Report on Economic Position

Macroeconomic and Sector-Specific Environment

In its latest World Economic Outlook published on January 30, 2024, the International Monetary Fund (IMF) predicts that the global economic recovery will prove surprisingly resilient despite numerous crises, but the speed of the recovery will vary depending on the economy. Global gross domestic product (GDP) growth slowed from 3.5% in 2022 to a projection of 3.1% in 2023. Overall, economic activity remains below pre-pandemic levels. Major impediments to economic recovery are long-term consequences of the pandemic and geopolitical tensions as well as cyclical factors such as inflation and tightened monetary policy. The ongoing war in Ukraine and the resurgent conflict in the Middle East are weighing on the economic development by accelerating the geoeconomic fragmentation and hindering the flow of commodities, which could lead to food or energy price peaks.

Overall, the IMF expects global inflation to decline more than expected in 2023 but remained above target levels. The persistently high inflation rates prompted central banks to increase interest rates and high debt levels led to tighter fiscal policies in some countries. China's property sector crisis still poses a risk as it could deepen and cause global spillovers.

The development of gross domestic product (GDP) in selected countries and regions was as follows:

Annual change in %	**2023[1]**	2022
World	3.1	3.5
Advanced Economics	1.6	2.6
USA	2.5	1.9
Euro Area	0.5	3.4
Japan	1.9	1.0
Emerging Markets and Developing Economies	4.1	4.1
Emerging Markets and Developing Economies Asia	5.4	4.5
India	6.7	7.2
China	5.2	3.0

[1] Figures for fiscal 2023 estimated

The development of selected sector specific environments was as follows:

	Change 2023[1]	Change 2022
Life Science		
Growth in market for laboratory products[2]	-5.6%	4.2%
Growth in global sales of biopharmaceutical drugs[3]	16.9%	14.5%
Share of biopharmaceutical sales in the global pharmaceutical market[3]	38.2%	35.8%
Early clinical monoclonal antibody (mAb) pipeline growth[4]	17.4%	7.7%
Healthcare		
Global pharmaceutical market	9.2%	7.8%
Market for multiple sclerosis therapies[5]	-2.3%	2.5%
Market for type 2 diabetes therapies[5]	19.1%	18.1%
Market for fertility treatment[5]	10.9%	4.2%
Market for the treatment of colorectal cancer[6]	-0.1%	4.5%
Electronics		
Growth of wafer area for semiconductor chips	-14.1%	3.9%
Growth of display surface area[7]	-1.5%	-3.9%
Global sales of cosmetics and care products	4.2%	12.2%
Global number of produced light vehicles	10.1%	7.1%

[1] Predicted development. Final development rates for 2023 were not available for all industries when this report was prepared.

[2] Global Market for Laboratory Products, October 2023, Frost & Sullivan.

[3] Global pharmaceutical spending at a constant exchange rate. IQVIA market data based on the past 12 months as of the third quarter 2023.

[4] Number of programs in Phase I or Phase II clinical trials, Cortellis.

[5] Growth rates based on market data in local currency, translated at a constant euro exchange rate. The IQVIA market data on the growth of indications are based on current figures, including the third quarter of 2023. Annual growth based on the values for the past 12 months. The type 2 diabetes market excludes the United States since this market is insignificant to us.

[6] Growth rates based on market data stated in US dollars. Market data from EvaluatePharma on the growth of indications are based on published company reports and are subject to exchange rate fluctuations.

[7] Growth of display area is a pure volume indicator.

Life Science

Our Life Science business sector is one of the leading global suppliers of products, tools and services for research laboratories, pharma and biotech production, as well as industrial and testing laboratories. The convergence of several adverse developments (macroeconomics, capital constraints, declining Covid-19 pandemic demand, and high customer inventory) has challenged growth of life science companies compared with previous years.

Accordingly, the markets in which our Life Science business sector operates slowed down in 2023 compared with 2022. According to the market research firm Frost & Sullivan, the market for laboratory products, which is relevant to our Science & Lab Solutions business unit, declined by -5.6% in 2023 (2022: 4.2%). This decline is due to a challenging macroeconomic outlook (declining GDP growth and persistent inflation) and a sustained slowdown of investment in early stage biotech companies (according to Citi Research, venture capital and IPOs remain below pandemic highs).

Once capital markets stabilize, spending on laboratory products is likely to increase again. In the pharma and biotech production market, in which our Process Solutions and Life Science Services business units are active, demand is driven by the development and manufacture of therapeutics and vaccines. According to the pharmaceutical market research firm IQVIA, the end market for biopharmaceuticals grew by 16.9% in 2023 (2022: 14.5%) to € 496 billion (or 38.2% of the global pharmaceutical market). The number of monoclonal antibodies (mAbs) in phase I or II development grew by 17.4% (2022: 7.7%). While the biopharmaceutical market grew in 2023, laboratory consumables and materials used in manufacturing were pre-purchased to a significant extent in 2022, resulting in high inventories among our customers.

Healthcare

In its latest study from September, IQVIA forecasts growth of 9.2% in 2023 (2022: 7.8%) for the global overall pharmaceutical market. After the recovery from the Covid-19 pandemic, the pharmaceutical market is expected to see still high growth rates benefitting from accelerated approval pathways and increased access to innovative medicines globally. This is balanced by further increasing cost containment measures and policies driving biosimilar and generics uptake as well as stricter price reviews and prescription controls.

The developments at a regional level follow the described trend. EMEA (Europe, Middle East and Africa) grew by 9.2% in 2023 (2022: 8.2%) with the EU5 (Germany, France, UK, Italy, and Spain) growing by 7.8% (2022: 8.0%). North America grew by 10.2% (2022: 9.6%) with the United States growing at a rate of 10.3% (2022: 9.5%). In absolute terms, the pharmaceutical market in the United States remains the biggest and most important market by far. Latin America achieved double-digit growth of 19.2% (2022: 12.5%) impacted by high inflation. This is followed by the Asia-Pacific region (excluding China and Japan) with 8.2% growth (2022: 9.6%). Despite continued extension of price regulations (for example, volume-based procurement), China returned to growth with 4.3% in 2023 (2022: -0.8%) due to the lifting of Covid-19 pandemic measures, increased access to innovative products and growing healthcare infrastructure).

Not only the growth of the pharmaceutical sector as a whole, but also the market development for biotechnologically produced active ingredients is relevant to our business. According to IQVIA, these products accounted for 38.2% of the global pharmaceutical market in 2023 (2022: 35.8%), thus continuing the increase in market share of recent years. The most important market for biological pharmaceuticals remains the United States, with a 64.2% share of global biopharmaceutical market volumes.

The developments in the therapeutic areas of relevance to the Group saw differing trends in the reporting year. The global market for type 2 diabetes, excluding the United States, followed the growth trend of previous years and accelerated growth, achieving 19.1% in 2023 (2022: 18.1%). The therapeutic area of infertility grew 10.9% in the reporting year (2022: 4.2%). Colorectal cancer declined by -0.1% in 2023 (2022: increase of 4.5%) due to biosimilar penetration. The growth trend in the market for multiple sclerosis therapies declined slightly compared with previous year level by -2.3% (2022: 2.5%), as new product launches are counteracted by the effect of generic competition.

Electronics

The semiconductor industry is the most important market for our business with materials, solutions and services for the production of integrated circuits (Semiconductor Solutions). In particular, the growth in demand for semiconductor materials depends mainly on the wafer area produced for semiconductors. The silicon wafers required as raw materials are used as an indicator to estimate the demand for semiconductor materials overall.

According to the global industry association SEMI (forecast as of Q3 2023), the delivered silicon wafer area experienced a -14.1% decline in 2023, following moderate growth in 2022 (3.9%). The current cyclical industry downturn is amplified by macroeconomic challenges such as high interest rates and changing consumer buying behaviors with a preference for services. Semiconductor manufacturers have responded by reducing utilization rates to address excess inventory, resulting in declining demand for silicon wafers and related materials and services.

Despite the current downturn, we foresee a positive outlook for the Electronics business sector. We anticipate that the semiconductor market will regain momentum in 2024, driven by AI solutions, the Internet of Things, and the increase in data volumes related to big data.

With our Display Solutions business, we are a significant producer of liquid crystal mixtures and OLED materials for the display industry. After the Covid-19-pandemic-induced “stay at home boom,” the display industry underwent demand normalization in 2022. There are several indications that display market is slowly recovering after supply inventory adjustments. Due to sluggish demand in the fourth quarter of 2023, however, the market research company OMDIA (forecast as of Q3 2023) forecasted a slight decline in growth for 2023. In the medium to long term, liquid crystals will continue to play a key role in the display industry in the future. OLED technology, for which we have a strong position as material supplier, is becoming increasingly important in high-end display applications.

The markets for automotive coatings and cosmetics are crucial to our Surface Solutions business. According to the December 2023 report from GlobalData (formerly LMC), a leading global provider of automotive forecasts, global automobile production grew significantly by 10.1% in 2023 compared with growth of 7.1% in 2022. Underlying drivers include an unmet global demand, with China continuing to be one of the most important markets. According to Euromonitor’s report from October 2023, the market for cosmetics and care products grew more slowly in 2023 after a very strong development in 2022 with an overall growth of 4.2% in 2023 (2022: 12.2%).

Review of Forecast against Actual Business Developments

The forecast of the Group for fiscal 2023 published in the Annual Report for fiscal 2022 comprised the forecast for the Group as well as the forecast for the three business sectors: Life Science, Healthcare, and Electronics.

Net sales

We forecast slight to solid organic net sales growth for the Group in 2023. In particular, the macroeconomic, geopolitical and industry-specific conditions changed over the course of the year. Furthermore, the Life Science business sector saw sustained high inventory levels and a reluctance to invest on the part of customers, while the Electronics business sector was affected by the ongoing weakness of the market for semiconductor materials.

Waning demand for products in connection with the Covid-19 pandemic meant that, as expected, net sales declined sharply in fiscal 2023. All in all, we reported an organic decline in net sales of -1.6% in fiscal 2023, which fell within the forecast range of between -2% and +2% that we revised in the second quarter and confirmed in the third quarter. At the start of the year, we anticipated a negative exchange rate effect totaling between -1% and -4%, especially as a result of the expected development of the U.S. dollar and the Chinese renminbi. Several currencies, including the U.S. dollar and the Chinese renminbi as well as some currencies of emerging economies, saw less favorable development than expected as the year progressed. The negative exchange rate effect in 2023 as a whole was -4.1%, thus falling within the range of -3% to -6% which we most recently revised in the second quarter and confirmed in the third quarter. The slightly positive portfolio effect was negligible at +0.1%. All in all, net sales amounted to € 20,993 million, representing a year-on-year decrease of -5.6%. This was below the mid-point of the forecast range of € 20,500 million to € 21,900 million and thus was consistent with the more specific forecast issued together with the figures for the third quarter (trending slightly below the mid-point).

Life Science

Our Life Science business sector reported an organic decline in net sales of -7.9% in fiscal 2023. This was at the lower end of the forecast range of between -8% and -2%, which we adjusted in the second quarter and confirmed in the third quarter, meaning that Life Science fell below our original forecast of slight to moderate organic growth. All of the business units – Process Solutions, Life Science Services and Science & Lab Solutions – recorded a downturn in organic net sales. As expected, Process Solutions and Life Science Services saw the most pronounced organic decline in net sales, whereas the downturn in the Science & Lab Solutions business unit was only slight. All in all, net sales in the Life Science business sector fell by -10.6% to € 9,281 million including a negative exchange rate effect of -2.7% and a positive portfolio effect of 0.1%. This was in the lower half of the forecast range of € 9,100 million to € 9,950 million, which is consistent with the more specific forecast issued at the end of the third quarter (trending in the lower half of the forecast range).

Healthcare

We originally forecast moderate to solid organic sales growth for our Healthcare business sector compared with the previous year. We then quantified this organic sales growth forecast at between +5% and +9% when we published the figures for the first quarter. We raised this forecast range to between +6% and +9% with the publication of the figures for the second quarter and confirmed this at the end of the third quarter. With full-year organic growth of +8.5%, the business sector achieved the forecast for fiscal 2023. This development was driven in particular by the significant growth of the oncology business and, above all, the strong performance of our recently approved product Bavencio®. Neurology & Immunology made a substantial contribution to full-year organic sales growth in fiscal 2023 thanks to our recently approved product Mavenclad® in particular. Sales growth was also driven by our established portfolio, especially fertility products. Taking into account the negative exchange rate effect of -5.8%, net sales in the Healthcare business sector increased by +2.7% to € 8,053 million in fiscal 2023, thereby falling within the upper half of the forecast range. This was consistent with the more specific forecast issued together with the report on the third quarter (trending slightly above the mid-point).

Electronics

Despite the economically and geopolitically difficult conditions in the market for semiconductor materials, we forecast slight to solid organic net sales growth for our Electronics business sector at the start of the year based on the assumption that the semiconductor market would recover in the second half of 2023. We quantified our organic sales growth forecast at between -2% and +3% when we published the figures for the first quarter. Compared with the previous forecast, we anticipated an even more pronounced weakening of the market followed by a delayed but stronger recovery which should now only occur later in the second half of the year. We adjusted this forecast with the publication of the figures for the second quarter, stating that we expected an organic decline in net sales of between -6% and -1% in light of the further delay in the recovery of the semiconductor market. We then confirmed this forecast at the end of the third quarter. The organic decline in net sales for fiscal 2023 as a whole was -5.1%, which is in line with the lower end of the forecast range. Due to negative exchange rate effects of -4.1% and taking into account a portfolio effect of +0.3%, net sales in the Electronics business sector declined by -8.8% year-on-year to € 3,659 million, thereby falling within the forecast range of between € 3,500 million and € 3,800 million. This was consistent with the more specific forecast issued together with the report on the third quarter (trending around the mid-point).

EBITDA pre

Our original forecast for the Group’s EBITDA pre for 2023 ranged from a moderate decline to roughly stable organic development compared with the previous year. This assumption was based on the expectation of a moderate decline to roughly stable organic development in the Life Science business sector, slight to moderate organic growth in the Healthcare business sector, and a slight to strong organic decline in the Electronics business sector. We originally expected negative exchange rate effects to impact EBITDA pre by between -1% and -4% compared with the prior year. With the presentation of the figures for the first quarter, we quantified our forecast at organic development of between -5% and 0%. In response to inflation-related cost increases and the underutilization of our production capacities, especially in the Life Science and Electronics business sector, we revised our forecast to between -9% and -3% at the end of the second quarter. This forecast was confirmed with the publication of the figures for the third quarter. Due to negative exchange rate effects, we revised our forecast for the impact of exchange rate effects twice in the course of fiscal 2023, ultimately ending with a forecast of between -6% and -3%. EBITDA pre amounted to € 5,879 million in fiscal 2023, representing an overall decline of -14.2% compared with the previous year (-9.0% organic, -4.9% from currency effects, -0.3% from portfolio effects). This is in the lower half of the forecast range of between € 5,800 million and € 6,400 million, and hence is consistent with the more specific forecast range (trending in the lower half of the range).

Life Science

In contrast to the expected net sales development, we originally expected EBITDA pre in Life Science to be in a range from a moderate decline to organically about stable in fiscal 2023 due to inflation-driven price increases weighing more heavily on earnings. At the end of the first quarter, we quantified our forecast for the organic decline in EBITDA pre at between -8% and -4%. In response to the underutilization of our production capacities, we then lowered this to between -21% and -12% with the publication of the figures for the second quarter. Along with the exchange rate effect that was most recently forecast at between -6% and -2% (originally: slightly negative exchange rate effect), this resulted in a forecast range for EBITDA pre in the Life Science business sector of between € 2,750 million and € 3,200 million. The business sector achieved this forecast with EBITDA pre of € 2,820 million in fiscal 2023 (2022: € 3,760 million). This corresponded to a decline of -25.0% compared with the previous year (-21.4% organic, -3.3% due to exchange rate effects). EBITDA pre therefore also fell within the more specific forecast range issued at the same time as the report on the third quarter (trending in the lower half of the range of € 2,750 million to € 3,200 million).

Healthcare

With our new products expected to continue to deliver a substantial earnings contribution, especially Mavenclad® and Bavencio®, we forecast slight to moderate organic growth in EBITDA pre for our Healthcare business sector. Largely because of the sustained high level of prices due to inflation, this original forecast was slightly below the expected organic growth in net sales (moderate to solid organic sales growth). With the publication of the figures for the first quarter, we quantified our forecast for organic growth in EBITDA pre at between +8% and +12% in fiscal 2023. We then raised this forecast to between +14% and +19% at the end of the second quarter, especially as business performance was expected to be stronger. We confirmed this forecast range at the end of the third quarter. Along with the exchange rate effect that was most recently forecast at between -17% and -13% (originally: negative exchange rate effect in a high single-digit to low double-digit percentage range), this resulted in a forecast range for EBITDA pre in the Healthcare business sector of between € 2,450 million and € 2,600 million. With EBITDA pre of € 2,543 million in fiscal 2023 (2022: € 2,477 million), the business sector came in at the upper end of this range. This was also consistent with the more specific forecast issued together with the report on the third quarter (trending at the upper end of the range). This corresponded to an increase of +2.7% compared with the previous year (+17.1% organic, -14.4% due to exchange rate effects, -0.7% from portfolio).

Electronics

We originally anticipated a slight to strong organic decrease in EBITDA pre for our Electronics business sector in fiscal 2023. We expected inflation-driven cost increases to have a particularly pronounced impact on material costs, and that we would only be able to pass on cost increases to a limited extent in the coming quarters due to the price pressure faced by our customers. With the presentation of the figures for the first quarter, we quantified our forecast for the organic decline in EBITDA pre as ranging from -12% to -3%. Having lowered our forecast considerably to between -18% and -10% with the report on the second quarter in response to inflation-related cost increases and the underutilization of our production capacities, we reiterated this guidance at the end of the third quarter. Along with the exchange rate effect that was most recently forecast at between -10% and -7% (originally: significantly negative exchange rate effect), this resulted in a forecast range for EBITDA pre in the Electronics business sector of between € 870 million and € 980 million. EBITDA pre of € 913 million in fiscal 2023 (2022: € 1,192 million) was in the lower half of the forecast range. This was consistent with the more specific forecast issued along with the report on the third quarter (trending in the lower half of the range) and corresponded to a decline of -23.4% compared with the previous year (-17.1% organic, -5.6% due to exchange rate effects).

Corporate and Other

The expenses for Corporate and Other in EBITDA pre amounted to € -397 million in fiscal 2023. This meant that EBITDA pre was slightly below the original forecast range of between € -370 million and € -330 million. However, we specified our forecast with the presentation of the figures for the third quarter. Due to substantially lower expected income from currency hedging transactions, we have forecast that EBITDA pre for corporate costs and other is expected to be slightly below the forecast range of -330 to -370 million €. The original forecast for fiscal 2023 provided for a significant decline in the expenses in this area. Compared with the prior-year figure of € -579 million, the expenses decreased significantly by -31.5%.

Operating cash flow

We originally anticipated a moderate decline to roughly stable development for the operating cash flow of the Group in 2023 (2022: € 4,259 million). We then specified the forecast range at between € 3,700 million and € 4,300 million with the publication of the figures for the first quarter. As we expected the development of operating cash flow to be largely in line with operating performance, we lowered our forecast to between € 3,500 million and € 4,100 million at the end of the second quarter and confirmed this forecast in our report on the third quarter. The operating cash flow amounted to € 3,784 million in fiscal 2023, which was within the most recent forecast range of between € 3,500 million and € 4,100 million. This corresponded to a decline of -11.2% compared with the previous year (2022: € 4,259 million). The decisive factor for this was the development of EBITDA pre.

Course of Business and Economic Position

Group

Group

Key figures

€ million	2023	2022	Change € million	Change %
Net sales	20,993	22,232	-1,239	-5.6%
Operating result (EBIT)[1]	3,609	4,474	-865	-19.3%
Margin (% of net sales)[1]	17.2%	20.1%		
EBITDA[2]	5,489	6,504	-1,015	-15.6%
Margin (% of net sales)[1]	26.1%	29.3%		
EBITDA pre[1]	5,879	6,849	-970	-14.2%
Margin (% of net sales)[1]	28.0%	30.8%		
Profit after tax	2,834	3,339	-505	-15.1%
Earnings per share (€)	6.49	7.65	-1.16	-15.2%
Earnings per share pre (€)[1]	8.49	10.05	-1.56	-15.5%
Operating cash flow	3,784	4,259	-475	-11.2%

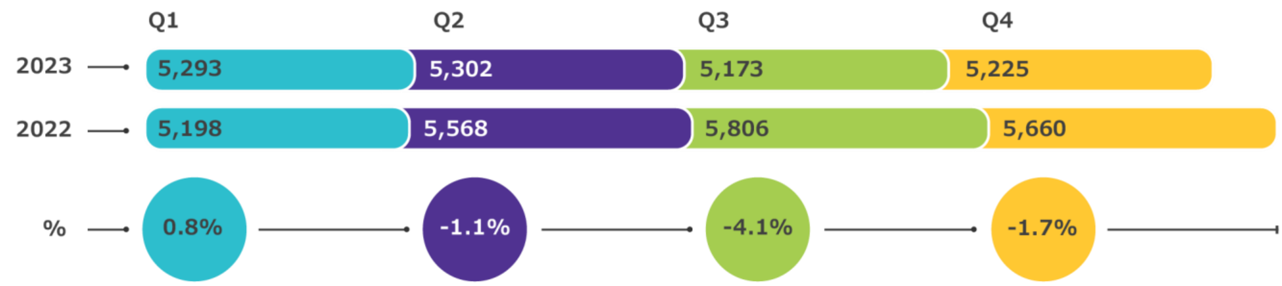
[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Development of sales and results of operations

The net sales in the individual quarters as well as the respective organic growth rates in 2023 are presented in the following graph:

Group

Net sales and organic growth[1] by quarter[2]
€ million/organic growth in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

In fiscal 2023, the net sales by business sector developed as follows:

Group

Net sales by business sector

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions/ divestments	Total change	2022	Share
Life Science	9,281	44%	-7.9%	-2.7%	0.1%	-10.6%	10,380	47%
Healthcare	8,053	38%	8.5%	-5.8%	–	2.7%	7,839	35%
Electronics	3,659	18%	-5.1%	-4.1%	0.3%	-8.8%	4,013	18%
Group	**20,993**	**100%**	**-1.6%**	**-4.1%**	**0.1%**	**-5.6%**	**22,232**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

In fiscal 2023, the Group recorded the following regional sales performance:

Group

Net sales by region

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions/ divestments	Total change	2022	Share
Europe	6,037	29%	-1.3%	-2.1%	–	-3.4%	6,248	28%
North America	5,952	28%	-3.8%	-2.7%	0.1%	-6.4%	6,361	29%
Asia-Pacific (APAC)	6,936	33%	-4.3%	-5.8%	0.2%	-9.9%	7,697	35%
Latin America	1,331	6%	18.6%	-10.5%	–	8.1%	1,231	5%
Middle East and Africa (MEA)	737	4%	8.8%	-2.7%	–	6.1%	695	3%
Group	**20,993**	**100%**	**-1.6%**	**-4.1%**	**0.1%**	**-5.6%**	**22,232**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

- In fiscal 2023, the Group generated net sales of € 20,993 million (2022: € 22,232 million), representing a year-on-year decline of € 1,239 million or -5.6%. Negative exchange rate effects served to reduce net sales by € 902 million or -4.1% in fiscal 2023. These effects largely resulted from the exchange rate development of the Chinese renminbi, the US dollar, and the Argentinian peso. Net sales fell by € 357 million or -1.6% organically. Net sales in the Life Science and Electronics business sectors declined, while the Healthcare business sector recorded organic growth. The portfolio-related net sales increase of € 19 million mainly resulted from the acquisition of M Chemicals Inc., Korea.
- Net sales in the Life Science business sector decreased by € 1,100 million or -10.6% year-on-year to € 9,281 million (2022: € 10,380 million). This development was mainly attributable to organic effects, which amounted to € 821 million or -7.9%. Exchange rate effects of € 285 million or -2.7% also contributed to the downturn in net sales. The Life Science business sector accounted for the largest share of Group net sales at 44% (2022: 47%), followed by Healthcare at 38% (2022: 35%). Net sales in the Healthcare business sector increased by € 214 million or 2.7% year-on-year to € 8,053 million (2022: € 7,839 million). Negative exchange rate effects of -5.8% were offset by organic growth of 8.5%. The € 354 million decline in net sales in the Electronics business sector to € 3,659 million (2022: € 4,013 million) was driven by organic effects of -5.1% and exchange rate effects of -4.1%. This was offset by a positive effect of 0.3% from the acquisition of M Chemicals Inc., Korea. The percentage contribution of Electronics to Group net sales was unchanged year-on-year at 18%.
- Orders already received by the reporting date that will result in net sales in future periods amounted to around € 4 billion as of December 31, 2023 (December 31, 2022: around € 6 billion), of which around € 3 billion related to the Life Science business sector (December 31, 2022: around € 4 billion).

The Consolidated Income Statement of the Group is as follows:

Group

Consolidated Income Statement

					Change	
€ million	2023	%	2022	%	€ million	%
Net sales	**20,993**	**100.0%**	**22,232**	**100.0%**	**-1,239**	**-5.6%**
Cost of sales	-8,600	-41.0%	-8,527	-38.4%	-73	0.9%
Gross profit	**12,392**	**59.0%**	**13,705**	**61.6%**	**-1,313**	**-9.6%**
Marketing and selling expenses	-4,510	-21.5%	-4,714	-21.2%	203	-4.3%
Administration expenses	-1,392	-6.6%	-1,306	-5.9%	-86	6.6%
Research and development costs	-2,445	-11.6%	-2,521	-11.3%	75	-3.0%
Impairment losses and reversals of impairment losses on financial assets (net)	-51	-0.2%	-6	–	-45	>100%
Other operating income and expenses	-385	-1.8%	-685	-3.1%	300	-43.8%
Operating result (EBIT)[1]	**3,609**	**17.2%**	**4,474**	**20.1%**	**-865**	**-19.3%**
Financial result	-125	-0.6%	-187	-0.8%	62	-33.0%
Profit before income tax	**3,484**	**16.6%**	**4,287**	**19.3%**	**-803**	**-18.7%**
Income tax	-650	-3.1%	-948	-4.3%	298	-31.4%
Profit after tax	**2,834**	**13.5%**	**3,339**	**15.0%**	**-505**	**-15.1%**
Non-controlling interests	-10	–	-14	-0.1%	3	-25.6%
Net income	**2,824**	**13.5%**	**3,326**	**15.0%**	**-502**	**-15.1%**

[1] Not defined by International Financial Reporting Standards (IFRS).

Group

Research and development costs by business sector[1] - 2023
€ million/%

[1] Not presented: research and development costs of € 94 million allocated to Corporate and Other.

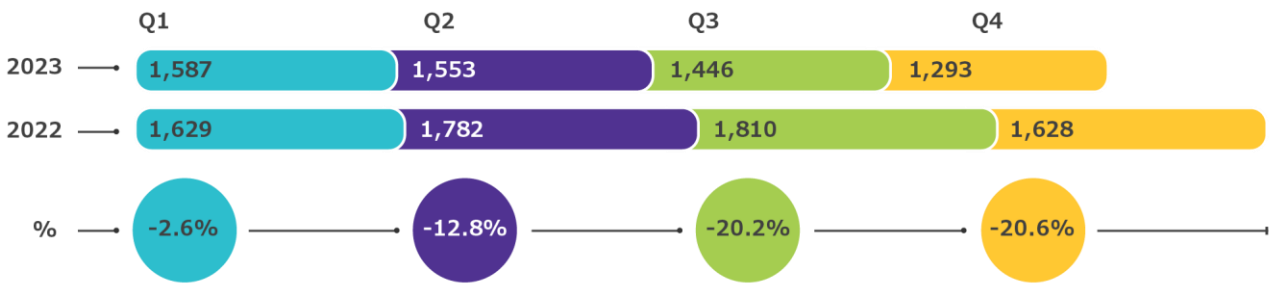
There was a year-on-year decline in the operating result (EBIT) in fiscal 2023. This was largely due to the lower level of gross profit, which was only partially offset by a reduction in operating expenses. In particular, the year-on-year decline in the gross margin was due to lower sales of high-margin products in the Life Science business sector that had experienced strong demand in conjunction with the Covid-19 pandemic. In addition, as a result of the agreement terminating the strategic alliance with Pfizer Inc., United States, the cost of sales included royalties for the Bavencio® product for the first time from July 1, 2023, which in turn reduced the gross margin.

- Marketing and selling expenses declined on the back of lower logistics costs in particular.
- Administration expenses increased as a result of a program to continuously improve processes and align the Group Functions more closely with the businesses in particular.
- Accounting for a 70% (2022: 70%) share of Group R&D spending (excluding research and development cost allocated to Corporate and Other), Healthcare was the most research-intensive business sector of the Group. Further information can be found in the "**Research and Development**" chapter.
- Other operating income and expenses fell compared with the previous year, mainly as a result of lower profit transfer expenses in the Healthcare business sector. Impairment losses on non-financial assets also declined.
- Overall, the aforementioned developments led to a reduction in the EBIT margin by around three percentage points, from 20.1% in the previous year to 17.2%.
- Compared to the previous year, EBITDA pre, the key financial indicator used to steer operating business, fell by € 970 million or -14.2% to € 5,879 million (2022: € 6,849 million).
- The financial result improved by 33.0% to € -125 million (2022: € -187 million). This was due in particular to the positive development of net interest income. Details about financial income and expenses can be found in Note (40) "**Finance income and expenses/Net gains and losses from financial instruments**" in the Notes to the Consolidated Financial Statements.
- Income tax expense amounted to € 650 million (2022: € 948 million) and resulted in a tax rate of 18.7% (2022: 22.1%). The downturn in earnings was accompanied by a corresponding reduction in taxes. Furthermore, a non-recurring deferred tax income had a reducing effect on the tax rate.
- The net income attributable to shareholders of Merck KGaA, Darmstadt, Germany, declined by 15.1% to € 2,824 million (2022: € 3,326 million) and resulted in a reduction in earnings per share to € 6.49 (2022: € 7.65).

The development of EBITDA pre in the individual quarters in comparison with 2022 as well as the respective growth rates are presented in the following overview:

Group

EBITDA pre[1] and change by quarter[2]
€ million/change in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Group

EBITDA pre[1] by business sector[2] - 2023
€ million/%

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Not presented: Decline in Group EBITDA pre by € -397 million due to Corporate and Other.

Net assets and financial position

Group

Balance sheet structure

	Dec. 31, 2023		Dec. 31, 2022		Change	
	€ million	%	€ million	%	€ million	%
Non-current assets[1]	**36,102**	**74.4%**	**36,334**	**74.9%**	**-232**	**-0.6%**
thereof:						
Goodwill[1]	17,845		18,389		-544	
Other intangible assets[1]	6,551		7,335		-784	
Property, plant and equipment[1]	9,056		8,204		852	
Other non-current assets	2,650		2,406		244	
Current assets	**12,393**	**25.6%**	**12,201**	**25.1%**	**192**	**1.6%**
thereof:						
Inventories	4,637		4,632		5	
Trade and other current receivables	4,004		4,114		-110	
Other current financial assets	499		321		178	
Other current assets	1,271		1,280		-9	
Cash and cash equivalents	1,982		1,854		128	
Total assets[1]	**48,495**	**100.0%**	**48,535**	**100.0%**	**-40**	**-0.1%**
Equity	**26,754**	**55.2%**	**26,005**	**53.6%**	**749**	**2.9%**
Non-current liabilities[1]	**13,042**	**26.9%**	**13,015**	**26.8%**	**26**	**0.2%**
thereof:						
Non-current provisions for employee benefits	2,192		2,030		162	
Other non-current provisions	277		299		-22	
Non-current financial debt	9,239		9,200		39	
Other non-current liabilities[1, 2]	1,333		1,486		-153	
Current liabilities[1]	**8,699**	**17.9%**	**9,514**	**19.6%**	**-815**	**-8.6%**
thereof:						
Current provisions[2]	658		453		205	
Current financial debt	702		1,228		-526	
Trade and other current payables/ refund liabilities[1]	3,422		3,411		11	
Other current liabilities[2]	3,918		4,422		-504	
Total equity and liabilities[1]	**48,495**	**100.0%**	**48,535**	**100.0%**	**-40**	**-0.1%**

[1] Previous year's figures have been adjusted, see Note (6) "**Acquisitions and Divestments**" in the Notes to the Consolidated Financial Statements.

[2] Previous year's figures have been adjusted, see Note (2) “**Reporting principles**” in the Notes to the Consolidated Financial Statements.

- The total assets of the Group were essentially unchanged at € 48,495 million as of December 31, 2023 (December 31, 2022: € 48,535 million).
- Goodwill was down as against the previous year as a result of the depreciation of the U.S. dollar against the euro in particular.
- Other intangible assets were reduced by amortization and currency effects, in particular stemming from the U.S. dollar. Slightly higher investment than in the previous year, in particular from in-licensing in the Healthcare business sector (further information can be found under "**Other intangible assets**" in the Notes to the Consolidated Financial Statements), was not enough to offset this development.
- The year-on-year increase in property, plant and equipment was attributable to additions of € 1,981 million (2022: € 1,730 million), which significantly exceeded depreciation and disposals in the reporting period.
- Of the additions to property, plant and equipment in 2023, € 391 million (2022: € 279 million) related to strategic investments in Germany, including € 329 million for the expansion of the Darmstadt site. At the Darmstadt site, the Healthcare business sector invested € 51 million in a new research center and the Life Science business sector invested € 31 million in a new membrane production facility. Furthermore, the Life Science business sector invested € 50 million in a new filling and logistics center in Schnelldorf. Outside Germany, there were high levels of investment in strategic projects in the United States (€ 330 million), Ireland (€ 157 million) and China (€ 90 million) in particular. In the United States, the Life Science business sector invested € 69 million in expanding its capacities for biosafety testing and analytical development services in Rockville, while the Electronics business sector invested € 30 million in a new production facility for specialty gases for the semiconductor industry in Hometown. In Ireland, the Life Science business sector invested € 149 million in the expansion of membrane production capacities and the construction of a new filtration plant in Cork. In China, the Electronics business sector invested € 34 million in the establishment of a site for advanced semiconductor solutions in Zhangjiagang.
- Trade and other current receivables mainly developed in line with the business volume. At the same time, this item was reduced by exchange rate effects.
- In fiscal 2023, the equity of the Group rose by 2.9% to € 26,754 million (December 31, 2022: € 26,005 million). Profit after tax (€ 2,834 million) contributed to this development. By contrast, a negative currency translation difference (€ 1,003 million) and the dividend payments and profit distribution in the reporting year served to reduce equity (see "**Consolidated Statement of Changes in Net Equity**" in the Consolidated Financial Statements). Partially as a result of the ongoing reduction in net financial debt, the equity ratio improved by more than one percentage point to 55.2% (December 31, 2022: 53.6%).
- The increase in non-current provisions for employee benefits essentially resulted from actuarial losses in connection with the discount rate.
- Current provisions increased as a result of follow-on obligations in connection with the discontinuation of the development program for evobrutinib and ongoing efficiency programs (further information can be found in Note (27) "**Other provisions**" in the Notes to the Consolidated Financial Statements).
- Current financial liabilities were reduced by the repayment of a bond in the amount of € 600 million and an early partial repayment of hybrid bonds in the amount of € 275 million.

The composition and the development of net financial debt were as follows:

Group

Net financial debt[1]

€ million	Dec. 31, 2023	Dec. 31, 2022	Change € million	Change %
Bonds	7,802	8,726	-924	-10.6%
Bank loans	283	203	80	39.4%
Liabilities to related parties	1,196	919	276	30.1%
Loans from third parties and other financial debt	68	59	9	15.7%
Liabilities from derivatives (financial transactions)	77	30	47	>100.0%
Lease liabilities	515	491	24	5.0%
Financial debt	**9,941**	**10,428**	**-487**	**-4.7%**
less:				
Cash and cash equivalents	1,982	1,854	128	6.9%
Other current financial assets[2]	459	247	212	85.9%
Net financial debt[1]	**7,500**	**8,328**	**-828**	**-9.9%**

[1] Not defined by International Financial Reporting Standards (IFRSs).

[2] Excluding current derivatives (operational) and contingent considerations, which are recognized in the context of business combinations according to IFRS 3.

Bonds were reduced by the repayment of a bond in the amount of € 600 million in December 2023 and the partial repurchase of a nominal volume of € 275 million of hybrid bonds issued in 2019 and 2020.

Group

Reconciliation of net financial debt[1]

€ million	2023	2022
January 1	**8,328**	**8,753**
Operating Cash Flow	-3,784	-4,259
Payments for investments in intangible assets[2]	216	275
Payments from the disposal of intangible assets[2]	-136	-38
Payments for investments in property, plant and equipment[2]	1,807	1,531
Payments from the disposal of property, plant and equipment[2]	-19	-21
Acquisitions[2]	12	854
Payments from divestments[2]	–	-4
Change in lease liabilities	201	187
Dividend payments/profit withdrawals[2]	1,164	967
Currency translation difference	-30	86
Other	-258	-3
December 31	**7,500**	**8,328**

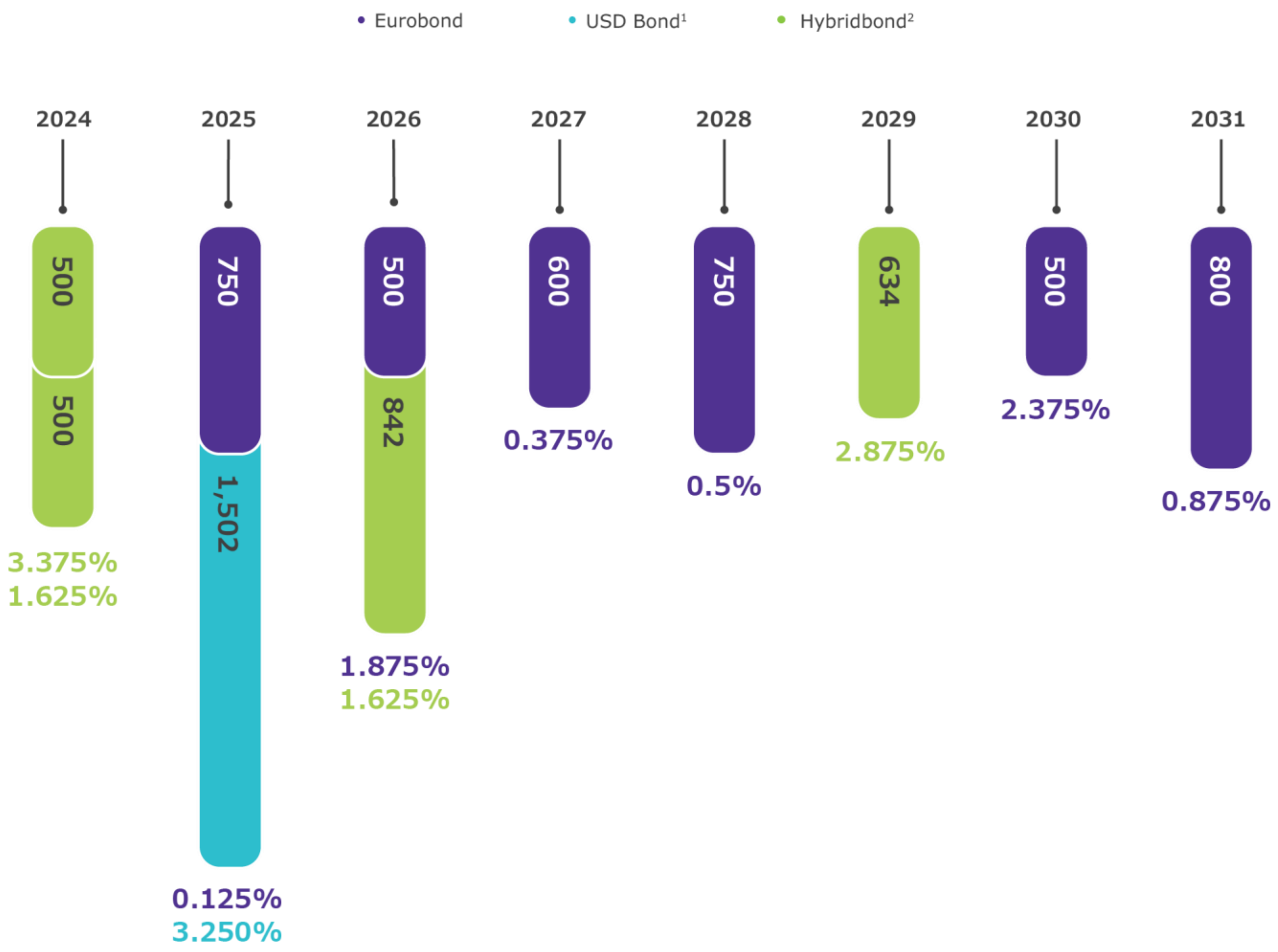
[1] Not defined by International Financial Reporting Standards (IFRS).

[2] As reported in the Consolidated Cash Flow Statement.

- Traditionally, the capital market represents a major source of financing for the Group, for instance via bond issues. As of December 31, 2023, there were liabilities of € 3.9 billion from a debt issuance program most recently renewed in fiscal 2023 (December 31, 2022: € 4.5 billion).
- Loan agreements represent a further source of financing for the Group. A € 2.5 billion syndicated loan facility is in place until 2028 to cover unexpected cash needs. This credit line is a backup facility that is intended to be used in exceptional circumstances only. The Group also agreed upon several bilateral loan facilities.

- In addition, the Group has a commercial paper program with a volume of € 2.5 billion at its disposal. Within the scope of this program, the Group can issue short-term commercial paper with a maturity of up to one year.

- The maturities of our financial liabilities are aligned with our planned free cash flow. The repayment profile of the issued bonds was as follows:



[1] The nominal volumes of bonds denominated in U.S. dollars were converted into euros at the closing rate on December 31, 2023.
[2] For the hybrid bonds, repayment is assumed at the earliest possible date.

- The capital market uses the assessments published by rating agencies to help lenders assess the risks of a financial instrument used by the Group. The Group currently rated by Standard & Poor's and Moody's. Standard & Poor's has issued a long-term credit rating of A with a stable outlook, while Moody's has issued a rating of A3 with a stable outlook. An overview of the development of our rating in recent years is presented in the "**Report on Risks and Opportunities**".

- The financial debt was not secured by liens or similar forms of collateral. The loan agreements do not contain any financial covenants. There were no indications that the availability of extended credit lines was restricted. Cash and cash equivalents included restricted cash amounting to € 404 million (December 31, 2022: € 456 million). We pursue a sustainable dividend policy and aim for a target corridor of 20% to 25% of earnings per share pre when determining the amount of the dividend. The average borrowing cost on December 31, 2023, was 2.1% (December 31, 2022: 1.9%).

The development of key balance sheet figures was as follows:

Group

Key balance sheet figures

%		**Dec. 31, 2023**	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2020	Dec. 31, 2019
Equity ratio[1]	Total equity / Total assets	55.2%	53.6%	47.2%	40.7%	40.9%
Asset ratio[1]	Non-current assets / Total assets	74.4%	74.9%	75.8%	77.8%	79.4%
Asset coverage[1]	Total equity / Non-current assets	74.1%	71.6%	62.3%	52.3%	51.5%
Finance structure[1]	Current liabilities / Liabilities (total)	40.0%	42.2%	43.6%	37.3%	45.7%

[1] Not defined by International Financial Reporting Standards (IFRS).

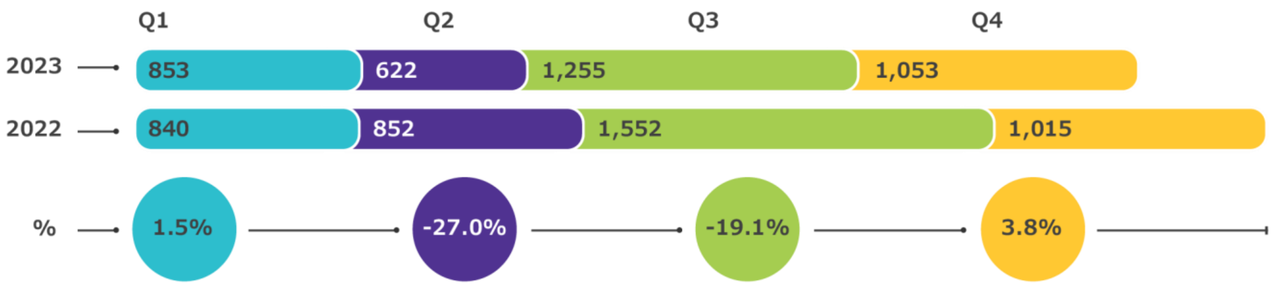
In the area of financial risks and opportunities, the Group uses an active management strategy to reduce the effects of fluctuations in exchange and interest rates. This also includes the use of derivative financial instruments. Further details on liquidity, counterparty and financial market risks and opportunities are presented in the "**Report on Risks and Opportunities**" in the "**Financial risks and opportunities**" section.

In fiscal 2023, operating cash flow, which is one of the three most important key performance indicators alongside net sales and EBITDA pre, decreased by -11.2% to € 3,784 million (2022: € 4,259 million). This was mainly due to the development of EBITDA pre. This was countered by a reduction in working capital and lower tax payments. Further information about the development of the operating cash flow can be found in the "**Internal Management System**" chapter in this Combined Management Report, under "**Consolidated Cash Flow Statement**" in the Consolidated Financial Statements and in Note (16) "**Operating cash flow**" in the Notes to the Consolidated Financial Statements.

The distribution of operating cash flow across the individual quarters and the percentage changes in comparison with 2022 were as follows:

Group

Operative cash flow[1] and change by quarter[2]
€ million/change in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Overall assessment of business performance and economic situation

- Despite the challenging macroeconomic environment and headwinds in individual markets, the Group can look back on a predominantly steady fiscal 2023 thanks to the diversified nature of its business sectors. As anticipated, Life Science business declined as a result of the forecast downturn in demand for products in connection with the Covid-19 pandemic and the slower than expected reduction in customer inventories in the Process Solutions business unit. Additionally, the economic slowdown in the semiconductor industry led to weak business performance in the Electronics business sector. However, Healthcare achieved strong organic growth that partially offset the negative development in the other business sectors.
- All in all, the Group’s net sales declined by -5.6% or € -1.2 billion to € 21 billion in fiscal 2023. Our most important key performance indicator, EBITDA pre, fell by -14.2% to € 5.9 billion. Earnings were adversely affected by the challenging market conditions and exchange rate effects. We will propose to the Annual General Meeting an unchanged dividend payment of € 2.20 per share for fiscal 2023.
- The solid financing policies of the Group were reflected in its consistently good key balance sheet figures. The equity ratio remained at 55.2% as of December 31, 2023 (December 31, 2022: 53.6%). Net financial debt was reduced further, amounting to € 7.5 billion at the end of the fiscal year (2022: € 8.3 billion).
- Based on our solid net assets and financial position as well as our diversified operations, we view the economic situation of the Group as positive overall. Thanks to our resilient business model and our clear positioning as a science and technology company, we are well positioned even in economically challenging times.

Life Science

Life Science

Key figures

€ million	2023	2022	Change € million	Change %
Net sales	9,281	10,380	-1,100	-10.6%
Operating result (EBIT)[1]	1,850	2,808	-958	-34.1%
Margin (% of net sales)[1]	19.9%	27.1%		
EBITDA[2]	2,731	3,678	-946	-25.7%
Margin (% of net sales)[1]	29.4%	35.4%		
EBITDA pre[1]	2,820	3,760	-940	-25.0%
Margin (% of net sales)[1]	30.4%	36.2%		

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

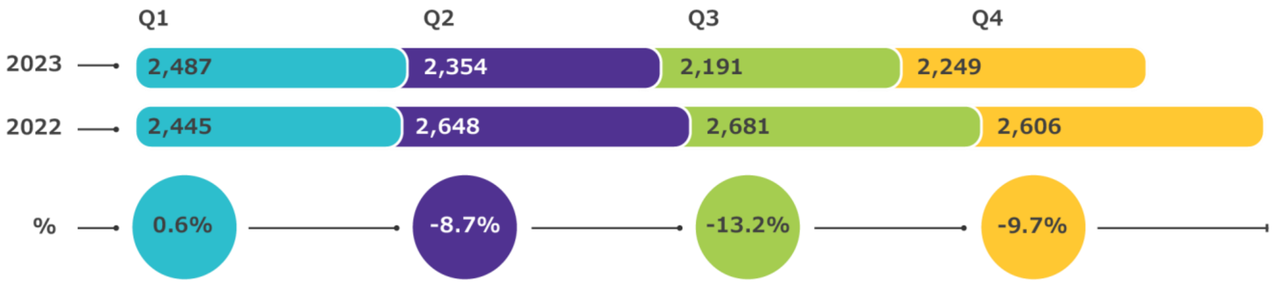
Development of sales and results of operations

The development of sales in the individual quarters in comparison with 2022 as well as the respective organic growth rates are presented in the following graph:

Life Science

Net sales and organic growth[1] by quarter[2]

€ million/organic growth in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Life Science

Net sales by business unit

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions / divestments	Total change	2022[2]	Share
Science & Lab Solutions	4,706	51%	-0.6%	-3.3%	–	-3.9%	4,898	47%
Process Solutions	3,782	41%	-14.4%	-2.3%	–	-16.7%	4,540	44%
Life Science Services	792	8%	-14.6%	-2.0%	0.6%	-15.9%	943	9%
Life Science	**9,281**	**100%**	**-7.9%**	**-2.7%**	**0.1%**	**-10.6%**	**10,380**	**100%**

[1] Not defined by International Financial Accounting Standards (IFRS).

[2] Previous year's figures were adjusted due to internal restructuring in the Life Science division.

- The Science & Lab Solutions business unit, which provides products and services to support life science research for pharmaceutical, biotechnology, academic research laboratories and researchers, and scientific and industrial laboratories, had organically stable sales in 2023. While the core business[1] generated organic growth in the first half of 2023, sales saw an organic decline in the second half of 2023 amid further decreasing pandemic-related demand as well as decreasing demand in China due to the current economic environment. Including an unfavorable foreign exchange effect of -3.3%, net sales decreased to € 4,706 million in 2023 (2022: € 4,898 million). Science & Lab Solutions accounted for 51% of Life Science net sales (2022: 47%). Geographically, Europe showed organic growth in 2023, while net sales in North America and Asia-Pacific (APAC) declined organically.
- The Process Solutions business unit, which markets products and services for the entire pharmaceutical production value chain, saw an organic mid-teens percentage decrease in sales for 2023. This was attributable to the continued decline in pandemic-related sales and a slowdown of the core business in 2023, driven mainly by the effects of destocking by key customers. Including an unfavorable foreign exchange effect of -2.3%, net sales decreased across all core regions (North America, Europe, Asia-Pacific (APAC)) with exception to Latin America and Middle East and Africa (MEA) to € 3,782 million in 2023 (2022: € 4,540 million). The percentage contribution of the Process Solutions business unit to Life Science net sales was 41% (2022: 44%).
- The Life Science Services business unit, which offers fully integrated Contract Development and Manufacturing Organization (CDMO) and contract testing services, recorded a significant organic sales decline in the mid-teens for 2023.This was driven by decreasing pandemic-related sale partially offset by growth in the core business. Including an unfavorable foreign exchange effect of -2.0%, net sales decreased across all regions to € 792 million (2022: € 943 million).

Net sales of the business sector by region developed as follows:

Life Science

Net sales by region

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions/ divestments	Total change	2022	Share
Europe	3,178	34%	-7.6%	-0.2%	–	-7.8%	3,445	33%
North America	3,372	36%	-12.0%	-2.3%	0.1%	-14.2%	3,931	38%
Asia-Pacific (APAC)	2,263	25%	-5.1%	-5.6%	–	-10.7%	2,536	25%
Latin America	352	4%	10.3%	-10.8%	0.1%	-0.3%	353	3%
Middle East and Africa (MEA)	116	1%	5.3%	-5.5%	–	-0.1%	116	1%
Life Science	**9,281**	**100%**	**-7.9%**	**-2.7%**	**0.1%**	**-10.6%**	**10,380**	**100%**

[1] Not defined by International Financial Accounting Standards (IFRS).

[1] The core business consists of "Net sales excluding the Covid-19 pandemic business". This is a financial indicator that is not defined by International Financial Reporting Standards (IFRS). It should not be taken into account in order to assess the performance of our company in isolation or as an alternative to the financial indicators presented in the consolidated financial statements and determined in accordance with IFRS.

The following table presents the composition of EBITDA pre for 2023 in comparison with 2022. The International Financial Reporting Standards (IFRS) figures have been modified to reflect the elimination of adjustments included in the respective functional costs.

Life Science

Reconciliation EBITDA pre[1]

	2023			2022			Change
€ million	IFRS	Elimination of adjustments	Pre[1]	IFRS	Elimination of adjustments	Pre[1]	Pre[1]
Net sales	**9,281**	**–**	**9,281**	**10,380**	**–**	**10,380**	**-10.6%**
Cost of sales	-4,236	6	-4,230	-4,280	7	-4,273	-1.0%
Gross profit	**5,044**	**6**	**5,050**	**6,100**	**7**	**6,107**	**-17.3%**
Marketing and selling expenses	-2,245	12	-2,232	-2,400	16	-2,384	-6.3%
Administration expenses	-425	53	-372	-400	22	-377	-1.4%
Research and development costs	-396	3	-393	-399	-0	-399	-1.5%
Impairment losses and reversals of impairment losses on financial assets (net)	-2	–	-2	-9	–	-9	-75.5%
Other operating income and expenses	-126	48	-78	-85	61	-24	>100.0%
Operating result (EBIT)[1]	**1,850**			**2,808**			
Depreciation/amortization/ impairment losses/reversals of impairment losses	881	-34	848	870	-24	845	0.3%
EBITDA[2]	**2,731**			**3,678**			
Restructuring expenses	30	-30	–	41	-41	–	
Integration expenses/IT expenses	53	-53	–	24	-24	–	
Gains (-)/losses (+) on the divestment of businesses	–	–	–	–	–	–	
Acquisition-related adjustments	6	-6	–	18	-18	–	
Other adjustments	–	–	–	–	–	–	
EBITDA pre[2]	**2,820**	**–**	**2,820**	**3,760**	**–**	**3,760**	**-25.0%**
of which: organic growth[1]							-21.4%
of which: exchange rate effects							-3.3%
of which: acquisitions/ divestments							-0.3%

[1] Not defined by International Financial Reporting Standards (IFRS).

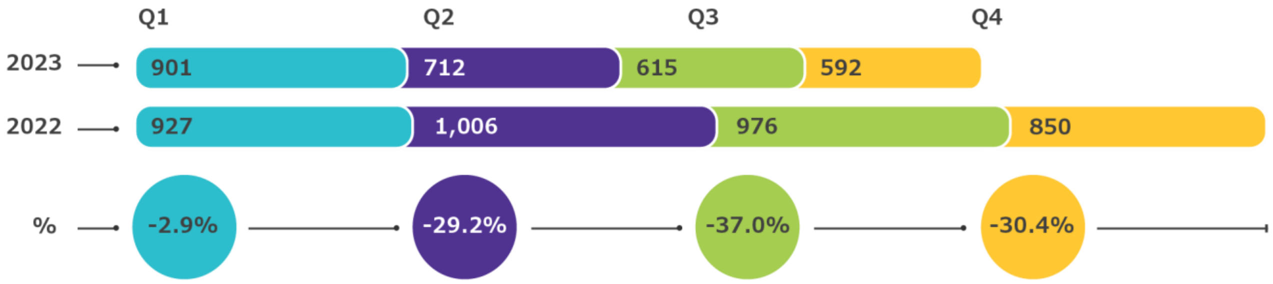
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

- Adjusted gross profit for the Life Science business sector was lower in 2023 in comparison with 2022. This was attributable to the organic sales decline following the continued decrease in pandemic-related sales combined with a slowdown of the core business as well as plant fix costs. At 54.4%, the adjusted gross margin in 2023 was below the year-earlier period (2022: 58.8%).
- The decrease in marketing and selling expenses in 2023 was largely driven by lower logistics costs following lower sales volume and a decline in personnel costs. In 2023, administration expenses and Research & Development costs remained organically largely stable in comparison to 2022. In addition to our organic development, positive foreign exchange effects impacted the development of costs compared to 2022. The net position of other operating income and expenses decreased compared to 2022 due to one-off effects in 2022 which did not repeat in 2023. Among other items, there was one-off income from a contractual arrangement with a supplier.
- In 2023, EBITDA pre saw an organic mid-twenties percentage decline compared to 2022, resulting in an EBITDA pre margin of 30.4% (2022: 36.2%).

The development of EBITDA pre in the individual quarters in comparison with 2022 is presented in the following overview:

Life Science

EBITDA pre[1] and change by quarter[2]
€ million/change in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Healthcare

Healthcare

Key figures

€ million	2023	2022	Change € million	Change %
Net sales	8,053	7,839	214	2.7%
Operating result (EBIT)[1]	2,225	1,895	330	17.4%
Margin (% of net sales)[1]	27.6%	24.2%		
EBITDA[2]	2,545	2,385	160	6.7%
Margin (% of net sales)[1]	31.6%	30.4%		
EBITDA pre[1]	2,543	2,477	66	2.7%
Margin (% of net sales)[1]	31.6%	31.6%		

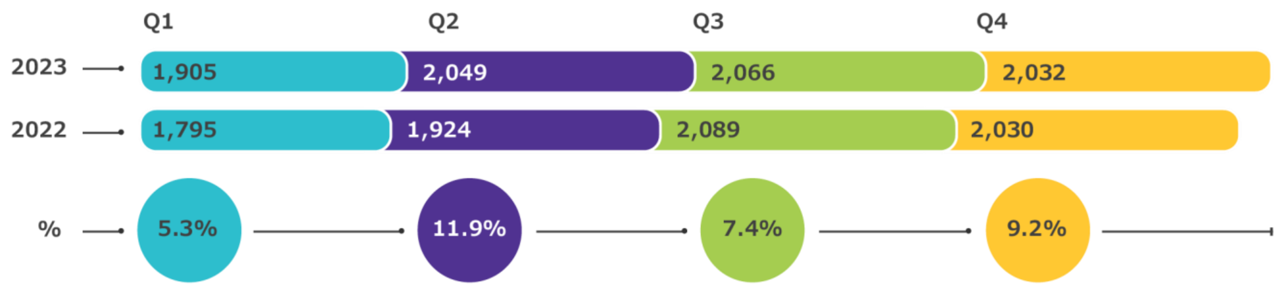
[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Development of sales and results of operations

The net sales in the individual quarters as well as the respective organic growth rates in 2022 are presented in the following graph:

Healthcare

Net sales and organic growth[1] by quarter[2]
€ million/organic growth in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Net sales of the key product lines and products developed as follows in 2023:

Healthcare

Net sales by major product lines/products

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Total change	2022	Share
Oncology	**1,819**	**22%**	**17.3%**	**-9.2%**	**8.1%**	**1,683**	**22%**
thereof: Erbitux®	1,025	13%	10.9%	-10.6%	0.3%	1,023	13%
thereof: Bavencio®	713	9%	23.4%	-6.8%	16.6%	611	8%
Neurology & Immunology	**1,665**	**21%**	**-0.9%**	**-3.5%**	**-4.5%**	**1,743**	**22%**
thereof: Mavenclad®	956	12%	15.9%	-4.3%	11.7%	856	11%
thereof: Rebif®	709	9%	-17.2%	-2.9%	-20.1%	887	11%
Fertility	**1,547**	**19%**	**14.9%**	**-7.8%**	**7.0%**	**1,446**	**18%**
thereof: Gonal-f®	847	11%	10.5%	-7.8%	2.7%	825	11%
Cardiovascular, Metabolism & Endocrinology	**2,786**	**35%**	**4.0%**	**-4.6%**	**-0.7%**	**2,805**	**36%**
thereof: Glucophage®	882	11%	-0.5%	-4.6%	-5.1%	930	12%
thereof: Concor®	571	7%	1.6%	-4.9%	-3.3%	590	8%
thereof: Euthyrox®	565	7%	5.4%	-3.2%	2.2%	553	7%
thereof: Saizen®	332	4%	35.7%	-10.6%	25.1%	266	3%
Other	**235**	**3%**				**161**	**2%**
Healthcare	**8,053**	**100%**	**8.5%**	**-5.8%**	**2.7%**	**7,839**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

- The cancer drug Erbitux® (cetuximab) saw low double-digit percentage organic net sales growth in 2023, largely on the back of increased demand in the Asia-Pacific (APAC), Latin America and Europe regions. By contrast, organic net sales performance in the Middle East and Africa region in the reporting period was negative.
- In immuno-oncology, net sales of the oncology drug Bavencio® (avelumab) saw organic growth in the low-twenties percentage range in the reporting period. This was driven by all regions, with Europe, North America and Asia-Pacific (APAC) enjoying particularly strong performance with double-digit organic growth rates. The main driver of this development was the continued growth in the drug's market share for first-line maintenance treatment for patients with locally advanced or metastatic urothelial carcinoma (UC).
- Mavenclad®, for the oral short-course treatment of highly active relapsing multiple sclerosis, recorded encouraging organic net sales growth in the mid-teen percentage range in the past fiscal year and reached blockbuster status with total net sales of more than US$ 1 billion. The North America region made a particularly strong contribution to the positive sales performance, but Latin America, Europe and the Middle East and Africa region also saw organic growth in net sales. Net sales in the Asia-Pacific (APAC) region remained essentially unchanged year-on-year in organic terms.
- The reporting period saw a high-teens percentage decline in net sales of Rebif®, which is used to treat relapsing forms of multiple sclerosis (MS). The sustained downturn in sales was anticipated and largely reflects the momentum on the interferon market, which is expected to remain negative in the future due to the persistently difficult competitive situation and the competition from oral dosage forms and high-efficacy MS therapies.
- The Fertility franchise recorded strong organic net sales growth in the mid-teen percentage range in the reporting period. Gonal-f®, a leading recombinant hormone used in the treatment of infertility, saw low double-digit percentage growth in net sales on the back of higher demand as well as supply bottlenecks affecting a rival product. Other Fertility products also contributed to the strong growth in the franchise with organic net sales growth in the mid-teen percentage range in some cases. This development was also attributable to supply bottlenecks affecting a rival product as well as higher demand.
- The Cardiovascular, Metabolism and Endocrinology franchise, which includes drugs for the treatment of cardiovascular, thyroid and growth disorders and diabetes, recorded solid year-on-year growth in net sales in the past financial year. Net sales of the diabetes drug Glucophage® were largely stable, with organic sales growth in Europe and Latin America not quite offsetting the organic downturn in the Asia-Pacific (APAC) and Middle East and Africa (MEA) regions. Net sales of the beta-blocker Concor® increased slightly in organic terms in the reporting period, while the thyroid product Euthyrox® enjoyed solid organic growth compared with the previous year. The franchise also benefited from encouraging organic growth in the net sales of Saizen® in the mid-thirty percentage range, which was due to rising demand as well as supply bottlenecks affecting a rival product.

Healthcare

Product sales and organic growth[1] of Erbitux®, Mavenclad® and Glucophage® by region – 2023

		Total	Europe	North America	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
Erbitux®	€ million	1,025	421	–	464	87	53
	Organic growth[1]	10.9%	2.4%	–	14.2%	54.4%	-12.8%
	Share	100%	41%	–	45%	9%	5%
Mavenclad®	€ million	956	360	490	20	45	41
	Organic growth[1]	15.9%	3.4%	23.2%	-0.7%	62.6%	28.5%
	Share	100%	38%	51%	2%	5%	4%
Glucophage®	€ million	882	128	–	467	203	84
	Organic growth[1]	-0.5%	2.9%	–	-4.0%	14.9%	-12.8%
	Share	100%	14%	–	53%	23%	10%

[1] Not defined by International Financial Reporting Standards (IFRS).

Net sales in the Healthcare business sector by region in 2023 developed as follows:

Healthcare

Net sales by region

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions/ divestments	Total change	2022	Share
Europe	2,541	31%	9.6%	-5.1%	–	4.5%	2,433	31%
North America	1,793	22%	3.9%	-3.2%	–	0.6%	1,781	23%
Asia-Pacific (APAC)	2,232	28%	6.4%	-7.7%	–	-1.3%	2,261	29%
Latin America	941	12%	23.1%	-10.8%	–	12.3%	838	10%
Middle East and Africa (MEA)	546	7%	5.1%	-1.3%	–	3.8%	527	7%
Healthcare	**8,053**	**100%**	**8.5%**	**-5.8%**	**–**	**2.7%**	**7,839**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

The following table presents the composition of EBITDA pre in fiscal 2023 in comparison with 2022. The IFRS figures have been modified to reflect the elimination of adjustments included in the functional costs.

Healthcare

Reconciliation EBITDA pre[1]

	2023			2022			Change
€ million	IFRS	Elimination of adjustments	Pre[1]	IFRS	Elimination of adjustments	Pre[1]	Pre[1]
Net sales	**8,053**	**–**	**8,053**	**7,839**	**–**	**7,839**	**2.7%**
Cost of sales	-2,029	-1	-2,030	-1,925	4	-1,921	5.7%
Gross profit	**6,024**	**-1**	**6,023**	**5,914**	**4**	**5,917**	**1.8%**
Marketing and selling expenses	-1,668	29	-1,639	-1,644	13	-1,631	0.5%
Administration expenses	-314	20	-294	-313	18	-296	-0.7%
Research and development costs	-1,657	2	-1,655	-1,694	73	-1,622	2.0%
Impairment losses and reversals of impairment losses on financial assets (net)	-41	–	-41	2	–	2	>100.0%
Other operating income and expenses	-120	-41	-161	-370	172	-198	-18.7%
Operating result (EBIT)[1]	**2,225**			**1,895**			
Depreciation/amortization/ impairment losses/reversals of impairment losses	320	-10	310	490	-187	303	2.3%
EBITDA[2]	**2,545**			**2,385**			
Restructuring expenses	32	-32	–	91	-91	–	
Integration expenses/IT expenses	20	-20	–	16	-16	–	
Gains (-)/losses (+) on the divestment of businesses	-53	53	–	-15	15	–	
Acquisition-related adjustments	–	–	–	–	–	–	
Other adjustments	–	–	–	–	–	–	
EBITDA pre[1]	**2,543**	**–**	**2,543**	**2,477**	**–**	**2,477**	**2.7%**
of which: organic growth[1]							17.1%
of which: exchange rate effects							-14.4%
of which: acquisitions/ divestments							–

[1] Not defined by International Financial Reporting Standards (IFRS).

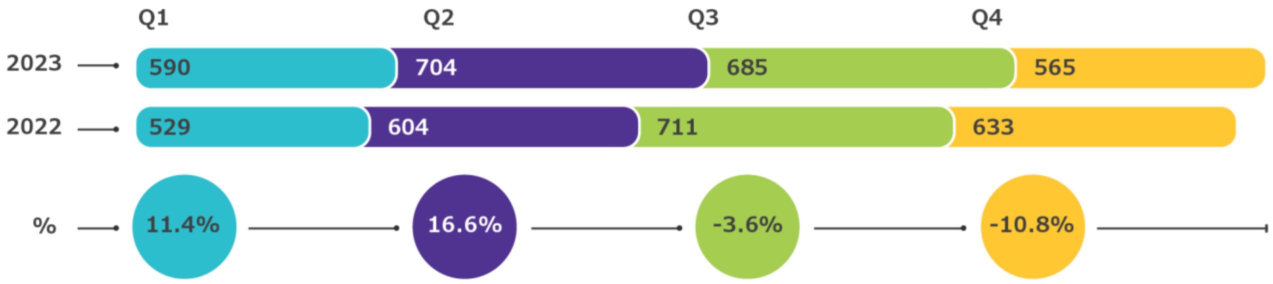
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

- Adjusted gross profit increased slightly in fiscal 2023, while the gross margin declined slightly to 74.8% (2022: 75.5%).
- Marketing and sales costs and administrative expenses were essentially unchanged year-on-year in the reporting period. The adjusted research and development costs increased slightly compared with the previous year, which was largely due to the provisions recognized for follow-on obligations in connection with the discontinuation of the development program for evobrutinib, a BTK inhibitor used in the treatment of relapsing multiple sclerosis (RMS).
- Net adjusted other operating expenses and income were negative but declined in fiscal 2023. This positive development was mainly driven by the end of the strategic alliance with Pfizer Inc., United States, on the co-development and co-commercialization of the oncology drug Bavencio® effective June 30, 2023. The royalties paid to Pfizer Inc., United States, instead of the profit share previously reported in other operating expenses have been reported in the cost of sales since July 2023, leading to a corresponding increase in this item. This development outweighed the year-on-year reduction in license income, meaning that the net figure improved as a result.
- The moderate increase in EBITDA pre in fiscal 2023 meant that the EBITDA pre margin amounted to 31.6% (2022: 31.6%).

The development of EBITDA pre in the individual quarters in comparison with 2022 is presented in the following overview:

Healthcare

EBITDA pre[1] and change by quarter[2]
€ million/change in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Electronics

Electronics

Key figures

€ million	2023	2022	Change € million	Change %
Net sales	3,659	4,013	-354	-8.8%
Operating result (EBIT)[1]	248	572	-325	-56.8%
Margin (% of net sales)[1]	6.8%	14.3%		
EBITDA[2]	816	1,138	-322	-28.3%
Margin (% of net sales)[1]	22.3%	28.3%		
EBITDA pre[1]	913	1,192	-279	-23.4%
Margin (% of net sales)[1]	25.0%	29.7%		

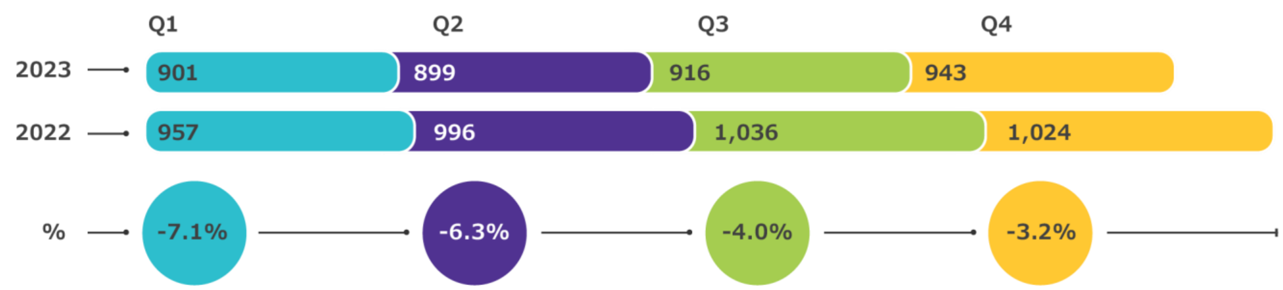
[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Development of net sales and results of operations

The net sales in the individual quarters as well as the respective organic growth rates in 2023 are presented in the following graph:

Electronics

Net sales and organic growth[1] by quarter[2]
€ million/organic growth in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Electronics

Net sales by business unit

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions/ divestments	Total change	2022	Share
Semiconductor Solutions	2,479	68%	-3.9%	-3.9%	0.5%	-7.3%	2,674	67%
Display Solutions	770	21%	-9.2%	-5.3%	–	-14.5%	900	22%
Surface Solutions	411	11%	-3.6%	-2.9%	–	-6.5%	439	11%
Electronics	**3,659**	**100%**	**-5.1%**	**-4.1%**	**0.3%**	**-8.8%**	**4,013**	**100%**

[1] Not defined by International Financial Accounting Standards (IFRS).

- The Semiconductor Solutions business unit, which comprises two businesses, namely Semiconductor Materials and Delivery Systems & Services (DS&S), reported a moderate decline in net sales in organic terms in fiscal 2023. The cyclical slow-down in the semiconductor industry, which has significantly impacted the sales volumes of the Semiconductor Materials business, is proving to be both longer and more severe than the industry initially expected and affected every quarter of 2023. DS&S partially compensated for the decline in Semiconductor Materials due to the strong demand for equipment and projects throughout 2023 as our key customers continue to invest in long-term capacity increases. The portfolio effect was due to the acquisition of the chemical business of Mecaro Co. Ltd., Korea, trading as M Chemicals Inc., Korea, on December 30, 2022.

- Net sales of the Display Solutions business unit, consisting mainly of the business with liquid crystals, photoresists for display applications as well as OLED materials, decreased sharply in organic terms in 2023. Even though utilization at key customers in Liquid Crystals improved in the second half of 2023, this was more than offset by the combined impact of lower first-half utilization, weaker pricing stemming from continued competitive pressure, and an unfavorable product mix.
- The Surface Solutions business unit reported a moderate organic net sales decline in 2023. While the Cosmetics business continued to show strength again in 2023, especially in Asia and EMEA, these gains were more than offset by weaker demand for Industrials and Coatings across all regions.

Net sales of the Electronics business sector by region developed as follows:

Electronics

Net sales by region

€ million	2023	Share	Organic growth[1]	Exchange rate effects	Acquisitions/ divestments	Total change	2022	Share
Europe	318	9%	-13.6%	-0.6%	–	-14.2%	371	9%
North America	787	21%	25.2%	-3.8%	–	21.3%	649	16%
Asia-Pacific (APAC)	2,440	67%	-11.8%	-4.5%	0.4%	-15.9%	2,901	72%
Latin America	39	1%	-2.3%	-1.6%	–	-3.9%	40	1%
Middle East and Africa (MEA)	75	2%	53.6%	-11.2%	–	42.4%	53	2%
Electronics	**3,659**	**100%**	**-5.1%**	**-4.1%**	**0.3%**	**-8.8%**	**4,013**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

The following table presents the composition of EBITDA pre for 2023 in comparison with 2022. The IFRS figures have been modified to reflect the elimination of adjustments included in the respective functional costs.

Electronics

Reconciliation EBITDA pre[1]

	2023			2022			Change
€ million	IFRS	Elimination of adjustments	Pre[1]	IFRS	Elimination of adjustments	Pre[1]	Pre[1]
Net sales	**3,659**	**–**	**3,659**	**4,013**	**–**	**4,013**	**-8.8%**
Cost of sales	-2,332	37	-2,295	-2,314	21	-2,292	0.1%
Gross profit	**1,327**	**37**	**1,364**	**1,700**	**21**	**1,721**	**-20.7%**
Marketing and selling expenses	-591	3	-588	-662	3	-659	-10.9%
Administration expenses	-147	29	-118	-128	8	-120	-1.0%
Research and development costs	-297	1	-297	-308	2	-306	-3.2%
Impairment losses and reversals of impairment losses on financial assets (net)	–	–	–	–	–	–	–
Other operating income and expenses	-44	70	26	-28	40	12	>100.0%
Operating result (EBIT)[1]	**248**			**572**			
Depreciation/amortization/ impairment losses/reversals of impairment losses	568	-42	526	565	-20	545	-3.5%
EBITDA[2]	**816**			**1,138**			
Restructuring expenses	60	-60	–	31	-31	–	
Integration expenses/IT expenses	24	-24	–	13	-13	–	
Gains (-)/losses (+) on the divestment of businesses	–	–	–	–	–	–	
Acquisition-related adjustments	13	-13	–	11	-11	–	
Other adjustments	–	–	–	–	–	–	
EBITDA pre[1]	**913**	**–**	**913**	**1,192**	**–**	**1,192**	**-23.4%**
of which: organic growth[1]							-17.1%
of which: exchange rate effects							-5.6%
of which: acquisitions/ divestments							-0.7%

[1] Not defined by International Financial Reporting Standards (IFRS).

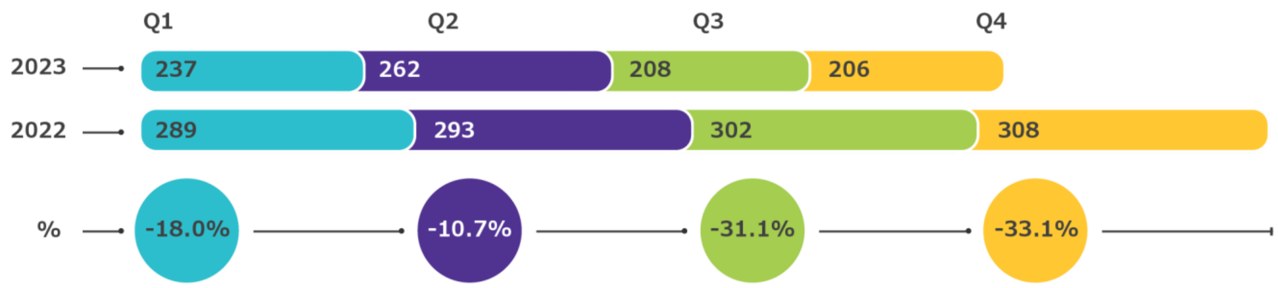
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

- Adjusted gross profit for the Electronics business sector decreased in 2023 driven by the aforementioned sales decline. At 37.3%, the adjusted gross margin declined compared with the previous year (2022: 42.9%) owing mainly to lower volumes to cover fixed costs, unfavorable price and mix in Liquid Crystals, rising raw material costs and adverse foreign exchange effects.
- Marketing and selling expenses decreased versus prior year, primarily due to lower logistics costs along with favorable foreign exchange effects and tighter personal cost management. Research and development costs were also favorable due to tighter cost management and project scrutiny and favorable foreign exchange effects. Adjusted other operating income improved in 2023 compared to the prior year due to the sale of a patent portfolio in the second quarter of 2023.
- As a result, EBITDA pre was down year-on-year in fiscal 2023. The EBITDA pre margin declined to 25.0% in the reporting period (2022: 29.7%), as the volume-based margin reduction and other factors affecting gross profit outlined above were only partially compensated by good operating cost management, the sale of a patent portfolio and lower logistics expenses.

The development of EBITDA pre in the individual quarters in comparison with 2022 is presented in the following overview:

Electronics

EBITDA pre[1] and change by quarter[2]
€ million/change in %



[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Quarterly breakdown unaudited.

Corporate and Other

Corporate and Other comprises administrative expenses for central Group functions that cannot be directly allocated to the business sectors.

Corporate and other

Key figures

			Change	
€ million	**2023**	2022	€ million	%
Operating result (EBIT)[1]	-713	-801	88	-11.0%
EBITDA[2]	-603	-696	93	-13.4%
EBITDA pre[1]	-397	-579	182	-31.5%

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

The year-on-year improvement in the operating result, EBITDA and EBITDA pre in fiscal 2023 was due in particular to the positive currency result from cash flow hedging. Cross-business research and development costs amounting to € 94 million (2022: € 119 million) were allocated to Corporate.