

Report on Economic Position

Macroeconomic and Sector-Specific Environment

Following the recovery of the global economy in 2021, the International Monetary Fund (IMF) stated in its World Economic Outlook published on January 25, 2022, that this momentum is expected to slow down. This became visible in the second half of 2021. With the spread of the highly transmissible Omicron variant the Covid-19 pandemic resurges and mobility restrictions in some countries were reimposed, threatening the recovery path. Higher infection rates put additional pressure on labor supply. A worldwide access to vaccines, tests, and treatments also in low-income countries as well as the efficacy against newly emerging variants is key to curbing the spread of the pandemic. Furthermore, inflation continued to rise in the second half of 2021 and is expected to remain elevated longer than initially anticipated, particularly in the United States. Main drivers are the ongoing supply shortage and rising energy prices. Further challenges to the global economy are, among others, China's recovery of private consumption and investments in its real estate sector, climate change as well as geopolitical tensions including eastern Europe and east Asia threatening energy supply, international trade, and policy cooperation.

According to the latest forecasts by the IMF¹, global gross domestic product (GDP) rose by 5.9% in 2021 (2020: -3.1%). The economic activity has shown strong post-recession recovery from the Covid-19 pandemic. However, the economic rebound is uneven across countries. Advanced economies registered a growth of 5.0% (2020: -4.5%) while the emerging markets and developing economies saw growth of 6.5% (2020: -2.0%). The GDP of the United States grew by 5.6% (2020: -3.4%). The Euro Area recorded a slightly weaker GDP growth of 5.2% in 2021 (2020: -6.4%). The emerging economies of Asia registered a growth of 7.2% (2020: -0.9%). The strongest drivers were China with 8.1% (2020: 2.3%) and India at 9.0% which recovered strongly from the impacts of the pandemic (2020: -7.3%). As part of the advanced economies, the GDP of Japan grew by 1.6% (2020: -4.5%).

Our organic sales growth was significantly above the IMF's global growth expectations in 2021 at 13.8%. It was supported by all regions. North America accounted for the highest share of Group-wide growth with 34.6%, followed by Europe with 29.9%, Asia-Pacific with 29.4%, Latin America with 4.9% and the Middle East and Africa at 1.2%.

The overall growth was predominantly driven by the Life Science business sector, which was supported by Covid-19 tailwinds in 2021. Healthcare and Electronics also contributed positively to the organic sales growth. Growth in North America, Europe, and Latin America were principally the result of operations in the Life Science and Healthcare business sectors. In the Asia-Pacific region, growth was supported by all business sectors.

¹ World Economic Outlook, as of January 2022

Development in 2021 and 2020

	Change 2021 ¹	Change 2020
Life Science		
Market for laboratory products ²	10.4%	6.8%
Share of biopharmaceuticals in the global pharmaceutical market ³	33.2%	32.0%
Monoclonal antibody (mAb) pipeline ⁴	11.8%	10.8%
Healthcare		
Global pharmaceutical market	6.3%	3.4%
Market for multiple sclerosis therapies ⁵	-2.7%	0.9%
Market for type 2 diabetes therapies ⁵	10.6%	12.6%
Market for fertility treatment ⁵	27.0%	-2.0%
Market for the treatment of colorectal cancer ⁶	-16.2%	-3.3%
Electronics		
Growth of wafer area for semiconductor chips	13.9%	5.3%
Growth of liquid crystal display surface area ⁷	4.0%	5.7%
Global sales of cosmetics and care products	6.6%	-1.3%
Global number of produced light vehicles	2.2%	-15.9%

¹ Predicted development. Final development rates for 2021 were not available for all industries when this report was prepared.

² The Global Market for laboratory products, December 2021, Frost & Sullivan. Acceleration attributed to Covid-19-related life science products for Covid-19 testing, research, and treatment as well as strong life science R&D funding environment.

³ Market volume based on market data in local currency, translated at a constant euro exchange rate. IQVIA market data based on the past 12 months as of the third quarter of 2021.

⁴ Number of programs in Phase I or Phase II clinical trials, EvaluatePharma.

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 2021. 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 the Group.

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, which is counteracted by a negative price momentum.

Life Science

Our Life Science business sector is a leading global supplier of products, tools, and services for research laboratories, pharma and biotech production, and industrial and testing laboratories. While Covid-19 continues to have a pronounced impact on many sectors and the global economy as a whole, the life science market has proven itself to be robust. The rapid development and launch of Covid-19 tests, vaccines, and antiviral treatments presents a sizeable but likely short-lived upside, while the base market (excluding Covid-19-specific applications) continues on a strong growth trajectory.

According to the market research firm Frost & Sullivan, the market for laboratory products, which is relevant to our Research Solutions and Applied Solutions business units, grew 10.4% in 2021 (2020: 6.8%). Demand for products related to Covid-19 testing, research, and vaccination remained strong while demand for core consumables and instruments (non-Covid-19 related) returned to pre-pandemic levels after being impacted by regional lockdowns imposed in 2020 for pandemic control. Given strong base demand but anticipated declining Covid-19 contribution and difficult comparables, the market is expected to grow in the mid-single digits.

In the pharma and biotech production market, in which our Process Solutions business unit is active, demand is driven by the development and manufacture of therapeutics and vaccines. According to IQVIA, the end market for biopharmaceuticals grew by 11.9% in 2021 (2020: 10.0%) to € 355 billion (or 33.2% of the global pharmaceutical market). Monoclonal antibodies, currently the leading area of biopharmaceuticals, continued on their growth path in 2021 with positive development of 11.8% (2020: 10.8%). The rapid development and scale up for global administration of Covid-19 vaccines provided additional demand for key bioprocess consumables on top of the base market. Continued strong base market growth is expected to persist with some volatility until the pandemic abates, as routine healthcare and clinical trials resume.

Healthcare

In its latest study from September, the pharmaceutical market research firm IQVIA forecasts growth in the global pharmaceutical market of 6.3% in 2021 (2020: 3.4%). Recovering from the Covid-19 pandemic, the pharmaceutical market is expected to see higher growth in the reporting year than last year. While the pandemic is still ongoing, the pharmaceutical industry returned overall to growth and has been resilient to supply challenges as seen in other industries. Further benefits from positive developments in intellectual property regulations as well as increasing healthcare budgets have influenced the year 2021.

The developments at a regional level are extremely heterogeneous. Latin America reported significant growth of 15.9% (2020: 10.8%). The EMEA (Europe, Middle East and Africa) region also enjoyed continued solid year-on-year growth of 5.0% (2020: 4.8%). In North America, growth also increased compared to the previous year, amounting to 6.5% (2020: 4.5%). In absolute terms, the pharmaceutical market in the United States remains the biggest and most important market by some distance. Market growth in the Asia-Pacific region (excluding China and Japan) accelerated to 6.6% (2020: 2.2%). China grew by 7.2% (2020: -1.8%), which was due to the recovery from the Covid-19 pandemic as well as the continued development of the local healthcare system and the shift from spending on generic products as a result of price regulation (e.g. volume-based procurement) in favor of innovative treatments.

Not only the growth of the pharmaceutical sector as a whole, but also the development of the biopharmaceutical market, is relevant to our business. According to IQVIA, the market volume for biological pharmaceuticals totaled approximately € 355 billion in 2021 (2020: approximately € 318 billion), thus continuing the recent trend of a continuous increase in market share. These products accounted for 33.2% of the global pharmaceutical market in 2021 (2020: 32.0%). The most important market for biological pharmaceuticals remains the United States, with a 59.9% share of the global market value.

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 positive trend of previous years, achieving growth of 10.6% in 2021 (2020: 12.6%). The therapeutic area of infertility saw a significant upturn of 27.0% in the reporting year (2020: -2.0%) recovering from the severe impacts from the pandemic in the previous year caused for example by the closure of clinics. Following the decline in last year, the market for colorectal cancer further declined by -16.2% in 2021 (2020: -3.3%) due to biosimilar penetration. The growth trend in the market for multiple sclerosis patients stalled compared to the previous year's level with -2.7% (2020: 0.9%) impacted by generic competition.

Electronics

The semiconductor industry is the most important market for our business with materials for the production of integrated circuits (Semiconductor Solutions). In particular, the growth in demand for semiconductor materials depends 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. According to the global industry association SEMI.org, the area of delivered silicon wafers was strongly increased by approximately 13.9% in 2021 (2020: 5.3%). This growth is fueled by the ongoing acceleration of digitization through Covid-19 and the resulting boosted demand for digital end-applications (notebooks, PCs, gaming) and digital infrastructure (network, servers, 5G). The high demand and the importance of semiconductors is clearly visible in the currently ongoing global chip shortage. Semiconductors are a key ingredient in many industries including communications, consumer electronics, automotive, transportation, clean energy, aerospace, and defense. To cope with this surge in demand, all major chip manufacturers increased and accelerated their investment plans into new fabs and additional capacity. Combined with ongoing innovation needs, these investments will lead to a huge demand for innovative materials. Driven by the mentioned acceleration of digitization and the according exponential growth of data, there is a lasting need for semiconductors across all device end-markets. Our targeted semiconductor materials market is expected to grow strongly, with only minor cyclicity.

With our Liquid Crystals business, we are the leading producer of liquid crystal mixtures for the display industry. According to surveys by market researchers at Omdia (forecast Q3 2021), the display surface area is growing at 4.0% in 2021 (2020: 5.7%). Driver of this growth is the strong demand for TV and IT equipment, caused by the ongoing “stay at home booming” after Covid-19, especially in the US market since the second half of the year 2020. Liquid crystals will continue to play a key role in the display industry in the future. OLED technology, for which we are also one of the leading material suppliers, 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 LMC, a leading global provider of automotive forecasts, global automobile production grew by 2.2% in 2021, after a steep decline of -15.9% in the previous year due to Covid-19 (factory closures, supply chain interruptions, and a slump in consumer demand). China continues to be one of the most important markets. In 2021, also other key markets in Asia (ex. China), Europe, and North America returned to growth. Despite the already mentioned chip shortage, the outlook for 2022 is positive with expected further improvement in market growth. The market for cosmetics and care products showed a good recovery with an overall growth of 6.6% in 2021 (2020: -1.3%). After the negative effects of Covid-19 regarding lockdowns and social distancing and the increased trade conflicts between the United States and China last year, Euromonitor expects the market recovery to be sustainable, also beyond 2021.

Review of Forecast against Actual Business Developments

The forecast of the Group for fiscal 2021 published in the Annual Report for fiscal 2020 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 strong organic net sales growth for the Group in 2021. Over the course of the year, the Group reported more dynamic organic sales growth on the back of the sustained strong organic growth of the Life Science business sector in particular. This meant we exceeded our original forecast with double-digit overall organic net sales growth of 13.8% in fiscal 2021. At the start of the year, we still anticipated negative exchange rate effects of between -2% and -5% on our net sales. However, several currencies saw more favorable development than expected as the year progressed, particularly the Chinese yuan. The negative exchange rate effect in 2021 as a whole was -1.4%, thus falling within our most recent update in the third quarter, which provided for a range of -1% to -2%. The slightly negative portfolio effect was negligible at -0.1%.

Life Science

Our Life Science business sector significantly exceeded our original forecast, generating organic sales growth of 21.3% in 2021. Thanks to consistently strong demand in our core business and the extreme relevance of our product and service range in the context of the pandemic, we updated our forecast in the third quarter to provide for a range of between +20% and +22%. As expected, Process Solutions was again the most dynamic business unit, delivering the largest contribution to organic sales growth within Life Science. Applied Solutions and Research Solutions also contributed positively to the organic sales performance, as anticipated, albeit to a considerably lesser extent than Process Solutions.

Healthcare

We originally forecast strong organic sales growth for our Healthcare business sector compared with the previous year. Although the Covid-19 pandemic continued to have some impact, the business sector met this forecast with strong organic growth of 8.5% in 2021 as a whole. This also fell within the range of +8% to +9% that we forecast in our most recent update in the third quarter. This development was driven in particular by the significant growth contribution from fertility business compared with the muted performance in the previous year due to the pandemic, as well as the substantial growth in our most recently approved products, especially Bavencio®.

Electronics

Since we anticipated positive development in semiconductor business, we forecast solid organic growth for our Electronics business sector at the start of the year. The business sector slightly outperformed the original forecast with organic sales growth of 7.7%. Our main assumptions concerning strong growth momentum in Semiconductor Solutions, a recovery in Surface Solutions, and strong organic growth in OLED business proved to be accurate. Thanks to an especially strong fourth quarter for Semiconductor Solutions in particular, the business sector ultimately closed the year at the upper end of the most recent forecast range of between 7% and 8%.

EBITDA pre

For 2021, we originally forecast high single-digit to low double-digit organic growth in EBITDA pre for the Group compared with the previous year. This assumption was based on the expectation of low double-digit organic growth in Life Science, accompanied by strong organic growth in Healthcare and solid to strong growth in Electronics. Because of the expected unfavorable foreign exchange environment, we expected moderate negative exchange rate effects to impact EBITDA pre by between -2% and -5% compared with the prior year. EBITDA pre amounted to € 6,103 million in fiscal 2021. This represented an overall increase of 26.2% compared with the prior-year figure adjusted for the reversal of a provision for a patent dispute in the amount of € 365 million. The organic growth of 27.0% included in this figure fell within the forecast range of 26% to 29% we issued in the third quarter of 2021. Without adjusting the prior-year figure for the reversal of the provision, organic growth was also within the most recent forecast range of 17% to 20%, coming in at 18.1%. Exchange rate effects had a less negative impact than anticipated at the start of the year, which is why we narrowed our forecast range to between -1% and -2% in our reporting over the course of the year, ultimately closing 2020 at -0.6%.

Life Science

For the Life Science business sector, we originally forecast low double-digit organic growth in EBITDA pre on the back of the expected organic sales growth. However, the impact of the sustained high level of additional demand in the context of the Covid-19 pandemic, particularly in the Process Solutions business unit, became increasingly evident as the year progressed. We responded by upwardly revising our forecast for organic growth in EBITDA pre on several occasions, most recently to between 36% and 39%. With EBITDA pre of € 3,286 million in fiscal 2021 (2020: € 2,405 million) and year-on-year organic growth of 37.7%, the business sector's performance was consistent with the forecast range that was raised significantly in the report on the third quarter. Foreign exchange development impacted EBITDA pre in the Life Science business sector by -0.9%, which was marginally more favorable than our latest forecast range of -1% to -2%.

Healthcare

For our Healthcare business sector, we forecast strong organic growth in EBITDA pre compared with the previous year due to substantial expected earnings contributions from our new products, particularly Mavenclad® and Bavencio®. Healthcare generated EBITDA pre of € 2,153 million in 2021 (2020: € 1,902 million after adjustment for the reversal of a provision for a patent dispute in the amount of € 365 million; € 2,267 million excluding this adjustment). This represents an increase of 13.2% compared with the adjusted prior-year figure, while the organic growth of 17.1% fell within the forecast range at the end of the year. Without adjusting the prior-year figure for the reversal of the provision, organic growth was also within the most recent forecast range of +1% to -2%, coming in at -1.7%. By contrast, the foreign exchange effect on EBITDA pre in 2021 as a whole was substantially less negative than expected at the start of the year at -3.2%, meaning it also fell outside the most recently adjusted range of between -5% and -6%.

Electronics

Due to the anticipated growth in Semiconductor Solutions and active cost management in connection with the Bright Future transformation program, we originally forecast solid to strong organic growth in EBITDA pre in the Electronics business sector. With semiconductors in particular developing positively as expected, the forecast for organic earnings growth was raised slightly in the first quarter and remained constant over the course of the year. Electronics recorded EBITDA pre of € 1,128 million in 2021 as a whole (2020: € 1,024 million). This represented strong year-on-year organic growth of 9.7%, which was at the upper end of our forecast at the start of the year and also fell within the most recent forecast range of 9% to 12%. The slightly positive foreign exchange effect of 0.5% was slightly above our forecast of 0% to -2% in the third quarter.

Corporate and Other

The expenses for Corporate and Other in EBITDA pre amounted to € -465 million in fiscal 2021. This was consistent with the forecast issued at the start of the year as well as the most recent update, which provided for a forecast range of between € -440 million and € -470 million. Compared with the prior-year figure of € -495 million, this corresponded to a reduction in costs of -6.2%.

Operating cash flow

We originally expected the operating cash flow of the Group to increase slightly year-on-year in 2021. With an operating cash flow of € 4,616 million, up 32.7% on the previous year (2020: € 3,477 million), this forecast was exceeded by some distance. This was due in particular to the higher level of EBITDA pre in the Life Science business sector.

Group

	Net sales	EBITDA pre ¹	Operating Cash Flow	EPS pre
Actual results 2020 in € million	17,534	5,201	3,477	€ 6.70
Forecast for 2021 in the 2020 Annual Report	- Solid organic growth - Negative foreign exchange effect of -2% to -5%	- Organic growth in the high single-digit to low teens percentage range - Negative foreign exchange effect of -2% to -5%	Slight increase over the previous year	
Main comments	- Organic growth driven by all three business sectors - Negative foreign exchange effects from the U.S. dollar in particular and individual growth markets	- Life Science with growth in the low teens range - Strong growth in Healthcare - Solid to strong growth in Electronics - Realization of synergies totaling approximately € 83 million as planned from the integration of Versum Materials into Electronics - Negative foreign exchange effects from the U.S. dollar in particular and individual growth markets	- Rise in EBITDA pre - Increase in net working capital and adverse impact from negative foreign exchange effects - Higher fluctuation corridors than for net sales and EBITDA pre are to be expected - Payments in connection with the transformation and growth program THRIVE commenced by Healthcare in 2020	
¹ EBITDA pre of fiscal 2020 included income from the release of a provision for patent litigation amounting to € 365 million. Including this amount in the previous year, we expected slight to moderate organic growth.				
Forecast for 2021 in the interim report:				
Q1/2021	~18,500 to 19,500 - Organic increase of +10% to +12% - Exchange rate effect -2% to -4%	~5,400 to 5,800 ¹ - Organic increase of +16% to +20% - Exchange rate effect -2% to -4%	~3,600 to 4,200	€ 7.50 to € 8.20
Q2/2021	~18,800 bis 19,700 - Organic increase of +12% to +14% - Exchange rate effect -2% to -4%	~5,600 bis 6,000 ² - Organic increase of +21% to +25% - Exchange rate effect -2% to -4%	~3,800 bis 4,400	€ 7.80 to € 8.50
Q3/2021	~19,300 to 19,850 - Organic increase of +13% to +15% - Foreign exchange effect -1% to -2%	~6,000 to 6,300 ³ - Organic increase of +26% to +29% - Foreign exchange effect -1% to -2%	~4,200 to 4,700	€ 8.50 to € 9.00
Results 2021 in € million	19,687 (+12.3%: +13.8% organic, -0.1% portfolio, -1.4% currency)	6,103 (+17.3%: +18.1% organic, -0.1% portfolio, -0.6% currency)	4,616 +32.7%	€ 8.72 +30.1%
EBITDA pre of fiscal 2020 included income from the reversal of a provision for patent litigation amounting to € 365 million. Including this amount in 2020, we expected:				
¹ organic growth of between 9% and 12% for the Group				
² organic growth of between 12% and 17% for the Group				
³ organic growth of 17% to 20% for the Group				

Life Science

	Net sales	EBITDA pre	Operating Cash Flow
Actual results 2020 in € million	7,515	2,405	n/a
Forecast for 2021 in the 2020 Annual Report	- Organic growth in the low teens percentage range - Slight to moderately negative foreign exchange effect	- Organic earnings growth in the low teens percentage range - Slightly negative foreign exchange effects	n/a
Main comments	- All businesses contribute to growth - Process Solutions remains the main driver of growth, followed by Applied Solutions - Negative foreign exchange effect on account of the U.S. dollar in particular	- Organic earnings growth owing to the expected sales growth and positive Covid-19 effects amid a slight margin improvement - Negative foreign exchange effects primarily owing to the development of individual growth market currencies	n/a
Forecast for 2021 in the interim report:			
	~8,200 to 8,700	~2,850 to 3,000	
Q1/2021	- Organic increase of +15% to +18% - Exchange rate effect -2% to -5%	- Organic increase of +22% to +26% - Exchange rate effect -1% to -3%	n/a
	~8,500 bis 8,950	~3,050 bis 3,200	
Q2/2021	- Organic increase of +18% to +21% - Exchange rate effect -2% to -4%	- Organic increase of +30% to +34% - Exchange rate effect -1% to -3%	na/
	~8,800 to 9,050	~3,200 to 3,350	
Q3/2021	- Organic increase of +20% to +22% - Foreign exchange effect -2% to -3%	- Organic increase of +36% to +39% - Foreign exchange effect -1% to -2%	n/a
Results 2021 in € million	8,890 (+19.6%: +21.3% organic, 0.0% portfolio, -1.6% currency)	3,286 (+36.6%: +37.7% organic, -0.2% portfolio, -0.9% currency)	n/a

Healthcare

	Net sales	EBITDA pre ¹	Operating Cash Flow
Actual results 2020 in € million	6,639	2,267	n/a
Forecast for 2021 in the 2020 Annual Report	- Strong organic growth	- Strong organic growth	n/a
	- Slight to moderately negative foreign exchange effect	- Strongly negative foreign exchange effect	
	- Roughly stable organic development of the core business	- Expected substantial earnings contribution especially from Mavenclad [®] can more than offset the effect from the expected decline in sales of Rebif [®]	
Main comments	- Substantial contribution to growth by Mavenclad [®] and Bavencio [®]	- Marketing and selling expenses as well as research and development costs with decrease in percentage of sales due to systematic cost management and strict pipeline prioritization	n/a
	- Negative foreign exchange effects, in particular the U.S. dollar and individual growth market currencies	- Negative foreign exchange effects, in particular the U.S. dollar and individual growth market currencies	
¹ EBITDA pre of fiscal 2020 included income from the release of a provision for patent litigation amounting to € 365 million. Including this amount in the previous year, we expected a strong organic decline.			
Forecast for 2021 in the interim report:			
	~6,850 to 7,200	~2,000 to 2,100 ¹	
Q1/2021	- Organic increase of +7% to +10%	- Organic increase of +12% to +15%	n/a
	- Exchange rate effect -2% to -4%	- Exchange rate effect -5% to -7%	
	~6,850 bis 7,200	~2,050 bis 2,150 ²	
Q2/2021	- Organic increase of +7% to +10%	- Organic increase of +15% to +18%	n/a
	- Exchange rate effect -2% to -4%	- Exchange rate effect -5% to -7%	
	~6,950 to 7,150	~2,110 to 2,200 ³	
Q3/2021	- Organic increase of +8% to +9%	- Organic increase of +17% to +20%	n/a
	- Foreign exchange effect -1% to -2%	- Foreign exchange effect -5% to -6%	
Results 2021 in € million	7,089 (+6.8%: +8.5% organic, -0.3% portfolio, -1.4% currency)	2,153 (-5.0%: -1.7% organic, -0.1% portfolio, -3.2% currency)	n/a

EBITDA pre of fiscal 2020 included income from the reversal of a provision for patent litigation amounting to € 365 million. Including this amount in 2020, we expected:

¹ an organic decline of -4% to -6% for Healthcare.

² an organic decline of -1% to -4% for Healthcare.

³ an organic development of 1% to -2% for Healthcare.

Electronics

	Net sales	EBITDA pre	Operating Cash Flow
Actual results 2020 in € million	3,380	1,024	n/a
Forecast for 2021 in the 2020 Annual Report	- Solid organic growth - Slight to moderately negative foreign exchange effect	- Solid to strong organic growth - Significant to strongly negative foreign exchange effect	n/a
Main comments	- Strong growth momentum in Semiconductor Solutions - Positive organic growth in Surface Solutions - High organic growth in OLED materials - Negative foreign exchange effects from key Asian currencies and the U.S. Dollar	- Growth in Semiconductor Solutions can more than offset price decline in Liquid Crystals supported by active cost management - Planned realization of synergies totaling around € 83 million from the integration of Versum Materials - Negative foreign exchange effects from key Asian currencies and the U.S. dollar	n/a
Forecast for 2021 in the interim report:			
Q1/2021	~3,400 to 3,550 - Organic increase of +5% to +7% - Exchange rate effect -1% to -4%	~1,050 to 1,130 - Organic increase of +9% to +12% - Exchange rate effect -3% to -5%	n/a
Q2/2021	~3,450 bis 3,600 - Organic increase of +6% to +8% - Exchange rate effect -1% to -3%	~1,070 bis 1,130 - Organic increase of +9% to +12% - Exchange rate effect -2% to -4%	n/a
Q3/2021	~3,500 to 3,650 - Organic increase of +7% to +8% - Foreign exchange effect -1% to -2%	~1,080 to 1,140 - Organic increase of +9% to +12% - Foreign exchange effect 0% to -2%	n/a
Results 2021 in € million	3,608 (+6.7%: +7.7% organic, +0.0% portfolio, -0.9% currency)	1,128 (+10.2%: +9.7% organic, +0.0% portfolio, +0.5% currency)	n/a

Corporate and Other

	EBITDA pre	Business Free Cash Flow
Actual results 2020 in € million	-495	n/a
Forecast for 2021 in the 2020 Annual Report	We expect that in fiscal 2021, Corporate and Other will be below the previous year's level. This is mainly due to the positive effects expected from foreign currency hedging, which will partly offset negative foreign exchange effects in the business sectors.	
Main comments		
Forecast for 2021 in the interim report:		
Q1/2021	~-440 to -490	
Q2/2021	~-450 bis -500	
Q3/2021	~-440 to -470	
Results 2021 in € million	-465 (-6.2%: +5.7% organic, -0.1% portfolio, -11.8% currency)	

Course of Business and Economic Position

Group

Overview of 2021

- Group net sales up € 2.2 billion or 12.3% to € 19.7 billion (2020: € 17.5 billion)
- Organic sales growth of 13.8%; negative foreign exchange effects of -1.4%
- Group EBITDA pre improves by 17.3% to € 6.1 billion (2020: € 5.2 billion); prior-year figure includes income of € 365 million from the release of a provision for potential compensation payments
- EBITDA pre margin rises to 31.0% (2020: 29.7%)
- Earnings per share pre increases by 30.1% to € 8.72 (2020: € 6.70)
- Operating cash flow of the Group amounts to € 4.6 billion (2020: € 3.5 billion)
- Reduction in net financial debt of 18.6% to € 8.8 billion (December 31, 2020: € 10.8 billion)

Group

Key figures

€ million	2021	2020	Change	
			€ million	%
Net sales	19,687	17,534	2,152	12.3%
Operating result (EBIT) ¹	4,179	2,985	1,194	40.0%
Margin (% of net sales) ¹	21.2%	17.0%		
EBITDA ²	5,946	4,923	1,023	20.8%
Margin (% of net sales) ¹	30.2%	28.1%		
EBITDA pre ¹	6,103	5,201	901	17.3%
Margin (% of net sales) ¹	31.0%	29.7%		
Profit after tax	3,065	1,994	1,071	53.7%
Earnings per share (€)	7.03	4.57	2.46	53.8%
Earnings per share pre (€) ¹	8.72	6.70	2.02	30.1%
Operating cash flow	4,616	3,477	1,138	32.7%

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.

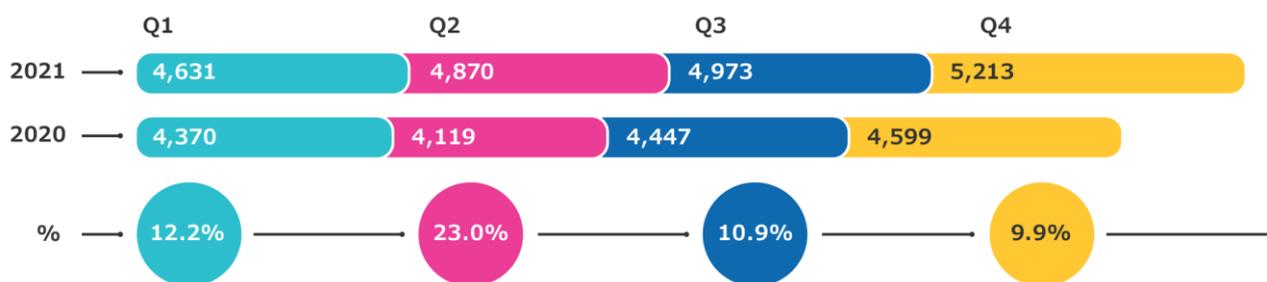
Development of sales and results of operations

In fiscal 2021, the Group generated net sales of € 19,687 million (2020: € 17,534 million), representing a year-on-year increase of € 2,152 million or 12.3%. This positive development was attributable to an organic net sales growth, which totaled € 2,421 million or 13.8% in fiscal 2021. This organic growth was driven by all of the Group’s business sectors. At 21.3%, Life Science was by far the business sector with the highest organic sales growth. Exchange rate effects negatively impacted net sales in the amount of € -248 million or -1.4% in fiscal 2021. This was due in particular to the development of the U.S. dollar.

The net sales in the individual quarters as well as the respective organic growth rates in 2021 are presented in the following graph:

Group

Net sales and organic growth¹ by quarter²
 € million/organic growth in%



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

The Life Science business sector recorded organic net sales growth of € 1,597 million year-on-year to € 8,990 million (2020: € 7,515 million). Including negative foreign exchange effects of -1.6%, net sales increased by 19.6% overall. Accounting for 46% of Group sales (2020: 43%), Life Science was the strongest business sector in terms of net sales. The Healthcare business sector recorded net sales growth of 6.8% to € 7,089 million in fiscal 2021 (2020: € 6,639 million). Organic sales growth of 8.5% was offset by negative foreign exchange effects amounting to -1.4%. Accordingly, the share of Group sales attributable to Healthcare fell by 2 percentage points to 36% (2020: 38%). The 6.7% increase in net sales in the Electronics business segment to € 3,608 million (2020: € 3,380 million) comprised organic growth of 7.7% and negative foreign exchange effects of -0.9%. The share of the Group’s net sales attributable to Electronics declined slightly to 18% (2020: 19%).

Group

Net sales by business sector - 2021

€ million/% of net sales



Group

Net sales by business sector

€ million	2021	Share	Organic growth ¹	Exchange rate effects	Acquisitions/divestments	Total change	2020	Share
Life Science	8,990	46%	21.3%	-1.6%	-	19.6%	7,515	43%
Healthcare	7,089	36%	8.5%	-1.4%	-0.3%	6.8%	6,639	38%
Electronics	3,608	18%	7.7%	-0.9%	-	6.7%	3,380	19%
Group	19,687	100%	13.8%	-1.4%	-0.1%	12.3%	17,534	100%

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

In fiscal 2021, the Group recorded the following regional sales performance:

Group

Net sales by region

€ million	2021	Share	Organic growth ¹	Exchange rate effects	Acquisitions/divestments	Total change	2020	Share
Europe	5,675	29%	14.5%	-0.5%	-0.3%	13.7%	4,991	29%
North America	5,397	27%	17.7%	-3.8%	-	13.9%	4,739	27%
Asia-Pacific (APAC)	7,020	36%	11.3%	-	-0.1%	11.2%	6,313	36%
Latin America	990	5%	12.9%	-4.2%	-	8.8%	910	5%
Middle East and Africa (MEA)	605	3%	5.1%	-1.0%	-	4.1%	581	3%
Group	19,687	100%	13.8%	-1.4%	-0.1%	12.3%	17,534	100%

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

The Consolidated Income Statement of the Group is as follows:

Group

Consolidated Income Statement

€ million	2021	%	2020	%	Change	
					€ million	%
Net sales	19,687	100.0%	17,534	100.0%	2,152	12.3%
Cost of sales	-7,351	-37.3%	-6,835	-39.0%	-516	7.6%
Gross profit	12,335	62.7%	10,699	61.0%	1,636	15.3%
Marketing and selling expenses	-4,304	-21.9%	-4,207	-24.0%	-97	2.3%
Administration expenses	-1,241	-6.3%	-1,188	-6.8%	-53	4.5%
Research and development costs	-2,408	-12.2%	-2,288	-13.0%	-119	5.2%
Impairment losses and reversals of impairment losses on financial assets (net)	1	0.0%	-6	0.0%	7	>100.0%
Other operating income and expenses	-206	-1.0%	-25	-0.1%	-180	>100.0%
Operating result (EBIT)¹	4,179	21.2%	2,985	17.0%	1,194	40.0%
Financial result	-255	-1.3%	-354	-2.0%	100	-28.1%
Profit before income tax	3,924	19.9%	2,630	15.0%	1,293	49.2%
Income tax	-859	-4.4%	-637	-3.6%	-222	34.9%
Profit after tax	3,065	15.6%	1,994	11.4%	1,071	53.7%
Non-controlling interests	-10	-0.1%	-7	0.0%	-4	58.5%
Net income	3,055	15.5%	1,987	11.3%	1,067	53.7%

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

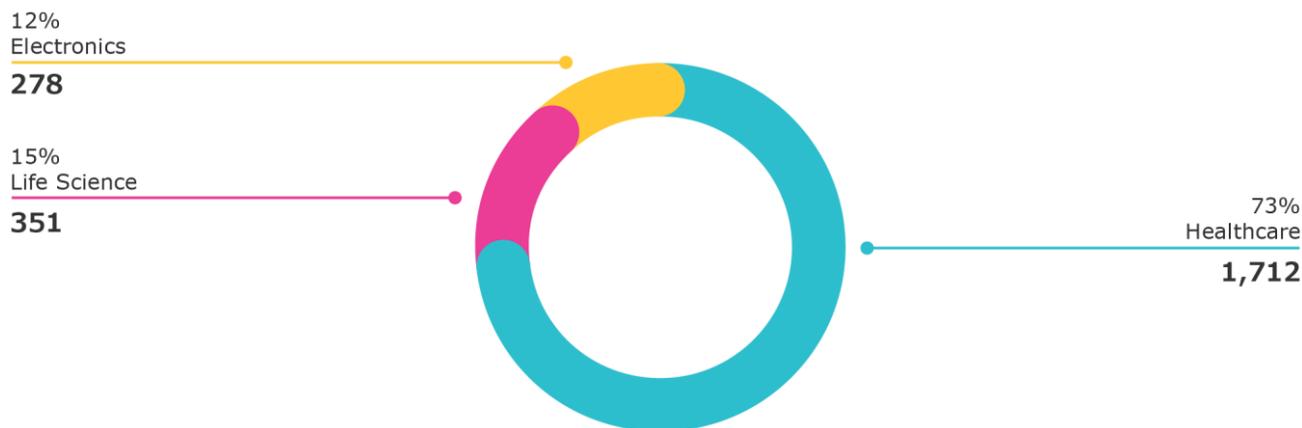
The positive business performance in fiscal 2021 led to an increase of 15.3% in the Group's gross profit to € 12,335 million (2020: € 10,699 million). The resulting gross margin of the Group, i.e. gross profit as a percentage of net sales, improved by 1.7 percentage points year-on-year to 62.7% (2020: 61.0%).

Group-wide research and development costs rose by 5.2% to € 2,408 million in the year under review (2020: € 2,288 million) and led to a research spending ratio (research and development costs as a percentage of net sales) of 12.2% (2020: 13.0%). Accounting for 73% (2020: 74%) of Group R&D spending, Healthcare remained the most research-intensive business sector of the Group. Further information can be found in chapter „Research and Development“.

Group

Research and development costs by business sector¹ - 2021

€ million/%



¹ Not presented: research and development costs of € 67 million allocated to Corporate and Other.

The expense balance of other operating expenses and income rose to € -206 million in fiscal 2021 (2020: € -25 million). This substantial change was primarily due to the income from the release of a provision of € 365 million for potential damages in the Healthcare business sector in the previous year. Detailed information about the development and composition of other operating expenses and income can be found in Note (13) "[Other operating income](#)" and Note (14) "[Other operating expenses](#)" in the Notes to the Consolidated Financial Statements.

An increase in provisions for obligations under long-term variable compensation programs (Long-Term Incentive Plan of Merck KGaA, Darmstadt, Germany) had an adverse effect on the operating result in the year under review, with the rise in the intrinsic value of the Share Units of Merck KGaA, Darmstadt, Germany (MSUs) being reflected in the respective functional costs depending on the area of activity of the plan beneficiaries.

The financial result improved by 28.1% to € -255 million in fiscal 2021 (2020: € -354 million). This positive development was primarily due to lower interest expenses. Details about the Group's 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 € 859 million in 2021 (2020: € 637 million) and resulted in a tax rate of 21.9% (2020: 24.2%). Further information on income taxes can be found in Note (15) "[Income tax](#)" in the Notes to the Consolidated Financial Statements.

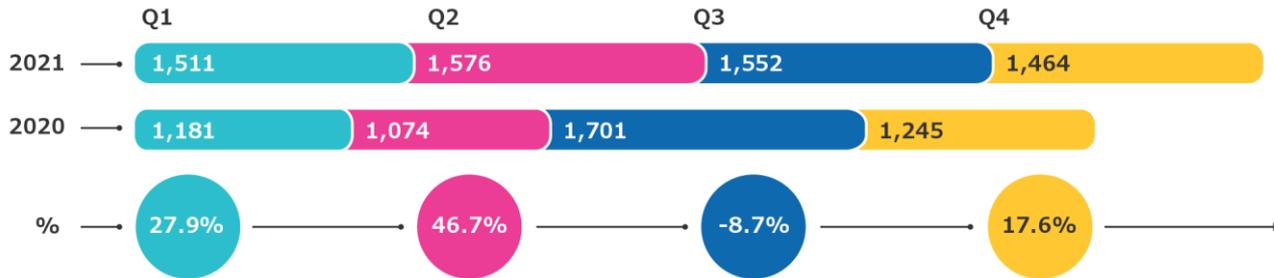
The net income attributable to Merck KGaA, Darmstadt, Germany, shareholders increased by 53.7% to € 3,055 million (2020: € 1,987 million) and resulted in an improvement in earnings per share to € 7.03 in fiscal 2021 (2020: € 4.57).

EBITDA pre, the key financial indicator used to steer operating business, rose by € 901 million or 17.3% to € 6,103 million (2020: € 5,201 million). Organic earnings growth amounted to 18.1%. It should be noted that the prior-year figure included income from the release of a provision for potential damages (€ 365 million). Foreign exchange effects (-0.6%) and portfolio effects (-0.1%) had an insignificant impact on the development of EBITDA pre in the year under review. The EBITDA pre margin of the Group (EBITDA pre as a percentage of net sales) improved to 31.0% (2020: 29.7%). The reconciliation of the operating result (EBIT) to EBITDA pre is presented in the "Internal Management System" chapter.

The development of EBITDA pre in the individual quarters in comparison with 2020 as well as the respective growth rates are presented in the following overview:

Group

EBITDA pre¹ and change by quarter²
€ million/change in%



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

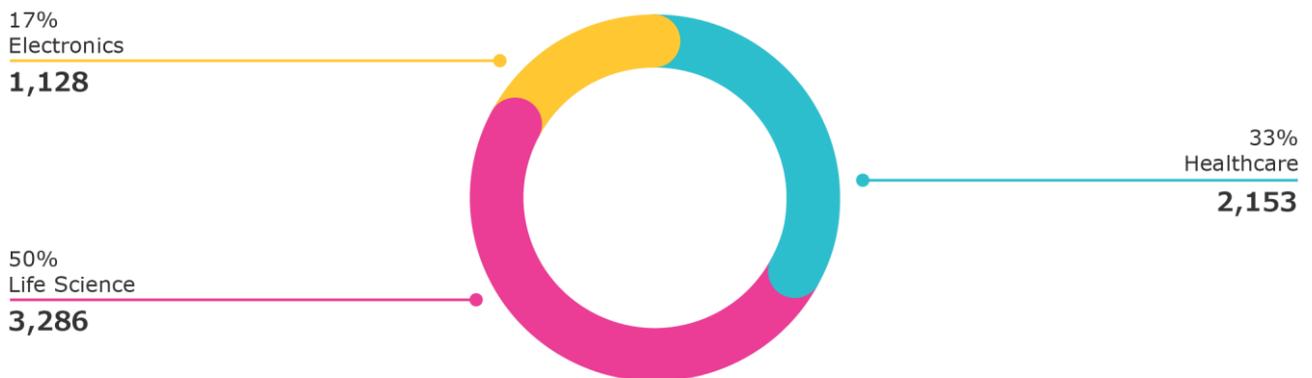
The biggest contribution to the growth in Group EBITDA pre came from the Life Science business sector, which generated EBITDA pre of € 3,286 million, up 36.6% on the previous year (2020: € 2,405 million). This meant the EBITDA pre margin in Life Science increased to 36.6% in fiscal 2021 (2020: 32.0%). The share of Group EBITDA pre attributable to the Life Science business sector (not taking into account the € -465 million reduction due to Corporate and Other) rose to 50% (2020: 42%).

EBITDA pre in the Healthcare business sector declined by -5.0% to € 2,153 million (2020: € 2,267 million). Accordingly, the EBITDA pre margin fell to 30.4% in fiscal 2021 (2020: 34.1%). It should be noted that the prior-year figure for the business sector included income from the release of a provision for potential damages (€ 365 million). The share of Group EBITDA pre attributable to the Healthcare business sector declined to 33% (2020: 40%).

The Electronics business sector increased its EBITDA pre by 10.2% to € 1,128 million in fiscal 2021 (2020: € 1,024 million). The share of Group EBITDA pre attributable to the Electronics business sector amounted to 17% in the year under review (2020: 18%). The EBITDA pre margin rose by one percentage point to 31.3% (2020: 30.3%).

Group

EBITDA pre¹ by business sector² - 2021
€ million/%



¹ Not defined by International Financial Reporting Standards (IFRS).
² Not presented: Decline in Group EBITDA pre by €-465 million due to Corporate and Other.

Net assets and financial position

Group

Balance sheet structure

	Dec. 31, 2021		Dec. 31, 2020		Change	
	€ million	%	€ million	%	€ million	%
Non-current assets	34,380	75.8%	32,516	77.8%	1,864	5.7%
thereof:						
Goodwill	17,004		15,959		1,046	
Other intangible assets	7,612		7,653		-41	
Property, plant and equipment	7,217		6,421		796	
Other non-current assets	2,546		2,483		63	
Current assets	10,982	24.2%	9,280	22.2%	1,702	18.3%
thereof:						
Inventories	3,900		3,294		607	
Trade and other current receivables	3,646		3,221		425	
Other current financial assets	174		125		49	
Other current assets	1,362		1,286		76	
Cash and cash equivalents	1,899		1,355		544	
Total assets	45,362	100.0%	41,796	100.0%	3,566	8.5%
Equity	21,416	47.2%	17,017	40.7%	4,399	25.9%
Non-current liabilities	13,515	29.8%	15,548	37.2%	-2,034	-13.1%
thereof:						
Non-current provisions for employee benefits	3,402		3,880		-478	
Other non-current provisions	269		281		-11	
Non-current financial debt	8,270		9,785		-1,515	
Other non-current liabilities	1,574		1,603		-29	
Current liabilities	10,432	23.0%	9,231	22.1%	1,201	13.0%
thereof:						
Current provisions	601		613		-12	
Current financial debt	2,531		2,357		174	
Trade and other current payables/ refund liabilities	3,219		2,434		785	
Other current liabilities	4,081		3,828		253	
Total equity and liabilities	45,362	100.0%	41,796	100.0%	3,566	8.5%

The total assets of the Group amounted to € 45,362 million as of December 31, 2021 (December 31, 2020: € 41,796 million), representing an increase of 8.5% or € 3,566 million in fiscal 2021. This development was due to the impact of the successful course of business as well as exchange rate changes, particularly the stronger US dollar at the reporting date.

The year-on-year increase in property, plant and equipment was attributable to additions of € 1,443 million (2020: € 1,530 million), which significantly exceeded depreciation and disposals in the reporting period. The previous year's figure includes the payment of € 208 million for the acquisition of the previously leased land and buildings of the Life Science site in Burlington, Massachusetts (USA). Of the additions to property, plant and equipment in 2021, € 198 million (2020: € 168 million) related to strategic investments in Germany, including € 151 million for the expansion of the Darmstadt site. Among other things, the Life Science business sector invested € 46 million in a new membrane production plant and € 43 million in a new filling and logistics center in Schnelldorf. Outside Germany, high levels of strategic investments were recorded in the United States (€ 203 million) and Switzerland (€ 159 million) in particular. The United States saw a Healthcare investment of € 19 million in the expansion of the research and development center in Billerica and Life Science investments of € 38 million in a new manufacturing facility for gene therapy products in Carlsbad and € 32 million in the expansion of the production facility for high-potent ingredients in Madison-Verona. In Switzerland, the Healthcare business sector invested € 86 million in a new development center to produce biotechnological products and € 31 million in a new production building for bottling these products.

In fiscal 2021, the equity of the Group rose by 25.9% to € 21,416 million (December 31, 2020: € 17,017 million). This was primarily due to the profit after tax generated (€ 3.1 billion), positive currency translation effects (€ 1.7 billion) and actuarial gains on provisions for pensions (€ 0.6 billion). The dividend payments and profit distribution in the reporting year (€ 0.8 billion) served to reduce equity (see "Consolidated Statement of Changes in Net Equity" in the Consolidated Financial Statements). The equity ratio improved by more than six percentage points to 47.2% (December 31, 2020: 40.7%).

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

Group

Net financial debt¹

€ million	Dec. 31, 2021	Dec. 31, 2020	Change	
			€ million	%
Bonds and commercial paper	9,320	9,642	-322	-3.3%
Bank loans	36	1,085	-1,050	-96.7%
Liabilities to related parties	896	817	79	9.7%
Loans from third parties and other financial debt	56	58	-2	-3.3%
Liabilities from derivatives (financial transactions)	35	102	-67	-66.0%
Lease liabilities	459	438	21	4.7%
Financial debt	10,801	12,142	-1,340	-11.0%
less:				
Cash and cash equivalents	1,899	1,355	544	40.1%
Other current financial assets ²	149	28	120	>100.0%
Net financial debt¹	8,753	10,758	-2,005	-18.6%

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

² Excluding current derivatives (operational).

Group

Reconciliation of net financial debt¹

€ million	2021	2020
January 1	10,758	12,363
Operating Cash Flow	-4,616	-3,477
Payments for investments in intangible assets ²	355	150
Payments from the disposal of intangible assets ²	-39	-88
Payments for investments in property, plant and equipment ²	1,066	1,413
Payments from the disposal of property, plant and equipment ²	-7	-35
Acquisitions ²	4	11
Payments for/proceeds from the disposal of assets held for sale ²	-1	-48
Change in lease liabilities	151	65
Dividend payments/profit withdrawals ²	757	687
Currency translation difference	203	-189
Other	122	-93
December 31	8,753	10,758

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

² As reported in the Consolidated Cash Flow Statement.

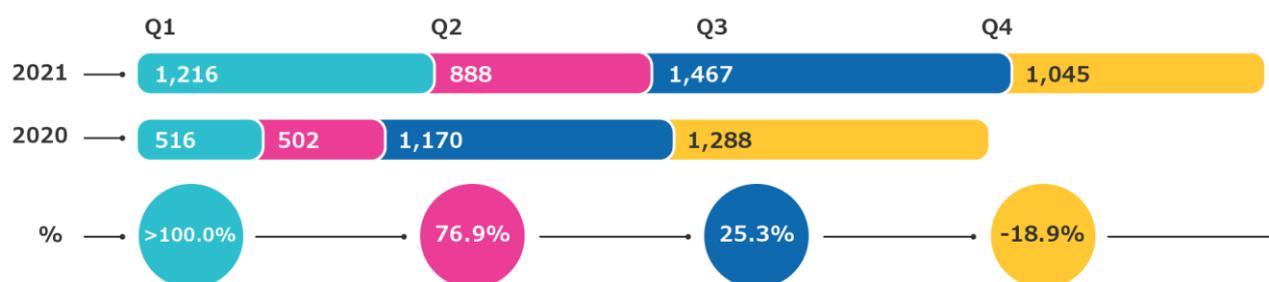
With effect from fiscal 2021, operating cash flow replaces business free cash flow as one of the three most important key performance indicators alongside net sales and EBITDA pre. The composition of operating cash flow is presented in the "Internal Management System" chapter.

In fiscal 2021, operating cash flow increased by 32.7% to € 4,616 million (2020: € 3,477 million). This strong performance was due in particular to the substantial growth in EBITDA pre. The distribution of operating cash flow across the individual quarters and the percentage changes in comparison with 2020 were as follows:

Group

Operating cash flow¹ and change by quarter²

€ million/change in%



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

² Quarterly breakdown unaudited.

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

The development of key balance sheet figures was as follows:

Group

Key balance sheet figures

%		Dec. 31, 2021	Dec. 31, 2020	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2017
Equity ratio ¹	Total equity	47.2%	40.7%	40.9%	46.7%	39.5%
	Total assets					
Asset ratio ¹	Non-current assets	75.8%	77.8%	79.4%	75.0%	79.1%
	Total assets					
Asset coverage ¹	Total equity	62.3%	52.3%	51.5%	62.3%	49.9%
	Non-current assets					
Finance structure ¹	Current liabilities	43.6%	37.3%	45.7%	43.3%	40.1%
	Liabilities (total)					

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

Overall assessment of business performance and economic situation

Despite the ongoing pandemic and the resulting challenges, the Group can look back in a highly successful fiscal 2021. Needless to say, the safety of our teams around the world remained our top priority, and we averted major disruptions to our supply chains and business operations.

We reached or even exceeded the financial targets we had set ourselves for fiscal 2021. All three business sectors achieved excellent results. With particularly good performance, the “Big 3”¹ – the Process Solutions business within Life Science, new products from the Healthcare research pipeline, and the Semiconductor Solutions business within the Electronics business sector – representing the most important growth drivers of the Group. In fiscal 2021, the Group increased its net sales by 12.3% or € 2.2 billion to € 19.7 billion. Organic sales growth amounted to 13.8% or € 2.4 billion. EBITDA pre, the most important financial indicator for steering our operating business, rose by 17.3% to € 6.1 billion. Net financial debt was reduced by € 2.0 billion to € 8.8 billion thanks to the strong growth in the operating cash flow, which increased by 32.7% or € 1.1 billion to € 4.6 billion in fiscal 2021. Consequently, we will propose to the Annual General Meeting the payment of a dividend of € 1.85 per share for fiscal 2021 – an increase of 32% on the previous year.

The extremely positive business development and solid financing policies of the Group are reflected in its consistently good key balance sheet figures. The equity ratio was an impressive 47.2% as of December 31, 2021 (December 31, 2020: 40.7%). So that we can continue to achieve a rapid reduction in net financial debt, we are focusing on generating organic sales and earnings growth and on high inflows of financial resources from operating business activities.

The reduction in net financial debt also means the Group has significantly greater financial flexibility once again. This will enable us to increase our total investments for the period from 2021 to 2025 by more than 50% compared with the period from 2016 to 2020.

Based on our solid net assets and financial position, and our profitable operations, we view the economic situation of the Group as positive overall.

¹ As of April 1, 2022, the Big 3 include the following businesses: Process Solutions & Life Science Services in Life Science, new Healthcare products and Semiconductor Solutions in Electronics

Life Science

Life Science

Key figures

€ million	2021	2020	Change	
			€ million	%
Net sales	8,990	7,515	1,475	19.6%
Operating result (EBIT) ¹	2,479	1,599	880	55.1%
Margin (% of net sales) ¹	27.6%	21.3%		
EBITDA ²	3,257	2,387	870	36.4%
Margin (% of net sales) ¹	36.2%	31.8%		
EBITDA pre ¹	3,286	2,405	881	36.6%
Margin (% of net sales) ¹	36.6%	32.0%		

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

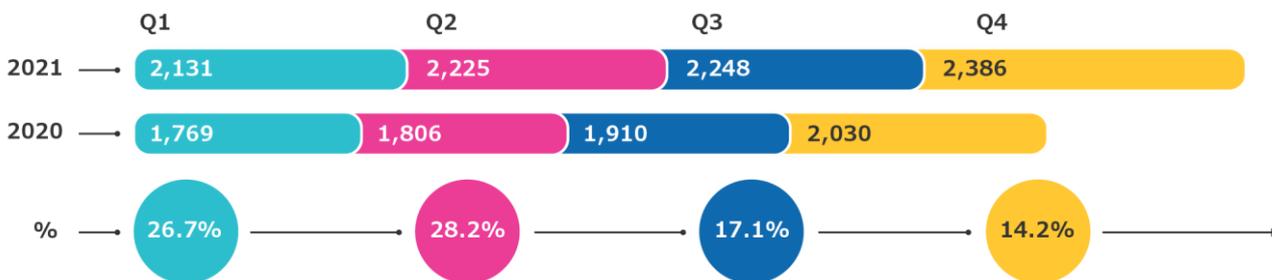
In fiscal 2021, Life Science posted an organic sales growth of 21.3% with an unfavorable foreign exchange impact of -1.6%, resulting in a total growth of 19.6% compared to the previous year. All three business units contributed to the organic growth, with the by far largest contribution coming from Process Solutions and followed by Research Solutions. Overall, Life Science net sales increased to € 8,990 million (2020: € 7,515 million).

The development of sales in the individual quarters in comparison with 2020 as well as the respective organic growth rates are presented in the following graph:

Life Science

Net sales and organic growth¹ by quarter²

€ million/organic growth in%



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

² Quarterly breakdown unaudited.

Life Science

Net sales by business unit¹

€ million	2021	Share	Organic growth ²	Exchange rate effects	Acquisitions / divestments	Total change	2020	Share
Process Solutions	4,645	52%	31.0%	-1.8%	-	29.2%	3,595	48%
Research Solutions	2,512	28%	15.1%	-1.7%	-	13.4%	2,215	29%
Applied Solutions	1,833	20%	8.8%	-1.3%	-	7.5%	1,705	23%
Life Science	8,990	100%	21.3%	-1.6%	-	19.6%	7,515	100%

¹ Previous year's figures have been adjusted due to internal realignment.

² Not defined by International Financial Accounting Standards (IFRS).

The Process Solutions business unit, which markets products and services for the pharmaceutical production value chain, generated organic sales growth of 31.0%, which was the highest rate within the Life Science business sector. The business experienced strong demand in both core business and Covid-19- related product and service offerings. With an unfavorable foreign exchange effect of -1.8%, net sales resulted in € 4,645 million in fiscal 2021 (2020: € 3,595 million). Process Solutions thus accounted for 52% of Life Science total net sales (2020: 48%). All regions experienced double-digit organic sales growth within Process Solutions.

The Research Solutions business unit, which provides products and services to support life science research for pharmaceutical, biotechnology, and academic research laboratories, recorded an organic sales growth of 15.1% in 2021. This was mainly driven by strong demand in the core business. With an unfavorable foreign exchange effect of -1.7%, net sales totaled € 2,512 million (2020: € 2,215 million). Research Solutions thus accounted for 28% of Life Science total net sales (2020: 29%). Double-digit organic sales growth was reported for almost all regions with North America, Asia-Pacific and Europe leading the growth.

The Applied Solutions business unit with its broad range of products for researchers as well as scientific and industrial laboratories accounted for a 20% share of Life Science sales (2020: 23%). Applied Solutions recorded an organic sales growth of 8.8% in fiscal 2021. Including an unfavorable foreign exchange effect of -1.3%, sales totaled € 1,833 million (2020: € 1,705 million). From a regional perspective, the strongest growth drivers in Applied Solutions were North America and Latin America each with double-digit organic sales growth.

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

Life Science

Net sales by region

€ million	2021	Share	Organic growth ¹	Exchange rate effects	Acquisitions / divestments	Total change	2020	Share
Europe	3,138	35%	21.1%	0.3%	0.1%	21.5%	2,583	35%
North America	3,187	36%	22.0%	-4.0%	-	18.0%	2,701	36%
Asia-Pacific (APAC)	2,286	25%	21.0%	-0.7%	-	20.3%	1,900	25%
Latin America	278	3%	20.7%	-5.3%	-	15.3%	241	3%
Middle East and Africa (MEA)	100	1%	9.5%	2.6%	-	12.1%	89	1%
Life Science	8,990	100%	21.3%	-1.6%	-	19.6%	7,515	100%

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

The following table presents the composition of EBITDA pre for 2021 in comparison with 2020. 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 pre¹

€ million	2021			2020			Change
	IFRS	Elimination of adjustments	Pre ¹	IFRS	Elimination of adjustments	Pre ¹	Pre ¹
Net sales	8,990	-	8,990	7,515	-	7,515	19.6%
Cost of sales	-3,577	4	-3,573	-3,215	5	-3,210	11.3%
Gross profit	5,413	4	5,417	4,300	5	4,305	25.8%
Marketing and selling expenses	-2,119	5	-2,114	-1,995	4	-1,992	6.1%
Administration expenses	-352	22	-331	-354	32	-322	2.9%
Research and development costs	-351	1	-349	-313	1	-312	11.8%
Impairment losses and reversals of impairment losses on financial assets (net)	-3	-	-3	-1	-	-1	>100.0%
Other operating income and expenses	-109	7	-102	-38	-21	-59	72.2%
Operating result (EBIT)¹	2,479			1,599			
Depreciation/amortization/impairment losses/reversals of impairment losses	778	-11	767	789	-3	786	-2.4%
EBITDA²	3,257			2,387			
Restructuring expenses	26	-26	-	16	-16	-	
Integration expenses/IT expenses	21	-21	-	32	-32	-	
Gains (-)/losses (+) on the divestment of businesses	-	-	-	-	-	-	
Acquisition-related adjustments	-18	18	-	-30	30	-	
Other adjustments	-	-	-	-	-	-	
EBITDA pre¹	3,286	-	3,286	2,405	-	2,405	36.6%
of which: organic growth ¹							37.7%
of which: exchange rate effects							-0.9%
of which: acquisitions/divestments							-0.2%

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.

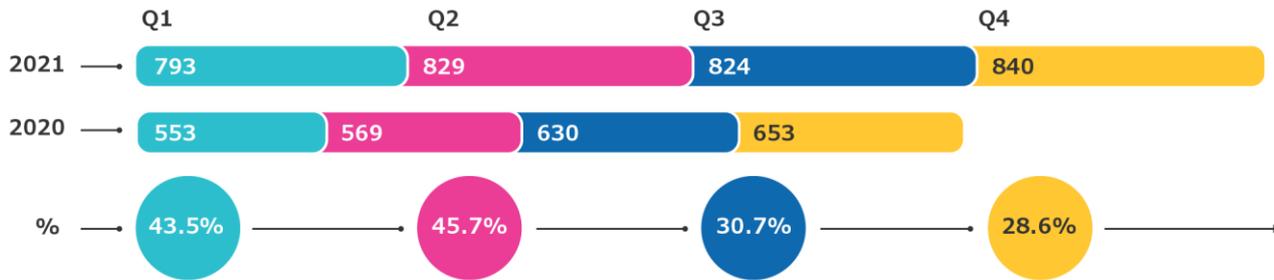
Adjusted gross profit increased by 25.8% to € 5,417 million (2020: € 4,305 million). The increase was mainly driven by a strong sales growth. Adjusted marketing and selling expenses increased by 6.1% to € 2,114 million (2020: € 1,992 million) due to higher logistics costs and increased personnel costs. Adjusted administration expenses increased by 2.9% to € 331 million (2020: € 322 million) and adjusted research and development costs increased by 11.8% to € 349 million (2020: € 312 million). EBITDA pre rose by 36.6% to € 3,286 million (2020: € 2,405 million) reflecting the strong performance of the Life Science business, both in the core business and from sales related to the Covid-19 pandemic. Organically, the EBITDA pre grew by 37.7% in 2021. The EBITDA pre margin, i.e. EBITDA pre as a percentage of net sales, improved to 36.6% (2020: 32.0%).

The development of EBITDA pre in the individual quarters in comparison with 2020 is presented in the following overview:

Life Science

EBITDA pre¹ and change by quarter²

€ million/change in%



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

² Quarterly breakdown unaudited.

Healthcare

Healthcare

Key figures

€ million	2021	2020	Change	
			€ million	%
Net sales	7,089	6,639	450	6.8%
Operating result (EBIT) ¹	1,823	1,804	19	1.0%
Margin (% of net sales) ¹	25.7%	27.2%		
EBITDA ²	2,146	2,184	-39	-1.8%
Margin (% of net sales) ¹	30.3%	32.9%		
EBITDA pre ¹	2,153	2,267	-114	-5.0%
Margin (% of net sales) ¹	30.4%	34.1%		

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

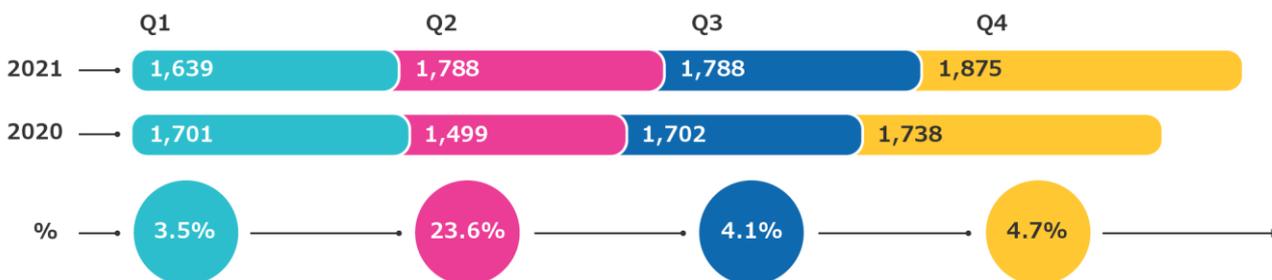
The Healthcare business sector reported organic sales growth of 8.5% in fiscal 2021. Including negative foreign exchange effects of -1.4%, which were largely attributable to the development of the U.S. dollar, and the impact of the divestment of the Allergopharma allergy business in the first quarter of 2020 (-0.3%), net sales amounted to € 7,089 million (2020: € 6,639 million).

The net sales in the individual quarters as well as the respective organic growth rates in 2021 are presented in the following graph:

Healthcare

Net sales and organic growth¹ by quarter²

€ 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 2021:

Healthcare

Net sales by major product lines/products

€ million	2021	Share	Organic growth ¹	Exchange rate effects	Total change	2020	Share
Oncology	1,411	20%	28.5%	-1.9%	26.6%	1,116	17%
thereof: Erbitux®	987	14%	12.2%	-1.3%	10.8%	891	13%
thereof: Bavencio®	373	5%	> 100.0%	-5.4%	> 100.0%	156	2%
Neurology & Immunology	1,645	23%	1.2%	-2.2%	-1.1%	1,662	25%
thereof: Rebif®	952	13%	-13.6%	-2.3%	-15.9%	1,131	17%
thereof: Mavenclad®	693	10%	32.6%	-2.1%	30.5%	531	8%
Fertility	1,337	19%	25.6%	-1.7%	23.9%	1,079	16%
thereof: Gonal-f®	767	11%	23.8%	-1.9%	21.9%	630	9%
Cardiovascular, Metabolism and Endocrinology	2,540	36%	-1.1%	-0.7%	-1.8%	2,585	39%
thereof: Glucophage®	864	12%	-4.4%	-	-4.4%	903	14%
thereof: Concor®	523	7%	0.1%	-1.2%	-1.1%	529	8%
thereof: Euthyrox®	470	7%	3.8%	-0.6%	3.2%	455	7%
thereof: Saizen®	248	3%	7.3%	-1.3%	6.0%	234	4%
Other	157	2%				197	3%
Healthcare	7,089	100%	8.5%	-1.4%	6.8%	6,639	100%

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

In fiscal 2021, the oncology drug Erbitux® (cetuximab) surpassed Rebif® to become the top-selling medicine in the Healthcare product portfolio, generating a year-on-year increase of 10.8% to € 987 million (2020: € 891 million). Organic growth amounted to 12.2%, with negative foreign exchange effects having an impact of -1.3%. In addition to the lower prior-year figures due to the pandemic and the related catch-up effects, high demand in China and Japan was the main contributor to the strong organic growth. Accordingly, net sales in the Asia-Pacific region saw organic growth of 14.2% to € 391 million (2020: € 342 million). Higher demand was also recorded in Europe, with net sales in the region increasing organically by 5.0% to € 417 million (2020: € 404 million). In North America, a temporary partnership with Eli Lilly and Company, United States, had a positive impact on growth in Erbitux® sales. The product was contract manufactured for Eli Lilly and the resulting sales were allocated to the United States. As a result of this special effect, net sales for North America increased to € 59 million (2020: € 32 million).

In the field of immuno-oncology, sales of the oncology drug Bavencio® more than doubled to € 373 million (2020: € 156 million) in spite of negative foreign exchange effects of -5.4%. All regions contributed to this very positive development. The main growth drivers were the approvals granted for the first-line maintenance treatment of patients with locally advanced or metastatic urothelial carcinoma (UC) in the United States in June 2020 and Europe and Japan in the first quarter of 2021.

Mavenclad®, for the oral short-course treatment of highly active relapsing multiple sclerosis, saw organic sales growth of 32.6% in fiscal 2021. Taking into account negative exchange rate effects of -2.1%, net sales of € 693 million were generated in 2021 (2020: € 531 million). The main drivers for the positive development of Mavenclad® were the partial recovery of the high-efficacy MS therapy segment, which was negatively impacted by the pandemic in the previous year, and increased demand in the United States and Europe in particular. Moreover, independent data were published showing that Mavenclad®-treated patients who received an mRNA Covid-19 vaccine have a similar antibody response to the general population. Mavenclad® was also approved in additional countries in fiscal 2021, meaning that it is now approved in more than 80 countries.

Healthcare

Product sales and organic growth¹ of Rebif®, Glucophage® and Erbitux® by region - 2021

		Total	Europe	North America	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
	€ million	987	417	59	391	71	49
Erbitux®	Organic growth ¹	12.2%	5.0%	83.7%	14.2%	15.9%	4.8%
	Share	100%	42%	6%	40%	7%	5%
	€ million	952	286	571	10	32	52
Rebif®	Organic growth ¹	-13.6%	-12.2%	-16.1%	-11.0%	-1.9%	4.4%
	Share	100%	30%	60%	1%	3%	6%
	€ million	864	127	-	491	139	107
Glucophage®	Organic growth ¹	-4.4%	5.5%	-	-11.5%	15.0%	-2.3%
	Share	100%	15%	-	57%	16%	12%

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

Sales of the drug Rebif®, which is used to treat relapsing forms of multiple sclerosis, amounted to € 952 million in fiscal 2021 (2020: € 1,131 million). Although the long-term downward trend slowed temporarily in the previous year due to the pandemic, an organic decline in net sales of -13.6% was recorded in 2021 as a result of the persistently difficult competitive situation on the interferon market and the competition from oral dosage forms and high-efficacy MS therapies. Sales in North America, the biggest sales market for Rebif®, fell by -16.1% organically to € 571 million (2020: € 705 million), while sales in Europe saw an organic decline of -12.1% to € 286 million (2020: € 331 million).

Sales in the cardiovascular diseases, metabolic disorders and endocrinology segment were down slightly on the previous year. With an organic decline of -1.1% and negative foreign exchange effects of -0.7%, net sales amounted to € 2,540 million (2020: € 2,585 million). Sales of the diabetes drug Glucophage® amounted to € 864 million in fiscal 2021 (2020: € 903 million). The organic downturn of -4.4% was primarily due to the price volume regulation (volume-based procurement) that has been in effect in China since 2020. Sales of the beta-blocker Concor®, which has also been subject to this regulation in China, stagnated at the prior-year level. The products Euthyrox® and Saizen® enjoyed positive organic sales growth in fiscal 2021, thereby largely offsetting the decline in Glucophage® sales.

The Fertility product line reported very good organic sales growth of 25.6%. Taking into account negative exchange rate effects of -1.7%, global net sales increased to € 1,337 million (2020: € 1,079 million). The sales growth was largely due to Covid-19-related catch-up effects in the North America and Asia-Pacific regions and overall strong demand for our fertility products. Gonal-f®, the leading recombinant hormone used in the treatment of infertility, recorded organic growth of 23.8% and increased its net sales to € 767 million (2020: € 630 million).

Net sales of the Healthcare business sector by region in 2021 developed as follows:

Healthcare

Net sales by region

€ million	2021	Share	Organic growth ¹	Exchange rate effects	Acquisitions/divestments	Total change	2020	Share
Europe	2,268	32%	7.4%	-1.5%	-0.8%	5.1%	2,158	32%
North America	1,673	23%	11.0%	-3.3%	-	7.7%	1,554	23%
Asia-Pacific (APAC)	1,997	28%	8.1%	1.1%	-0.2%	9.0%	1,831	28%
Latin America	682	10%	10.2%	-3.7%	-	6.5%	641	10%
Middle East and Africa (MEA)	468	7%	4.5%	-1.6%	-	2.9%	455	7%
Healthcare	7,089	100%	8.5%	-1.4%	-0.3%	6.8%	6,639	100%

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

The following table presents the composition of EBITDA pre in fiscal 2021 in comparison with 2020. The IFRS figures have been modified to reflect the elimination of adjustments included in the functional costs.

Healthcare

Reconciliation EBITDA pre¹

€ million	2021			2020			Change
	IFRS	Elimination of adjustments	Pre ¹	IFRS	Elimination of adjustments	Pre ¹	Pre ¹
Net sales	7,089	-	7,089	6,639	-	6,639	6.8%
Cost of sales	-1,713	-3	-1,715	-1,613	7	-1,606	6.8%
Gross profit	5,376	-3	5,374	5,026	7	5,033	6.8%
Marketing and selling expenses	-1,600	7	-1,593	-1,664	47	-1,617	-1.5%
Administration expenses	-313	12	-302	-320	7	-313	-3.6%
Research and development costs	-1,712	5	-1,707	-1,640	24	-1,616	5.6%
Impairment losses and reversals of impairment losses on financial assets (net)	5	-	5	-4	-	-4	>100.0%
Other operating income and expenses	67	-8	59	406	-1	405	-85.4%
Operating result (EBIT)¹	1,823			1,804			
Depreciation/amortization/impairment losses/reversals of impairment losses	323	-6	317	381	-2	379	-16.3%
EBITDA²	2,146			2,184			
Restructuring expenses	11	-11	-	95	-95	-	
Integration expenses/IT expenses	9	-9	-	4	-4	-	
Gains (-)/losses (+) on the divestment of businesses	-13	13	-	-16	16	-	
Acquisition-related adjustments	-	-	-	-	-	-	
Other adjustments	-	-	-	-	-	-	
EBITDA pre¹	2,153	-	2,153	2,267	-	2,267	-5.0%
of which: organic growth ¹							-1.7%
of which: exchange rate effects							-3.2%
of which: acquisitions/divestments							-0.1%

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 adjusted gross profit of the Healthcare business sector rose to € 5,374 million in fiscal 2021 (2020: € 5,033 million). At 75.8%, the resulting gross margin was at the same level as in the 2020 reporting period (75.8%).

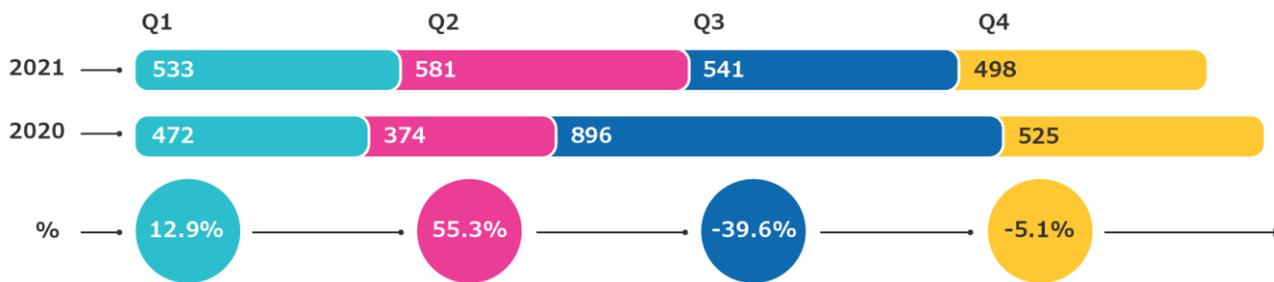
Marketing and selling expenses after adjustments declined by -1.5% year-on-year to € 1,593 million (2020: € 1,617 million). This was primarily due to positive effects from the transformation and growth program initiated in fiscal 2020 as well as the end of scheduled amortization in connection with the co-marketing agreement with Pfizer Inc., United States, for Xalkori®. The increase in research and development costs to € 1,707 million (2020: € 1,616 million) was especially attributable to two effects: the lower level of costs in the previous year, which reflected the lower spending requirements at the time, and the provisions recognized in the year under review for subsequent costs from the near-complete discontinuation of the bintrafusp alfa program due to the termination of the partnership with GlaxoSmithKline plc (GSK) by mutual consent. The reduction in the income balance of other operating expenses and income to € 59 million (2020: € 405 million) was primarily due to the income from the release of a provision of € 365 million for potential damages relating to patent litigation with Biogen Inc., United States, in the previous year. Earnings were positively affected in the amount of € 50 million as a result of the milestone payments recognized in the year under review for the approval of Bavencio® as a first-line maintenance treatment for locally advanced or metastatic urothelial carcinoma (UC) in Europe and Japan.

After eliminating adjustments, amortization, and depreciation, EBITDA pre fell by -5.0% to € 2,153 million in fiscal 2021 (2020: € 2,267 million). This was mainly due to the aforementioned income from the release of a provision for potential damages in the previous year. The organic decline amounted to -1.7%, with negative foreign exchange effects having an impact of -3.2%. This resulted in an EBITDA pre margin of 30.4% (2020: 34.1%).

The development of EBITDA pre in the individual quarters in comparison with 2020 is presented in the following overview:

Healthcare

EBITDA pre¹ and change by quarter²
 € million/change in%



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

² Quarterly breakdown unaudited.

Electronics

Electronics

Key figures

€ million	2021	2020	Change	
			€ million	%
Net sales	3,608	3,380	227	6.7%
Operating result (EBIT) ¹	509	240	269	> 100.0%
Margin (% of net sales) ¹	14.1%	7.1%		
EBITDA ²	1,070	925	146	15.7%
Margin (% of net sales) ¹	29.7%	27.4%		
EBITDA pre ¹	1,128	1,024	104	10.2%
Margin (% of net sales) ¹	31.3%	30.3%		

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.

Development of net sales and results of operations

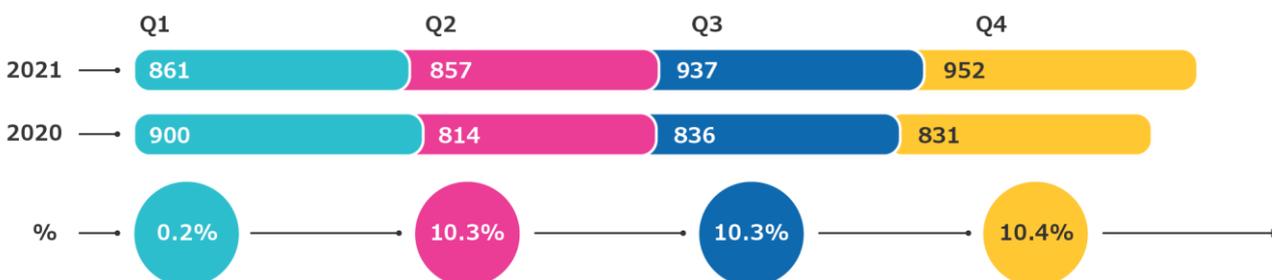
In 2021, net sales of the Electronics business sector increased 6.7% to € 3,608 million (2020: € 3,380 million). Robust growth in the Semiconductor Solutions business and a recovery in the Surface Solutions business from a Covid-19-impacted 2020 drove an organic sales increase of 7.7% in 2021. Foreign exchange rates dampened the growth by -0.9%.

The net sales in the individual quarters as well as the respective organic growth rates in 2021 are presented in the following graph:

Electronics

Net sales and organic growth¹ by quarter²

€ million/organic growth in%



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

² Quarterly breakdown unaudited.

Electronics

Net sales by business unit¹

€ million	2021	Share	Organic growth ²	Exchange rate effects	Acquisitions/divestments	Total change	2020	Share
Semiconductor Solutions	2,151	60%	15.0%	-1.5%	-	13.6%	1,894	56%
Display Solutions	1,046	29%	-6.4%	0.2%	-	-6.2%	1,115	33%
Surface Solutions	410	11%	12.5%	-1.7%	-	10.8%	370	11%
Other	-	-	-42.8%	-0.4%	-	-43.2%	1	-
Electronics	3,608	100%	7.7%	-0.9%	-	6.7%	3,380	100%

¹ Within the scope of the integration of Versum Materials Inc., USA, two products previously allocated to the Semiconductor Solutions business unit have now been assigned to Display Solutions. The previous year's figures have been adjusted accordingly.

² Not defined by International Financial Accounting Standards (IFRS).

Net sales of Semiconductor Solutions increased by a total of 13.6% to € 2,151 million (2020: € 1,894 million). The Semiconductor Solutions business unit, which comprises two businesses, namely Semiconductor Materials and Delivery Systems & Services, accounted for 60% of net sales of the Electronics business sector in 2021 (2020: 56%). Semiconductor Materials focuses on the development and commercialization of material-based solutions for the semiconductor industry, while Delivery Systems & Services focuses on developing, selling and operating delivery systems for semiconductor manufacturers. Organically, net sales grew by 15.0% in 2021 as strong, broad-based demand across both Semiconductor Materials and Delivery Systems & Services overcame the challenges presented by delays in the global supply chain network. Adverse foreign exchange effects of -1.5% slightly impacted the growth.

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 by -6.2% to € 1,046 million (2020: € 1,115 million). Display Solutions saw an organic decline of -6.4% while sales growth in OLED materials partially offset the challenges faced in Liquid Crystals from continued increased competition. Foreign exchange effects were slightly favorable at 0.2%.

Net sales of the Surface Solutions business unit grew 10.8% to € 410 million (2020: € 370 million). Organically, Surface Solutions increased sales by 12.5% as the business continued its recovery from the effects of the Covid-19 crisis, which significantly impacted 2020. Foreign exchange effects were unfavorable at -1.7%.

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

Electronics

Net sales by region

€ million	2021	Share	Organic growth ¹	Exchange rate effects	Acquisitions/divestments	Total change	2020	Share
Europe	269	7%	7.9%	-0.3%	-	7.6%	250	8%
North America	536	15%	14.9%	-4.0%	-	10.9%	484	14%
Asia-Pacific (APAC)	2,737	76%	6.4%	-0.4%	-	6.0%	2,582	76%
Latin America	30	1%	8.6%	-4.3%	-	4.3%	28	1%
Middle East and Africa (MEA)	36	1%	1.3%	-2.3%	-	-1.0%	37	1%
Electronics	3,608	100%	7.7%	-0.9%	-	6.7%	3,380	100%

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

The following table presents the composition of EBITDA pre for 2021 in comparison with 2020. The IFRS figures have been modified to reflect the elimination of adjustments included in the respective functional costs.

Electronics

Reconciliation EBITDA pre¹

€ million	2021			2020			Change
	IFRS	Elimination of adjustments	Pre ¹	IFRS	Elimination of adjustments	Pre ¹	Pre ¹
Net sales	3,608	-	3,608	3,380	-	3,380	6.7%
Cost of sales	-2,060	23	-2,037	-2,007	40	-1,966	3.6%
Gross profit	1,547	23	1,571	1,374	40	1,414	11.1%
Marketing and selling expenses	-573	5	-569	-539	9	-530	7.4%
Administration expenses	-138	16	-122	-162	17	-144	-15.2%
Research and development costs	-278	1	-277	-274	2	-272	1.8%
Impairment losses and reversals of impairment losses on financial assets (net)	-1	-	-1	-	-	-	-
Other operating income and expenses	-49	46	-3	-160	154	-5	-52.9%
Operating result (EBIT)¹	509			240			
Depreciation/amortization/impairment losses/reversals of impairment losses	561	-33	528	684	-123	561	-5.8%
EBITDA²	1,070			925			
Restructuring expenses	26	-26	-	31	-31	-	
Integration expenses/IT expenses	32	-32	-	47	-47	-	
Gains (-)/losses (+) on the divestment of businesses	-	-	-	1	-1	-	
Acquisition-related adjustments	-	-	-	21	-21	-	
Other adjustments	-	-	-	-	-	-	
EBITDA pre¹	1,128	-	1,128	1,024	-	1,024	10.2%
of which: organic growth ¹							9.7%
of which: exchange rate effects							0.5%
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.

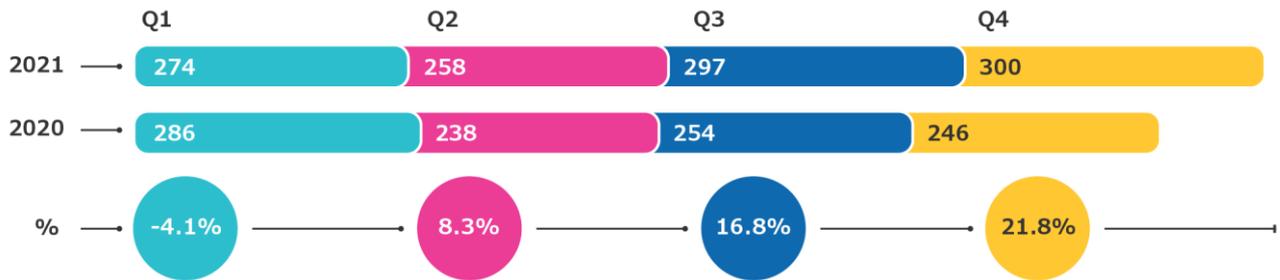
Adjusted gross profit of the Electronics business sector increased 11.1% to € 1,571 million (2020: € 1,414 million) largely due to the higher sales discussed above. The adjusted gross profit margin improved to 43.5% (2020: 41.8%). Adjusted marketing and selling expenses increased by 7.4% in order to support the business development as well as from rising logistics costs associated with global shipping capacity constraints and increasing fuel costs. Adjusted administration expenses declined due to synergy execution and reorganization activities associated with the Versum Materials acquisition. EBITDA pre grew organically by 9.7% driven by the sales increase discussed above as well as the positive development of gross profit and functional costs. The organic change in EBITDA pre also includes the full attainment of the Versum synergies which were promised by 2022, but delivered one year earlier. Foreign exchange effects favorably impacted EBITDA pre by 0.5%. Overall, EBITDA pre of Electronics grew by 10.2% to € 1,128 million (2020: € 1,024 million). At 31.3%, the EBITDA pre margin was above the year-earlier figure (2020: 30.3%).

The development of EBITDA pre in the individual quarters in comparison with 2020 is presented in the following overview:

Electronics

EBITDA pre¹ and change by quarter²

€ 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, such as Finance, Procurement, Legal, Communications, and Human Resources. Corporate costs additionally encompass expenses for central, non-allocated IT functions, including expenses related to the expansion and harmonization of IT systems within the Group as well as research and development costs spanning business sectors.

Corporate and other

Key figures

€ million	2021	2020	Change	
			€ million	%
Operating result (EBIT) ¹	-632	-658	26	-4.0%
EBITDA ²	-527	-573	47	-8.1%
EBITDA pre ¹	-465	-495	31	-6.2%

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.

After eliminating adjustments, administration expenses amounted to € 404 million in fiscal 2021 (2020: € 311 million). Cross-business research and development costs amounting to € 67 million (2020: € 62 million), such as expenses for the Innovation Center, were allocated to Corporate. After eliminating adjustments, other operating expenses (net) decreased to € -87 million (2020: € -197 million). The change compared with prior year was mainly attributable to the positive development of the currency result, especially thanks to foreign currency hedging. After eliminating depreciation, amortization, and adjustments, EBITDA pre amounted to € -465 million in 2021 (2020: € -495 million).