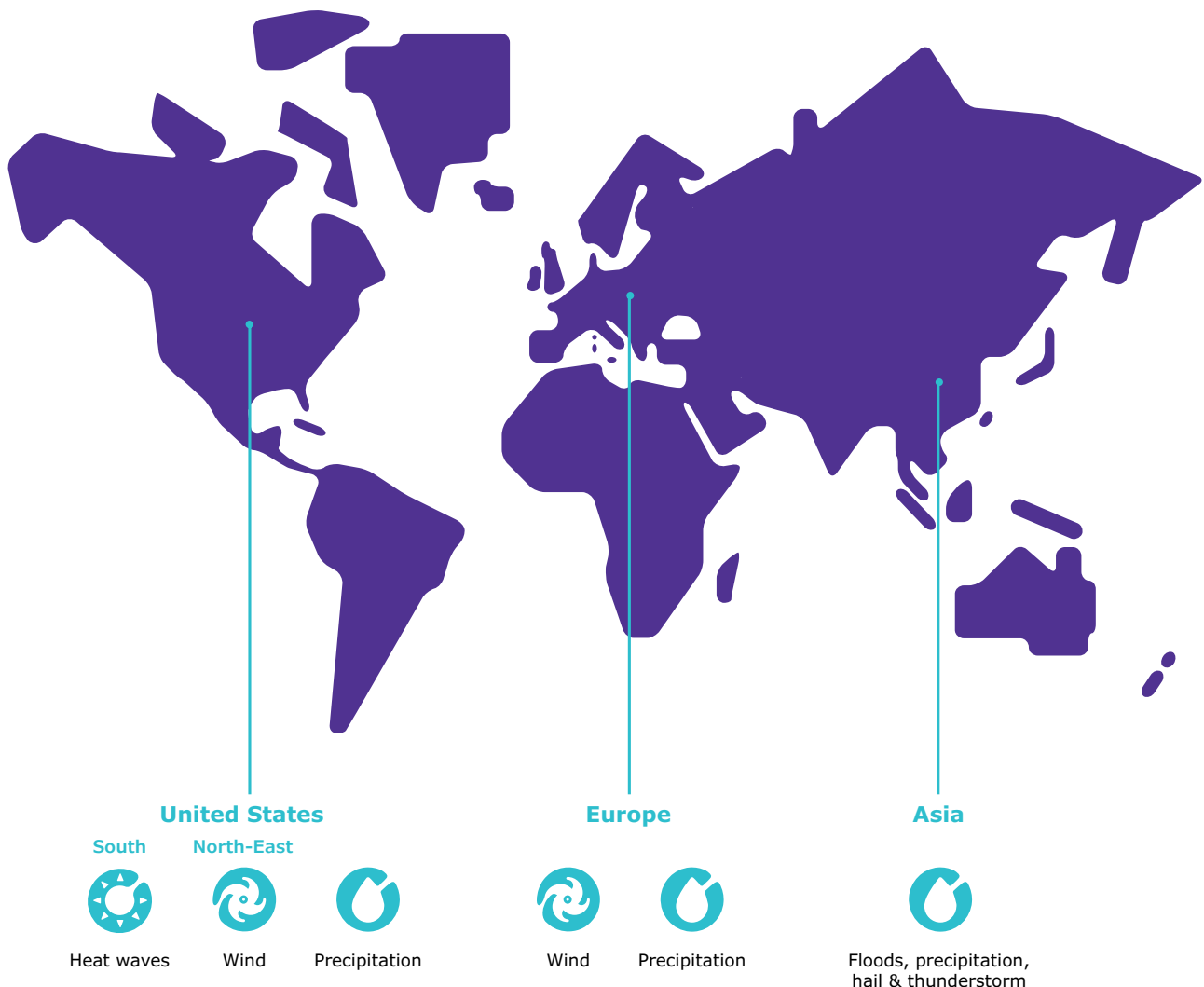
Physical risks

The IPCC finds that human activity has unequivocally caused warming on a global scale. Gradual changes, including rising sea levels and sustained changes to temperature and precipitation can pose chronic physical risks to companies.

Further, extreme weather events (acute physical risks) such as heavy precipitation, heatwaves or tropical cyclones have become more frequent and intense in recent years. Such trends are expected to continue in direct relationship with global temperature rise and could impact our business through physical damage to sites, equipment or stock, and disruptions to operations including internal and external supply networks and employee safety, among other impacts.

Looking at our 100 most important site clusters, based on their total insured value (TIV), we identified the top perils, which may impact them, and how those may develop over time.

Countries and regions considered, as well as their most important risk



Physical risk impact by time horizon and climate scenario




Physical risks	Scenario	2030	2050
Precipitation	Base case	●	●
	4°C	●	●
Wind	Base case	●	●
	4°C	●	●
Drought	Base case	●	●
	4°C	●	●
Thunderstorms	Base case	●	●
	4°C	●	●
Flood	Base case	●	●
	4°C	●	●
Heat	Base case	●	●
	4°C	●	●
Wildfires	Base case	●	●
	4°C	●	●
Cold	Base case	●	●
	4°C	●	●
Hail	Base case	●	●
	4°C	●	●

Legend:



Orange: 20% or more of the Total Insured Value (TIV) of the cluster of site falls within the high or very high hazard level

Green: Less than 20% of the Total Insured Value (TIV) of the cluster of site falls within the high or very high hazard level

Key transition risks

Risks	Description
Scope 1	
Emission costs	
	Our emission and electricity costs could increase in a low carbon transition as a result of carbon price rises, electricity price changes, and differences in electricity consumption.
Electricity costs	
	
Labour costs	Our overall direct labour costs could increase in a low carbon transition, which could be driven by the economic growth increasing faster than labour supply growth, putting upward pressure on wages.
	

Key transition opportunities

Opportunities	Description
 Revenue	We could experience increased revenue growth in all key geographies with the greatest impact in the USA and Asia.
 Chemicals costs	We could benefit from lower costs of chemicals under 1.5°C scenario, compared to the base case.

Transition risks selected for analysis



RO1

Opportunity for increased revenue



RO2

Risk due to carbon taxes and emissions trading



RO3

Risk due to increased cost of electricity



RO4

Risk due to increased cost of labour



RO5

Risk due to increased cost of chemicals

Across a time horizon out to 2050, we found that the impact of physical risk on our sites is limited under a 4°C scenario. In fact, the financial impact of the physical risk is projected to be significantly lower than the impact of transition risk.

Having conducted a first stage quantitative scenario analysis with established levels of impact, we will now use the results to define mitigation levers for the most significant risks that could occur. The data and findings of the climate-related risk and opportunity assessment will form the foundation for our transition plan to further integrate climate-related issues in our decision-making, planning and strategy.

Our strategic response and resilience assessment:

Transition to a low-carbon economy

One of our core strategic sustainability objectives revolves around "reducing our ecological footprint," targeting a 50% reduction in both direct (Scope 1) and indirect (Scope 2) greenhouse gas emissions by 2030, compared to 2020. Moreover, we aim to reduce our **Scope 3** emissions across the entire value chain by 52% (per euro of gross profit) by 2030. In addressing potential transitional and physical risks in our supply chain, we started a Supplier Decarbonization Program. In addition, we actively seek greener raw materials to integrate into our products, processes, packaging, and buildings. These programs aims to reduce greenhouse gas emissions associated with purchased goods and services, including capital goods.

This near-term goal for 2030 was approved by the Science Based Targets initiative (SBTi), which independently assesses and approves company targets based on its strict climate science criteria. With this confirmation, we

are contributing to limiting global warming to 1.5 °C, thus complying with the requirements of the Paris Agreement.

We also aim to cover 80% of our purchased electricity with renewables by 2030.

Looking ahead to 2040, our overarching objective is to attain climate-neutral operations across our entire value chain, encompassing Scope 1, 2, and 3 emissions. To realize these commitments, climate-related considerations are integrated into all aspects of our businesses, supported by a comprehensive set of measures.

Innovation and sustainable products

The sustainable innovation we actively promote aligns with the three core goals outlined in our sustainability strategy. In our pursuit of sustainability, we recognize the pivotal role of Research and Development (R&D) within the realm of science and technology to create sustainable products. Aligned with our sustainability strategy, evaluating our R&D projects regarding their sustainability impact along the value chain is an integral part of our global product development process across the whole organization. We have assessed the majority of relevant R&D projects and consolidated the insights gained from our Design for Sustainability scorecards such as emissions, waste, water, substances of concern and human progress data.

Recognizing the integral role of sustainable products, we acknowledge their significance in mitigating transition risks, such as reputation concerns, while simultaneously capitalizing on opportunities arising from climate change, such as increased revenue through elevated demand for sustainable products. This underscores the strategic importance of embedding sustainability into our innovation processes to navigate challenges and leverage emerging opportunities in the dynamic business landscape.

Carbon Pricing

Furthermore, we incorporate GHG emissions criteria into our investment decisions above 10 Mio Euro. To assess the potential impact of carbon emissions, we use a shadow price, representing a hypothetical cost of carbon per ton of CO₂eq. This helps to understand risks and opportunities across operations, aiding strategic decision-making for future capital investments and mitigating transitional risks, such as those stemming from increased carbon prices.

Given the increasing global adoption of carbon pricing mechanisms, affecting our operations across 66 countries, we are proactively investing in energy efficiency and greenhouse gas reduction measures to mitigate policy-related transition risks and reduce operational costs.

To stay ahead of emerging trends and challenges, we closely monitor global developments, integrating them into our climate scenarios. We engage in dialogues, initiatives, and consultations with industry peers, customers and other stakeholders.

Looking ahead

We are convinced that sustainable entrepreneurship and profitable growth are seamlessly intertwined. Our commitment to accelerating the transition to a low-carbon economy aligns with a broader dedication to advancing our sustainability strategy. In 2023, a thorough quantitative climate-risk assessment has equipped us with an understanding of potential climate-related exposure and opportunities within our operations.

With this insight, we are poised to make well-informed strategic decisions, enhancing our risk management by acknowledging potential exposure across various climate scenarios. Additionally, we aim to identify revenue opportunities stemming from the ongoing transition to a low-carbon economy. A comprehensive transition plan, which we aim to develop in 2024, will guide us in outlining a decarbonization pathway to both mitigate risks and capitalize on climate-related opportunities. Looking forward, we are committed to further integrating

climate risks and opportunities into our decision-making processes and strategies, extending to financial planning and performance considerations.

Risk Management

We recognize that climate change introduces both risks and opportunities that could affect our entire value chain and business operations over the short and long term. Climate-related risks are included in our Group-wide Risk Management, assessed according to our guidelines, and categorized under pre-defined groups like "sustainability and safety risks." We internally evaluate and report on risk-mitigating measures, which may involve transferring risks, reducing impact or probability, and obtaining additional insurance, all crucial for effective risk management.

Our Business Continuity Management, part of our overall risk assessment, addresses long-term risks such as those related to climate change. We also monitor regulatory risks associated with transitioning to a low-carbon economy, anticipating potential impacts from rising carbon prices, emissions trading systems, taxes, or energy legislation in the mid- and long-term.

While we are taking the described steps, we are still working on our approach to managing climate risks. Until now, our focus has been on selectively managing specific aspects. Nevertheless, we remain committed to continually incorporating the risks and opportunities posed by climate change into our evolving risk management strategies.

Metrics & Targets

We are committed to transparently reporting on our environmental goals and the impact of climate change on our business. To implement our long-term climate strategy, we are focusing on reducing our impact from greenhouse gas emissions, water, and waste and building resilience in our businesses. Metrics and targets are important tools to measure and track our progress in achieving our environmental goals. Therefore, we have set specific targets and metrics to measure and improve our environmental performance.

For further information please see the [Indicators section](#) of our report.