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ÅRSREDOVISNING
för
Robert Bosch AB
Org. nr 556047-1194

Räkenskapsåret
2023-01-01 - 2023-12-31

Innehållsförteckning **Sida**

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Fastställelseintyg

Undertecknad styrelseledamot i Robert Bosch AB intygar att resultaträkningen och balansräkningen i årsredovisningen har fastställts på bolagsstämman den 23 maj 2024.
Bolagsstämman beslutade att godkänna styrelsens förslag till hur vinsten ska fördelas.
Jag intygar också att innehållet i årsredovisningen och revisionsberättelsen stämmer överens med originalen.
Kista den 23 maj 2024

Thore Pedersen
Styrelseledamot, vd

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FÖRVALTNINGSBERÄTTELSE

Styrelsen och verkställande direktören för Robert Bosch AB får härmed avge årsredovisning för räkenskapsåret 2023.

Bolagets verksamhet
Robert Bosch Aktiebolag ingår i den företagsgrupp vars moderbolag är Robert Bosch GmbH, Tyskland. Bosch marknadsför i Sverige bl.a. komponenter till bilindustrin, bilreservdelar och tillbehör, elektriska handverktyg samt säkerhets-och kommunikationsprodukter.
Robert Bosch AB tillhandahåller även FoU-tjänster till andra bolag inom koncernen.

Bolagets säte
Stockholm län, Stockholms kommun.

Redovisningsvaluta
Svenska kronor (kr).

Väsentliga händelser under räkenskapsåret
Nettoomsättningen 2023 ökade med 24,5% jämfört med 2022. Omsättningen ökade inom samtliga affärsområden i bolaget. Bolagets verksamhet i Göteborg, som framförallt inriktar sig mot bilindustrin, flyttade in i ett nytt kontor under våren 2023. FoU-verksamheten i Lund fortsatte att växa och genomförde en mindre omorganisation med en tydligare uppdelning mellan XC-cross domain computing och E-Bike. Vintertestcentret i Arjeplog hade ett mycket bra år med rekordmånga besökare på testanläggningen. Power Tools, som står för bolagets största andel av omsättningen med sin försäljning av verktyg och trädgårdsmaskiner, stod även för den största omsättningsökningen. Automotive Aftermarket med eftermarknaden på bilsidan samt Building Technologies som säljer framförallt säkerhetssystem, hade också ett mycket bra år.

Förväntad framtida utveckling samt väsentliga risker och osäkerhetsfaktorer
Robert Bosch AB bedömer den fortsatta utvecklingen av verksamheten som stabil. Då bolaget verkar inom ett flertal produkt- och tjänsteområden på olika marknader som ofta kompenserar varandra begränsas marknadsrisken. Bolaget ser också positivt på koncernens fortsatta framtidsinriktade investeringar.
Företaget ser fortfarande en övergripande risk kopplat till situationen i omvärlden med kriget i Ukraina och konflikten i Mellanöstern, samt inflation, ränteläge och den svenska kronans volatilitet. Allt detta bidrar till en oförutsägbarhet på samtliga marknader.

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Hållbarhetsredovisning
Robert Bosch AB refererar till moderbolaget Robert Bosch GmbH:s hållbarhetsredovisning för Boschkoncernen, publicerad på https://www.bosch.com/company/sustainability/. Denna omfattar samtliga dotterbolag inklusive Robert Bosch AB.

Forskning och utveckling
Robert Bosch AB bedriver produktutveckling inom flera affärsområden för den multinationella bilindustrin, cykeltillverkare och diverse elektronikprodukter. Bolaget driver även en anläggning för test av fordonskomponenter i vinterförhållanden.
Totalt sysselsätter FoU-verksamheten 62% av bolagets anställda och står för ca 19% (21%) av de totala rörelsekostnaderna samt 20% (22%) av bolagets totala omsättning.

Resultat och ställning (kkr)

	2023	**2022**	**2021**	**2020**	**2019**
Nettoomsättning	2.295.491	1.843.606	1.763.954	1.447.148	1.450.513
Rörelseresultat	122.045	100.377	77.077	55.889	91.736
Resultat efter finansiella poster	615.124	756.336	77.572	56.761	-628.973
Årets Resultat	595.789	731.969	55.367	43.884	-664.078
Eget kapital och obeskattade reserver	2.811.906	2.213.494	3.973.182	3.911.349	3.867.396
Balansomslutning	4.568.051	4.153.970	4.376.084	4.210.154	4.148.389
Medeltalet anställda	350	295	265	264	258

Förändringar i eget kapital (kkr)

	Bundet eget kapital		**Fritt eget kapital**	
	Aktie-kapital	**Reserv-fond**	**Övrigt fritt eget kapital**	**Summa eget kapital**
Eget kapital 2023-01-01	**40.000**	**8.000**	**2.017.493**	**2.065.493**
Årets resultat			595.789	595.789
Utdelning			0	0
Eget kapital 2023-12-31	**40.000**	**8.000**	**2.613.282**	**2.661.282**

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Styrelsens förslag till beslut om vinstutdelning

Förslag till vinstdisposition (kr)
Till bolagsstämmans förfogande står följande vinstmedel :

Balanserade vinstmedel	2.017.493.405
Årets resultat	595.788.791
	2.613.282.196

Styrelsen föreslår att vinstmedlen disponeras enligt följande:

Till aktieägarna utdelas 0 kr/aktie, totalt	0
I ny räkning överföres	2.613.282.196
	2.613.282.196

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RESULTATRÄKNING

	Not	2023 (kkr)	2022 (kkr)
Rörelsens intäkter			
Nettoomsättning	3,4	2.295.491	1.843.606
Övriga intäkter	4,6	81.518	81.263
Summa rörelsens intäkter		**2.377.009**	**1.924.869**
Rörelsens kostnader			
Handelsvaror	5	-1.359.086	-1.070.862
Övriga externa kostnader	6,7	-451.963	-393.314
Personalkostnader	8,9,23	-420.583	-342.746
Avskrivning av materiella anläggningstillgångar	13	-18.950	-17.284
Övriga rörelsekostnader		-4.382	-286
Summa rörelsens kostnader		**-2.254.964**	**-1.824.492**
Rörelseresultat		**122.045**	**100.377**
Resultat från finansiella poster	10		
Ränteintäkter och liknande resultatposter		4.162	462
Räntekostnader och liknande resultatposter		-63.061	-19.503
Resultat från andelar i koncernföretag	14, 19	551.978	675.000
Resultat efter finansiella poster		**615.124**	**756.336**
Bokslutsdispositioner	11	-2.623	-8.344
Skatt på årets resultat	12	-16.712	-16.023
ÅRETS RESULTAT		**595.789**	**731.969**

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BALANSRÄKNING

	Not	2023 (kkr)	2022 (kkr)
TILLGÅNGAR			
Materiella anläggningstillgångar	13		
Byggnader och mark		93.139	99.031
Maskiner och tekniska anläggningar		6.139	6.511
Inventarier, verktyg och installationer		28.915	18.535
Summa materiella anläggningstillgångar		**128.193**	**124.077**
Finansiella anläggningstillgångar	14		
Andelar i dotterföretag		3.560.320	3.560.320
Uppskjuten skattefordran		0	151
Andra långfristiga fordringar		3	3
Summa finansiella anläggningstillgångar		**3.560.323**	**3.560.474**
Summa anläggningstillgångar		**3.688.516**	**3.684.551**
Omsättningstillgångar			
Varulager m m			
Färdiga varor och handelsvaror		1.397	1.683
Summa varulager m m		**1.397**	**1.683**
Kortfristiga fordringar			
Kundfordringar		397.902	364.246
Fordringar hos koncernföretag		462.522	89.989
Skattefordran		9.979	6.321
Övriga fordringar		1.225	1.399
Förutbetalda kostnader och upplupna intäkter	15	6.510	5.781
Summa kortfristiga fordringar		**878.138**	**467.735**
Kassa och bank	16	**0**	**0**
Summa omsättningstillgångar		**879.535**	**469.418**
SUMMA TILLGÅNGAR		**4.568.051**	**4.153.970**

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BALANSRÄKNING

	Not	2023 (kkr)	2022 (kkr)
EGET KAPITAL OCH SKULDER			
Eget kapital			
Bundet eget kapital			
Aktiekapital	17	40.000	40.000
Reservfond		8.000	8.000
Summa bundet eget kapital		**48.000**	**48.000**
Fritt eget kapital			
Balanserad vinst		2.017.493	1.285.524
Årets resultat		595.789	731.969
Summa fritt eget kapital	20	**2.613.282**	**2.017.493**
Summa eget kapital		**2.661.282**	**2.065.493**
Obeskattade reserver			
Avskrivningar utöver plan		5.824	5.001
Periodiseringsfond	18	144.800	143.000
Summa obeskattade reserver		**150.624**	**148.001**
Avsättningar			
Övriga avsättningar	21	74.229	65.208
Summa avsättningar		**74.229**	**65.208**
Långfristiga skulder	24		
Skulder till moderbolag		1.410.000	1.410.000
Skulder till dotterbolag		103	103
Övriga skulder		218	0
Summa långfristiga skulder		**1.410.321**	**1.410.103**
Kortfristiga skulder			
Leverantörsskulder		65.200	66.864
Skulder till koncernföretag		81.285	287.143
Övriga skulder	23	25.890	23.808
Upplupna kostnader och förutbetalda intäkter	15	99.220	87.349
Summa kortfristiga skulder		**271.595**	**465.164**
SUMMA EGET KAPITAL OCH SKULDER		**4.568.051**	**4.153.970**

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KASSAFLÖDESANALYS
(Indirekt metod)

	2023 (kkr)	**2022 (kkr)**
Den löpande verksamheten		
Rörelseresultat	122.045	100.377
Återläggning av avskrivningar	18.950	17.284
Förändring övriga avsättningar	9.021	-19.880
Realisationsvinst (-)/ -förlust (+) på sålda anläggningstillgångar	34	286
Erhållen ränta	4.162	462
Erhållna utdelningar	551.978	675.000
Erlagd ränta	-63.061	-19.503
Betald skatt	-20.370	-15.999
Kassaflöde från den löpande verksamheten före förändringar av rörelsekapital	**622.759**	**738.027**
Kassaflöde från förändringar i rörelsekapital		
ökning(-) / minskning(+) av varulager	286	2.869
ökning(-) / minskning(+) av kortfristiga fordringar	-406.745	233.585
ökning(+) / minskning(-) av kortfristiga skulder	-193.569	147.453
Kassaflöde från den löpande verksamheten	**22.731**	**1.121.934**
Investeringsverksamheten		
Förvärv av materiella anläggningstillgångar	-23.212	-31.934
Försäljning av materiella anläggningstillgångar	112	0
Förändring av övriga finansiella anläggningstillgångar	151	0
Kassaflöde från investeringsverksamheten	**-22.949**	**-31.934**
Finansieringsverksamheten		
Utbetald utdelning	0	-2.500.000
Långfristiga skulder	218	1.410.000
Kassaflöde från finansieringsverksamheten	**218**	**-1.090.000**
ÅRETS KASSAFLÖDE	**0**	**0**
Likvida medel vid räkenskapsårets början	0	0
Likvida medel vid periodens utgång	**0**	**0**

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NOTER

Not 1 Redovisnings- och värderingsprinciper

Årsredovisningen har upprättats enligt årsredovisningslagen och Bokföringsnämndens allmänna råd BFNAR 2012:1 *Årsredovisning och koncernredovisning (K3).*
Redovisningsprinciperna är oförändrade i jämförelse med föregående år om inte annat anges nedan.

Fordringar
Fordringar upptas till det belopp som efter individuell prövning beräknas bli betalt.

Fordringar och skulder i utländsk valuta
Fordringar och skulder i utländsk valuta värderas till balansdagens kurs.

Varulager
Varulagret värderas till det lägsta av anskaffningsvärdet och nettoförsäljningsvärdet på balansdagen. Anskaffningsvärdet fastställs med användning av först in, först-ut metoden.

Avsättningar och skulder
Skulder har, om ej annat anges nedan, upptagits till anskaffningsvärden med sedvanliga reserveringar för upplupna kostnader. Avsättningar har gjorts för kända eller befarade risker efter individuell prövning.

Avskrivningar
Materiella anläggningstillgångar redovisas till anskaffningsvärde minskat med avskrivningar.
I anskaffningsvärdet ingår utgifter som direkt kan hänföras till förvärvet av tillgången.
När en komponent i en anläggningstillgång byts ut, utrangeras eventuell kvarvarande del av komponenten och den nya komponentens anskaffningsvärde aktiveras.
Utgifter för löpande reparation och underhåll redovisas som kostnader.
Realisationsvinst respektive realisationsförlust vid avyttring av en anläggningstillgång redovisas som Övrig intäkt respektive Övrig rörelsekostnad.

Materiella anläggningstillgångar skrivs av systematiskt över tillgångens bedömda nyttjandeperiod. När tillgångarnas avskrivningsbara belopp fastställs, beaktas i förekommande fall tillgångens restvärde. Avskrivningarna ingår i rörelsens kostnader.

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Följande avskrivningstider tillämpas:

Kontorsbyggnader	
Stommar	100 år
Stommekompletteringar och innerväggar	50 år
Fasader, yttertak, VVS, El	40 år
Hissar	25 år
Ventilation	20 år
Övrigt	10 år
Industribyggnader	
Stommar	25 år
Stommekompletteringar och innerväggar	25 år
Fasader, yttertak, VVS, El	25 år
Hissar	25 år
Ventilation	25 år
Övrigt	10 år
Markanläggningar	20 år
Kontorsinventarier	3-10 år
Verkstadsmaskiner	6 år
Tekniska anläggningar	12 år
Fordon	4 år

Intäkter
Försäljning av varor redovisas vid leverans av produkter till kunden i enighet med försäljnings-villkoren. Försäljning av tjänster redovisas vid den tidpunkt som tjänsten har tillhandahållits. All försäljning redovisas netto efter moms, rabatter och kursdifferenser vid försäljning i utländsk valuta.

Leasing
Samtliga leasingavtal där företaget är leasetagare redovisas som operationell leasing (hyresavtal), oavsett om avtalen är finansiella eller operationella. Leasingavgiften redovisas som en kostnad linjärt över leasingperioden. Företagets uthyrning av kontorslokaler klassificeras som operationell leasing. Leasingintäkterna redovisas linjärt under leasingperioden.

Ersättningar till anställda
Kortfristiga ersättningar utgörs av lön, sociala avgifter, betald semester, betald sjukfrånvaro och bonus. Dessa redovisas som en kostnad och en skuld då det finns en legal förpliktelse att betala ut en ersättning.
Företaget betalar in avgiftsbestämda respektive förmånsbestämda pensionspremier till de anställda via tredje part och företagets resultat belastas för kostnader i takt med att de anställdas pensions-berättigande tjänster utförts.
I företaget förekommer långfristiga ersättningar till anställda som har varit anställda i koncernen en lång tid.

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Aktier och andelar i dotterföretag
Aktier och andelar i dotterföretag redovisas till anskaffningsvärde efter avdrag för eventuella nedskrivningar. I anskaffningsvärdet ingår köpeskilling som erlagts för aktierna samt förvärvskostnader. Eventuella kapitaltillskott läggs till anskaffningsvärdet när de lämnas.
Utdelning från dotterföretag redovisas som intäkt.

Obeskattade reserver
Obeskattade reserver redovisas med bruttobelopp i balansräkningen, inklusive den uppskjutna skatteskuld som är hänförlig till reserverna.

Inkomstskatt
Redovisade inkomstskatter innefattar skatt som skall betalas eller erhållas avseende aktuellt år, justeringar avseende tidigare års aktuella skatt, förändringar i uppskjuten skatt samt andel i intresseföretags skatt.
Värdering av samtliga skatteskulder/-fordringar sker till nominella belopp och görs enligt de skatteregler och skattesatser som är beslutade eller som är aviserade och med stor säkerhet kommer att fastställas.
För poster som redovisas i resultaträkningen, redovisas även därmed sammanhängande skatteeffekter i resultaträkningen.
Skatteeffekter av poster som redovisas direkt mot eget kapital, redovisas mot eget kapital.

Kassaflödesanalys
Kassaflödesanalysen upprättas enligt indirekt metod. Det redovisade kassaflödet omfattar endast transaktioner som medför in- eller utbetalningar.

Koncernen
Robert Bosch AB är ett dotterbolag till Robert Bosch GmbH, Tyskland.
Den svenska koncernen består av moderbolaget och dotterbolagen Bosch Rexroth AB, Bosch Thermoteknik AB samt de icke rörelsedrivande dotterbolagen AB Bosch och HB Bosch.
Koncernredovisning har ej upprättats i enlighet med årsredovisningslagen 7 kap 2§.
Koncernredovisning upprättas av Robert Bosch GmbH med säte i Stuttgart, Tyskland.
Koncernredovisning kan erhållas hos Robert Bosch AB.

Hållbarhetsredovisning
Hållbarhetsredovisning för hela Boschkoncernen upprättas av moderbolaget Robert Bosch GmbH, org.nr HRB 14000, säte i Stuttgart, Tyskland. Hållbarhetsredovisningen finns publicerad på https://www.bosch.com/company/sustainability/.

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Not 2 Uppskattningar och bedömningar

Robert Bosch AB gör uppskattningar och bedömningar om framtiden. De uppskattningar för redovisningsändamål som blir följden av dessa kommer, definitionsmässigt, sällan att motsvara det verkliga resultatet.
Bolagets bedömning är att det ej finns uppskattningar och antaganden som innebär en betydande risk för väsentliga justeringar i redovisade värden för tillgångar och skulder.

Not 3 Nettoomsättning per rörelsegren

Nettoomsättningen fördelar sig på rörelsegrenar enligt följande:

	Nettoomsättning	
	2023	**2022**
	(kkr)	**(kkr)**
Handelsförsäljning	1.735.479	1.351.413
Tjänster inom fordonsindustrin	560.012	492.193
Summa	**2.295.491**	**1.843.606**

Not 4 Koncernintern försäljning

Av nettoomsättningen hänför sig 558 506 kkr (488 376 kkr) till koncernintern försäljning av främst säljstöd och FoU-tjänster. I övriga intäkter ingår 70 732 kkr (52 521 kkr) koncernintern försäljning, främst avseende diverse administrativa tjänster.

Not 5 Koncerninterna inköp

Av bolagets varuinköp svarar det tyska moderbolaget och dess koncernbolag för 100% (100%).

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Not 6 Operationella leasingavtal

Företaget har ingått leasingavtal avseende hyra av kontorsfastigheter, tomträtt och mark.

Robert Bosch AB som leasetagare

	2023	2022
Framtida minimileaseavgifter som ska erläggas avseende icke uppsägningsbara leasingavtal:		
Förfaller till betalning inom ett år	9.821	9.137
Förfaller till betalning senare än ett men inom 5 år	20.889	19.497
Förfaller till betalning senare än 5 år	0	521
Under perioden kostnadsförda leasingavgifter	15.611	13.891
Under perioden kostnadsförda rörliga avgifter leasingkontrakt	1.387	2.104

Robert Bosch AB som leasegivare

Förfaller till betalning inom ett år	2.229	5.980
Förfaller till betalning senare än ett men inom 5 år	1.760	2.375
Förfaller till betalning senare än 5 år	0	0
Under perioden erhållna leasingavgifter	6.720	7.658

Not 7 Ersättning till revisorer

Årets revisionsarvode uppgår till:

	2023 (kkr)	2022 (kkr)
Ernst & Young AB	457	336
Revisionsverksamhet utöver revisionsuppdraget	161	123
	618	**459**

Not 8 Medelantalet anställda

	2023		2022	
	Anställda	varav män	Anställda	varav män
Medelantalet anställda	350	83%	295	82%

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Not 9 Personalkostnader, pensioner och övrigt

	2023 (kkr)		2022 (kkr)	
	Styrelse och VD	Övriga anställda	Styrelse och VD	Övriga anställda
Löner och andra ersättningar	0	284.692	0	228.114

Nuvarande VD är anställd av Robert Bosch AS i Norge. Kostnad för VD redovisas i övriga externa kostnader.

	Samtliga anställda (varav pensionskostnader)	
	2023 (kkr)	2022 (kkr)
Sociala kostnader	122.073 *	103.089 *
	(40.238)	(34.313)

Inga pensionskostnader avser gruppens styrelse och VD. Ej heller föreligger några pensionsförpliktelser eller avtal om avgångsvederlag till dessa.

Styrelseledamöter och VD

	2023		2022	
	Totalt antal	Varav män	Totalt antal	Varav män
Styrelseledamöter	4	3	4	3
VD ingår i styrelsen				

Not 10 Resultat från finansiella poster

	2023 (kkr)	2022 (kkr)
Ränteintäkter och liknande resultatposter:		
Ränteintäkter	4.162	462
Summa	**4.162**	**462**
Varav avseende koncernföretag	3.672	0
Räntekostnader och liknande resultatposter:		
Räntekostnader	-63.061	-19.503
Summa	**-63.061**	**-19.503**
Varav avseende koncernföretag	-63.063	-19427

*Se även not 23.

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Not 11 Bokslutsdispositioner	**2023 (kkr)**	**2022 (kkr)**
Periodiseringsfond	-1.800	-8.400
Skattemässig överavskrivning	-823	56
Summa	**-2.623**	**-8.344**

Not 12 Skatt på årets resultat	**2023 (kkr)**	**2022 (kkr)**
Redovisat resultat före skatt	612.501	747.992
Skatt beräknad enligt gällande skattesats 20,6%	126.175	154.086
Skatteeffekt av ej avdragsgilla kostnader	3.037	695
Skatteeffekt ej skattepliktig finansiell intäkt	-113.707	-139.050
Skatteeffekt av schablonränta på periodiseringsfond	572	139
Skatteeffekt av upplösning av p-fond ny skattesats	305	0
Skatteeffekt från tidigare år	-351	-513
Skatteeffekt av utländska skatter	530	666
Skatteeffekt uppskjuten skatt - investeringar 2021	151	0
Redovisad skattekostnad	**16.712**	**16.023**

Not 13 Materiella anläggningstillgångar	**2023 (kkr)**	**2022 (kkr)**
Byggnader och mark		
Ingående anskaffningsvärde	223.322	206.075
Inköp	1.602	17.247
Försäljningar	0	0
Utgående ackumulerade anskaffningsvärden	**224.924**	**223.322**
Ingående avskrivningar	-124.290	-116.069
Försäljningar	0,0	0
Årets avskrivningar	-7.495	-8.221
Utgående ackumulerade avskrivningar	**-131.785**	**-124.291**
Bokfört värde	**93.139**	**99.031**

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Maskiner och tekniska anläggningar	**2023 (kkr)**	**2022 (kkr)**
Ingående anskaffningsvärde	68.215	64.250
Inköp	1.068	3.966
Försäljningar/utrangeringar	0	0
Utgående ackumulerade anskaffningsvärden	**69.283**	**68.215**
Ingående avskrivningar	-61.704	-60.722
Försäljningar/utrangeringar	0	0
Årets avskrivningar	-1.440	-982
Utgående ackumulerade avskrivningar	**-63.144**	**-61.704**
Bokfört värde	**6.139**	**6.511**

Inventarier, verktyg och installationer	**2023 (kkr)**	**2022 (kkr)**
Ingående anskaffningsvärde	89.179	83.883
Inköp	20.542	10.721
Försäljningar/utrangeringar	-8.212	-5.424
Utgående ackumulerade anskaffningsvärden	**101.509**	**89.179**
Ingående avskrivningar	-70.645	-67.703
Försäljningar/utrangeringar	8.066	5.139
Årets avskrivningar	-10.015	-8.080
Utgående ackumulerade avskrivningar	**-72.594**	**-70.645**
Bokfört värde	**28.915**	**18.535**

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Not 14	**Finansiella anläggningstillgångar**	**2023 (kkr)**	**2022 (kkr)**
Andelar i dotterföretag			
AB Bosch (556022-5582), Stockholm			
Kapital- och röstandel 100%			
Anskaffningsvärde (1.000 st aktier)		100	100
Eget Kapital: 103 kkr (2023)			
Resultat: 0 kkr (2023)			
Bosch Rexroth AB (556309-8481), Stockholm			
Kapital- och röstandel 100%			
Anskaffningsvärde (10.000 st aktier)		4.091.000	4.091.000
Nedskrivning		-788.780	-788.780
Eget Kapital: 315.821 kkr (2023)			
Resultat: 185.826 kkr (2023)			
Bosch Thermoteknik AB (556262-9062), Tranås			
Kapital- och röstandel 100%			
Anskaffningsvärde (5.993.600 st aktier)		258.000	258.000
Eget Kapital: 231 417 kkr (2023)			
Resultat: 65 100 kkr (2023)			
Utgående bokfört värde		**3.560.320**	**3.560.320**
Uppskjuten skattefordran			
Beräknad skattereduktion på investeringar gjorda 2021		0	151
Utgående bokfört värde			
Andra långfristiga fordringar			
Ingående värde		3	3
Utgående värde andra långfristiga fordringar		**3**	**3**

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Not 15 Periodiseringsposter	**2023 (kkr)**	**2022 (kkr)**
Förutbetalda kostnader och upplupna intäkter		
Hyra	5.300	2.687
Övriga poster	1.210	3.094
Summa	**6.510**	**5.781**

Upplupna kostnader och förutbetalda intäkter		
Upplupna lönekostnader	63.666	53.898
Upplupna sociala avgifter	23.376	20.417
Övriga poster	12.178	13.034
Summa	**99.220**	**87.349**

Not 16 Kassa och bank

Bolaget har tillgång till likvida medel i form av en koncerngemensam cash pool, ingår i posten "Fordringar hos koncernföretag".

Not 17 Eget kapital

Aktiekapital

Aktiekapitalet består av 400.000 st aktier med kvotvärdet 100 kr.

Not 18 Periodiseringsfond	**2023 (kkr)**	**2022 (kkr)**
Avsättning räkenskapsår 2023	26.500	**0**
Avsättning räkenskapsår 2022	25.600	25.600
Avsättning räkenskapsår 2021	26.200	26.200
Avsättning räkenskapsår 2020	19.700	19.700
Avsättning räkenskapsår 2019	25.700	25.700
Avsättning räkenskapsår 2018	21.100	21.100
Avsättning räkenskapsår 2017	0	24.700
Summa	**144.800**	**143.000**

Not 19 Resultat från andelar i koncernföretag		
Utdelningar	551.978	675.000
Summa	551.978	675.000

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Not 20 Vinstdisposition

Förslag till vinstdisposition (kr)
Till bolagsstämmans förfogande står följande vinstmedel :

Balanserade vinstmedel	2.017.493.405
Årets resultat	595.788.791
	2.613.282.196

Styrelsen föreslår att vinstmedlen disponeras enligt följande:

Till aktieägarna utdelas 0 kr/aktie, totalt	0
I ny räkning överföres	2.613.282.196
	2.613.282.196

Not 21 Övriga avsättningar	**2023 (kkr)**	**2022 (kkr)**
Kundbonus		
IB	58.665	70.515
Taget i anspråk	-58.665	-70.515
Ny avsättning	60.567	58.665
UB	60.567	58.665
Retur stommar		
IB	5.153	12.711
Taget i anspråk	-3.452	-8.516
Ny avsättning	8.827	958
UB	10.528	5.153
Garantier		
IB	1.363	1.861
Taget i anspråk	-1.363	-1.861
Ny avsättning	1.332	1.363
UB	1.332	1.363
Övriga poster		
IB	27	0
Taget i anspråk	-27	0
Ny avsättning	1.802	27
UB	1.802	27
Summa övriga avsättningar	**74.229**	**65.208**

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Not 22 Eventualförpliktelser och ställda säkerheter	**2023 (kkr)**	**2022 (kkr)**
Eventualförpliktelser		
Ansvar för skulder i HB Bosch	4.390	4.390
Bankgaranti	167	167
Summa	**4.557**	**4.557**

Företaget har inga ställda säkerheter.

Not 23 Offentliga bidrag

Bolaget har under 2023 fortsatt erhållit bidrag i form av ersättning för arbetsgivaravgifter för ett antal anställda inom FoU-verksamheten, s.k. Forskningsavdrag. Det erhållna FoU-bidraget uppgick totalt till 13.707 kkr (9.413 kkr) och redovisas som reducering av arbetsgivaravgifter.

Not 24 Långfristiga skulder

	2023 (kkr)	**2022 (kkr)**
Skuld till moderbolag - Långfristig del av cash pool kredit	0	1.410.000
Skuld till moderbolag - Långfristigt lån	1.410.000	0
Skuld till dotterbolag - Skuld till AB Bosch	103	103
Summa	**1.410.103**	**1.410.103**
Varav förfaller till betalning senare än 5 år	103	103

Not 25 Väsentliga händelser efter räkenskapsårets slut

Efter räkenskapsårets slut har konflikten i Mellanöstern ytterligare trappats upp och det finns inga nya tecken på ljusning vad gäller kriget i Ukraina. Så dessa omvärldsfaktorer tillsammans med oroligheter inför valet i USA kvarstår med sin möjliga, indirekta påverkan på de marknader som företaget verkar på.

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Stockholm den

Thore Pedersen Verkställande direktör	Klaus Bohler Styrelseordförande
Jeanette Paulsson Styrelseledamot	Urban Stake Styrelseledamot/personalrep.

Vår revisionsberättelse har avgivits den
Ernst & Young AB

Magnus Johansson
Auktoriserad revisor

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Signaturcertifikat

Dokumentnamn:
Årsredovisning Robert Bosch AB 2023 - Slutlig version 2024-05-20

Unikt dokument-id:
d40dbab8-0d56-4ee2-86bb-5de6d41977de

Dokumentets fingeravtryck:
36f2be2ca37f1968da3fd1ad049f8268c2d30424efc141d21a465c6551da4f8f4784a311e5665b0746fde8
981075008b9a7fd1d7bea6dbf97f69a78653913913

Undertecknare

Urban Stake

E-post: urban.stake@se.bosch.com
Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (desktop)
IP nummer: 194.39.218.19

Signerad med BankID: Bengt Urban Anders Stake (196607035570)

Betrodd tidsstämpel:
2024-05-21 10:07:59 UTC

Thore Pedersen

E-post: thore.pedersen@no.bosch.com
Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (desktop)
IP nummer: 194.39.218.22

Verifierad med BankID: Thore Henjum Pedersen (1968-01-04)

Betrodd tidsstämpel:
2024-05-21 11:04:45 UTC

Klaus Bohler

E-post: klaus.bohler@gmail.com
Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (desktop)
IP nummer: 212.129.31.229

Signerad med BankID: KLAUS BOHLER (195205253536)

Betrodd tidsstämpel:
2024-05-21 11:51:32 UTC

Jeanette Paulsson

E-post: jeanette.paulsson@boschrexroth.se
Enhet: Firefox 115.0 on Unknown Windows 10.0 (desktop)
IP nummer: 194.39.218.21

Signerad med BankID: JEANETTE PAULSSON (196708263501)

Betrodd tidsstämpel:
2024-05-21 13:03:48 UTC

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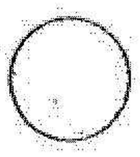

Magnus Johansson

E-post: larsmagnus.johansson@se.ey.com
Enhet: Edge 125.0.0.0 on Unknown Windows 10.0 (desktop)
IP nummer: 147.161.188.106

Signerad med BankID: Lars Magnus Ingemar Johansson (196506241071)

Betrodd tidsstämpel:
2024-05-22 12:01:03 UTC

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2024-05-22 12:01:03 UTC



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Aktivitetslogg

Betrodd tidsstämpel	Aktivitet med insamlade uppgifter
2024-05-22 12:01:03 UTC	Dokumentet signerades av Magnus Johansson (larsmagnus.johansson@se.ey.com) Enhet: Edge 125.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 147.161.188.106 - IP Plats: Stockholm, Sweden
2024-05-22 12:00:57 UTC	Dokumentet verifierades genom BankID av Magnus Johansson (larsmagnus.johansson@se.ey.com) Enhet: Edge 125.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 147.161.188.106 - IP Plats: Stockholm, Sweden
2024-05-21 18:08:11 UTC	Dokumentet kommenterades av Camilla Witt-Rudström (camilla.witt.rudstrom@accountor.se) Enhet: Edge 125.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 185.176.246.80 - IP Plats: Stockholm, Sweden Kommentar: tack Urban, allt ser bra ut mvh / Camilla
2024-05-21 14:44:44 UTC	Dokumentet laddades ner av Magnus Johansson (larsmagnus.johansson@se.ey.com) Enhet: Edge 125.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 147.161.188.106 - IP Plats: Stockholm, Sweden
2024-05-21 13:05:14 UTC	Dokumentet lästes igenom av Magnus Johansson (larsmagnus.johansson@se.ey.com) Enhet: Edge 125.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 147.161.188.106 - IP Plats: Stockholm, Sweden
2024-05-21 13:04:59 UTC	Dokumentet öppnades av Magnus Johansson (larsmagnus.johansson@se.ey.com) Enhet: Edge 125.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 188.149.197.245 - IP Plats: Stockholm, Sweden
2024-05-21 13:03:51 UTC	Dokumentet skickades till Magnus Johansson (larsmagnus.johansson@se.ey.com) Enhet: ()
2024-05-21 13:03:48 UTC	Dokumentet signerades av Jeanette Paulsson (jeanette.paulsson@boschrexroth.se) Enhet: Firefox 115.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.21 - IP Plats: Stuttgart, Germany
2024-05-21 13:03:42 UTC	Dokumentet verifierades genom BankID av Jeanette Paulsson (jeanette.paulsson@boschrexroth.se) Enhet: Firefox 115.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.21 - IP Plats: Stuttgart, Germany
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2024-05-21 13:02:53 UTC	Dokumentet öppnades av Jeanette Paulsson (jeanette.paulsson@boschrexroth.se) Enhet: Firefox 115.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.21 - IP Plats: Stuttgart, Germany
2024-05-21 11:51:32 UTC	Dokumentet signerades av Klaus Bohler (klaus.bohler@gmail.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 212.129.31.229

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2024-05-21 11:50:35 UTC	Dokumentet lästes igenom av Klaus Bohler (klaus.bohler@gmail.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 212.129.31.229
2024-05-21 11:24:51 UTC	Dokumentet öppnades av Klaus Bohler (klaus.bohler@gmail.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 212.129.31.229
2024-05-21 11:04:45 UTC	Dokumentet signerades av Thore Pedersen (thore.pedersen@no.bosch.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.22 - IP Plats: Stuttgart, Germany
2024-05-21 11:04:42 UTC	Dokumentet verifierades genom BankID (eid:bankid-no) av Thore Pedersen (thore.pedersen@no.bosch.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.22 - IP Plats: Stuttgart, Germany
2024-05-21 11:03:27 UTC	Dokumentet lästes igenom av Thore Pedersen (thore.pedersen@no.bosch.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.22 - IP Plats: Stuttgart, Germany
2024-05-21 11:03:13 UTC	Dokumentet öppnades av Thore Pedersen (thore.pedersen@no.bosch.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.22 - IP Plats: Stuttgart, Germany
2024-05-21 10:09:11 UTC	Dokumentet kommenterades av Urban Stake (urban.stake@se.bosch.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.19 - IP Plats: Stuttgart, Germany Kommentar: Signerat av mig nu och hoppas det gick bra. Mvh Urban
2024-05-21 10:07:59 UTC	Dokumentet signerades av Urban Stake (urban.stake@se.bosch.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.19 - IP Plats: Stuttgart, Germany
2024-05-21 10:07:53 UTC	Dokumentet verifierades genom BankID av Urban Stake (urban.stake@se.bosch.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.19 - IP Plats: Stuttgart, Germany
2024-05-21 09:52:16 UTC	Dokumentet kommenterades av Urban Stake (urban.stake@se.bosch.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.19 - IP Plats: Stuttgart, Germany Kommentar: Hej Camilla, OK och vi kommer gå igenom detta på årsstämman på torsdag. När ska den vara signerad?
2024-05-21 09:50:13 UTC	Dokumentet öppnades av Urban Stake (urban.stake@se.bosch.com) Enhet: Chrome 124.0.0.0 on Unknown Windows 10.0 (dator) IP nummer: 194.39.218.19 - IP Plats: Stuttgart, Germany
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EY
Building a better working world

Revisionsberättelse

Till bolagsstämman i Robert Bosch AB, org.nr 556047-1194

Rapport om årsredovisningen

Uttalanden

Vi har utfört en revision av årsredovisningen för Robert Bosch AB för räkenskapsåret 2023.

Enligt vår uppfattning har årsredovisningen upprättats i enlighet med årsredovisningslagen och ger en i alla väsentliga avseenden rättvisande bild av Robert Bosch ABs finansiella ställning per den 31 december 2023 och av dess finansiella resultat och kassaflöde för året enligt årsredovisningslagen. Förvaltningsberättelsen är förenlig med årsredovisningens övriga delar.

Vi tillstyrker därför att bolagsstämman fastställer resultaträkningen och balansräkningen.

Grund för uttalanden

Vi har utfört revisionen enligt International Standards on Auditing (ISA) och god revisionssed i Sverige. Vårt ansvar enligt dessa standarder beskrivs närmare i avsnittet *Revisorns ansvar*. Vi är oberoende i förhållande till Robert Bosch AB enligt god revisorssed i Sverige och har i övrigt fullgjort vårt yrkesetiska ansvar enligt dessa krav.

Vi anser att de revisionsbevis vi har inhämtat är tillräckliga och ändamålsenliga som grund för våra uttalanden.

Styrelsens och verkställande direktörens ansvar

Det är styrelsen och verkställande direktören som har ansvaret för att årsredovisningen upprättas och att den ger en rättvisande bild enligt årsredovisningslagen. Styrelsen och verkställande direktören ansvarar även för den interna kontroll som de bedömer är nödvändig för att upprätta en årsredovisning som inte innehåller några väsentliga felaktigheter, vare sig dessa beror på oegentligheter eller misstag.

Vid upprättandet av årsredovisningen ansvarar styrelsen och verkställande direktören för bedömningen av bolagets förmåga att fortsätta verksamheten. De upplyser, när så är tillämpligt, om förhållanden som kan påverka förmågan att fortsätta verksamheten och att använda antagandet om fortsatt drift. Antagandet om fortsatt drift tillämpas dock inte om styrelsen och verkställande direktören avser att likvidera bolaget, upphöra med verksamheten eller inte har något realistiskt alternativ till att göra något av detta.

Revisorns ansvar

Våra mål är att uppnå en rimlig grad av säkerhet om att årsredovisningen som helhet inte innehåller några väsentliga felaktigheter, vare sig dessa beror på oegentligheter eller misstag, och att lämna en revisionsberättelse som innehåller våra uttalanden. Rimlig säkerhet är en hög grad av säkerhet, men är ingen garanti för att en revision som utförs enligt ISA och god revisionssed i Sverige alltid kommer att upptäcka en väsentlig felaktighet om en sådan finns. Felaktigheter kan uppstå på grund av oegentligheter eller misstag och anses vara väsentliga om de enskilt eller tillsammans rimligen kan förväntas påverka de ekonomiska beslut som användare fattar med grund i årsredovisningen.

Som del av en revision enligt ISA använder vi professionellt omdöme och har en professionellt skeptisk inställning under hela revisionen. Dessutom:

- identifierar och bedömer vi riskerna för väsentliga felaktigheter i årsredovisningen, vare sig dessa beror på oegentligheter eller misstag, utformar och utför granskningsåtgärder bland annat utifrån dessa risker och inhämtar revisionsbevis som är tillräckliga och ändamålsenliga för att utgöra en grund för våra uttalanden. Risken för att inte upptäcka en väsentlig felaktighet till följd av oegentligheter är högre än för en väsentlig felaktighet som beror på misstag, eftersom oegentligheter kan innefatta agerande i maskopi, förfalskning, avsiktliga utelämnanden, felaktig information eller åsidosättande av intern kontroll.
- skaffar vi oss en förståelse av den del av bolagets interna kontroll som har betydelse för vår revision för att utforma granskningsåtgärder som är lämpliga med hänsyn till omständigheterna, men inte för att uttala oss om effektiviteten i den interna kontrollen.
- utvärderar vi lämpligheten i de redovisningsprinciper som används och rimligheten i styrelsens och verkställande direktörens uppskattningar i redovisningen och tillhörande upplysningar.
- drar vi en slutsats om lämpligheten i att styrelsen och verkställande direktören använder antagandet om fortsatt drift vid upprättandet av årsredovisningen. Vi drar också en slutsats, med grund i de inhämtade revisionsbevisen, om det finns någon väsentlig osäkerhetsfaktor som avser sådana händelser eller förhållanden som kan leda till betydande tvivel om bolagets förmåga att fortsätta verksamheten. Om vi drar slutsatsen att det finns en väsentlig osäkerhetsfaktor, måste vi i revisionsberättelsen fästa uppmärksamheten på upplysningarna i årsredovisningen om den väsentliga osäkerhetsfaktorn eller, om sådana upplysningar är otillräckliga, modifiera uttalandet om årsredovisningen. Våra slutsatser baseras på de revisionsbevis som inhämtas fram till datumet för revisionsberättelsen. Dock kan framtida händelser eller förhållanden göra att ett bolag inte längre kan fortsätta verksamheten.
- utvärderar vi den övergripande presentationen, strukturen och innehållet i årsredovisningen, däribland upplysningarna, och om årsredovisningen återger de underliggande transaktionerna och händelserna på ett sätt som ger en rättvisande bild.

Vi måste informera styrelsen om bland annat revisionens planerade omfattning och inriktning samt tidpunkten för den. Vi måste också informera om betydelsefulla iakttagelser under revisionen, däribland de eventuella betydande brister i den interna kontrollen som vi identifierat.

Building a better working world

Rapport om andra krav enligt lagar och andra författningar

Uttalanden

Utöver vår revision av årsredovisningen har vi även utfört en revision av styrelsens och verkställande direktörens förvaltning av Robert Bosch AB för räkenskapsåret 2023 samt av förslaget till dispositioner beträffande bolagets vinst eller förlust.

Vi tillstyrker att bolagsstämman disponerar vinsten enligt förslaget i förvaltningsberättelsen och beviljar styrelsens ledamöter och verkställande direktören ansvarsfrihet för räkenskapsåret.

Grund för uttalanden

Vi har utfört revisionen enligt god revisionssed i Sverige. Vårt ansvar enligt denna beskrivs närmare i avsnittet *Revisorns ansvar*. Vi är oberoende i förhållande till Robert Bosch AB enligt god revisorssed i Sverige och har i övrigt fullgjort vårt yrkesetiska ansvar enligt dessa krav.

Vi anser att de revisionsbevis vi har inhämtat är tillräckliga och ändamålsenliga som grund för våra uttalanden.

Styrelsens och verkställande direktörens ansvar

Det är styrelsen som har ansvaret för förslaget till dispositioner beträffande bolagets vinst eller förlust. Vid förslag till utdelning innefattar detta bland annat en bedömning av om utdelningen är försvarlig med hänsyn till de krav som bolagets verksamhetsart, omfattning och risker ställer på storleken av bolagets egna kapital, konsolideringsbehov, likviditet och ställning i övrigt.

Styrelsen ansvarar för bolagets organisation och förvaltningen av bolagets angelägenheter. Detta innefattar bland annat att fortlöpande bedöma bolagets ekonomiska situation och att tillse att bolagets organisation är utformad så att bokföringen, medelsförvaltningen och bolagets ekonomiska angelägenheter i övrigt kontrolleras på ett betryggande sätt. Verkställande direktören ska sköta den löpande förvaltningen enligt styrelsens riktlinjer och anvisningar och bland annat vidta de åtgärder som är nödvändiga för att bolagets bokföring ska fullgöras i överensstämmelse med lag och för att medelsförvaltningen ska skötas på ett betryggande sätt.

Revisorns ansvar

Vårt mål beträffande revisionen av förvaltningen, och därmed vårt uttalande om ansvarsfrihet, är att inhämta revisionsbevis för att med en rimlig grad av säkerhet kunna bedöma om någon styrelseledamot eller verkställande direktören i något väsentligt avseende:

- företagit någon åtgärd eller gjort sig skyldig till någon försummelse som kan föranleda ersättningsskyldighet mot bolaget, eller
- på något annat sätt handlat i strid med aktiebolagslagen, årsredovisningslagen eller bolagsordningen.

Vårt mål beträffande revisionen av förslaget till dispositioner av bolagets vinst eller förlust, och därmed vårt uttalande om detta, är att med rimlig grad av säkerhet bedöma om förslaget är förenligt med aktiebolagslagen.

Rimlig säkerhet är en hög grad av säkerhet, men ingen garanti för att en revision som utförs enligt god revisionssed i Sverige alltid kommer att upptäcka åtgärder eller försummelser som kan föranleda ersättningsskyldighet mot bolaget, eller att ett förslag till dispositioner av bolagets vinst eller förlust inte är förenligt med aktiebolagslagen.

Som en del av en revision enligt god revisionssed i Sverige använder vi professionellt omdöme och har en professionellt skeptisk inställning under hela revisionen. Granskningen av förvaltningen och förslaget till dispositioner av bolagets vinst eller förlust grundar sig främst på revisionen av räkenskaperna. Vilka tillkommande granskningsåtgärder som utförs baseras på vår professionella bedömning med utgångspunkt i risk och väsentlighet. Det innebär att vi fokuserar granskningen på sådana åtgärder, områden och förhållanden som är väsentliga för verksamheten och där avsteg och överträdelser skulle ha särskild betydelse för bolagets situation. Vi går igenom och prövar fattade beslut, beslutsunderlag, vidtagna åtgärder och andra förhållanden som är relevanta för vårt uttalande om ansvarsfrihet. Som underlag för vårt uttalande om styrelsens förslag till dispositioner beträffande bolagets vinst eller förlust har vi granskat om förslaget är förenligt med aktiebolagslagen.

Stockholm den dag som framgår av vår elektroniska underskrift

Ernst & Young AB

Magnus Johansson
Auktoriserad revisor

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Lars Magnus Ingemar Johansson
Auktoriserad revisor
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CROSSROADS

Annual report 2023

BOSCH

Bosch is a nexus – a place where paths intersect and the most disparate trends and developments converge. Here, input becomes output, and Bosch output becomes input for others.

Bosch can draw from its great technological potential as a diversified industrial group: mobility, capital goods, consumer goods, buildings, and energy. Barely any other company is so diverse, so networked, and so active in central areas of people's lives. Bosch rests on many pillars, and they give it its resilience and ensure its long-term business success. Not only that: Bosch also combines expertise from different industries in order to apply technologies across sectoral domains. A corporate structure such as ours creates a wealth of opportunities, but also challenges. A company that is so widely diversified and has such a broad footprint is constantly in the spotlight, and this on many different levels. Consequently, Bosch repeatedly finds itself at forks in the road, at crossroads, and has to decide which path to take.

And it is to this situation that "Crossroads," the title of this year's annual report, refers – how Bosch determines the company's future direction in times of fundamental change and uncertainty, how it orients to the growth opportunities of the future, and how its opens up new fields of business while optimizing existing ones. "Crossroads" epitomizes our quest to take the right path for Bosch.

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The Bosch Group

Key data

in millions of euros

	2023	2022
Sales revenue	**91,596**	**88,201**
percentage change from previous year	3.8	12.0
Research and development cost	**7,331**	**7,224**
as a percentage of sales revenue	8.0	8.2
EBIT	**4,503**	**3,474**
as a percentage of sales revenue	4.9	3.9
EBIT from operations	**4,824**	**3,816**
as a percentage of sales revenue	5.3	4.3
Profit after tax	**2,640**	**1,838**
Capital expenditure	**5,499**	**4,896**
as a percentage of depreciation	161	141
Balance-sheet total	**108,330**	**100,247**
Equity	**47,894**	**46,727**
as a percentage of total assets	44	47
Dividend of Robert Bosch GmbH	**170**	**162**
Headcount at 12/31 of the year	**429,416**	**421,338**

Bosch at a glance

The Bosch Group is a leading global supplier of technology and services. It employs roughly 429,000 associates worldwide (as of December 31, 2023). The company generated sales revenue of 91.6 billion euros in 2023. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. Universal trends such as automation, electrification, digitalization, and connectivity, as well as an orientation to sustainability, are increasingly determining the group's business operations. In this context, Bosch's broad footprint as a global and diversified technology company strengthens its innovativeness and robustness.

Bosch uses its proven expertise in sensor technology, software, and services to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture intelligent, user-friendly, and sustainable products. With technology that is "Invented for life," Bosch wants to help improve quality of life and conserve natural resources. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral overall (scopes 1 and 2) since 2020. As part of this, residual emissions of 581,000 metric tons of CO_2 were offset with carbon credits in 2023. Year on year, this is a decrease of roughly 136,000 metric tons of CO_2, or 19 percent.[1]

1. Scopes 1, 2, and 3 are used in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard. For further details about the Bosch Group's carbon neutrality (scopes 1 and 2), see the section "Strategy and innovation" (page 57).

The Bosch Group comprises Robert Bosch GmbH and its roughly 470 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. Bosch's innovative strength is key to the company's further development. At 136 locations across the globe, Bosch employs some 90,000 associates in research and development, of which nearly 48,000 are software engineers.

The company was set up in Stuttgart in 1886 by Robert Bosch (1861–1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant upfront investments in the safeguarding of its future. Ninety-four percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The remaining shares are held by Robert Bosch GmbH and by a corporation owned by the Bosch family. The majority of voting rights are held by Robert Bosch Industrietreuhand KG.

Foreword



DR. STEFAN HARTUNG

Ladies and gentlemen,

"Crossroads," the title of this year's annual report, stands for the many fundamental decisions Bosch has to make with respect to its future course. In continuing our strategy, our sights are fixed on our aim, as a leading technology company, of helping shape tomorrow's world with innovations that are "Invented for life." In this context, we believe that our technological diversification – from mobility via industrial technology and consumer goods to energy and building technology – puts us at an advantage. As the past has repeatedly taught us, it contributes to our company's robustness and thus, in line with the mission handed down to us by the company founder Robert Bosch, to its independence. In times of upheaval, however, this diversification demands a lot from us. For when the markets in diverse areas of business are changing in many different ways – whether with respect to electrification, automation, connectivity, competitive structure, or even political environment – achieving our aims becomes a tough ask. And even if trends are clearly visible, it is frequently difficult to estimate how quickly they will take hold, not least because of snowballing regulations. This makes it more difficult to steer upfront investments and to make adjustments to our traditional business. What is required, therefore, is decision making in the face of considerable uncertainty, coupled with the willingness to regularly reconsider those decisions and, if necessary, revise them.

Nonetheless, we made further progress toward our goals in 2023, even though our strategic challenges were compounded by the lack of any economic tailwind. We achieved our business targets, as the published figures show. And in many fields, we also strengthened our market position through acquisitions and partnerships, whether in semiconductors,

Today's radically changing market calls for a strategy that is as clear as it is flexible and adaptable. It also calls for considerable tenacity.

in mobile hydraulics for industrial technology, or as a systems integrator in building technology. In 2023, moreover, we did a lot of groundwork to make Mobility, our biggest business sector, organizationally fit for fundamentally changing market requirements and the technological challenges of the future. In doing so, we firmly believe that we are creating the basis for a strong position as a future mobility provider.

Not only in 2024, but also in the years that follow, the road ahead will remain a demanding one for us. One core task is to make new technologies such as electromobility and the fuel cell economically viable. But it is not only these technologies we have to focus on. We are also working to improve our traditional business – the business in which we are currently successful and earn our money. This includes systematically carrying out any reorganization measures that are necessary. During phases of transformation in particular, there is also a need for active portfolio management. Yet some of our extensive adjustment measures will only bear fruit in future years. Our aim is further growth – through innovations, partnerships, and also acquisitions. At the very least, we want to roughly maintain our improved level of earnings in 2024, and to significantly surpass it in the years ahead. And through the highly efficient use of our capital resources, we want to secure the financial leeway we need for the inorganic growth of our business fields.

We will tackle the tasks ahead with confidence and respect. In doing so, we can rely on a strong team of more than 400,000 associates. We owe them, as well as our business partners and customers, our thanks. I would also like to thank you, our readers, for your interest in this year's annual report. For us, it has traditionally always been more than a statement of accounts. Beyond our business figures and targets, we want to provide some insights into the ambitions we have for ourselves and our company.

With best regards,



Dr. Stefan Hartung
Chairman of the board of management

The Bosch board of management



Standing, from left: Stefan Grosch, Dr. Stefan Hartung, Dr. Markus Forschner, Dr. Frank Meyer

Seated, from left: Dr. Markus Heyn, Dr. Tanja Rueckert, Dr. Christian Fischer

Effective March 31, 2023, Filiz Albrecht stepped down from the board of management. Stefan Grosch joined the board of management as director of industrial relations effective April 1, 2023.

Dr. Frank Meyer joined the Bosch board of management effective February 1, 2024. He is responsible for the Energy and Building Technology business sector.

Board of management

Dr. Stefan Hartung

Chairman of the board of management

Technology, Innovation, and Quality

Functions and services
- Communications and Governmental Affairs
- Corporate Affairs
- Field Quality Board
- Human Resources Senior Management Personnel
- Intellectual Property
- Quality Management
- Research and Advance Engineering
- Strategy, Organization, and Business Development
- Technology Development SINCE SEPTEMBER 30, 2023
- Technology Manufacturing

Business area
- Health Care Solutions

Region
China

Dr. Christian Fischer

Deputy chairman of the board of management

Consumer Goods business sector
Energy and Building Technology business sector UNTIL JANUARY 31, 2024

Functions and services
- Growth Acceleration SINCE FEBRUARY 1, 2024
- Inhouse Consulting SINCE FEBRUARY 1, 2024

Business areas
- BSH – Home Appliances
- Building Technologies UNTIL JANUARY 31, 2024
- Home Comfort[1] UNTIL JANUARY 31, 2024
- Power Tools
- Smart Home UNTIL JANUARY 31, 2024

Regions
Africa, Southeast Asia UNTIL JANUARY 31, 2024

Dr. Frank Meyer SINCE FEBRUARY 1, 2024

Energy and Building Technology business sector SINCE FEBRUARY 1, 2024

Business areas
- Building Technologies SINCE FEBRUARY 1, 2024
- Home Comfort SINCE FEBRUARY 1, 2024
- Smart Home SINCE FEBRUARY 1, 2024

Dr. Markus Heyn

Mobility business sector
Chairman of the Mobility sector board

Functions and services
- Mobility sector board
  - Commercial Affairs
  - Operations
  - Sales and Customers
  - Technology
- Mobility sector functions
  - Communications and Governmental Affairs
  - Human Resources, People, and Culture
  - Purchasing Direct Materials SINCE DECEMBER 1, 2023
  - Strategy, Go-to-Market, and Business Excellence
- Mobility regional board SINCE JANUARY 1, 2024
  - Americas
  - China
  - India
  - South and East Asia
- Software Development Services

Business areas[2]
- BEG Automotive Engineering Solutions
- Bosch eBike Systems
- Cross-Domain Computing Solutions
- Electrified Motion
- ETAS
- Mobility Aftermarket
- Mobility Electronics
- Mobility Platform and Services SINCE JULY 1, 2023
- Power Solutions
- Two-Wheeler and Powersports
- Vehicle Motion

1. Known as Thermotechnology until March 31, 2023.

2. Owing to a reorganization of the Mobility business sector, there has been a new organizational structure of the Bosch divisions since January 1, 2024. This applies especially to the divisions managed up to now as Automotive Aftermarket, Automotive Electronics, Automotive Steering, Chassis Systems Control, Electrical Drives, and Powertrain Solutions.

Dr. Markus Forschner

Finance and Performance
Industrial Technology business sector until December 31, 2024

Functions and services
- Finance, Reporting, and Treasury
- Global Real Estate
- Internal Auditing until January 31, 2024
- Performance Controlling, Risk Management, Mergers and Acquisitions
- Performance Management until February 29, 2024
- Real Estate and Facilities
- Supply Chain Management
- Tax and Customs Duties until January 31, 2025
- Transformation and Performance Consulting until January 31, 2025

Business areas
- Bosch Manufacturing Solutions[3] until January 31, 2025
- Drive and Control Technology until January 31, 2025

Regions
Europe 1, Turkey

Stefan Grosch since April 1, 2023

Human Resources, Legal, Compliance, and Sustainability

Functions and services
- Bosch Management Support
- Compliance Management
- Human Resources People and Culture
- Human Resources Transformation
- Internal Auditing since February 1, 2024
- Legal
- Sustainability, Environment, Health and Safety
- Tax and Customs Duties since February 1, 2024

Regions
India, Southeast Asia since February 1, 2024

Filiz Albrecht until March 31, 2023

Human Resources, Legal, Compliance, and Sustainability

Functions and services
- Bosch Management Support
- Compliance Management
- Human Resources People and Culture
- Human Resources Transformation
- Legal
- Sustainability, Environment, Health and Safety

Region
India

Dr. Tanja Rückert

Digital Business and Services
Industrial Technology business sector since February 1, 2025

Functions and services
- Bosch Digital
- Cyber Security
- Global Business Services
- Information Technology and Digitalization
- Residential IoT Services until September 30, 2025
- Security and Safety Things
- Software and Digital Solutions
- Software Next

Business areas
- Bosch Manufacturing Solutions since February 1, 2024
- Connected Industry
- Drive and Control Technology since February 1, 2024
- Bosch Global Service Solutions

Regions
Europe 2, Japan, Korea, North America, Oceania, South America

3. Known until April 30, 2023, as ATMO – Manufacturing Tools and Systems.

Mobility sector board

Dr. Markus Heyn
Chairman

Dr. Uwe Gackstatter
until October 31, 2023

Volker Schilling
since November 1, 2023
Commercial Affairs

Klaus Mäder
Operations

Andreas Dempf
Sales and Customers

Dr. Mathias Pillin
Technology

Presidents of the divisions

2023

Rupert Hoellbacher
Automotive Aftermarket

Michael Budde
Automotive Electronics

Dr. Gerta Marliani
Automotive Steering

Claus Fleischer
Bosch eBike Systems

Henning von Boxberg
Bosch Global Service Solutions

Thomas Quante
Building Technologies

Dr. Steffen Berns
Chassis Systems Control

Christoph Hartung
Cross-Domain Computing Solutions

Steffen Haack
Drive and Control Technology

Volker Schilling
Electrical Drives

Jan Brockmann
Home Comfort

Henk Becker
until May 31, 2023

Thomas Donato
since June 1, 2023
Power Tools

Dr. Thomas Pauer
Powertrain Solutions

2024

Owing to a reorganization of the Mobility business sector, there is now a new organizational structure of the Bosch divisions (valid since January 1, 2024).

Claus Fleischer
Bosch eBike Systems

Henning von Boxberg
Bosch Global Service Solutions

Thomas Quante
Building Technologies

Christoph Hartung
Cross-Domain Computing Solutions

Steffen Haack
Drive and Control Technology

Marco Zehe
Electrified Motion

Jan Brockmann
Home Comfort

Rupert Hoellbacher
Mobility Aftermarket

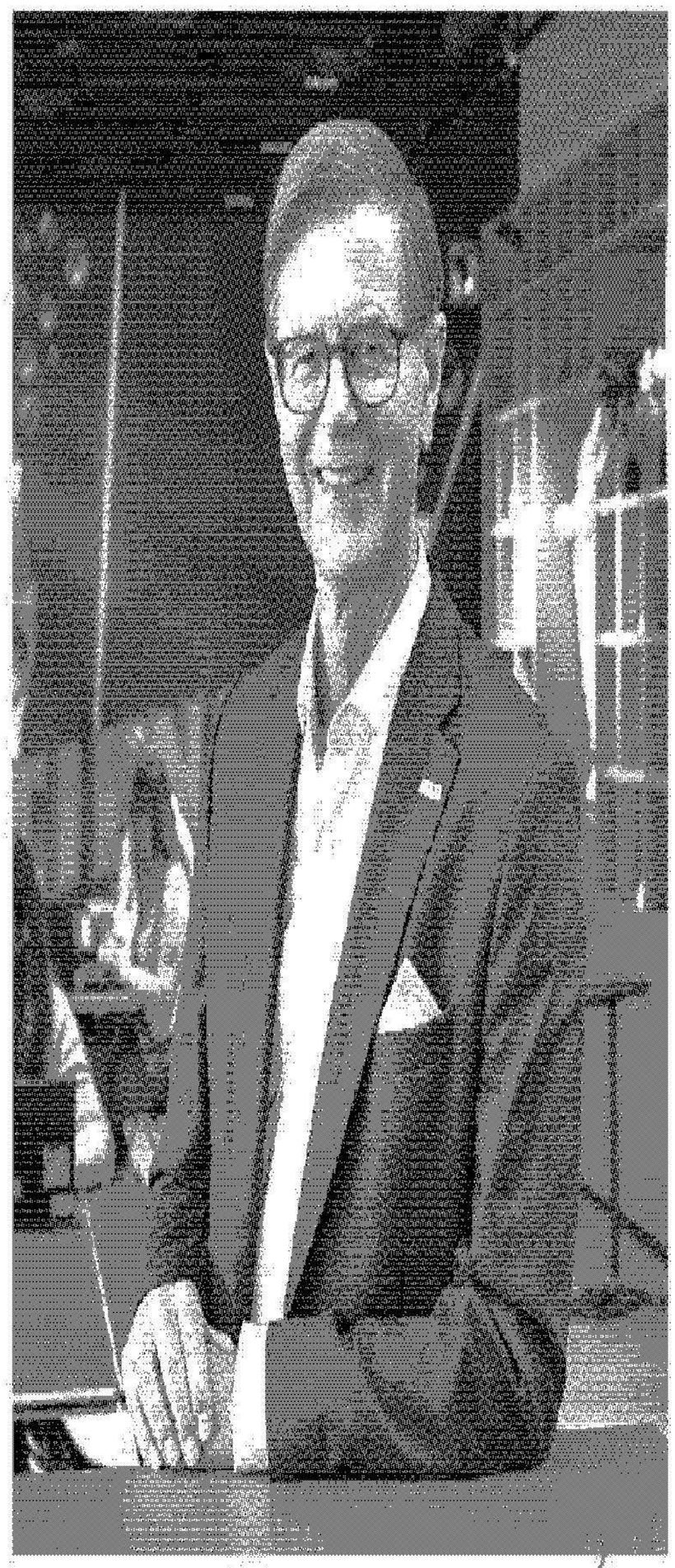
Michael Budde
Mobility Electronics

Dr. Thomas Pauer
Power Solutions

Thomas Donato
Power Tools

Dr. Gerta Marliani
Vehicle Motion

Supervisory board report



PROF. DR. STEFAN ASENKERSCHBAUMER

Ladies and gentlemen,

The Bosch Group is in the midst of a fundamental transformation, and this in an environment marked by great uncertainty. The company is faced with the demanding task of making necessary upfront investments in new technologies and extending its market position through acquisitions on the one hand, and of orienting its structures to future challenges and improving its competitiveness on the other. Moreover, the transformation has to be carried out in a global economic environment that is likely to remain weak. The supervisory board consults very closely with the board of management and the company in this balancing act between upfront investments in future growth and strengthening profitability and capital efficiency. The achievement of the company's business targets in 2023 was an important step in this direction. The supervisory board would like to thank the board of management and associates of the Bosch Group for their great dedication and for this achievement.

The supervisory board once again fulfilled its legal and regulatory obligations with great care in 2023. It solicited detailed information about business developments and the business prospects for the future. One focal point of reporting was the far-reaching organizational changes in the Mobility business sector. A further subject that was looked at in detail was the changes in the competitive landscape for consumer goods. The board of management reported regularly on its growth strategy with respect to potential in existing, adjacent, and new fields of business, as well as on necessary adjustment measures. The supervisory board also obtained information about the measures taken with respect to compliance, to the risk management system and the findings of risk reporting, to sustainability reporting, and to the challenges in new areas of technology. The main items on its agenda also included financial and investment planning, as well as the 2024 business plan.

The Bosch Group is faced with the demanding task of achieving a balance between making considerable upfront investments in the markets of the future and strengthening profitability and capital efficiency.

In addition, outside of board meetings, the chairman of the supervisory board was regularly informed by the chairman of the board of management about current developments and significant events in the company. As scheduled, the supervisory board was reconstituted at the end of March 2023. This did not lead to any changes. Since then, the employee representatives Christian Brunkhorst and Jörg Hofmann have retired from the board, in mid-2023 and at the end of 2023 respectively. They were succeeded in their roles by Adrian Hermes and Raphael Menez. The supervisory board would like to thank the former members for their dedication, and the new members for agreeing to play an active role. In addition to the already existing personnel committee, which is responsible for personnel issues on the board of management, an audit committee was set up at the end of March 2023. It is concerned with matters relating to areas such as accounting, the audit of the financial statements, and corporate governance systems.

EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft audited the Robert Bosch GmbH annual financial statements and consolidated financial statements, as well as the accompanying management reports, as of and for the year ended December 31, 2023. It furnished all these reports with an unqualified audit opinion. The audit committee and the supervisory board discussed these documents at length and subjected them to their own examination; all members of both bodies had access to the auditor's reports. Moreover, the auditor met with the audit committee and the supervisory board to report on the main findings of the audit. The supervisory board raised no objections, concurred with the results of the audit, and approved the Robert Bosch GmbH annual financial statements and the Bosch Group consolidated financial statements. Following its own review, the supervisory board endorsed the board of management's proposal for the appropriation of net profit.

Stuttgart, March 2024
For the supervisory board

Prof. Stefan Asenkerschbaumer
Chairman

Supervisory board

Prof. Stefan Asenkerschbaumer
Stuttgart
Chairman
Managing partner of Robert Bosch Industrietreuhand KG, formerly deputy chairman of the board of management of Robert Bosch GmbH

Frank Sell
Gerlingen
Deputy chairman
Deputy chairman of the works council of the Feuerbach plant, and chairman of the central works council of the Mobility business sector as well as deputy chairman of the combined works council of Robert Bosch GmbH

Nadine Boguslawski
Hattersheim am Main
Chief treasurer of Industriegewerkschaft Metall, Frankfurt am Main

Dr. Christof Bosch
Königsdorf
Spokesperson for the Bosch family

Christian Brunkhorst until Dec. 31, 2023
Mühltal
Representative of the chairman of Industriegewerkschaft Metall, Frankfurt am Main

Dr. Arne Fischer
Gemmrigheim
Director of strategic projects, Power Solutions division, and chairman of the combined executives committee of the Bosch Group in Germany

Prof. Elgar Fleisch
St. Gallen
Professor of information and technology management at the University of St. Gallen and ETH Zürich

Klaus Friedrich
Würzburg
Chairman of the works council of Bosch Rexroth AG, Lohr am Main, and chairman of the central works council of Bosch Rexroth AG and member of the combined works council of Robert Bosch GmbH

Mario Gutmann
Bamberg
Chairman of the works council of the Bamberg plant, and member of the central works council of the Mobility business sector as well as chairman of the economic committee of the Mobility business sector

Adrian Hermes since Jan. 1, 2024
Hattersheim am Main
Representative of the chairman of Industriegewerkschaft Metall

Jörg Hofmann until Dec. 31, 2023
Frankfurt am Main
President of Industriegewerkschaft Metall

Prof. Michael Kaschke
Oberkochen
Chairman of the supervisory board of Karlsruhe Institute of Technology
President of Stifterverband

Prof. Renate Köcher

Konstanz

Managing director, Allensbach Institute for Public Opinion Research

Martina Koederitz

Stuttgart

Member of the supervisory board

Matthias Georg Madelung

Munich

Member of the board of trustees of Robert Bosch Stiftung GmbH

Kerstin Mai

Hildesheim

Chairwoman of the works council of the Cross-Domain Computing Solutions division, Hildesheim, and chairwoman of the combined works council of Robert Bosch GmbH

Dr. Raphael Menez

Stuttgart

Secretary of the regional directorate of the Industriegewerkschaft Metall trade union, Baden-Württemberg

Oliver Simon

Dunzweiler

Chairman of the works council of the Homburg plant, and member of the central works council of the Mobility business sector

Karin Solda

Filderstadt

Chairwoman of the works council at the Leinfelden-Echterdingen location and of the central works council of Robert Bosch Power Tools GmbH

Peter Spuhler

Weiningen

Majority shareholder and president of the supervisory board of Stadler Rail AG

Dr. Eberhard Veit

Göppingen

Managing partner of Robert Bosch Industrietreuhand KG

Prof. Beatrice Weder Di Mauro

Blonay

Professor of international economics at the Geneva Graduate Institute, president of the Centre for Economic Policy Research (CEPR), and research professor at INSEAD

HONORARY CHAIRMAN OF THE BOSCH GROUP

Prof. Hermann Scholl

Stuttgart

Industrial Trust and International Advisory Committee

Robert Bosch Industrietreuhand KG

GENERAL PARTNERS

Prof. Stefan Asenkerschbaumer
Stuttgart
Chairman of the shareholders' meeting

Dr. Eberhard Veit
Göppingen

LIMITED PARTNERS

Dr. Christof Bosch
Königsdorf

Dr. Christian Fischer
Stuttgart

Prof. Elgar Fleisch
St. Gallen

Prof. Lino Guzzella
Uster

Dr. Stefan Hartung
Ludwigsburg

Prof. Michael Kaschke
Oberkochen

Prof. Renate Köcher
Konstanz

Peter Spuhler
Weinfelden

Robert Bosch International Advisory Committee

Prof. Stefan Asenkerschbaumer
Stuttgart
Chairman

Sigmar Gabriel
Goslar

Dr. Christoph Heusgen
Berlin

Baba N. Kalyani
Pune

Pascal Lamy
Paris

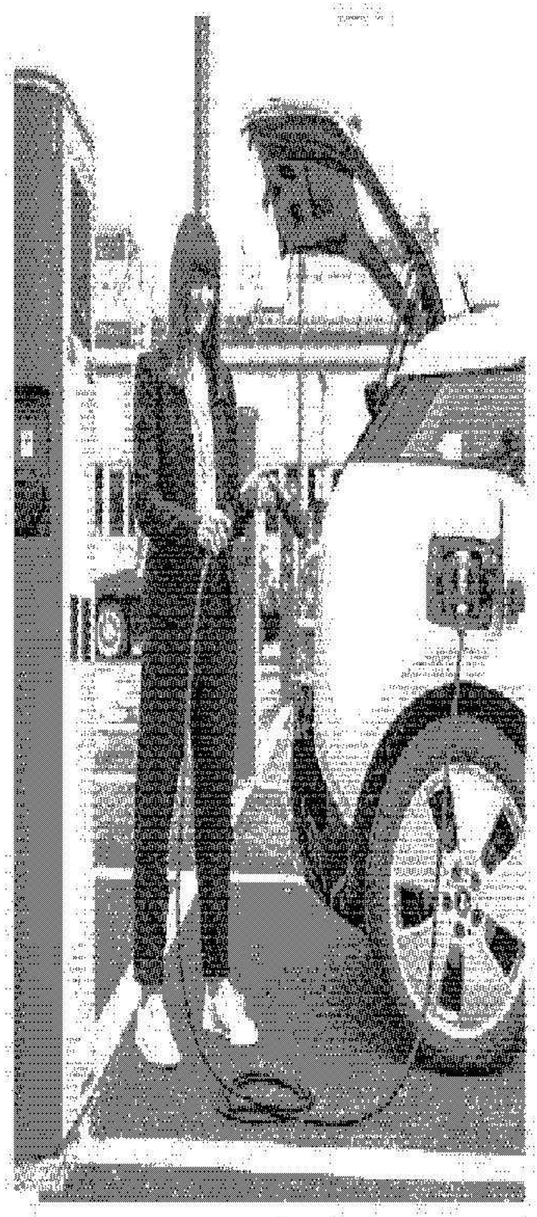
Yumiko Murakami
Tokyo

Paul Ryan
Janesville

Jing Ulrich
Hong Kong

Prof. Igor Yurgens
Moscow

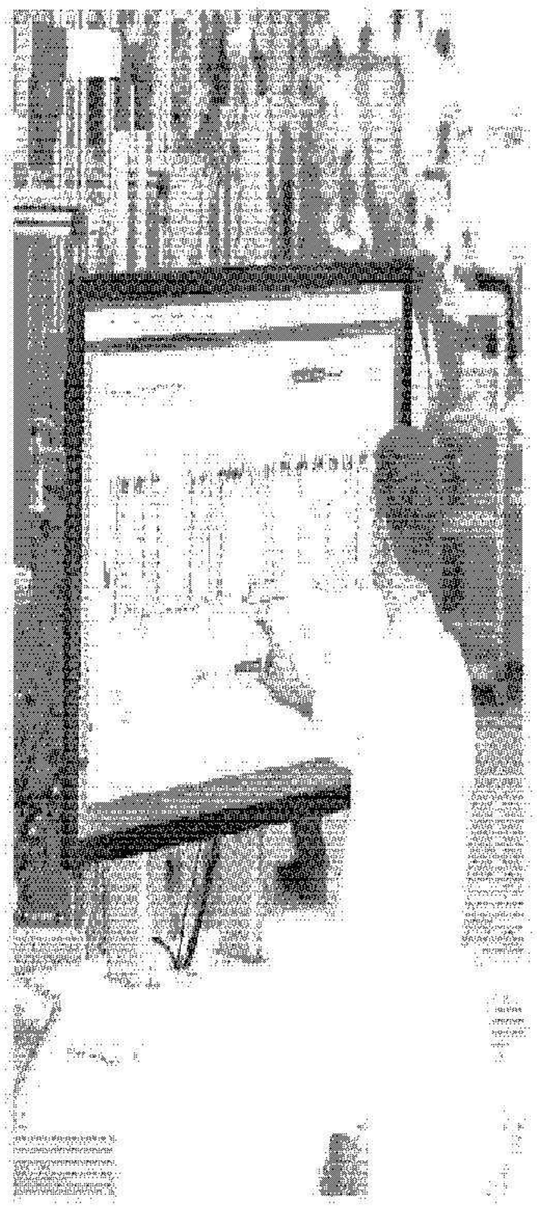
Business sectors



Industrial Technology

— Drive and Control Technology[1]

— Bosch Connected Industry
— Robert Bosch Manufacturing Solutions GmbH



Mobility

— Bosch eBike Systems
— Cross-Domain Computing Solutions
— Electrified Motion
— Mobility Aftermarket
— Mobility Electronics
— Power Solutions
— Vehicle Motion

— Bosch Engineering GmbH
— ETAS GmbH
— ITK Engineering GmbH
— Mobility Platform and Services
— Two-Wheeler and Powersports



Consumer Goods

— Power Tools
— BSH Hausgeräte GmbH



Energy and Building Technology

— Building Technologies
— Home Comfort
— Bosch Global Service Solutions

— Robert Bosch Smart Home GmbH

Other activities

— Bosch Healthcare Solutions GmbH
— grow platform GmbH
— Robert Bosch Venture Capital GmbH

1. Bosch Rexroth AG (100% Bosch-owned).

Highlights 2023

January

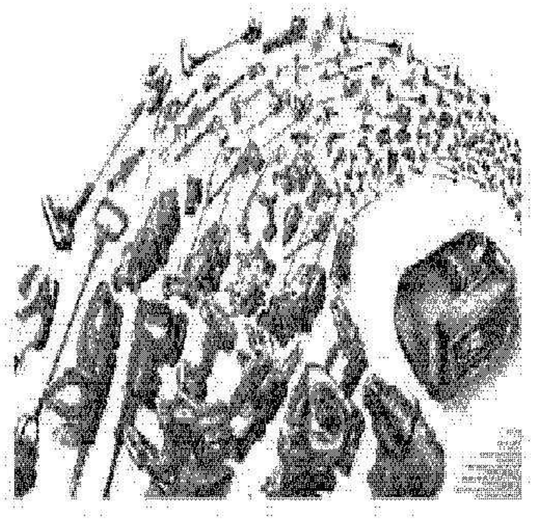
China: new research and manufacturing location

Bosch is expanding its global research and manufacturing network for electrified and automated driving. In order to better serve local demand, the company plans to invest some 950 million euros in a new location in Suzhou over the next few years.



Stakeholder: Bosch takes stake in garden equipment manufacturer

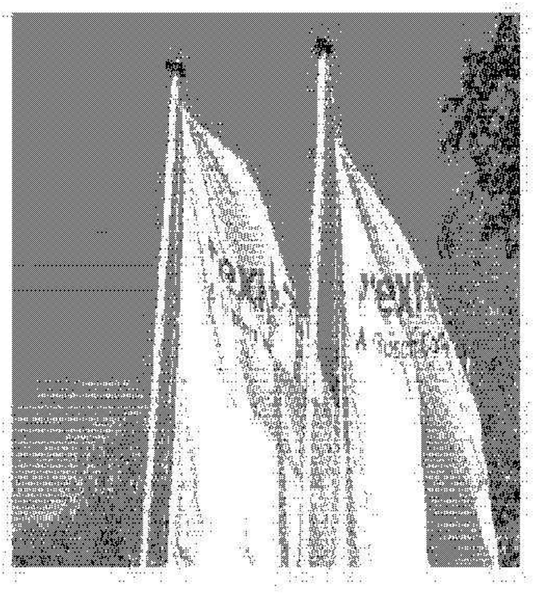
Bosch agrees to acquire some 12 percent of the share capital of the long-established Swedish company Husqvarna, with the aim of bolstering the existing battery alliance between the two companies. Husqvarna includes the Gardena subsidiary and its Flymo brand, both of which are also partners in the Bosch Power Tools division's Power for All Alliance.



February

Acquisition: Bosch Rexroth takes over HydraForce

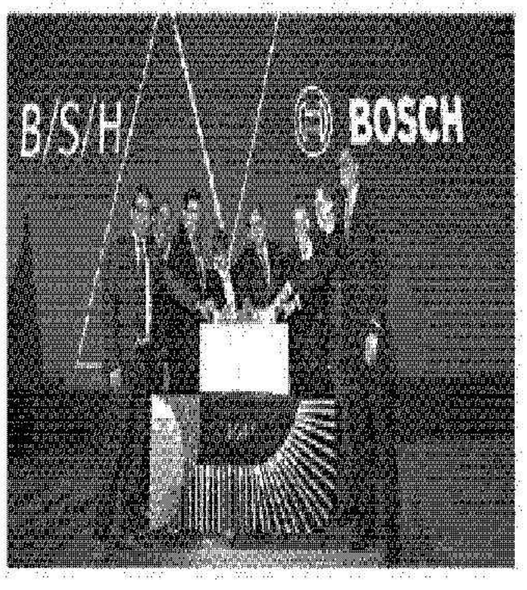
With the acquisition of HydraForce, Bosch Rexroth is expanding its hydraulics business. With a workforce of 2,100, this U.S. company develops and manufactures compact hydraulic valves and solutions at six manufacturing sites in the U.S., Brazil, the U.K., and China. Its activities will be integrated into Bosch Rexroth's compact hydraulics business.



March

Egypt: foundation stone for first BSH factory in Africa

In Cairo, BSH Hausgeräte GmbH lays the foundation stone for its first factory in Africa. The company plans to invest some 50 million euros, and to start manufacturing stoves for African and other markets in the new factory from the end of 2024. With this factory, BSH plans to create roughly 1,000 skilled jobs in the region.

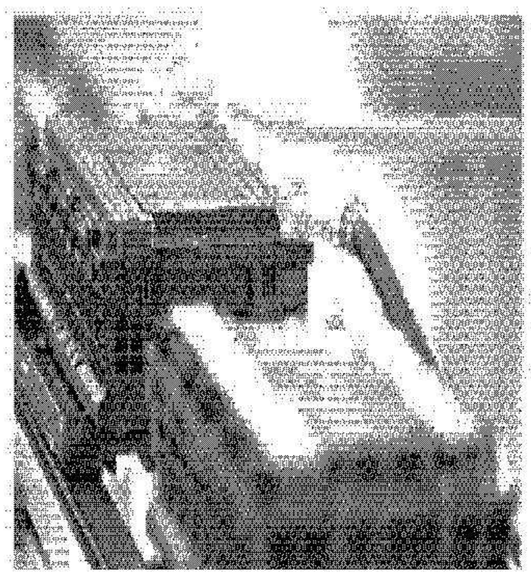


Highlights 2023

April

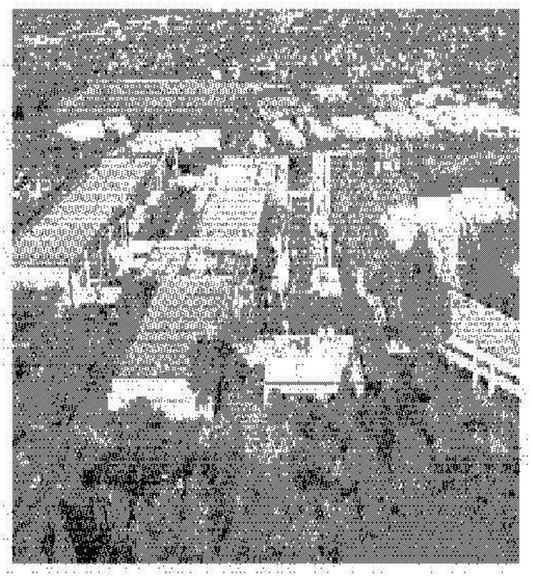
Battery recycling: Europe's first fully automated plant

At the Battery Lifecycle Company location in Magdeburg, Germany, Europe's first fully automated plant is being built. Bosch Rexroth is supplying the necessary technology. In a reliable process, battery modules are chemically deactivated so that further processing can be done without the risk of electrocution. The residual energy from the modules is used to operate the recycling plant.



Semiconductors: Bosch plans to acquire U.S. chipmaker

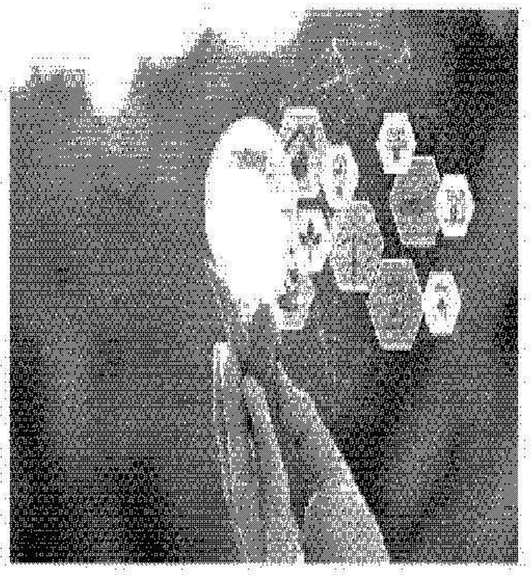
Bosch is expanding its business with silicon carbide chips, and plans to acquire parts of the TSI Semiconductors business in Roseville, California. With a workforce of 250, the company makes application-specific integrated circuits, or ASICs. Over the next few years, Bosch wants to invest heavily in the location and to retool its manufacturing facilities.



May

Sustainability: basic knowledge for everyone

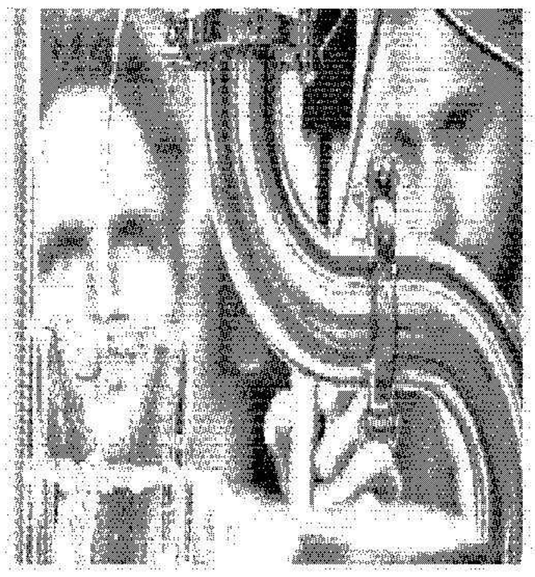
To continue the development and manufacture of sustainable products, Bosch has introduced a worldwide training program for all associates involved in the product development process. The focus is on basic knowledge about sustainability along the value chain, and how associates can play a part in this. The courses are modular in design, and cover the most important aspects of Bosch's sustainability and circular-economy strategy.



June

New area of business: water-treatment systems

In the future, Bosch will supply water-treatment technology and offer newly developed systems designed especially for remote areas and offshore locations. With these special systems, water can be treated anywhere economically and without harming the environment, even in the remotest areas. Bosch Manufacturing Solutions has designed these systems to work without chemicals. The plan is to bring these systems to market in 2024.



Highlights 2023

July

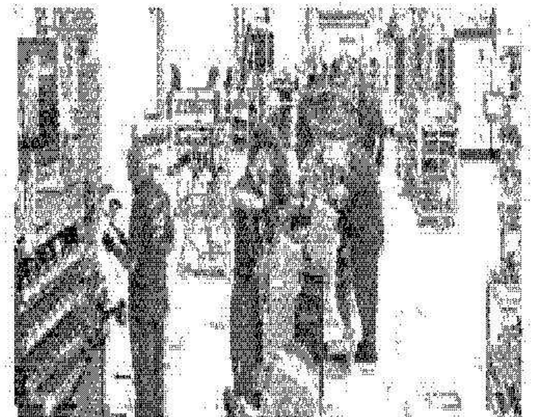
Building technology: Bosch strengthens its presence in North America

The Building Technologies division is growing: the Canadian company Paladin Technologies employs some 1,500 people at 35 locations in Canada and the United States, and provides security solutions and services in the integrator business. With its market presence in Canada and major U.S. conurbations, Paladin Technologies is an ideal complement to Bosch's integrator business.



Powertrain: green light for fuel cell

At its Feuerbach location in Germany, Bosch has now begun volume production of its fuel-cell powertrain system. Its pilot customer is the U.S. company Nikola, with its fuel cell-electric trucks. Production of the fuel-cell powertrain system is starting at the same time in Chongqing, China. Bosch operates along the entire hydrogen value chain, developing technology for its production and application.



August

Partnership: new wafer fab

TSMC, Bosch, Infineon, and NXP are jointly investing in the construction of a modern wafer fab in Dresden, Germany. All told, the joint venture will invest more than 10 billion euros, and roughly 2,000 jobs are to be created. Construction work will start in 2024, and 300-millimeter wafers are to be produced in the wafer fab from the end of 2027. TSMC will hold a 70 percent stake in the company, with Bosch and the other partners holding 10 percent each.



Malaysia: new location opened

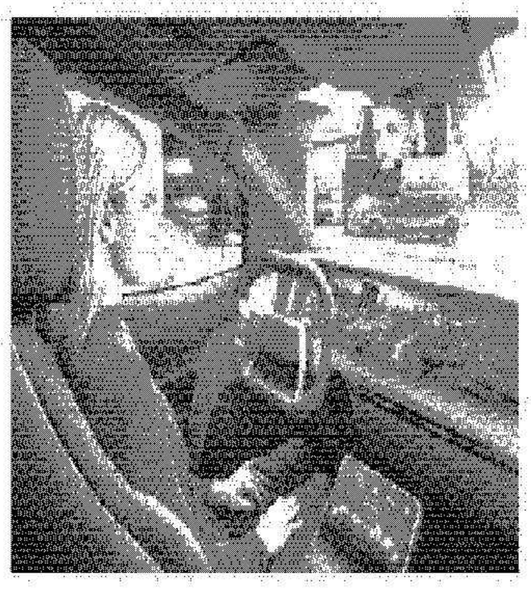
In southeast Asia as well, Bosch is investing heavily in the semiconductor business. At its Penang location, the company has now opened a new testing center for electronic chips. Construction cost roughly 65 million euros. By the middle of the next decade, Bosch plans to invest a further 285 million euros in the facility, and its workforce is set to grow to 400.



September

Mobility: Software for video perception

Video perception of vehicle surroundings will play an important role in the move from assisted to automated driving. In this context, Bosch not only offers a combined package of hardware and software. Its portfolio now also includes video perception software as a standalone product. As a system-on-chip, the Bosch software can also be used hardware-independently, which provides more flexibility for automakers.

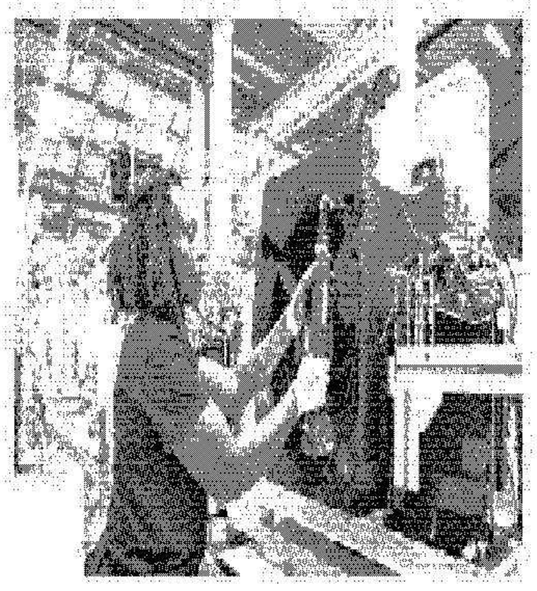


Highlights 2023

November

Portugal: Bosch boosts its heat-pump production

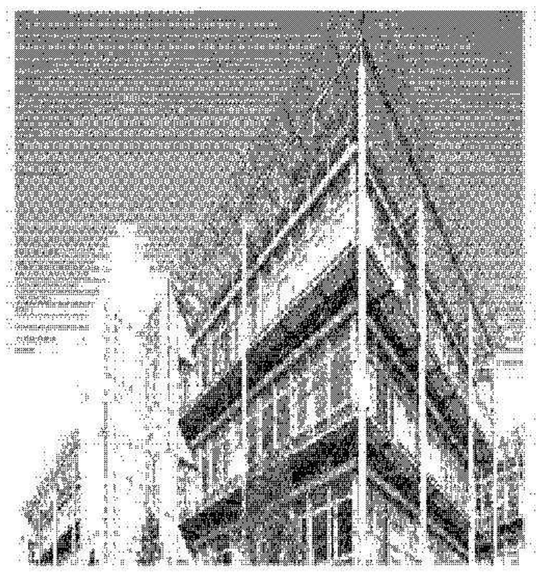
Bosch is investing in expanding its development and manufacturing capacity for heat pumps. By 2026, for example, some 100 million euros will be invested in its Aveiro location. Alongside Eibelshausen in Germany and Tranås in Sweden, Aveiro is a major location in the company's European heat-pump network. By the end of the decade, Bosch will have invested more than 1 billion euros in extending this network.



October

Realignment: focus on systems integration

Bosch is realigning its Building Technologies division: in the future, it is to focus on its regional integrator business, with solutions and services for building security, energy efficiency, and building automation. The company plans to sell most of the Building Technologies division's product business. This includes the Video, Access and Intrusion, and Communication business units, which employ some 4,300 people worldwide.



Investment: Bosch wants to work with AI startup

Robert Bosch Venture Capital GmbH is the lead company in an investment round in the AI startup Aleph Alpha. All in all, the startup will receive more than 500 million dollars from the industrial consortium. This will make it easier for Aleph Alpha to speed up the development and commercialization of generative AI for applications in sectors such as industry, healthcare, finance, law, government, and security.



December

Manufacturing: Bosch brings generative AI to the shopfloor

Bosch is encouraging the use of artificial intelligence in manufacturing. On this subject, the company is initiating projects in which generative AI creates synthetic images. In two pilot plants in Germany, these artificial images are being used to develop and optimize solutions for automated optical inspection. Bosch expects that this can reduce the time between project planning and the ramp up of AI applications from the six to twelve months taken at present to just a few weeks.



"Our greatest asset in Roseville is the workforce, the approximately 250 associates, all of whom are established semiconductor experts."

DIRK KRESS
head of global semiconductor operations at Bosch

Raw material for the 21st century

Our modern world would be unthinkable without semiconductors. They're already in everything from wearables and smartphones to vehicles, and now the global ramp-up of electromobility is sending demand skyrocketing. As one of the pioneers of this technology, Bosch has been producing semiconductors for more than 60 years, also at its plant in Reutlingen, Germany. Since the end of 2021, this has also included silicon carbide chips, which enable greater range and more efficient recharging for electric cars. With the acquisition of a wafer fab in Roseville, California, Bosch plans to significantly expand its production of this key technology. There, the first silicon carbide chips are scheduled to roll off the line in 2026 – which means that process engineer Allison Suba has her work cut out for her. To help get her up to speed, she's partnering with Reutlingen-based Tobias Huschnitt as part of an innovative, cross-border training scheme. Two associates, one goal: to help power the transformation of mobility.

Read full story

How to make the move to alternative heating work

Heat pumps are a key technology for achieving the European climate targets in the building sector. This is why Bosch will be investing more than 1 billion euros in its European heat-pump development and manufacturing network by the end of this decade. In Aveiro, Portugal, new laboratories and production shops are being built, while in the Netherlands Bosch is bringing new hybrid systems onto the market. In Germany, the company is intensifying its services business, training heating installers, and working to remedy the lack of professional experts. Step by step, Bosch is expanding its activities in all parts of the heat-pump domain. A journey through Europe shows what is needed for sustainable heating to become established and for customers to choose heat-pump technology that combines ecology with economy.

Read full story

"Training not only helps to counter the shortage of skilled workers, it also helps us to better meet demand. With good training, we increase the quality of our work and are around 20 percent faster when installing heat pumps."

ANDREAS HANF
heating engineer

Hydrogen pioneers united

The mobility of the future is versatile. The key is technologies that complement each other. Bosch is not just pressing ahead with electromobility, but also wants to establish hydrogen as an important alternative. But as long as there is nowhere to fill up, nobody will buy a hydrogen vehicle. This is why Bosch Rexroth is helping companies like Maximator Hydrogen set up a hydrogen infrastructure. The two companies have developed a solution for the compression of hydrogen for filling stations, storage tanks, and pipelines. Bosch Rexroth is focusing on the drive technology for this. In 2024 alone, more than 70 hydrogen filling stations are to be set up, equipped with Bosch Rexroth and Maximator Hydrogen technology. The retail company Coop is one of their customers, and operates several hydrogen filling stations in Switzerland. In 2016, Coop opened the first public hydrogen filling station in Switzerland. What makes these pioneers tick? What hopes do they have in the new hydrogen-based mobility?

Read full story

"The special thing about our partnership with Bosch Rexroth is that everyone here is passionate and has a pioneering spirit."

MATHIAS KURRAS
CEO Maximator Hydrogen

"For us, Egypt is the gateway to the African markets. With our new plant, we're producing to meet tomorrow's needs."

LUIS ALVAREZ
CEO BSH Egypt

Stoves for Africa

The air smells of cinnamon, mint, and cilantro. Bassent Helmy loves cooking, exploring different international cuisines, and spending time with her family. While Helmy slices vegetables, flips the meat sizzling in the pan, and checks on the dish in the oven, she explains the advantages of her new stove: several large cooking zones, rapid heating, and even distribution of heat to every corner of the oven. The Bosch FS90 is designed for preparing many dishes simultaneously, which makes it the perfect stove for North Africa. Focus groups from Egypt helped tailor the stove to local requirements. Since market launch in 2020, this use of a 360-degree UX approach for product development has proved to be right – more than 50,000 of these combined ranges have already been sold. By 2030, BSH Hausgeräte GmbH wants to break the one-million barrier. At the end of 2024, the company plans to open a factory in Egypt – its first in Africa. The aim is stoves from Africa, for Africa.

Read full story

"Generative AI is one of the biggest levers in manufacturing for achieving more efficiency and higher quality."

LAURA BEGGEL
data scientist, Bosch Research

Using AI to train AI

Old ways give rise to new departures. Generative artificial intelligence (AI) promises nothing less than that. As a leading company in the development and application of industrial AI, Bosch is pinning its hopes on this new technology. For example, Bosch has initiated projects in which synthetic images are created using generative AI to develop solutions for optical inspection or to optimize existing models. In this way, Bosch aims to fast-forward the process from planning to implementation of AI projects in manufacturing, so that it takes just a few weeks instead of several months. The software models for generative AI were developed by Bosch researchers, and now the Bosch plants are trialing them. Following a successful pilot phase, the generative AI approach is to be made available to all Bosch plants. A visit to a Bosch pilot plant in Hildesheim, Germany.

Read full story

Bosch technology for Westminster Palace

It's one of the world's most famous buildings, one of England's most photographed sights, and is regarded as the seat of British democracy: the Palace of Westminster. To guarantee the continued existence, as well as the security, of this more than 900-year-old complex, it is currently being extensively refurbished and modernized. Bosch technology is giving a helping hand. Over the past six years, the Bosch subsidiary Protec has put 12,000 fire alarms and an emergency PA system into operation. The project is a sizable one. The Palace's main building alone has 1,100 rooms, and a footprint the size of 16 soccer fields. Some 14,000 people work there, and 7,000 tourists visit each day. A look behind the scenes at the Palace.

Read full story

"It's a great honor for us to help protect and support the Palace of Westminster with our technology."

RICHARD HEATON
project manager, Protec

Robert Bosch Stiftung

Since it was established in 1964, Robert Bosch Stiftung GmbH has been carrying on the company founder's public welfare endeavors. Through its funding, the foundation works for a fair and sustainable future. It is not-for-profit, independent, and non-partisan. Its origins go back to the legacy of Robert Bosch. The entrepreneur and philanthropist formulated a dual mission of securing the company's future and continuing his social commitment.

The future of medicine – customized treatment

At the Robert Bosch Hospital (RBK), an elderly patient is complaining of severe muscular pain. A DNA test shows that this pain is a side-effect of her cholesterol medication – which goes to show that, when it comes to medication, "one size fits all" doesn't apply. Depending on genetic makeup, people react differently to one and the same substance. At the Dr. Margarete Fischer-Bosch Institute for Clinical Pharmacology (IKP), which celebrated its 50th anniversary in 2023 and is part of the Bosch Health Campus in Stuttgart, scientists are working to improve pharmacotherapy. From DNA analyses, they can tell how people will react to certain treatments, and quickly transfer these insights to patient care – a process called "translation" in specialist jargon.

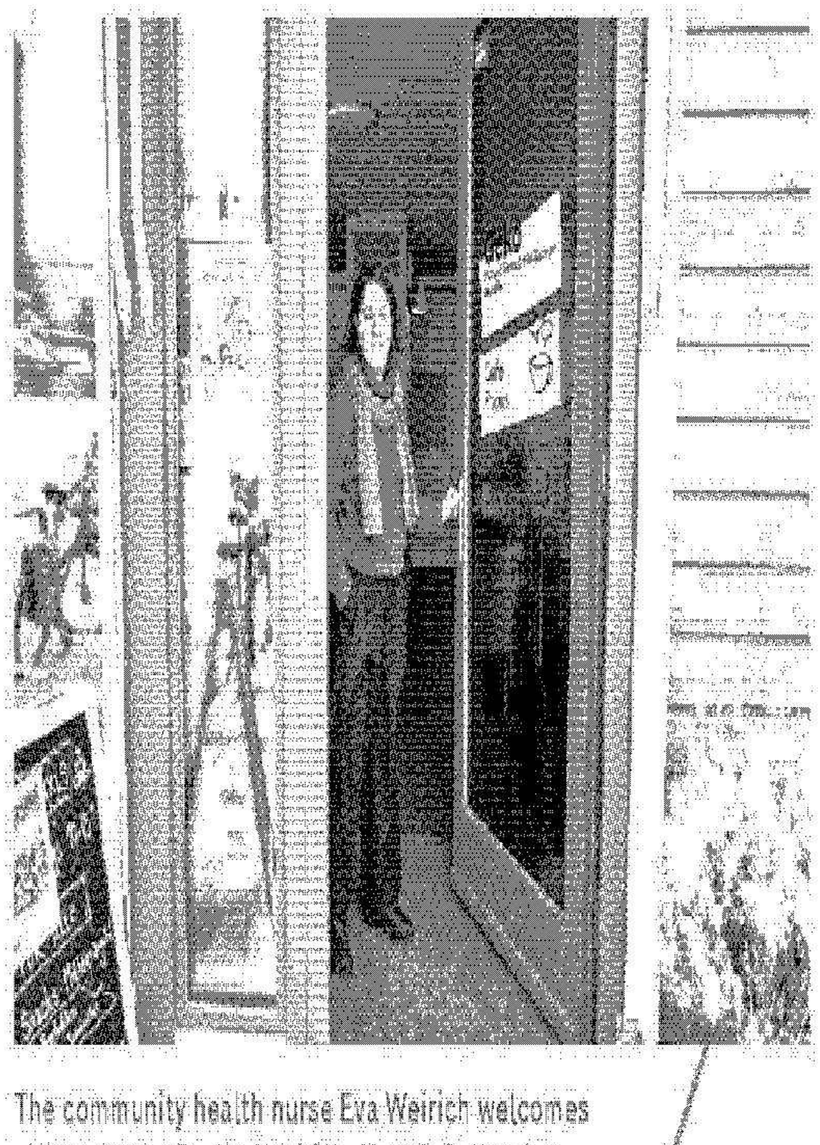
At the RBK, the elderly patient is then treated with a different medication, and issued with a digital medication card. The card contains information about many genetic variations that alter the way commonly used drugs work. Up to now, the RBK is the only hospital in Germany where this medication card is routinely used. Establishing its use nationwide could improve the healthcare of many people: an IKP study published in 2023 in collaboration with international researchers shows that it can reduce side-effects by nearly 30 percent.

The Bosch Health Campus is not just about excellent research and patient care. It also comprises a training center and the Robert Bosch Center for Innovative Health (RBIG). The latter aims to develop pioneering concepts for the German healthcare system. In many places, healthcare is deteriorating. Daily routine is marked by long waiting times, staff shortages, and time pressure. For the RBIG, the answer is to support and further develop health centers, which it calls PORT centers. They offer patients extensive and excellent primary and long-term care – adapted to local requirements.

Healthcare pioneers

There are 11 such PORT centers in Germany. One of them is in the Neukölln district of Berlin. In a new building in the northern part of this district, which has a large migrant community, medical practices, therapists, and counseling offices have formed a "healthcare collective." Brochures provide information in German, Arabic, and Turkish. A café and various advice centers make it easier for people to

reach out to experts. The trained nurse and healthcare expert Eva Weirich has an important role to play in this collective. As its community health nurse, she helps people find their way around the health system better and to manage their illnesses. Sometimes she simply builds bridges. "When advising parents, we often discover that someone still doesn't have a pediatrician for their new-born child, or that they haven't contacted their family doctor for fear of being rejected," she says. "That's where we can help." Initiatives like this, which give people extensive, high-quality neighborhood healthcare, form the building blocks of a future healthcare system.



The community health nurse Eva Weirich welcomes visitors to the Berlin-Neukölln Health Collective.

Tracking down good schools

The German school system also faces structural challenges: more and more is expected of schools, but teachers are in short supply and job pressure is rising. Nonetheless, many schools manage to provide first-class tuition, and to create a stimulating learning environment for their students. Robert Bosch Stiftung throws a spotlight on these good schools, makes their teaching concepts known to a wider audience, and in this way motivates other schools. Together with Heidehof Stiftung, it has conferred the annual German School Prize on Germany's best schools since 2006. A multi-stage selection process precedes the award. Its core element is a visit by educational experts who sit on the judges panel.

One of them is Hermann Veith, an educational researcher from Göttingen. In early 2023, together with his fellow judges, he took a closer look at the Rothenburg elementary school in Berlin. When their taxi stops at the school on a late afternoon, the principal is already waiting for them at the open door. There are just a few children left wandering along the corridors, packing their belongings together before heading home. "Before we visit them, many schools think that strict inspectors are coming to judge their work," Veith says. He has been a judge for the award for many years. It's important to quickly dispel this suspicion, since an uninhibited atmosphere is important if the judges are to get an authentic picture of the school. Over the following two days, Hermann Veith visits lessons, looks at textbooks and exercises, observes how well the students learn, and talks with teachers and students. The quality of teaching is central to the judges' assessment, but the physical surroundings and general atmosphere also play a role. The competition ends with the decision that the school will be one of the prizewinners. And although the Rothenburg elementary school doesn't quite make it to the top in 2023,

it receives an award worth 30,000 euros and is admitted to the prizewinner network.



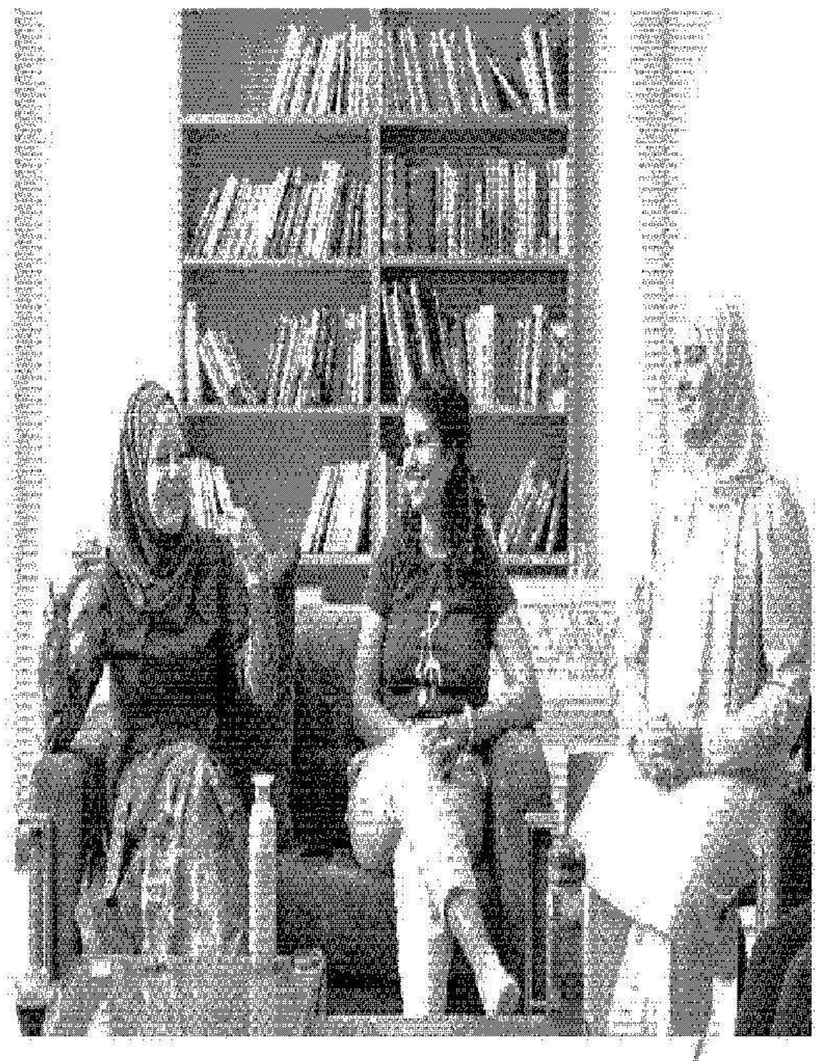
Passive observer: The panel judge Hermann Veith takes time to sit in on a class.

Research into school stress

To get a better insight into the situation in schools, Robert Bosch Stiftung regularly has a representative survey carried out. Known as the "German school barometer," its findings shows that teachers are increasingly observing anxiety, problems with concentration, and restlessness among their students. In 2023, this prompted the Stiftung to start funding a new research project, the "Education and mental health monitor." It aims to collect the first-ever data about the psychosocial care of children and adolescents in Germany. The head of the research project is Professor Julian Schmitz, a child and youth therapist based in Leipzig. His hypothesis is that many children and adolescents are still feeling the psychological after-effects of the Covid-19 pandemic – and that schools are not doing enough about this. "In schools, well-being has to be given the same status as grades in math and German," Schmitz says, adding that children have to feel well if they are to learn well.

Stiftung strengthens its commitment in Middle East

The major social challenges and crises of 2023 are also reflected in the work of the Global Issues funding area. It was only in 2022 that the Stiftung began supporting dialogue between the Arab-Palestinian and Jewish sections of Israeli society. In this context, one of the projects it supports is the "School of Peace," situated halfway between Tel Aviv-Jaffa and Jerusalem. At this further education and community center, people of Jewish and Muslim faith regularly meet to discuss a variety of subjects, including the environment and climate action. The latter is a challenge that affects everyone in the region. One of them is the 25-year-old Nashwa Alrifahie, from Lod. She reports that a nearby rubber factory is



Spring 2023: women of different faiths meet to exchange views at the "School of Peace" further education and community center.

polluting the air, and that the streets are strewn with garbage. Because she feels that the municipal authorities are more concerned with the districts in which mainly Jewish citizens live, Alrifahie has decided to take matters into her own hands and signed up for an environmental course. Following the Hamas attack on October 7, 2023, Robert Bosch Stiftung decided to extend its funding in the region and to do even more for understanding and peace.

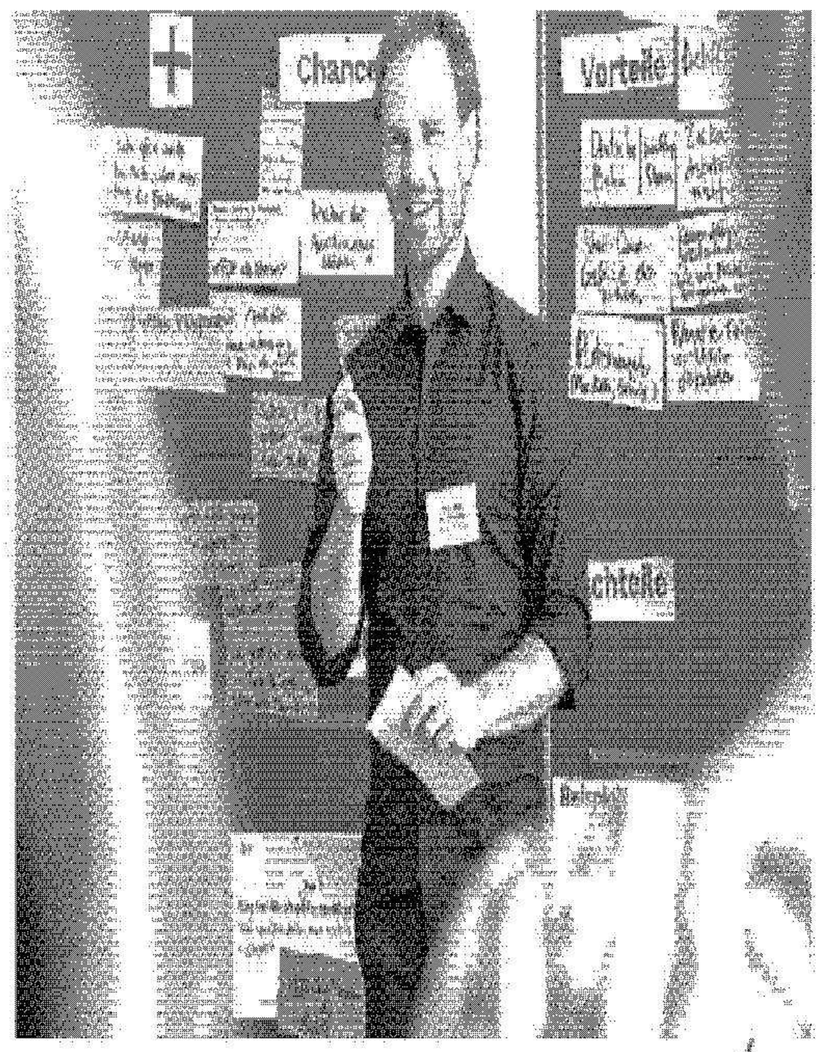
The Russian attack on Ukraine was also on the Stiftung's agenda in 2023 – and will remain there for some time. While emergency aid was the main focus in 2022, the Stiftung brought its support more into line with its established funding areas in 2023. At the end of the year, it decided to fund projects supporting civic society and the recovery of Ukraine for a further five years. One example is the Vidnova fellowship program. It supports refugee Ukrainians who are committed to helping their native country – also from exile.

A meeting place for refugees from around the world

Refugees have barely any say in where they can find safety and what life will be like in their new home. And in international refugee policy as well, their standpoint has been given little attention so far. It is thanks to people like Rez Gardi that this is slowly changing. A Kurdish New Zealander lawyer, she has made it her mission to help refugees find a more powerful political voice – for example, by attending international conferences. At the UN Global Refugee Forum 2023 in Geneva, Gardi spoke out for her demands, and networked with other refugee leaders in the "R-Space." Initiated by Robert Bosch Stiftung and other partners, the space was one of the conference's official side events. For the first time, people with first-hand experience of displacement were offered a place where they could meet refugees from around the world and talk about how to improve their situation.

Face to face with political representatives

One of the focal points of the Stiftung's work is democracy and the question of how people's enthusiasm for it can be (re)kindled. For many people in Germany, politicians are alien beings. But for roughly 350 people at least, this view has changed fundamentally. Selected at random from six electoral districts as part of the "Hello Bundestag" project, they met their Bundestag representatives and talked with them for a day about suggestions for improving the relationship between the populace and politicians. One of the participants was Martin Lehman from Erfurt. The 32-year-old network engineer was initially skeptical about even participating. But now his interest has been kindled, and he has joined an electoral district council that emerged from the project. For him, the difference between this council and social media is that a constructive exchange of views is still possible – especially when it comes to controversial issues such as climate action, migration, and the Ukraine war.



Linus Strothmann, the director of the "Hello Bundestag" project, presents the findings of the first electoral district meeting.

Combating populism

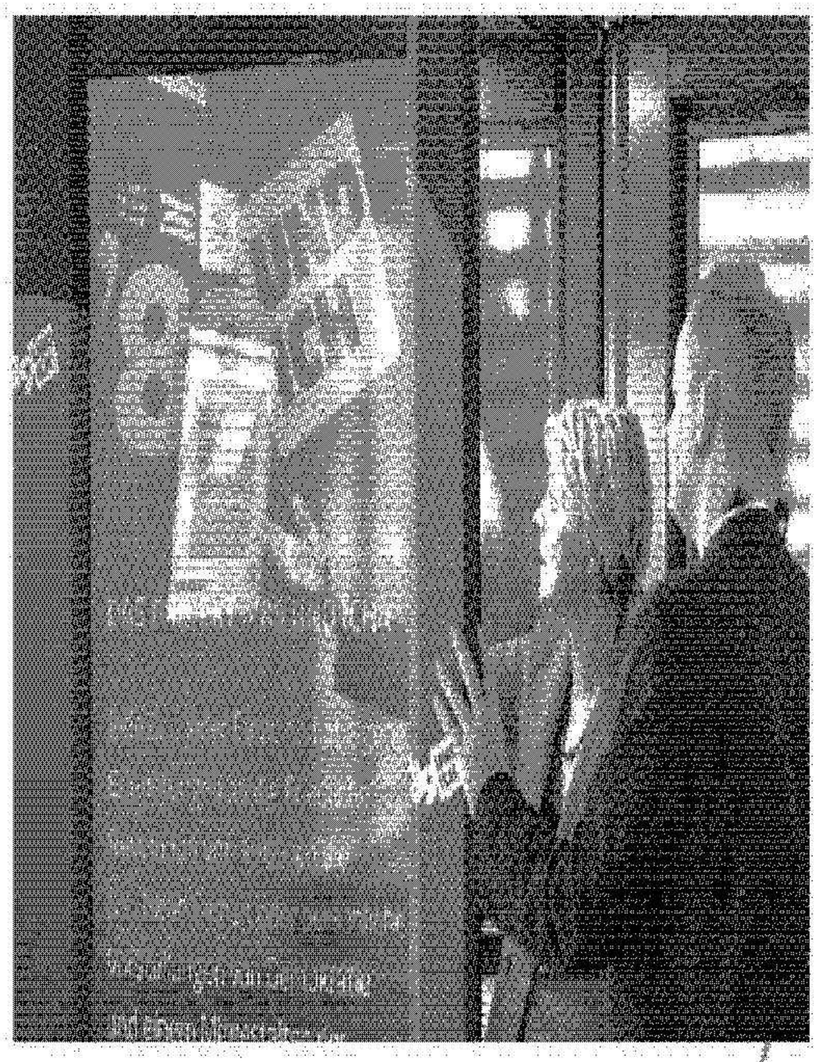
Democracies worldwide face the threat of increasingly polarized societies and populism. This challenge was the subject of debate for 60 Robert Bosch Academy (RBA) fellows – internationally acclaimed experts and thought leaders – at the 2023 Richard von Weizsäcker forum. "The future is one of the biggest resources of democracy and the idea of a future under threat is one key element in political polarization," said Ivan Krastev, an RBA fellow and director of the Bulgarian Center for Liberal Studies. "The future used to be a project, now it's only a projection of everything that worries us – with many obstacles and challenges like the rise of nationalism and climate change." The forum included meetings in Berlin and a study trip to Saxony to acquaint the fellows better with eastern Germany. Their conclusion: Germany also has to take up the challenge and strengthen democracy.

G 01

Total funding 2023

in millions of euros

96.95	
35.47	Global Issues
33.25	Health
10.31	Education
17.92	Overall funding



Robert Bosch Academy fellows learn about the history of German partition on their study trip.



Group management report

of Robert Bosch GmbH

as of December 31, 2023

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The Bosch Group orients its business areas to the growth opportunities of the future. This involves the challenge of opening up areas of future importance that require considerable upfront investment, while at the same time adapting the existing business to the requirements of market developments. This has to be done in a global economic environment that is expected to remain weak. Despite these difficult conditions, the Bosch Group is making progress. In nominal terms, Bosch Group sales revenue rose by 3.8 percent in 2023, to 91.6 billion euros. Adjusted for exchange-rate effects, the increase was 8.0 percent, which is within the 6 to 9 percent growth corridor set as a target for 2023. At 5.3 percent, the EBIT margin from operations shows a significant improvement as forecast and exceeds the previous year's figure of 4.3 percent. Looked at by business sector, the picture is mixed. Strong growth in the Mobility, Industrial Technology, and especially Energy and Building Technology business sectors contrasts with declining sales revenue in Consumer Goods. As forecast, the main reason for the rise in sales revenue in Industrial Technology was the impact of the first-time consolidation of newly acquired companies. All business sectors show a significantly positive result for 2023. Industrial Technology and Energy and Building Technology performed especially well.

At the same time, many strategic projects continued to be driven forward. Among other things, special mention should be made of increasing electrification in many areas in response to tougher climate-action requirements, as well as of an even broader international footprint. Acquisitions and partnerships are strengthening both areas of future importance, such as semiconductors, and established business areas such as mobile hydraulics and the integrator business in building technology. One major project is the reorganization of the Mobility business sector to even better address future market, customer, and technology requirements.

The 2024 fiscal year is also expected to be very challenging; nonetheless, the aim is an increase in Bosch Group sales revenue in the range of 5 to 7 percent. Moreover, a comprehensive package of measures is intended to lay sound foundations for enduringly greater profitability. These measures will initially be a burden on result, as some of their effects will not be felt until after 2025. For this reason, the EBIT margin from operations for 2024 is expected to be roughly on the same level as the previous year. At the same time, we are committed to rigorously pursuing our long-term strategy.

Fundamental information about the group

The group

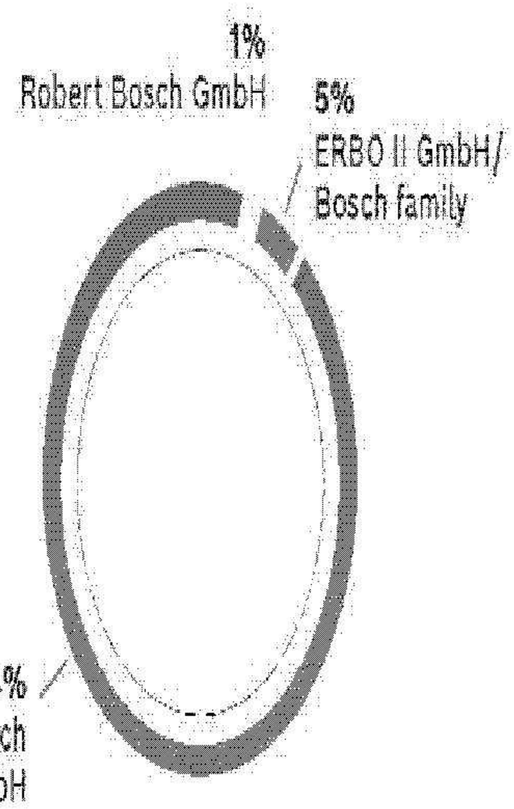
The Bosch Group is a global supplier of technology and services. It generates just under half its sales revenue outside Europe. The group encompasses around 470 fully consolidated subsidiaries and regional companies in more than 60 countries. The parent company is Robert Bosch GmbH, which is domiciled in Stuttgart, Germany. It started out as "Workshop for Precision Mechanics and Electrical Engineering," founded in Stuttgart in 1886 by Robert Bosch (1861–1942). Robert Bosch Stiftung GmbH has been the majority shareholder in Robert Bosch GmbH since 1964.

Despite holding roughly 94 percent of the share capital of Robert Bosch GmbH, the not-for-profit foundation Robert Bosch Stiftung GmbH has no influence on the strategic or business orientation of the Bosch Group. A further roughly 5 percent of the share capital is held by the not-for-profit ERBO II GmbH, established by the founder's descendants, and some 1 percent by Robert Bosch GmbH itself. Of the voting rights, some 93 percent are held by Robert Bosch Industrietreuhand KG, which itself holds a capital share of 0.01 percent. The approximately 7 percent of voting rights remaining are held by the founder's descendants. This ownership structure guarantees the Bosch Group's entrepreneurial independence.

G 02

Shareholders of Robert Bosch GmbH

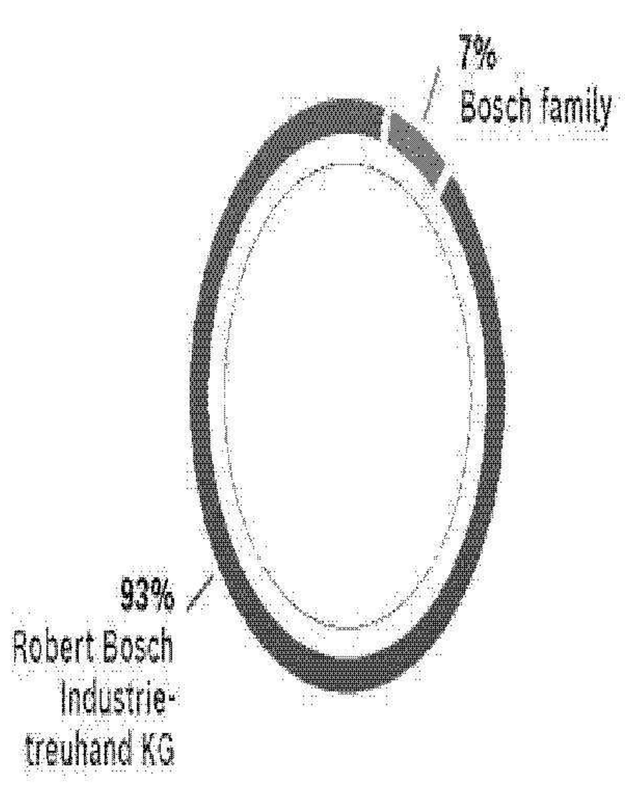
Shareholding



G 03

Shareholders of Robert Bosch GmbH

Voting rights



Organization and competitive environment

With a workforce of more than 429,400 associates worldwide at year-end 2023, the Bosch Group is divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. Reporting is segmented in the same way. The group's business activities are shaped by universal trends such as increasing electrification, growing automation, digitalization, and connectivity, the ever greater importance of sustainability (especially climate action), and intense global competition. Nonetheless, the business sectors' markets and competitive environments vary, in some cases considerably.

In the case of the Mobility business sector (formerly Mobility Solutions), the Bosch Group has long competed mainly with a small number of major automotive suppliers. Its chief customers have been globally operating automakers and major regional producers. However, this market is changing due to increasing electrification, automation, connectivity, and multimodal mobility, as well as to the greater significance of software in vehicles. The integration of electronics and software into vehicles, as well as growing complexity, are having an impact on vehicle architectures. Our customers' purchasing behavior with regard to hardware and software varies depending on whether they pursue a strategy of in-house production or external procurement. In the software field, moreover, the combination and integration of functions that were previously separate is becoming increasingly important.

In the future, there will be an even stronger focus on extravehicular services that rely on software in the car or in the cloud. This will make it possible to update software throughout the lifecycle of the software-defined vehicle and to scale applications in other markets. It will also enable shorter time-to-market, end-to-end architectures, and hardware-agnostic software and services. As a result, new business models will also arise. The complexity involved in operating systems for vehicles means that many automakers are seeking support from software providers – providers that do not operate solely in the automotive segment.

These trends make the market attractive for additional providers, also from industries such as consumer electronics, semiconductors, and the services and internet sector, as well as for providers of mobility platforms. In addition, automakers are looking to increase the value they generate themselves in the promising areas of electronics, software, and electromobility. Other important factors influencing our business are the far-reaching technological changes in the shift from combustion technology to electrification, which are also changing the market and competitive landscape. As a result of the trends toward electromobility and the software-defined vehicle, for example, Chinese automakers have gained a strong market position. At the same time, they are increasingly making inroads into global markets, which is likely to further intensify competition. Despite the significant rise in automotive production in 2023, we expect further developments to be on the subdued side. The significant decline in the proportion of diesel-powered passenger cars in the key European and Indian markets, as well as the regionally very varied statutory standards for combustion engines, present further challenges.

Within Industrial Technology, the Drive and Control Technology division supplies hydraulics and factory automation components and systems in fairly fragmented markets with many competitors and customers. The nature of these competitors and customers is changing as a result of trends such as mobile machinery electrification, of the inroads being made by digital solutions, of further market consolidation in areas such as hydraulics, and of increased price pressure due to the growing significance of Asian suppliers.

In the Consumer Goods business sector, Power Tools and BSH Hausgeräte GmbH are focusing on responding to the changing needs and wishes of consumers and trading partners in their markets and offering them appropriate products and solutions. Both divisions compete with global and regional providers. The extraordinary boom in the consumer goods segment due to the Covid-19 pandemic came to an end in mid-2022. This boom had also triggered extensive pull-forward effects. Even before the pandemic, there was evidence of a global shift from traditional brick-and-mortar retail to online commerce. This trend was reinforced by the pandemic, even though traditional retail is currently regaining ground. A fundamental market shift can also be observed in the home appliances sector as a result of market consolidation. The competitive pressure from Asian, in particular Chinese, suppliers has increased overall, and takeovers have led to shifts in the competitive environment. In view of this, competition is intensifying in the consumer goods segments, and thus also cost pressure.

In Energy and Building Technology, the Building Technologies and Home Comfort (formerly Thermotechnology) divisions compete with a small number of international suppliers and many regional ones. We are currently seeing trends toward consolidation, especially in the heating and air-conditioning market. Moreover, the different domains that make up energy and building technology are converging. One market projected to grow over the long term, especially in Europe, is heat pumps as a replacement for and supplement to the fossil fuel-based technologies used up to now. And while Bosch expects the heat-pump market in Europe to stagnate in the years ahead, also due to uncertainties regarding government subsidies, this market trend will be reinforced over the long term by higher carbon pricing. The Bosch Global Service Solutions division offers its services in a market featuring both major international rivals and more minor local providers.

Corporate governance

The members of the board of management of Robert Bosch GmbH define the strategy for the entire company and lead the company as a whole. In the 2023 fiscal year, the board of management comprised six members. Stefan Grosch took over from Filiz Albrecht as director of industrial relations and board of management member on April 1, 2023. Frank Meyer was appointed as the seventh member of the board of management, effective February 1, 2024. He is mainly assuming responsibility for Building Technologies and Home Comfort in the Energy and Building Technology business sector.

The Robert Bosch GmbH supervisory board appoints, monitors, and advises the board of management. In making appointments to the supervisory board, Robert Bosch GmbH is subject to the German "Mitbestimmungsgesetz" (Codetermination Act). In view of the company's size, the supervisory board has 20 members. Ten members are appointed by the shareholders with voting rights; the other ten members are elected by the employee representatives. Robert Bosch Industrietreuhand KG acts as a shareholder. In line with the mission handed down in the will of the company's founder, Robert Bosch, it is responsible for safeguarding the company's long-term existence and in particular its financial independence. The latter is intended to guarantee that the company remains entrepreneurially independent and able to act at all times.

Under German law, the supervisory board of a company subject to codetermination must set targets for the proportion of women in management positions. In December 2021, the supervisory board of Robert Bosch GmbH set such targets for Robert Bosch GmbH. These targets, which are to be met by the end of 2025, are 30.0 percent on the supervisory board and 16.67 percent on the board of management of Robert Bosch GmbH. As of December 31, 2023, six of the 20 members of the supervisory board of Robert Bosch GmbH were women. Women thus account for 30.0 percent. As of December 31, 2023, there was one woman on the board of management of Robert Bosch GmbH in the person of Tanja Rueckert, resulting in a 16.67 percent proportion of women among the board of management's six members. Following the enlargement to seven management board members effected February 1, 2024, the aim is to reattain the target for the proportion of women.

In December 2021, the board of management of Robert Bosch GmbH adopted specific targets for the proportion of women on the two management levels below the board of management. These targets apply to Robert Bosch GmbH in Germany. They are 10.0 percent for the proportion of women on the first management level and 17.0 percent on the second management level. The deadline for achieving both targets was set as December 31, 2025. At the end of 2023, the proportion had reached 10.4 percent on the first management level (previous year: 9.7 percent) and 15.4 percent on the second management level (previous year: 14.6 percent).

In addition, subsidiaries in Germany that are subject to statutory codetermination set their own targets for the proportion of women on their respective supervisory boards, management bodies, and first two management levels, as well as a deadline for achieving them. Globally, the share of women executives across all management levels within the group rose to 20.0 percent in 2023 (previous year: 19.2 percent). We intend to continue to increase this percentage. At present, our aim is 25.0 percent, which we intend to reach by 2030.

43 Description of business sectors

G 04

Business sectors and divisions of the Bosch Group

Mobility[1]	Industrial Technology	Consumer Goods	Energy and Building Technology
Bosch eBike Systems	Drive and Control Technology[2]	Power Tools	Building Technologies
Electrified Motion		BSH Hausgeräte GmbH	Home Comfort[3]
Mobility Aftermarket			Bosch Global Service Solutions
Mobility Electronics			
Power Solutions			
Vehicle Motion			
Cross-Domain Computing Solutions			

1. Since Jan. 1, 2024. See graph G05 for structural changes.
2. Bosch Rexroth AG (100% Bosch-owned).
3. Since Apr. 1, 2023. Formerly Thermotechnology.

44 Mobility business sector

G05

Mobility: realignment



1. Including Bosch Engineering GmbH, Commercial Vehicles and Off-Road, and ITK Engineering GmbH.

As a supplier of original automotive equipment, Bosch is engaged in a wide range of activities. To adapt to the changed market and customer environment, an organizational realignment took effect at the beginning of 2024. Given the significance of this realignment, we are already presenting the divisions as defined in the new structure, and will consistently use the name Mobility, and not Mobility Solutions, as the name of this business sector, even if our statements relate to 2023. For electromobility, a new Electrified Motion division has been established. The Electrical Drives division was dissolved at the beginning of 2024, and its activities reallocated to several divisions. Going forward, Power Solutions will focus on combustion technology, the hydrogen economy (fuel cells, electrolysis), and thermal systems. The braking control systems and steering systems units have been combined in the Vehicle Motion division. The spare parts business has been renamed from Automotive Aftermarket to Mobility Aftermarket and the business with semiconductors and sensors from Automotive Electronics to Mobility Electronics. The Cross-Domain Computing Solutions division remains responsible for driver assistance systems and automated driving, and has taken over the vehicle control unit business from Powertrain Solutions. Our subsidiary ETAS has assumed certain areas of responsibility from Automotive Aftermarket. The Bosch eBike Systems division and the Bosch Engineering Group remain unchanged. The other units are Two-Wheeler and Powersports as well as the Mobility Engineering Solutions service area, which is globally responsible for process, method, and tool development.

Bosch eBike Systems

Bosch eBike Systems offers a comprehensive portfolio for pedelec manufacturers. This includes a modular system portfolio featuring various products such as drive units, batteries, and displays, as well as connected solutions featuring apps and cloud services. The various e-bike ABS applications can be integrated into the modular system. For manufacturers, specialist dealers, and consumers, the division also offers special services such as a hotline, diagnostics, and spare parts.

Electrified Motion

In the shape of Electrified Motion, a division has been created specifically for electromobility. To achieve this, the electrification activities belonging to the former Powertrain Solutions division and the comfort actuators and electrical power drive business from the former Electrical Drives division were combined. Electrified Motion offers solutions for battery-electric powertrains for passenger cars and commercial vehicles, including off-highway vehicles. Its products range from electric motors, power electronics, and transmission technology to complete e-axles in which an electric motor, power electronics, and transmission are combined in a compact unit. In addition, the division offers electromechanical components and systems such as drives for e-bikes and e-scooters and for vehicle stabilization applications such as steering and brakes. The product portfolio also covers a wide range of motors and drive systems for convenience features such as window lifters, seat adjustment mechanisms, and sunroofs.

Mobility Aftermarket

The sale of spare parts, either made in-house at Bosch or sourced externally, forms the basis of the business of Mobility Aftermarket, formerly known as Automotive Aftermarket. Besides its solutions for vehicles with combustion engines, Mobility Aftermarket develops portfolios and business models for electrification and automated driving. In the course of

the reorganization, Mobility Aftermarket has taken over the original equipment business for wiper systems, including wiper blades, from the former Electrical Drives division and has combined these activities with its existing aftermarket business. Mobility Aftermarket provides testing and workshop technology as well as a range of spare parts for vehicles – from new and remanufactured exchange parts to repair solutions. Its portfolio also includes vehicle-servicing training, technical updates, and services such as workshop management systems, in combination with regional marketplaces and digital catalogues. In addition, Mobility Aftermarket is responsible for the concept behind the independent Bosch Car Service and AutoCrew workshop franchises.

Mobility Electronics

In its role as an internal supplier, Mobility Electronics (formerly Automotive Electronics) continues to encompass the development, commercialization, and manufacture of ECUs (electronic control units). It also develops and manufactures semiconductor components for internal and external customers. The semiconductors are developed and marketed for automotive applications and for specific requirements of the consumer goods industry. Its semiconductors for automotive applications range from application-specific integrated circuits to power semiconductors and MEMS (microelectromechanical systems) sensors. In consumer electronics, Bosch Sensortec GmbH, based in Kusterdingen, Germany, supplies MEMS sensors for a diverse range of applications.

Power Solutions

The Power Solutions division (formerly Powertrain Solutions) brings together combustion technology, the thermal systems business from the former Electrical Drives division, and components and systems for the hydrogen economy – fuel-cell technologies both for electric powertrains and for stationary applications in the field of electrolysis, plus other technologies for a decentralized power supply (solid-oxide fuel cells or SOFC). The portfolio also includes software and services.

Power Solutions operates in the markets for passenger cars, light and heavy commercial vehicles, off-highway vehicles, and stationary applications. The division's combustion-engine business comprises combustion components with solutions and systems based on diesel, gasoline, natural gas, ethanol, hydrogen, and synthetic fuels, as well as the 48-volt battery. It also comprises engine management systems and all software and services related to the combustion engine, fuel-supply modules, fuel injectors and pumps, ignition systems, exhaust-gas treatment systems, and sensors.

In its hydrogen activities, Bosch offers fuel-cell systems for mobility (polymer electrolyte membranes, or PEM) in the commercial-vehicle sector. These systems include both individual components – such as electric air compressors, hydrogen injectors, tank valves, control units, and sensors – and stacks, all the way up to complete power modules. For hydrogen engines and tank systems, components such as hydrogen injectors and tank valves are available. The product portfolio also includes electrolysis based on PEM technology.

In thermal systems, the core business is an extensive portfolio of components and systems for thermal management – such as pumps, electric blowers, and refrigerant compressors for cooling and refrigerant circuits – in vehicles featuring powertrains of all kinds.

The new Vehicle Motion division merges the previous Automotive Steering and Chassis Systems Control divisions and offers customers a combination of steering, braking, and occupant safety systems, as well as the respective sensors. The future aim is for integrated solutions to interact with the relevant actuators in the vehicle (steering, brakes, powertrain, and chassis) and in this way increase safety, agility, convenience and driving enjoyment, and energy efficiency. For example, the division offers vacuum-based and vacuum-independent electromechanical brake boosters that can be combined with braking control systems (ABS, ESP®). Combined systems (integrated power brakes) bring together brake boosters and braking control systems. Integrated power brakes and by-wire actuators also come under the heading of new braking systems. Among other things, these systems are intended to support the major mobility trends of electrified and automated driving and new by-wire architectures. The portfolio also includes electric power steering systems for passenger cars as well as electro-hydraulic and hydraulic steering systems for heavy commercial vehicles. The occupant protection systems encompass airbag control units and the associated crash sensor technology. Vehicle dynamics sensors include the sensors that provide vehicle-related signals as input to active safety systems.

Cross-Domain Computing Solutions

Cross-Domain Computing Solutions is responsible for the business areas of driver assistance systems and automated driving, including parking systems and related services (advanced driver assistance systems, or ADAS). Its core task is to develop application-specific vehicle software as well as vehicle computers, control units, and sensors. As part of this work, the division develops and implements solutions for electric/electronic (E/E) vehicle architectures, driver assistance systems, and automated driving, as well as cockpit solutions, software, and services. Furthermore, the business of cross-domain vehicle control units (but not engine control units) has been transferred from Powertrain Solutions to Cross-Domain Computing Solutions.

Other businesses

The subsidiary **Bosch Engineering GmbH**, based in Abstatt, Germany, develops a wide range of customized solutions based on tried and tested technology used in volume production – not only for sports cars, but also for railcars and other non-automotive mobile applications. Bosch's motor racing activities are also based at Bosch Engineering. Bosch Engineering manages the **Commercial Vehicles and Off-Road** unit, which is responsible for systems development, product management, and sales for the commercial and off-highway vehicle segments. **ITK Engineering GmbH**, based in Rülzheim, Germany, complements Bosch Engineering's services. It offers customized and bespoke systems- and software-development services under its own brand, with engineering operations separate from Bosch.

The **ETAS** portfolio includes basic vehicle software, middleware, development tools, cybersecurity solutions, and end-to-end engineering and consulting services for bringing the software-defined vehicle to fruition. With its product solutions and services, ETAS enables automakers and suppliers to develop, operate, and secure one-of-a-kind vehicle software. In addition, parts of the former Automotive Aftermarket division's diagnostics business for automakers have been integrated into ETAS.

For two-wheelers, three-wheelers, and powersports vehicles, the **Two-Wheeler and Powersports** business unit offers assistance systems such as ABS (antilock braking system) and MSC (motorcycle stability control), radar-based assistance systems such as adaptive cruise control, powertrain technology, display instruments, and connectivity solutions. The unit can draw on the products and resources of the Mobility business sector.

With the establishment of Bosch Mobility, the **Mobility Engineering Solutions** service area, headquartered in Bengaluru, India, has been made an integral part of the business sector. It will assume responsibility for process, method, and tool development in software engineering. Its range of tasks is divided between work as an internal service provider of software engineering for Mobility's divisions and as an external provider of software and service products.

Industrial Technology business sector

The Industrial Technology business sector comprises the Drive and Control Technology division, with its other activities including the Bosch Manufacturing Solutions unit, which focuses on manufacturing equipment and automation solutions, and the Bosch Connected Industry business unit.

Drive and Control Technology

Our subsidiary Bosch Rexroth AG, based in Lohr am Main, Germany, specializes in drive and control technologies for movement in machines and systems of any type and size. It has global application expertise in the market segments of mobile machinery, plant construction and engineering, and factory automation. With intelligent components, customized systems solutions, and services, Bosch Rexroth creates the necessary environment for applications with full connectivity. The division combines hydraulic, mechanical, and electrical solutions for mobile and industrial applications, electrical drive and control technology, and linear motion and assembly technology, including software solutions.

Other businesses

Bosch Manufacturing Solutions, a provider of manufacturing equipment and automation solutions, develops models for customized and intelligent assembly and testing. These include the related manufacturing processes and technologies as well as digital and intelligent solutions and services along the entire product lifecycle. The **Bosch Connected Industry** business unit develops software solutions for internal and external customers with a focus on Industry 4.0.

Consumer Goods business sector

The Consumer Goods business sector comprises the Power Tools and BSH Hausgeräte divisions.

Power Tools

Robert Bosch Power Tools GmbH, based in Leinfelden-Echterdingen, Germany, is a supplier of power tools, garden tools, power-tool accessories, and measuring technology. The division's extensive product range is aimed at both professional use in trade and industry and the DIY market. Its range of accessories above all includes abrasive systems, drill bits, and saw blades, which are sold globally under the Bosch brand and regionally and segment-specifically under brands such as Diablo, sia abrasives, and Freud. Precision rotary tools for DIY applications are also sold under the Dremel brand.

BSH Hausgeräte GmbH

The home-appliance manufacturer BSH Hausgeräte GmbH, based in Munich, Germany, has a product portfolio that ranges from washing machines and tumble dryers, through refrigerators and freezers, ovens, cooktops, extractor hoods, and dishwashers, to small appliances such as vacuum cleaners, automatic coffee makers, and food processors. The home-appliance specialist sells its products under the global Bosch, Siemens (under license), Gaggenau, and Neff brands. In addition, brands such as Balay in Spain, Profilo in Turkey, and Thermador in the U.S. serve their local markets. In addition, there are the Home Connect brand for the BSH ecosystem in the connected kitchen and various service brands, including BlueMovement.

Energy and Building Technology business sector

The Energy and Building Technology business sector comprises the Building Technologies, Home Comfort (formerly Thermotechnology), and Bosch Global Service Solutions divisions.

Building Technologies

The Building Technologies division has two areas of business: its global product business for security and communications solutions, and its regional systems integration business. The latter offers solutions and customized services for building security, energy efficiency, and building automation in selected countries. Both units focus on commercial buildings and infrastructure projects. The product portfolio encompasses video-surveillance, intrusion-detection, fire-detection, and voice-alarm systems, as well as access-control and professional audio and conference systems.

Home Comfort

The Home Comfort division offers its customers a wide range of solutions for heating, cooling, well-being, and process heat. Its portfolio includes electric heat pumps and hybrid heat-pump solutions, condensing boilers, air-conditioning systems, ventilation equipment, air purifiers, solar thermal systems, and combined heat and power generation. In addition, the division is active in the business of constructing plant for commercial and industrial steam and hot-water generation, heating, and air conditioning. Home Comfort markets its solutions under international and regional brands such as Bosch, Buderus, IVT, Vulcano, and Worcester. It operates within a partner network of installers, architects, planners, and wholesalers.

Bosch Global Service Solutions

The Bosch Global Service Solutions division provides technology-based services primarily for customers in the automotive, building, logistics, and pharmaceuticals industries, as well as communications technology. For example, it offers services such as emergency-call and monitoring services.

Selected companies not allocated to business sectors

The subsidiary **Bosch Healthcare Solutions GmbH**, based in Waiblingen, Germany, operates in the medical technology sector, supplying sensors, software, and services. Its product range includes equipment and software solutions for decentralized laboratory diagnostics and the diagnosis of respiratory conditions.

The subsidiary **grow platform GmbH**, located in Ludwigsburg, Germany, offers a platform within the Bosch Group for

50 developing and implementing new business models and incubating in-house startups, supporting them with business know-how in areas such as strategy, organization, controlling, human resources, infrastructure, marketing, and methods.

Through **Robert Bosch Venture Capital GmbH**, based in Gerlingen, Germany, we invest worldwide in technologies with future potential, such as the internet of things, artificial intelligence, and advanced computer architectures. The company provides capital for startups and industry-specific venture capital funds in Europe, the U.S., Israel, and China. Its "Open Bosch" program also fosters Bosch's collaboration with third-party startups.



Prospects for the Bosch Group

Fundamental strategic orientation and objectives

For a broadly diversified technology company like the Bosch Group, considerable opportunities are emerging from universal trends such as electrification, electronification, automation, digitalization, and sustainability, as well as from the further expansion of its international footprint. We have therefore aligned our overall strategy with these circumstances. The starting point for our goals and strategies is the objective of securing the company's future as enshrined in the will of the company's founder Robert Bosch – in other words, ensuring the company's strong development and securing its financial independence. Our long-term ambition is to continue offering products that are "Invented for life" – products that fascinate, that improve quality of life, and that help conserve natural resources. In this respect, "products" are not only physical products and services, but also the software-based solutions and services that go with them.

Against this backdrop, we aim to position the Bosch Group as a leading technology company. We want this aspiration to be reflected in our financial targets as well. With regard to sales revenue, our aim is average annual growth of 6 to 8 percent between now and 2030, given normal inflation rates of 2 to 3 percent. In this context, we take our lead from the European Central Bank's medium-term inflation target of 2 percent. A further strategic goal is to achieve stronger growth in emerging markets outside China, such as India, ASEAN, and Africa, but also in North America, where – in terms of the market available to us – we have not yet exhausted our market potential. In Europe, we want to develop our markets further. We intend to grow by innovating and by opening up new markets, but also by acquiring companies and entering into partnerships. In our existing businesses, we aim to achieve an overall EBIT margin from operations of at least 7 to 7.5 percent; the expansion of high-margin areas of business, both adjacent and new, is intended to further increase this margin, and thus also the free cash flow-to-sales revenue ratio, in the future.

As a rule, we stand by our broad diversification. However, we want to step up our efforts to improve our EBIT margin and our company's competitiveness overall. Focal points here, apart from portfolio management, cost efficiency, and restructuring, are increasing the productivity of research and development, strengthening our regional business, and promoting conditions that promote strong performance in all units and on every level of the hierarchy. The Lead, Work, Win #LikeABosch initiative aims to encourage the entrepreneurial attitude that this requires. Among other things, this involves a stronger focus on earnings and free cash flow and the measures relating to them, as well as the question of how executives can be better empowered and talent more deliberately cultivated.

Ample opportunities

For the Bosch Group, there are considerable growth opportunities in both existing and adjacent and new areas of business. Our strategy is oriented to this. The fundamental condition for entering new fields of business is that the activities be compatible with our skills and expertise. Specifically, these are preparing for and implementing high-quality volume production, broad domain and industry knowledge, as well as technological expertise, also in complex and intelligent systems such as electronic and electromechanical systems with embedded software. Future developments will continue to be driven by the trends of digitalization, connectivity, electrification and electronification, sustainability, automation, and emerging markets, which we associate with our "Invented for life" ethos.

Electrification is of particular importance for Mobility, our biggest business sector. Emissions standards aimed at complying with climate targets and improving urban air quality are reinforcing the trend toward electromobility, along with customers' desire for driving enjoyment. In our Industrial Technology business sector, the new solutions arising from the increasing convergence of electrical and hydraulic systems are presenting us with opportunities. In building technology, especially in heating and air-conditioning, the use of heat pumps and renewables is growing strongly in importance, and this is leading to market opportunities.

In addition to its significance for the Industrial Technology and Energy and Building Technology business sectors, automation especially affects the Mobility business sector with respect to partially and highly automated driving. Here, we expect strong market growth, mainly in partially automated driving. Where industrial technology is concerned, ample opportunities are arising from the increasing flexibility and connectivity of manufacturing operations. This offers new ways of enhancing product quality and productivity, adding functionality, and saving energy. It also opens up potential for services such as remote predictive maintenance. In the Consumer Goods and Energy and Building Technology business sectors as well, connectivity and increasingly smart products are creating additional potential for growth as a result of new services for areas such as maintenance.

In view of our expertise in many product segments and our know-how in software and sensor technology, we see huge potential for the development of Bosch's business operations over the long term, also attuned to differing customer needs in different regions. We are also relying on our proficiency in the areas of connectivity and artificial intelligence, which we view as fundamental for the design of intelligent and user-friendly products, services, and processes. In general, we believe that sustainably manufactured products offer prospects for future market success. We want to further expand our presence in sales and manufacturing operations in the emerging markets of Asia, South America, central and eastern Europe, and Africa, which are home to much of the world's population. In these regions, there is frequently a demand for affordable products – ones that meet the requirements of the local market with regard to people's lifestyles, robustness, and repairability.

Current examples of opportunities in existing areas of business include the expansion of our position in the North American market through the integration of the North American hydraulics manufacturer HydraForce Inc. in Lincolnshire, Illinois, USA (HydraForce), acquired in 2023, and the expansion of the integrator business in Building Technologies through the acquisition of Paladin Technologies Inc. in Vancouver, British Columbia, Canada, and of PalAmerican Technologies Inc. in Tumwater, Washington, USA. The opening of a new test center for chips and sensors in Penang, Malaysia, is an example of our activities in emerging markets. Growth areas in the Mobility business sector include components and systems for electromobility and the driver assistance systems on offer. Further growth areas include semiconductors and the hydrogen economy, whether in fuel cells or electrolysis. Partnerships play a critical role in many areas, such as the partnership that has been announced in the field of medical technology.

When putting our strategy into practice, we continue to build on our high level of innovativeness – also in relation to our research and development expenditure – on quality, on our broad diversification and global presence, and on the Bosch culture. Our actions are based on the Bosch values: (1) Future and result focus, (2) Responsibility and sustainability, (3) Initiative and determination, (4) Openness and trust, (5) Fairness, (6) Reliability, credibility, legality, (7) Diversity, equity, inclusion.



Strategy and innovation

Group-wide topics

Digitalization strategy

By digitalizing our products, we are adding to their qualities in order to enhance customer benefit in the "Invented for life" spirit. Through connectivity, we also want to generate additional software and service sales revenue and increase the efficiency of our processes. By "connected solutions," we mean various combinations of hardware and software, as well as services. The discrete board of management responsibility accorded to digitalization underscores the importance we attach to this subject. We have developed an overarching digitalization strategy for the Bosch Group as a whole. It is intended to provide a common framework for the wide range of existing activities and a guiding principle for future ones. For this purpose, we have defined basic metrics such as recurring sales revenue and sales revenue from software and services as a basis for greater transparency and clear objectives in the future. These metrics are being gradually expanded at the division level in order to reflect the divisions' diversity and thus their digitalization strategies.

Essentially, the overarching digitalization strategy for the entire Bosch Group focuses on five key areas: fascinating with customer-centric solutions, unlocking business potential through software and services, creating additional value by setting up digital ecosystems with partners, making Bosch faster and more efficient, and developing our associates and empowering digital talent. One key element for implementing our strategy is harnessing the power of artificial intelligence with respect to connected, internal processes such as development, production, logistics, and administration, as well as for the expansion of third-party business with digital solutions. For this purpose, we have formed strategic partnerships and launched a comprehensive program to support and coordinate the divisions' ongoing initiatives for the use of generative AI (a form of artificial intelligence that generates its own content). We have also set up training programs to broaden in-house knowledge about the opportunities and requirements of digital business. Extensive training programs, especially in the form of in-house online training courses, serve to expand managers' and specialists' skills.

In a diversified company like the Bosch Group, it is the divisions that are responsible for adapting and implementing the fundamental strategic orientation in digitalization. In 2023, the focus was on developing the appropriate divisional strategies. Among other things, the divisions developed their own targets and defined the metrics that apply to them. A large number of programs are currently underway to flesh out and integrate the overall strategy into the business areas' activities. Areas of interest include strengthening software platforms for software-defined vehicles in the Mobility business sector and, in Industrial Technology, building an ecosystem centered on ctrlX control software. For the divisions, digitalization is also a means of improving efficiency and profitability – whether through high-margin sales revenue from digital solutions or through the cost savings that result from the digitalization of business processes.

One example is the use of artificial intelligence in the shape of chatbots for call center services. Another example is in the field of quality assurance in manufacturing, where synthetic images are created using generative AI to develop solutions for optical inspection or to optimize existing models. To be able to offer best-in-class technologies, we also enter into partnerships with technology providers, such as the startup Aleph Alpha in the field of generative AI. We also invested in the startup via our subsidiary Robert Bosch Venture Capital.

With respect to artificial intelligence, AskBosch, our in-house language system based on generative AI, has been available to our associates in many countries since 2023. The underlying technology is also used by the Cross-Domain Computing Solutions division to analyze large data sets for image recognition even more accurately and efficiently, and to enrich them with contextual knowledge based on the situation. This in turn is a basic prerequisite for developing highly automated driving and many ADAS technologies. Further digital initiatives at Bosch include the wide-scale introduction of S/4HANA to consolidate and modernize the system landscape of the business management software.

Sustainability

For Bosch, sustainability is the balance between the economic, ecological, and social elements of our business activities as part of responsible corporate governance. The highest specialist body for sustainability at Bosch is the corporate sustainability board, which is headed up by the chairman of the board of management of Robert Bosch GmbH and the management board member responsible for sustainability. The board's main task is to define the Bosch Group's sustainability goals and strategy.

Bosch's overall objective for sustainability covers six strategic themes: climate action, water, circular economy, diversity, human rights, and health. In the programs based on them, we are increasingly going beyond our direct sphere of influence to include supply chains and use of products sold. We want to become a leading player in climate action. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral overall since 2020 – both in scope 1 (direct emissions) and scope 2 (indirect emissions from procured power). We achieve carbon neutrality by applying four levers: increasing energy efficiency, generating our own energy from renewable sources (new clean power), purchasing electricity from renewable sources (green electricity), and – as a last resort – offsetting the remaining CO_2 emissions. In 2023, residual emissions of roughly 581,000 tons of CO_2 were offset through carbon credits. The terms "Scope 1, 2, 3" (scope 3: upstream and downstream emissions in the value chain) are used in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard.

Our goal is to continuously improve the above-mentioned mix of measures so as to further reduce our impact on the climate. In the 2023 fiscal year, one of the ways we improved the mix of measures was by further expanding renewable power generation at our locations. In addition, we are sourcing green electricity for our locations in more and more countries. Since 2023, these countries have included Japan, Malaysia, Singapore, and South Korea.

We want to shape climate action beyond our immediate sphere of influence (scopes 1 and 2) and systematically reduce upstream and downstream emissions (scope 3) as well. By 2030, we want to decrease these emissions by 15 percent in absolute terms compared to 2018, the baseline year. This target was set independently of 2030 sales revenue. In other words, the quantity to be reduced will increase in line with the company's future growth. Upstream emissions in the Bosch value chain relate mainly to purchased goods and services as well as logistics, while downstream emissions arise mostly from the use of our products. Bosch's climate targets were reviewed and endorsed by the Science Based Targets initiative (SBTi) for the 1.5-degree pathway.

When it comes to the circular economy, we also want to make our products more sustainable across their entire lifecycle – from procurement and manufacturing, through use, return, and remanufacturing, to recycling and reuse. We therefore strive to either create loops within Bosch or to close them outside the company using established recycling processes. By doing so, we aim to reduce the amount of material used in our products, as well as their carbon footprint, and in this way help achieve our scope 3 target. One example of this is the use of recycled plastics in power tools and home appliances.

Bosch takes its lead from the United Nations Guiding Principles on Business and Human Rights. It also implements the requirements of the Act on Corporate Due Diligence Obligations in Supply Chains ("Lieferkettensorgfaltspflichtengesetz"), which came into effect in 2023. For example, we have set up a risk management system to ensure that our human-rights and environmental due diligence obligations are upheld. This applies both to our own actions and those of our suppliers.

Bosch also places great importance on occupational safety. We see preventing accidents and ensuring workplace safety as part of our responsibility. By 2025, we want to reduce the number of workplace accidents to 1.45 per 1 million hours worked.

Robustness

The Covid-19 pandemic, chip shortages, and the war in Ukraine with its concomitant energy shortages have demonstrated the effectiveness of our crisis organization, but have also underscored the importance of robustness. China was still feeling the impact of the Covid-19 pandemic at the start of 2023, as the government lockdowns there lasted almost until the end of 2022. The chip shortages were largely overcome in the course of 2023. The Coordination Team Ukraine project was dissolved at the end of May 2023 and its tasks transferred back to the line organization. This team had been founded at the start of July 2022 as a successor to the Ukraine crisis team. Bosch's activities in Russia have essentially come to a standstill; the process for divesting the Russian plants, which served various business areas, was largely completed in the course of 2023.

Despite the generally tense energy situation in Germany and other European countries in the winter of 2022–2023, there were no restrictions on the supply of natural gas at Bosch. This was partly because we significantly exceeded our self-imposed target of using 15 percent less natural gas at our European locations, saving a total of some 20 percent during the heating period. The mild weather played a role here as well. As a precautionary measure, we have also increased our crude oil stocks to safeguard our delivery capability.

On a general level, we are working to increase our robustness by broadening our international footprint. Our strategy is to achieve an even better regional balance, also by improving our market penetration in countries where we have further growth potential. In particular, this means strengthening our activities in the Americas, especially the U.S., but also in countries such as India or regions such as ASEAN and Africa. We also analyze the structure of our supply sources with regard to the growing number of trade barriers and review the extent to which these sources are exposed to protectionist conditions and risks.



Mobility

New organizational structure takes effect

Our vision is to shape a new era of mobility – mobility that is sustainable, safe, and exciting. We aim to maintain our role as the go-to partner for automotive systems and the associated hardware and software, and to become a leading provider of technology for the mobility lifecycle business. Until now, Bosch has primarily been a supplier of systems and components. However, customers are increasingly demanding a separation of hardware and software, with many hardware components likely to have less potential to offer a USP in the future. We expect that the driving experience and customer benefits will be increasingly defined by software, at the same time, the proportion of electronics will rise. In this context, it can be assumed that different customer requirements and regulations in the regions will lead to different demands on Bosch as a supplier. Our strategy is based on our expertise relating to the interaction between software and hardware, as well as to vehicle-specific subjects such as powertrain technology, vehicle dynamics, and safety. It is also based on our generally high level of electronics expertise. We also want to ramp up our activities in software and services, even if our focus will continue to be on hardware.

It is important to have an organization that provides the best possible responses to market and technological developments. Customer needs are changing ever more quickly, and we want to serve those needs even faster, with customized technologies and solutions from a single source. This is why one of our strategic focal points is the realignment of the Mobility (formerly Mobility Solutions) business sector as an integrated business sector with its own management team and P&L responsibility across the Mobility business areas. The new structure took effect at the start of 2024. Many of its divisions were assigned to horizontal and vertical domains in order to strengthen collaboration in areas such as electrification, vehicle dynamics, driver assistance systems, vehicle computers, and software. The new structure is described in detail in the section headed "Fundamental information about the group."

The strategy should also be viewed in the context of market developments. Global vehicle production is still well off its 2017 peak of some 98 million units, although in 2023 it returned to its 2019 level (i.e., before the Covid-19 pandemic) of around 93 million units. The chip shortages have now largely been overcome. In the years ahead, however, we expect only slow growth in global vehicle production. We continue to base our planning on the assumption that production will not return to its 2017 level before the final years of this decade. Nonetheless, we believe that factors such as the rising share of connected software and electronics components in vehicle systems offer our company considerable growth opportunities.

At the same time, we need to provide fundamental answers to geopolitical developments, changes in the competitive landscape, growing regionalization, digitalization, and stricter sustainability requirements, also in the area of mobility. Other important trends are battery-electric powertrains, in which Chinese manufacturers and suppliers are already playing a major and growing role, and fuel cells. Hydrogen engines also offer new possibilities, and the significance of software and data will continue to grow as well. For future vehicle software architectures, we must adapt to the different approaches taken by manufacturers and position ourselves flexibly. In several domains, we expect to see a trend toward vehicle platforms with centralized electrical/

electronic architectures. This will likely mean that the number of electronic components and semiconductors in vehicles will continue to rise. Assisted driving will move even more toward partially and then fully autonomous driving. In addition, competition will change due to new market players in industries such as semiconductors and the internet and service sector, including mobile platform providers. We also aim to become a provider of solutions for software components and software platforms that are then used to enable functions in the vehicle. For this purpose, we are significantly expanding the activities of our subsidiary ETAS.

Our goals are to achieve over 6 percent average annual sales revenue growth in the Mobility business sector from 2023 to 2030 and to continue to gradually improve EBIT margin from operations despite continuing high levels of upfront investment. Our growth target assumes inflation rates of between 2 and 3 percent. In this context, we take our lead from the European Central Bank's medium-term inflation target of 2 percent. We expect growth opportunities particularly in battery-electric vehicles and fuel cells, vehicle dynamics, driver assistance systems, vehicle computers, software and services, semiconductors, and sensors. But our activities in eBike Systems, Two-Wheeler and Powersports, Commercial Vehicles and Off-Road, Mobility Aftermarket, and Bosch Engineering also offer considerable prospects for growth.

Achieving these targets also requires that we strengthen our competitiveness through cost efficiency and by systematically aligning our portfolio with future changes in the market and competitive landscape. Among other things, our far-reaching measures concern purchasing activities and manufacturing processes, as well as the global production network, administration, and sales. They are also concerned with strengthening productivity and efficiency in research, development, and product management. There are also plans to make greater use of generative AI in software development, such as by generating synthetic training data for automated driving. We expect generative AI to become increasingly important throughout the entire value creation process. Mobility's strategy also includes an overarching, long-term investment strategy for the business sector that is linked to financial targets. Mobility aims to significantly increase its competitiveness in order to achieve enduringly profitable growth.

Regarding the future viability of the Mobility locations in Germany, we have concluded a far-reaching agreement with the relevant employee representatives. One of its key components is a collective agreement for almost 80,000 associates in Germany. This agreement also sets out a process for the development of long-term objectives for the German Mobility locations that are bound by collective agreements. The agreement also relates to the reorganization of the Mobility business sector as of January 1, 2024. The adjustments that have been announced since 2023 include phasing out the production of combustion-engine components at the Munich location. Further adjustments will likely be necessary, particularly at our European locations, due to the phaseout of combustion technology. To safeguard the competitiveness of the powertrain business, we must also adjust headcount in the areas of development, sales, and administration at the Feuerbach and Schwieberdingen locations in Germany. In the field of automated driving, we also decided in 2023 not to invest any further resources in the hardware development of lidar sensors, given the technological complexity and delays in the market launch. The existing engineering capacity is to be allocated to other sensor technologies such as radar.

The Cross-Domain Computing Solutions division is also planning to improve the setup of its locations, particularly in the greater Stuttgart area. Measures here include a comprehensive cost-cutting and performance program, which will focus on efficiency in research and development along with administration and sales.

We are working on the competitiveness of the Mobility business sector's location structure outside Germany as well. This applies to locations belonging to different divisions in France. In the powertrain systems business, we are also adapting our activities relating to push belts for CVT (continuously variable transmission) at our factories in Ho Chi Minh City, Vietnam, and Tilburg, the Netherlands. And in the mechanical steering segment, which is becoming much less important, we have announced the closure of a plant in Penang, Malaysia.

Outlook for powertrain technology

Future powertrain technology will be impacted to a large degree by emissions regulations. Besides CO_2 regulations, these include the new European Euro7/VII emissions standard, which we expect to come into force by summer 2024. Following the agreement reached by the European institutions in December 2023, it still has to be approved by the EU member states in the European Council and by the European Parliament. However, the technical regulations based on this will take more time. The new regulations are expected to apply to type approval for passenger cars and light commercial vehicles from the start of 2027 and for heavy commercial vehicles starting in mid-2028; in each case, they will apply to new vehicle registrations after a period of one year.

As a company, we are committed to the very ambitious Paris climate targets. In this spirit, we continue to pursue all technology paths and offer our customers a broad portfolio. We want to make any necessary structural changes as socially acceptable as possible. In the transformation in powertrain technology, we are committed to harmonizing the interests of ecology, business, and society. For this reason, our work focuses on improving our existing technology as well as on new technologies. The aim here is to reduce emissions from combustion engines, with regard to both the engine itself and exhaust-gas treatment. We also want to contribute to low-carbon mobility through a variety of developments, including components and systems for electric vehicles that run on green electricity.

In the transitional phase and in numerous applications (especially in heavy-duty and long-haul traffic), the modern combustion engine will continue to play an important role. It will also feature as part of hybrid configurations. Bosch's aim is to remain a long-term partner for systems and components through efficiency in capital expenditure and engineering work and to systematically exploit the opportunities that present themselves in existing areas of business. Nonetheless, we expect sales revenue in the combustion-engine business to decline from the middle of the decade onward, and in addition to adjustments there will be regional shifts, especially in Europe. Low-carbon and completely carbon-neutral fuels – such as renewable synthetic fuels – can help the existing global vehicle fleet play a role in achieving climate targets. Moreover, alternative fuels can complement electromobility where purely battery-electric powertrain solutions still face economic or physical challenges, such as

in heavy trucks. In addition, low-carbon and carbon-neutral fuels can be used in countries in which the take-up of electromobility is slower as a result of the lack of recharging infrastructure. We also supply components for vehicles powered by natural gas and bioethanol in countries such as Brazil.

In addition to purely battery-electric powertrains, many automakers are equipping their combustion engines with hybrid solutions such as 48-volt technology. Both combustion engines and 48-volt batteries fall within the purview of the newly formed Power Solutions division. The 48-volt technology in particular helps manufacturers reduce combustion-engine consumption and to make these engines more environmentally friendly. One of the variants of 48-volt technology that Bosch offers in Europe is a battery with integrated power electronics. In this context, the very tight supply situation last year has improved significantly and is expected to normalize as further lines go into operation.

The growth market for electromobility

In the electric passenger-car and commercial-vehicle segments, nearly all automakers have now announced ambitious sales and fleet-share targets. By 2030, we expect that significantly more than one-half of all new passenger cars will be electrified, as either battery-electric or hybrid models. For 2024, however, our assumption is that market developments will vary from region to region. While growth in China will remain largely constant, we expect to see a reluctance to buy among consumers in Europe, and especially in Germany, due to the expiration of the green bonus scheme. Considerable variations between products and delays in vehicle launches can be observed in the European and American markets. They mean a higher planning risk for suppliers and manufacturers.

To resolve these difficulties presented by electromobility, Bosch has established a discrete Electrified Motion division. We offer a wide range of solutions in the field of electric driving, from e-axles to electric motors and power electronics, and are therefore present in all relevant markets. This requires heavy upfront investment in development and production. In addition, there are the aforementioned challenges in the market. For this reason, a systematic focus on greater cost cuts and more standardization is needed to remain successful. These efforts are already paying off in China.

Our innovations in electromobility include new powertrain solutions, based on 800-volt technology, that shorten battery-charging times. These solutions went into production in 2023. The Bosch Car Service network is also extending its servicing and repair portfolio for electric and hybrid vehicles. One further new development is a connected energy and thermal management system that predictively (i.e., based on forecasts) gets the battery up to the right temperature when it needs charging. This cuts the time taken to recharge. Another new feature efficiently distributes electrical and thermal energy between the battery, the powertrain, and the air-conditioning system during driving. And with a view to recharging security, we are working with the startup Fetch AI to develop a digital passport for the electric car – independent of centralized data platforms.

Fuel cells: a promising technology

Electrical machines and inverters can not only be used in battery-powered vehicles. They are also fundamentally suitable for vehicles powered by fuel cells. For the fuel-cell powertrain as well, we offer a comprehensive portfolio ranging from individual components to the stack (a combination of fuel cells that are connected with each other electrically)

and entire fuel-cell systems. The ramp-up of fuel-cell technology depends heavily on the expansion of hydrogen infrastructure, and also depends on government policy. In this context, our activities relating to PEM fuel cells are initially focusing on the commercial vehicle sector.

We started production of our fuel-cell power module at the Feuerbach location in 2023. For fuel cells as well, we rely on a manufacturing network. In Germany, our Bamberg plant supplies the fuel-cell stacks and our Homburg plant supplies system components. In 2023, we also further ramped up manufacturing of the fuel-cell power module at our plant in Chongqing, China. The necessary components are supplied by our plant in Wuxi, China. In addition, we are establishing manufacturing capacity close to customers at our location in Anderson, South Carolina, USA. Together with the start of production of our fuel-cell power modules, a recycling plan also kicked off. With this, we aim to repurchase stacks when their useful life expires in order to recover the precious platinum that is used as a catalyst. For this purpose, we have concluded an agreement with the mobility provider Hylane GmbH in Cologne, Germany. This startup rents out hydrogen commercial vehicles, some of them equipped with Bosch fuel-cell powertrains.

In commercial vehicles, however, hydrogen can be used not only in fuel cells, but also in hydrogen engines. For these engines, we are working on both port- and direct-injection components and systems, as well as the necessary control units. This solution is particularly suitable for heavy commercial vehicles operating for lengthy periods with especially heavy loads, such as construction and agricultural vehicles. The currently available engine and powertrain technologies already provide a good basis for hydrogen engines. Much of the existing technology used for development and manufacturing can be repurposed. In addition, a hydrogen engine is made of steel and aluminum, which reduces dependencies on critical raw materials such as cobalt and their supply chains. We have already won a number of small-scale projects.

In addition, we are looking into PEM electrolysis and investing in the development of the associated components. Electrolysis uses electricity to split water into hydrogen and oxygen, thereby producing hydrogen. We started building prototypes for the electrolysis process at the beginning of 2023. We are also working on technologies in the field of stationary power generation based on solid-oxide fuel cells (SOFC).

Vehicle dynamics as a growth area

The latest generation of the ESP® braking control system shows how hardware and software engineering are becoming separated on the one hand, yet are also cross-pollinating. The key innovation here is a new control concept: this software can intervene not only in the braking system but also in the electric powertrain and electric steering system. As a result, it can take preemptive action in critical situations. This allows the vehicle's driving stability and agility to be enhanced.

The new control system can be integrated into both a central vehicle computer and the ESP® control unit or other braking control systems, and is also available as a discrete software package. It will be part of a future vehicle management system – a software system solution that coordinates all aspects of vehicle motion by centrally controlling the brakes, steering, and powertrain. From 2024 onward, we expect additional synergy effects to arise from the integration of braking and steering systems under the roof of the new Vehicle Motion division.

Software-defined vehicles

Software-defined vehicles require a new, centralized software and E/E architecture. Today, 30 to 50 individual control units are installed even in compact-class vehicles, and premium vehicles may feature more than 100. In the future, it will be possible to significantly reduce the number of control units by using powerful computers for the various vehicle domains, such as cockpit and connectivity functions. At the beginning of 2024, we presented an innovation at the Consumer Electronics Show in Las Vegas, Nevada, USA, in which infotainment and driver-assistance functions are combined in a software-intensive central computer and a powerful system-on-chip. In the future, the new software and E/E architectures will make it possible to update and continuously optimize software over the vehicle's lifecycle, within the limits set by the hardware.

This goes hand in hand with a growing separation of hardware and software. We are developing a uniform software and E/E architecture for the entire vehicle. We are also increasingly offering hardware-agnostic software that runs on chips made by different manufacturers. Among other things, this applies to the video-based perception of the vehicle's surroundings, which serves as the basis for assisted and automated driving and parking. At the same time, we are also working on hardware-only camera heads. We want our subsidiary ETAS to play a growing role in bringing the software-defined vehicle to fruition, and to offer basic vehicle software, middleware, engineering tools, cybersecurity solutions, and end-to-end engineering and consulting services, both on the external market and within the Mobility business sector.

Driver assistance and automated driving

We are systematically improving our driver assistance systems for SAE levels 0 (such as lane-departure warning systems) to 2 (such as lane-keeping support systems and automatic cruise control) and also working on automated driving functions that significantly relieve drivers on freeways and in congested traffic. In addition, we are developing automated driving in stages in line with SAE Levels 3 and 4. By 2030, we expect the number of vehicles equipped with SAE Level 2 or Level 2 hands-free systems to at least double.

We use partnerships to augment our engineering proficiency, such as the engineering alliance with the Volkswagen Group subsidiary Cariad. The aim of this partnership is to make automated driving suitable for volume production. More specifically, these functions are Level 2 hands-free systems for urban, extra-urban, and freeway driving, as well as a system that assumes all driving functions on the freeway (SAE Level 3). In addition, an automated parking and charging service for electric vehicles is being tested in pilot projects such as an experimental Bosch parking garage in Ludwigsburg and the Cariad staff parking garage in Ingolstadt (both in Germany). In these garages, vehicles move driverlessly to the charging station and then back to their parking space. Building on our experience, we are also working on systems solutions for driverless maneuvering in automotive plants.

A focal point of growth: semiconductors

In 2023 as well, we made a number of decisions that aim to further significantly expand our capacity and our market position in the semiconductor segment. In addition, our semiconductor business invested a total of some 630 million euros in 2023 in the corresponding production facilities and infrastructure. This includes the expansion of the cleanroom space in Reutlingen, Germany, which will give us more manufacturing capacity for processing 200-millimeter wafers. The further expansion of the Reutlingen location will primarily serve the growing demand for MEMS in the automotive and consumer sectors, as well as for silicon carbide power semiconductors, which play a key role in electromobility. In addition, it is planned to further expand the semiconductor location in Dresden, Germany, where we manufacture application-specific integrated circuits (ASICs) as well as power semiconductors, and where we also aim to start manufacturing MEMS on 300-millimeter wafers over the medium term. Over the next few years, Bosch plans to invest some 3 billion euros in the development and manufacture of microelectronics and systems based on them, both as part of its own investment plan and under the auspices of the European IPCEI ME ("Important Project of Common European Interest on Microelectronics") funding program. We also opened a new test center for chips and sensors in 2023 at our location in Penang, Malaysia, and plan to expand the site further.

With regard to silicon carbide semiconductors, we completed the acquisition of TSI Semiconductors LLC's manufacturing site in Roseville, California, USA. We have also applied for funding under the U.S. CHIPS Act to convert the site to the manufacture of silicon carbide power semiconductors on 200-millimeter wafers. In Germany, moreover, we have founded the European Semiconductor Manufacturing Company (ESMC) GmbH in Dresden together with TSMC, Infineon, and NXP. A 300-millimeter wafer fab for semiconductor production is to be built in order to meet the future capacity requirements of the rapidly growing automotive and industrial sectors. As the operator of the factory, TSMC holds a 70 percent stake in the company; Bosch, Infineon, and NXP each hold 10 percent. Total investment is expected to run to some 10 billion euros. The project is planned within the framework of the European Chips Act.

Expansion and growth in additional areas

Following the boom during the Covid-19 pandemic, the e-bike market is in a consolidation phase. Fundamentally, however, we expect the market to continue to grow due to changes in mobility in many regions and to changes in leisure behavior. The focal point of our activities is our core European market. There is additional growth potential in North America and in certain countries in Asia Pacific, where we are already represented by our own sales organizations. In addition, we are continuously expanding our range of drives, batteries, control units, and digital solutions for e-cyclists, as well as services for specialist bicycle dealers. For example, displays can be personalized, riding modes can be set individually via new app features, and theft protection can be extended with a digital e-bike pass.

The Two-Wheeler and Powersports unit intends to continue growing its safety systems with its motorcycle ABS and motorcycle stability control system, also for high-volume smaller motorcycle classes, as well as its advanced rider assistance system (radar-based solutions). In addition, innovation fields such as software, connectivity, and electrification are becoming increasingly important in the motorcycle market as well. In the future, Bosch will make it possible to activate additional vehicle functions using an online update. In addition, a new electrical powertrain system debuted that delivers 6 kilowatts of power. The focus up to now has been on 3-kilowatt units. The new system is ideal for two-wheelers such as large scooters and classic motorcycles in urban environments and on cross-country trips. With engine control units, injectors, and other developments, we want to make the operation of combustion engines for two-wheelers and powersports vehicles more efficient.

We also see opportunities for growth in the use our systems and components in other mobility markets. Through our Bosch Engineering unit, we also offer our radar and ultrasonic sensors for assistance systems and the automation of agricultural machinery. In 2024, we plan to premiere a radar sensor that allows height measurement while driving on uneven terrain, so that the height of a device above the ground can be set precisely. We also see opportunities for electrification in agriculture, as this can open up certain advantages for small to medium-sized machines such as high efficiency, low maintenance costs due to less fuel and fewer filters, and the use of locally produced electricity. Through Bosch Engineering, we offer motors for farm loaders, vineyard tractors, and farm tractors, among others. Another field is electrification solutions for boat drive systems. We combine our own components such as the electric motor, inverter, and transmission on a single platform, supplemented by other components such as the high-voltage battery, charger, and cable harnesses.

We are also debuting additional services. The target group here is mobility and logistics service providers. These services include solutions that provide uninterrupted information about the vehicle's condition and its lifecycle, and are therefore an aid for fleet customers and workshops. We also bring service providers and fleet customers together via our L.OS platform.



Industrial Technology

Drive and Control Technology

In our Drive and Control Technology division (Bosch Rexroth), we are continuing to expand our activities as a provider of mobile and industrial hydraulics and of factory automation and connected manufacturing. The main elements of these efforts are the further development of the existing portfolio, innovations in software-based products and services, and the broadening of our international presence through the expansion of our sales and manufacturing network. The division is also strengthening its competitiveness through partnerships and acquisitions.

The markets for the division's two portfolio segments, hydraulics and factory automation, differ fundamentally. In the hydraulics segment, Bosch Rexroth has a strong position in a market that will grow moderately over the long term. In factory automation, by contrast, Drive and Control Technology is a niche provider in a large and rapidly growing market. In both segments, we want to grow faster than our respective markets. Cost competitiveness, a strong product portfolio, and a broad regional footprint are important factors here. In this context, we are strengthening our portfolio through partnerships and acquisitions.

In the area of innovation, Bosch Rexroth is focusing on new technologies such as the electrification of mobile hydraulics, where our eLION platform offers solutions for the electrification of mobile machinery. We are also using software functions as a way of further improving connected solutions for industrial hydraulics. In the future, digital twins of all products are to be made available on an online portal. Energy-efficiency improvements will also continue to play an important role. For example, a new series of large hydraulic motors is significantly lighter than the previous generation, which saves resources and reduces emissions during use. In factory automation, the pinpointed control of systems can help make operations more energy efficient. In the 2023 fiscal year, further important partners could be won over for Bosch Rexroth's ctrlX OS operating system with digital services. More than 90 partner companies are now part of the ctrlX world.

Innovation centers bring the diversity of the Drive and Control Technology portfolio to life for customers. In addition to the existing center in Ulm, Germany, new innovation centers opened in the 2023 fiscal year in Warsaw, Poland; Budapest, Hungary; and Lohr, Germany. One strategic focal point apart from innovation is international footprint. The local-for-local strategy (local value creation and supplier base) and improvements to competitiveness require additional investments and the optimization of structures. In this context, a decision was made in 2023 to merge several locations in the Stuttgart region as well as in Brazil and North America. The aim is to increase the share of value created in China and North America. In Europe, the newly opened plant in Brnik, Slovenia, and its expansion that has already been announced, as well as the expanded sites in Blaj, Romania, and Bursa, Turkey, will improve our regional footprint. At its location in Lohr, Germany, Bosch Rexroth has invested in a new logistics center and commissioned new energy-efficient systems and optimized processes in its foundry.

To expand market position in China, a strong local presence and an adapted product portfolio are crucial. To this end, the division has set up joint ventures with regional partners to develop and offer products for hydraulics, off-highway electrification, and automation. In September 2023, a joint venture agreement was signed with Zhuhai Enpower Electric Co. based in Zhuhai, China. It aims to develop and sell off-highway electrification products and applications. The establishment of the new company is still subject to approval

by various bodies, including the antitrust authorities. The aim is that the joint venture will add to the electrified product portfolio in hydraulics, in order to offer technically complementary and competitively priced solutions for the Chinese market. To strengthen its automation business in China, joint venture agreements were signed with Zhejiang Hechuan Technology, based in Quzhou, China, in November 2023. Here too, official approvals are still pending.

The ramp-up of the plant in Querétaro, Mexico, opened in mid-2023, is intended to support the division's growth plans in North America with local and competitive production and procurement. The Fountain Inn location in South Carolina, USA, is being developed in parallel. Planning work for the new location in Charlotte, North Carolina, USA, is continuing. One significant step toward shoring up the hydraulics business, especially in North America, was the completion of the acquisition of HydraForce, Inc. in Lincolnshire, Illinois, USA, in February 2023. In the ongoing integration process, one particular focus is being placed on cultural and organizational integration within the Compact Hydraulics business unit.

Other businesses

The **Bosch Manufacturing Solutions** unit also grew significantly in 2023 – both within the Bosch network and with third-party customers. Above all, this growth is being generated in the areas of strategic future importance for electromobility. In its business with third-party customers, the main focus is on assembly and testing systems for the growth markets of batteries, fuel cells, and electrical powertrains.

The **Bosch Connected Industry** business unit is responsible for business with connected industry-related software solutions for in-house and third-party customers. The product range has three main focal points: development software for mechanical engineers, software for the digital factory, and software for structuring and describing data. In the 2023 fiscal year, Bosch Connected Industry won an order to equip a battery-cell production facility for a major customer.



Consumer Goods

Power Tools

Bosch Power Tools operates in an environment that is both volatile and highly competitive. Following the extraordinary boom during the Covid-19 pandemic, the division now faces a persistently weak consumer climate and a weak construction and real estate sector. With product innovations and modifications as well as novel services, Power Tools continues to pursue a strategy of growth across its segments. The division is also systematically opening up new business areas. This means that its global structures have to be geared to growth potential and that further improvements on the cost side to be consistently implemented in order to strengthen competitiveness. This also includes structural measures, such as those in the corporate, development, and administrative units at the Leinfelden location near Stuttgart.

To be globally competitive, Power Tools will also undergo reorganization in 2024. To respond to changing market and customer requirements and leverage synergy effects across the entire value chain, it will combine the DIY and professional parts of the power tools segment into a single unit. In addition, the outdoor and garden tools businesses will be strengthened by merging them into one business unit. Investments will also be made in important growth areas such as the accessories business and the expansion of the division's North America business.

In the future, the Power Tools portfolio will be based even more strongly on local requirements and use-related needs, such as professional tools for emerging markets. This will be supported by a new regional structure with a sales structure to match. The aim is to provide solutions for markets with similar requirements in an optimally coordinated global product portfolio. As before, one focal point here will be the further expansion of the cordless device range and the two cross-manufacturer battery platforms in the 18-volt class: the "AmpShare" alliance for commercial applications and the "Power for All Alliance" for products for the home. In addition, it is expected that technical developments in the field of battery technologies will provide a boost to efficiency, such as a nearly 70 percent longer battery life for professional appliances. In 2023, Bosch acquired some 12 percent of the share capital of the Swedish company Husqvarna AB. In acquiring this stake, Bosch aims to strengthen the battery alliance between the two companies. Husqvarna also includes the Gardena subsidiary and its Flymo brand, both of which are also partners in the Power for All Alliance.

In the future, the division intends to focus particularly on the North American market, which on its own accounts for more than 40 percent of the worldwide power tool market. By tailoring its product portfolio more closely to the needs of the North American market and expanding its marketing activities and sales structures, Power Tools aims to address existing target groups even more effectively and expand into new segments. In addition, Power Tools is systematically moving into adjacent business areas such as handheld power tools for DIY applications and for trade and industry. Another example of a new segment that is set to drive growth in the accessories business is industrial, robot-assisted grinding. In this segment, Bosch acquired a stake in FerRobotics Compliant Robot Technology GmbH, Linz, Austria, a provider in the field of contact-sensitive automation, at the beginning of 2024. Power Tools is also continuing to drive forward the digitalization of its sales and marketing processes. In this context, online commerce is an important strategic focus. This is why the division is expanding not only its strategic alliances with multichannel and online retailers, but also the scope of information and interaction available online.

As part of the sustainability strategy in the power tools business, the World Wide Fund for Nature (WWF) Germany has been giving Power Tools the benefit of its expertise since March 2023, in an intensive sparring and consulting program on subjects such as the further development of its climate-action and packaging strategy. As a further element of this collaboration, which is set to run for at least five years, associates will receive training to raise their awareness and support the sustainable transformation of the company. The division strives to save raw materials, conserve resources, and design its products to optimize their recyclability. The measures Power Tools is developing in this context include the greater use of recycled materials in packaging and power tools. One current example is the re-release of the entire range of measuring technology for DIY: the product housings, accessories, and their packaging are largely made from recycled materials.

BSH Hausgeräte

Demand for household appliances has cooled noticeably following record sales revenue during the Covid-19 pandemic. In addition to pull-forward effects, key reasons include weakness in real estate markets due to higher interest rates and high inflation rates. In Europe, this is having a particularly negative impact on the kitchen installation business. Moreover, competition is intensifying, particularly from Asian competitors. In addition, we are having to absorb major exchange-rate burdens in countries such as China and Turkey. Sustainability, environmental awareness, and healthy eating remain important for consumers. In addition, they are looking for more convenience through digital solutions and features. Innovation will therefore continue to play a significant role in the future.

The company's new 2030 growth and value-creation strategy defines its response to the significantly changed market conditions and sets ambitious growth targets. BSH aims to consolidate and expand its position in the home appliance industry worldwide. To grow faster than the market and enable the necessary investments, it has to significantly reduce complexity and costs. For this purpose, BSH is adapting its global organization – particularly in indirect areas – to changing conditions.

At the same time, BSH intends to consistently exploit its growth opportunities, to continue to strengthen its brand portfolio through innovations, and to further improve quality and resource efficiency. In the cooling appliances segment, for example, its new Green Collection uses a higher proportion of environmentally friendly materials and has either "A" or "B" energy-efficiency ratings. The CO_2 emissions attributable to the production materials, mainly steel, are roughly one-third lower than for models made of conventional materials. The next generation of dishwashers has an even stronger focus on energy efficiency, CO_2 reduction, and connectivity. BSH is also expanding its range of washing machines in energy-efficiency class A.

Another focus of innovation at BSH is smart kitchen appliances, all of which are part of the Home Connect ecosystem. The new ovens use image recognition to identify around 40 different dishes, suggest the best cooking method, and optimize baking and roasting with the help of artificial intelligence. Repair and update options for connected devices will also play a greater role in the future. Guaranteed spare parts availability of up to 15 years will help here, as will the possibility of remote maintenance for connected devices.

Home Connect has been connecting the appliances of various brands since 2014. In this app, household appliances can be connected so that they can be controlled via smartphone, tablet, smartwatch, Amazon Alexa, or Google Home. This lets consumers control their appliances remotely, receive status updates, and get use-based recommendations and tips. A network of more than 50 partners in various fields offers additional functions ranging from recipes to energy management. Home Connect is currently available in over 60 countries and 30 languages.

At the same time, BSH Hausgeräte is strengthening the robustness of its supply chains and focusing on local production. In 2022, construction work began on a new factory in Monterrey, Mexico. Pilot production of refrigerators for the North American market started there in October 2023. BSH Hausgeräte is also investing in Asia Pacific and Africa. Work to expand the capacity of its washing machine factory in Chennai, India, was completed in 2023. In addition, construction work began on a stove factory in Egypt to improve access to the African market and open up good growth prospects for the business there.



Energy and Building Technology

Building Technologies

The Building Technologies division aims to offer systems, solutions, and services that improve the safety and security of people, buildings, and material assets, and also enhance convenience and energy efficiency. In October 2023, the decision was made to comprehensively realign the division: in the future, it is to focus on its regional integrator business, with solutions and services for building security, energy efficiency, and building automation. Most of the Building Technologies division's product business is to be carved out as an independent unit and sold. This includes the Video, Access and Intrusion, and Communication business units. The product business with fire-alarm systems, by contrast, is to be continued. Because of its importance for systems integration, it is to be merged with the integrator business and continued.

The division's strategic focus is on further developing and strengthening its integrator business, with the aim of becoming a leading systems integration provider in selected markets and of seizing the good growth opportunities there. A further intention here is to strengthen the services business, with an attractive share of recurring sales revenue and thus greater independence of cyclical fluctuations. All in all, the product business has developed well and is strongly positioned in several focus segments. However, we have decided to look for a buyer who will take over all three business units, and who will further strengthen the business and give it a secure future.

In the regional systems integration business, Building Technologies offers connected and integrated solutions for security, convenience, and efficiency in commercial buildings – meaning it is positioned as a cross-domain, software- and product-independent provider. We want to expand this business. Its activities focus on the markets in Europe and North America, where we are expecting annual market growth of 4 to 5 percent, but they also extend to Singapore. Acquisitions are also part of our growth strategy. In the 2023 fiscal year, we acquired Paladin Technologies Inc., Vancouver, British Columbia, Canada, and PalAmerican Technologies Inc., Tumwater, Washington, USA, a provider of security solutions and system integration services. We also acquired the activities of West Coast Fire & Integration Inc., Yorba Linda, California, USA, which specializes in fire protection.

In building management in particular, connectivity is playing an increasingly important role. Due to changing customer needs and against the backdrop of the increasing scope of digitalization options, we are developing new connected services. The aim here is to manage processes in buildings more efficiently. This includes a service suite for digital building management that connects and integrates all service solutions on one cloud platform. An energy manager makes it possible to visualize, analyze, and evaluate the efficiency of a building's energy supply, distribution, and consumption. The potential savings identified and specific actions derived allow CO_2 emissions and energy costs to be deliberately reduced and resources to be conserved. A further service for fire alarm systems supports fault detection and the performance of predictive maintenance.

The product business with fire-alarm systems, which will be part of the systems integration business in the future, is operating in a growing market environment, with growth rates of around 4 percent. Its most recent solutions include a new version of its video-based fire-detection system. AI algorithms based on deep learning ensure a more accurate distinction to be made between real fires and false alarms, especially in challenging environments such as semi-open storage areas or outdoor areas where disruptive factors such as wind, moisture, or dust make detection difficult.

Home Comfort

The Home Comfort division aligns its goals and strategy with the growing sustainability requirements in the building sector. Its claim is "Make. Home. Comfort. Green." Formerly Thermotechnology, the division was renamed Home Comfort at the beginning of April 2023. The new name is intended to underline the product portfolio's shift toward sustainable heating and air-conditioning technology as well as other products for comfort and well-being in the home, with greater connectivity also playing a role.

Electrification and renewable energy are becoming considerably more important. There is great potential for sustainability in heat pumps and hybrid heat-pump systems comprising a heat pump and a condensing boiler based on fossil-fuel technologies. While heat pumps are used in new buildings and in existing buildings that have been insulated, hybrid heat pumps are an alternative when modernizing energy consumption in poorly insulated structures. In such systems, the electricity for heat pumps is increasingly being generated from sustainable sources. In addition, the heat pumps can not only heat, but also cool if necessary.

To further expand our heat-pump business, we are investing in our European development and manufacturing network. For example, we are planning a new manufacturing site for heat pumps in Dobromierz, Poland. In Aveiro, Portugal, we are investing in new laboratories, two factory buildings, and additional heat-pump production lines. We are also bolstering our existing locations in Europe: At our Eibelshausen location in Germany, for example, early 2023 saw the start of production of the indoor units for an especially quiet and eco-friendly heat pump that runs on the natural refrigerant R290 (propane). This heat pump was developed jointly by teams from Wernau (Germany) and Aveiro, and is produced in a manufacturing network involving Aveiro, Eibelshausen, and Tranås, Sweden. The devices were designed in a user experience approach involving specialists from the heating trade. Development focused on design, functionality, and quieter operation.

In our Home Comfort division as well, we are pursuing a systematic digitalization strategy. We had sold more than a million connectable devices by the end of 2023. A Bosch energy manager makes it possible to link up the heat pumps and photovoltaic systems in the home. It controls the heat pump according to the photovoltaic power available, thus increasing the amount of locally produced electricity used for heating, cooling, and hot-water generation.

The division is also relying on its extensive network of partners to develop the heat-pump business, helping heating companies build up expertise in these new technologies and offering additional services. For partner companies, therefore, it has launched a certification program for heat pumps and split air-conditioning units in online and classroom formats. Moreover, a foundation service is intended to offer heating professionals the option of ordering a snug-fitting foundation for the outdoor units of air-source heat pumps from the Bosch Partner Portal, thus outsourcing this non-core activity. The service is currently in a pilot phase. In collaboration with Power Tools, Home Comfort offers trade-specific software that provides support with planning, quoting, and invoicing, and helps them with appointment coordination and timesheets.

Demand for air-to-air heat pumps for air conditioning is growing in Europe as well, especially for residential buildings. In all European markets, Home Comfort offers a diversified portfolio for all types of residential units, as well as for the commercial sector. This business is to be systematically expanded in Europe. The same goes for North America, where the focus will be on residential buildings. Home Comfort is also increasingly targeting the North American market for heat pumps. At the beginning of 2024, at the Consumer Electronics Show in Las Vegas, Nevada, USA, it presented an air-to-air heat pump developed specifically for the North American market, which is particularly suitable for use in colder climate zones such as Canada and the northern United States. This heat pump still provides full heating power down to minus 15 degrees Celsius. It meets the requirements set by the U.S. Department of Energy as part of the Residential Cold Climate Heat Pump Technology Challenge, and it is now set to move from laboratory to field testing.

The transformation associated with the increasing electrification of heating technology also requires structural measures. For this reason, adjustments are being made to the product portfolio for fossil fuel-based heating technology. In the future, the business unit concerned will focus in particular on hybrid solutions and sustainable fuels such as hydrogen, biomethane, and synthetic fuels for residential and commercial buildings. Today's broad portfolio for combustion-based products is being aligned with the changing requirements of the market, technology, and demand. This will allow administrative tasks to be reduced, as well as the cost of supporting and further developing components in product development. The planned portfolio measures will also alter the setup relating to fossil-fuel technologies at our research and development locations. Moreover, internal processes are to be simplified and duplicated tasks at locations reduced. This will also lead to personnel adjustments.

Moreover, collaboration with the Stuttgart-based Robert Bosch Smart Home GmbH, which offers web-enabled products for the home, was intensified in 2023. Important topics include the addition of a floor-heating thermostat and a universal multibutton switch to the product range. In addition, the changeover to "matter," the upcoming manufacturer-independent smart home connection standard, is a key issue. The market launch of products that are compatible with this standard is planned for 2024.

Bosch Global Service Solutions

The Bosch Global Service Solutions division focuses on services for customers in the areas of mobility (such as the eCall emergency call service and breakdown assistance), monitoring (such as cold-chain monitoring and emergency services for elevators), customer experience (such as cus-

tomer support), and business services (such as IT service desks). In addition to customers in the automotive industry (manufacturers and fleet operators) and the logistics and buildings business, Global Service Solutions offers its solutions within the Bosch Group. Global Service Solutions focuses on sophisticated technology-based services and has significantly expanded its share of this business in recent years.

Consistent management of its portfolio of services serves to secure profitability. In addition to acquiring new customers (in sectors such as pharmaceuticals, healthcare, and life sciences) and expanding the portfolio with existing customers, innovations through new services are also important for growth. One example of this is the Child Presence Detection service – a system that uses an emergency call and alarm system to protect children from serious harm in overheated cars. Another innovation is the e-Charging Booking and Payment solution, which has seen Bosch Secure Truck Parking (booking platform for truck parking spaces) open the first public heavy-duty charging station in Eindhoven, the Netherlands, together with its cooperation partner TRAVIS.

Selected companies not allocated to business sectors

We see the medical technology sector as an area of potential strategic importance for Bosch. Our subsidiary **Bosch Healthcare Solutions GmbH**, based in Waiblingen, Germany, is continuously expanding its medical technology portfolio. The company has signed an agreement with Randox Laboratories Ltd., based in Crumlin, United Kingdom, and Kearneysville, West Virginia, USA. In addition to the joint development of tests, the strategic partnership also focuses on strengthening Bosch Healthcare Solutions through access to the global distribution network of Randox Laboratories Ltd.

In addition, the unit's product range is constantly evolving. Besides various SARS-CoV-2 tests, the analyzer for near-patient rapid PCR testing now offers further tests to detect other infections. These include tests for hospital pathogens, mycoplasma, and sexually transmitted diseases. A number of other tests are in development; their launch is planned for 2024. Bosch Healthcare Solutions also offers a high-precision measurement device for determining the biomarker FeNO in exhaled breath. This biomarker is used in the diagnosis and treatment monitoring of asthma, one of the most common chronic respiratory diseases.

Since 2013, **grow platform GmbH**, based in Ludwigsburg, Germany, has provided a platform within Bosch for developing and implementing new business models. It is part of a global in-house innovation network in which new business models are evaluated and pursued in startup teams. For example, the core product of the startup Bosch Software Flow enables software release processes to be fully automated. The Bosch Cognitive Services business operates in the field of artificial intelligence, more specifically in the area of visual object recognition; it was integrated into the Mobility business sector in January 2024. One thing it does is help identify the required spare parts when those parts themselves have no connectivity. The tasks of grow include considering different development opportunities for startups that do not prove enough of a strategic fit with the Bosch divisions, such as involving external investors or operating them as new, discrete units.

Through **Robert Bosch Venture Capital GmbH**, based in Gerlingen, Germany, we invest in external technology start-ups around the world. This gives us early access to innovative technologies, including potentially disruptive ones. Investments by the company, which operates in the market as Bosch Ventures, focus on projects involving artificial intelligence, digitalization, mobility solutions, and future computer technologies. In the 2023 reporting year, Bosch Ventures invested in startups in fields including generative AI, quantum computing, robotics, energy-efficient chip cooling, AI-based logistics management, and antenna technologies.


BOSCH

Report on economic position

In a difficult business environment, the Bosch Group achieved its targets for sales revenue and result in 2023. Although it increased nominal sales revenue by only 3.8 percent to 91.6 billion euros, the exchange rate-adjusted growth rate of 8.0 percent is within the 6 to 9 percent target corridor set out in the forecast for 2023. Among the business sectors, the picture is mixed. The Mobility (formerly Mobility Solutions), Industrial Technology, and Energy and Building Technology business sectors posted especially strong exchange rate-adjusted growth. Adjusted for exchange-rate effects, therefore, all three sectors reached or exceeded their forecast level. In this context, Industrial Technology's growth is the result of the first-time consolidation of newly acquired companies. Contrary to our expectations, sales revenue in the Consumer Goods business sector declined. The main reason for this was the weak consumer goods market.

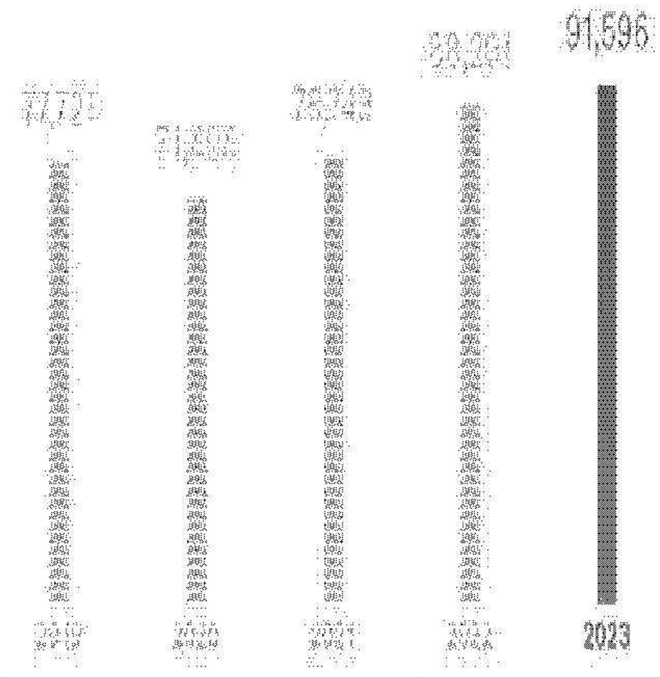
With an EBIT margin from operations of 5.3 percent, we achieved our target of significantly increasing margin from the previous year's figure of 4.3 percent. In addition to distribution cost and administrative expenses as well as research and development cost growing more slowly than sales revenue, changes in provisions played a role here. Once again in 2023, we also incurred considerable research and development expenditure in the pursuit of work on projects of future importance. At 2.2 billion euros, free cash flow developed positively. Significantly improved EBIT and NWC contributed to this. All business sectors reported a significantly positive EBIT from operations. EBIT margin was highest in Industrial Technology and in Energy and Building Technology. The Mobility business sector was able to significantly increase its EBIT margin from operations year on year. Consumer Goods discloses an EBIT margin from operations on a par with the previous year. With the exception of Consumer Goods, therefore, all business sectors achieved their forecast EBIT margin from operations.

G 06

Development of sales revenue

Bosch Group 2019–2023

in millions of euros

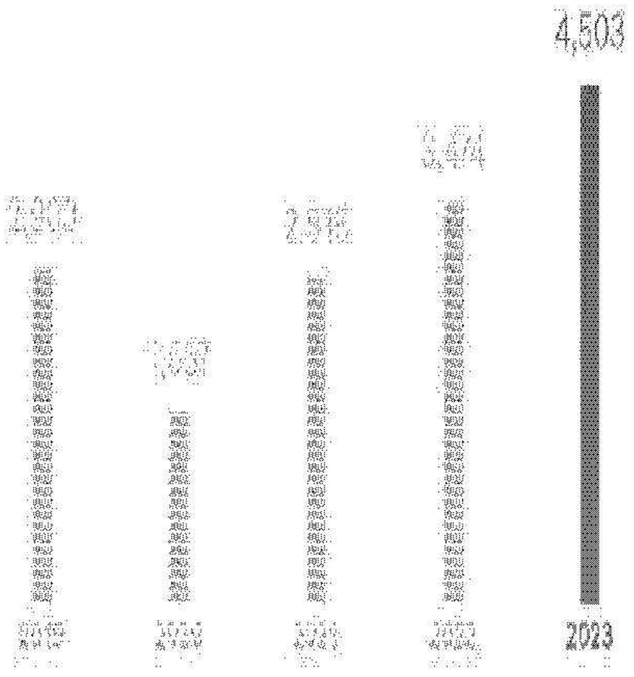


G 07

Development of EBIT

Bosch Group 2019–2023

in millions of euros



Key performance indicators

For an unlisted company such as the Bosch Group, profitability and efficient use of capital resources are crucial for financing future growth. Accordingly, we use the key performance indicators EBIT margin (earnings before financial result and taxes as a percentage of sales revenue; essentially corresponds to the EBIT margin from operations disclosed in the group management report), net working capital (NWC) as a percentage of sales revenue (as an internal performance indicator), and sales revenue growth. Starting in 2024, we will use free cash flow (FCF) instead of NWC as a performance indicator at the Bosch Group level, particularly for capital efficiency in the context of our incentive program. This is more comprehensive than NWC, and also takes factors such as capex development into account. We will continue to use NWC at the business-sector and division level.

Unlike EBIT as per income statement, the calculation of EBIT from operations disregards the earnings impact of higher depreciation and amortization from the remeasurement of assets at the former Automotive Steering division and BSH Hausgeräte following the complete acquisition of these former joint ventures in 2015. NWC is calculated from inventories, trade receivables, and contract assets, in each case before valuation allowances, plus capitalized deferred consideration to customers, minus trade payables and contract liabilities. An average value is calculated on the basis of the monthly actual values. NWC is measured as a percentage of sales revenue. The objective of NWC controlling is to keep the amount of capital tied up over the short term as low as possible. Free cash flow is determined essentially from the development of EBIT, NWC, and investments in property, plant, and equipment and intangible assets.

The main basis for monitoring this is our internal reporting, which takes its lead from the International Financial Reporting Standards (IFRSs). A monthly business report, which contains an up-to-date overview of the operating units' performance indicators, serves as the central reporting tool. It provides a year-on-year comparison and a plan-versus-actual comparison of selected performance indicators. The report is based on the business plan, which is embedded into longer-term strategic corporate planning. The planning method used is strongly geared toward targets and measures, and the focus is on developing and carrying out measures designed to achieve the planning targets.

The competitor-oriented benchmark values are used to define targets for the relevant performance indicators. They form the basis for the Bosch performance bonus – the short-term variable portion of specialists' and executives' remuneration, from section-manager level to the board of management. In 2023, unlike in previous years, the bonus was determined on the basis of EBIT margin (weighted at 50 percent), year-on-year organic sales revenue growth (weighted at 10 percent), and average NWC as a percentage of sales revenue (weighted at 40 percent). The greater weighting given to NWC in the control system underlined the importance of financial resources. This change from the previous year was an interim step toward making sales revenue, EBIT, and FCF the performance indicators relevant for the incentives program in the 2024 fiscal year. As in 2023, 10 percent of the bonus will be based on organic sales revenue performance. The EBIT margin from operations will be weighted at 60 percent and FCF at 30 percent. The same percentages apply at the business-sector and divisional level, where we will continue to use the respective NWC. The Bosch performance bonus is complemented by VALUE, a variable bonus program for long-term corporate success at senior executive and board of management level. It is calculated from the average Bosch performance bonus factor of the preceding three years.

Macroeconomic and sector-specific environment

Global economic growth slowed further in 2023 compared to 2022, but exceeded our expectations. Negative factors such as high prices, higher interest rates, and geopolitical tensions had an above-average impact on the consumer goods market and mechanical engineering, as well as regionally, especially in Europe. The year 2023 was also characterized by marked changes in exchange rates, in particular the unexpectedly strong devaluation of the Chinese renminbi.

Global economic output rose 2.7 percent in 2023, significantly exceeding the forecast growth of around 1¾ percent. Nonetheless, momentum remained weak compared to previous years. All regions performed better than expected, especially North America and Europe. We had already pointed out considerable uncertainties for both regions in our forecast last year. The data for economic output is taken from Feri AG and the International Monetary Fund.

Economic output in the Americas rose 2.3 percent compared to our forecast of ½ percent. The main reasons for this were the stable labor market in the United States, rising real wages despite high inflation figures, and robust investment activity. The economy in Asia Pacific performed slightly better than forecast. Economic output rose 4.2 percent, compared to our forecast of 4 percent. This was due to

strong 7.9 percent growth in India. In China, however, economic momentum was somewhat weaker than expected, with growth of 5.2 percent. Compared to the other major economic regions, the European economy grew the weakest at 0.9 percent. However, due to more favorable developments in southern European countries such as Spain and in non-EU countries in eastern Europe, the ¼ percent decline in economic output that we had expected did not materialize.

Global automotive production (including heavy commercial vehicles) increased, especially in the second half of 2023. At around 93 million vehicles, global production in 2023 exceeded the previous year's figure by 10.6 percent. It was therefore slightly above the level in 2019, the year before the Covid-19 pandemic. Regionally, the picture is a mixed one. In China, production rose 11.6 percent year on year, exceeding its 2019 level by 17.1 percent. Although production in the European Union and the United Kingdom rose 13.2 percent in 2023, it remains 14 percent below its 2019 level. Production in North America increased 9.5 percent despite the extensive strikes in the automotive industry there; this is still 3.3 percent below the 2019 level. The sources of the data for global automotive production for our internal forecast process are the third-party forecasts of S&P Global Mobility and Bosch in-house marketing analyses in the regions and at headquarters.

Among newly registered passenger cars, the changes in powertrain technology continued. The global share of newly registered all-electric vehicles rose to roughly 14 percent in 2023, up from 12 percent the previous year. Hybrid vehicles accounted for approximately 17 percent, up from roughly 13 percent. The increase in all-electric vehicles was again driven in particular by the increase in China. China is also the biggest market for all-electric vehicles and hybrid vehicles, followed by Europe. The share of newly registered diesel vehicles in the European Union and the United Kingdom fell to around 17 percent, down from roughly 19 percent the previous year. In the likewise important Indian market, the proportion of newly registered diesel vehicles fell to some 18 percent, down from roughly 19 percent the previous year.

On average across 2023, global production in the machinery sector, another important market segment for the Bosch Group, attained largely the same high level as the previous year. However, the significant decline in incoming orders since the end of 2021 led to a marked slowdown in production over the course of 2023. This applies in particular to the advanced economies, which fell short of the previous year's level, also in terms of the annual mean. In China, momentum was comparatively strong in 2023, but remained significantly below the growth rates before the Covid-19 pandemic.

In 2023, the construction sector, which influences developments in the Consumer Goods and Energy and Building Technology business sectors, once again lost momentum in countries important for us. This is shown by the trend in construction investment. In China, for example, this again fell noticeably due to financing problems at construction companies and considerable vacancy levels. In Europe, high energy prices and interest rates put the brakes on investment. In contrast, an increase was recorded in the United States. The weakness in construction activity is also likely to have affected demand for home appliances, where the extraordinary boom experienced during the height of the Covid-19 pandemic had already come to an end in mid-2022.

Business developments

Development of sales revenue

Bosch Group sales revenue

In the Bosch Group, we generated sales revenue of 91.6 billion euros in 2023, compared with 88.2 billion euros in the previous year. Year on year, sales revenue rose a nominal 3.8 percent, or 8.0 percent after adjusting for exchange-rate effects. Adjusted for exchange-rate effects, we therefore achieved the growth corridor of 6 to 9 percent forecast for 2023. Price increases played a role here as well. In contrast to 2022, effects from changes in the consolidated group in the 2023 fiscal year came to 850 million euros net; deconsolidation played a subordinate role here.

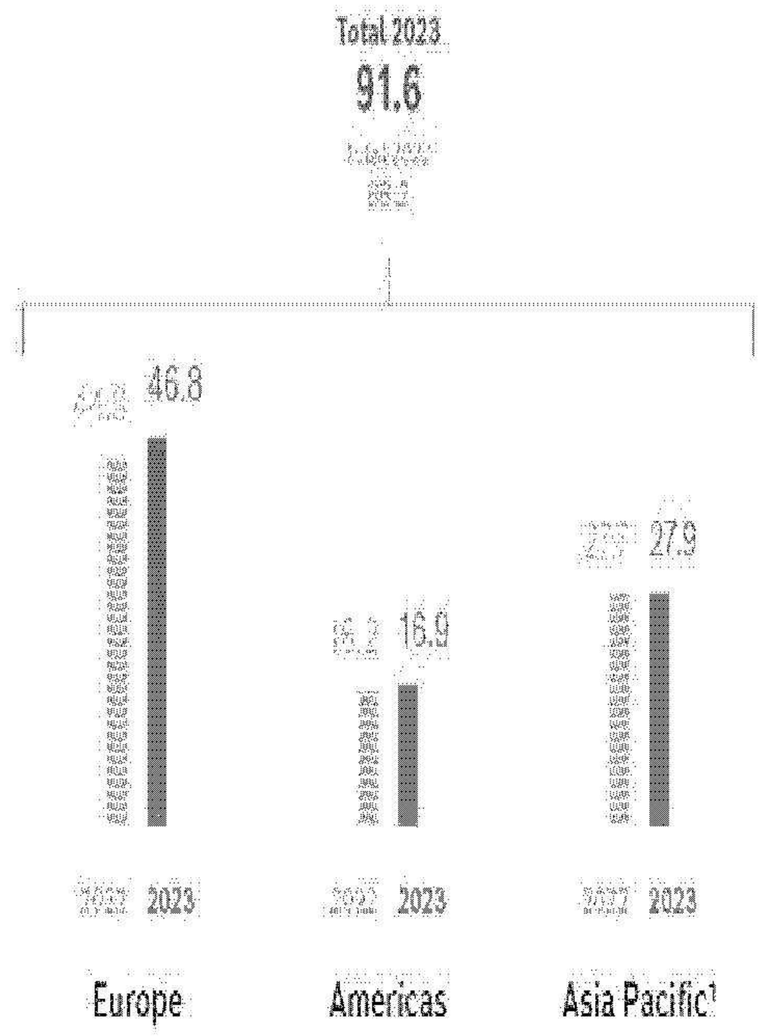
The newly consolidated companies relate in particular to the Industrial Technology business sector and its acquisition of HydraForce and Elmo Motion Control Ltd., based in Petah Tikva, Israel (Elmo Motion Control), which were included in the income statement for the first time. The negative impact of exchange-rate effects on sales revenue amounts to some 3.7 billion euros in total. These were primarily due to the euro's movements against the Chinese renminbi, the U.S. dollar, the Turkish lira, the Japanese yen, and the Argentinian peso. When determining the exchange rate-adjusted development of sales revenue for Turkey and Argentina, reference was made for the first time to inflation-adjusted sales revenue in order to eliminate the extraordinary effects from these hyperinflationary economies. Exchange-rate effects affected all business sectors, but hit Mobility and Consumer Goods disproportionately hard.

G 08

Development of sales revenue, 2022–2023

Bosch Group sales revenue by region

in billions of euros

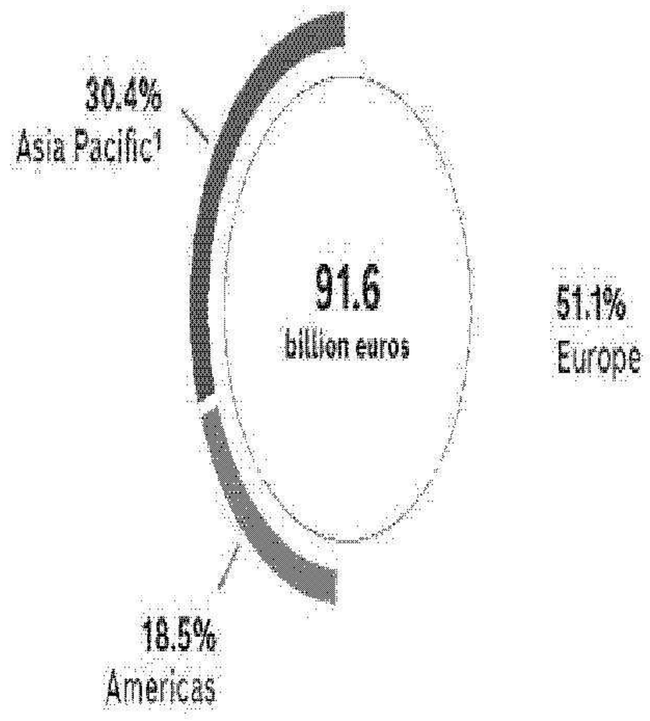


1. Including other countries and Africa.

G 09

Sales revenue structure, 2023

Bosch Group sales revenue by region



1. Including other countries and Africa.

Sales revenue by region

Regionally, the picture is mixed. Europe and North America showed the strongest growth, both nominally and adjusted for exchange-rate effects. In Europe, sales revenue increased 5.5 percent in nominal terms, and 7.9 percent after adjusting for exchange-rate effects. The negative exchange-rate effects are primarily attributable to the Turkish lira. Sales revenue in Germany increased 7.2 percent. In North America, sales revenue rose 6.2 percent in nominal terms and 8.0 percent after adjusting for exchange-rate effects. In South America, however, sales revenue were nominally 6.2 percent lower than the previous year; adjusted for exchange-rate effects, they rose 1.8 percent. The decisive factor here is the weak performance of the Argentinian peso. In Asia Pacific (including other countries and Africa), sales revenue rose by just 0.6 percent in nominal terms; adjusted for exchange-rate effects, however, they rose 8.6 percent. In particular, this reflects the depreciation of the Chinese renminbi. Moreover, sales revenue in China developed more slowly than in previous years. In contrast, we recorded growth in Japan and India.

From a regional perspective, the share of sales revenue generated in Europe rose to 51.1 percent, up from 50.3 percent in the previous year. The corresponding figures for the Americas were 18.5 and 18.3 percent respectively. Accordingly, the share from Asia Pacific (including other countries and Africa) fell to 30.4 percent, down from 31.4 percent in the previous year.

Sales revenue by business sector

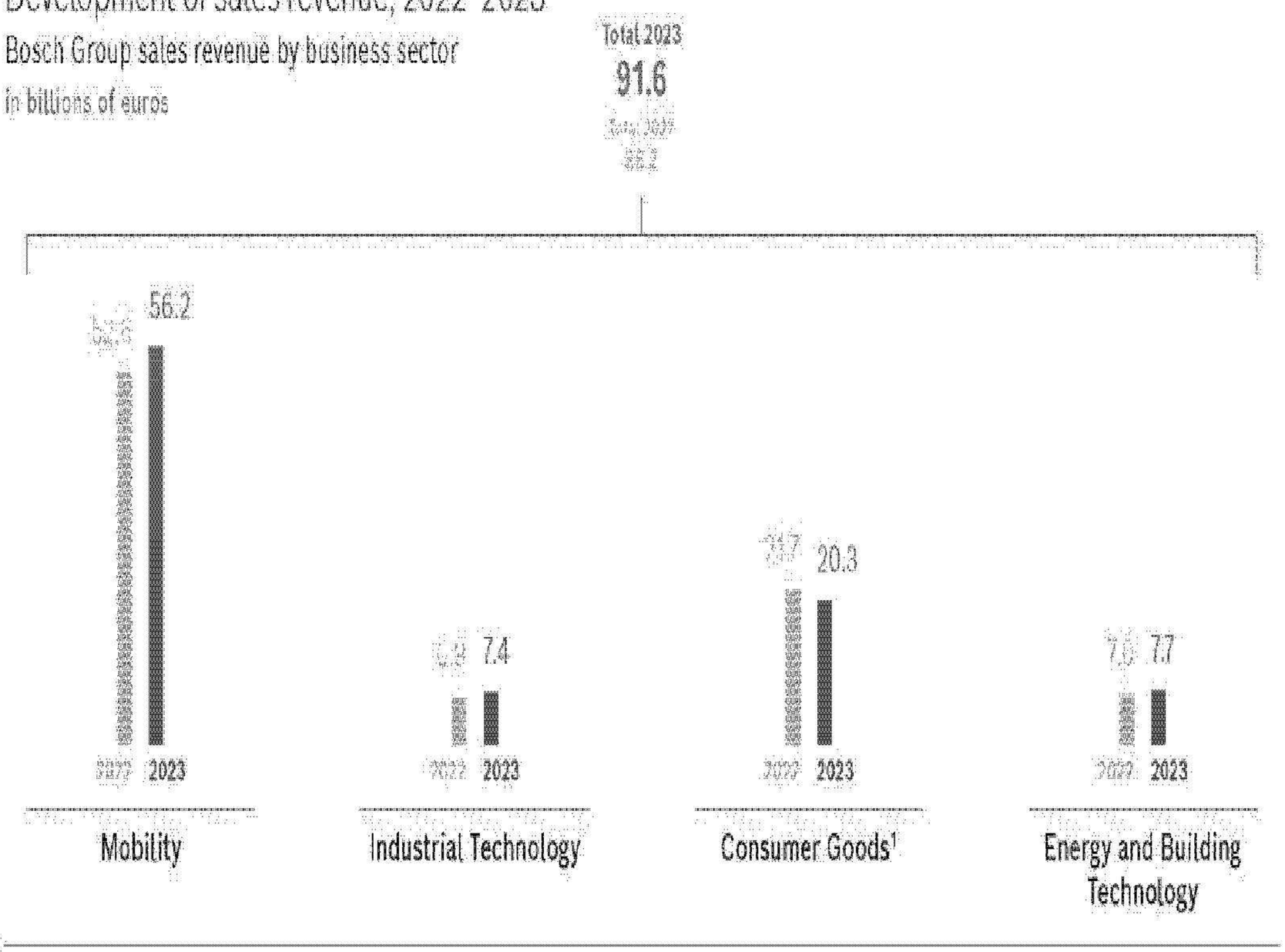
Our business sectors also varied in their development in 2023. We recorded strong sales revenue growth in Mobility and in Energy and Building Technology. The increase in Industrial Technology is due to the first-time consolidation

G 10

Development of sales revenue, 2022–2023

Bosch Group sales revenue by business sector

in billions of euros



1. Including other activities.

89

of HydraForce and Elmo Motion Control. Sales revenue in Consumer Goods, by contrast, fell significantly.

In the Mobility business sector, sales revenue rose nominally by 6.9 percent to 56.2 billion euros; adjusted for exchange-rate effects, the increase amounted to 10.9 percent. We had expected sales revenue growth of up to 12 percent here. The considerable exchange-rate effects are offset by increases in volume and improvements in the product mix as well as price increases. The supply shortages for semiconductors were largely resolved over the course of 2023. This means we are benefiting from increased global automotive production as well as from good demand for many of our products. In particular, we were able to increase sales revenue in vehicle dynamics control systems (formerly Chassis Systems Control division, now Vehicle Motion), Cross-Domain Computing Solutions, and Bosch Engineering. The e-bike business felt the effects of the weakness in the consumer goods markets.

At 7.4 billion euros, sales revenue in the Industrial Technology business sector, including the first-time consolidation of HydraForce and Elmo Motion Control, were nominally 6.8 percent up on the previous year, or 10.2 percent after adjusting for exchange-rate effects. Adjusted for exchange-rate effects at least, that means we slightly surpassed our forecast of an increase in sales revenue of up to 10 percent. Without the first-time consolidations of the two above-mentioned companies, nominal sales revenue declined 0.9 percent year on year, or 2.3 percent after adjusting for exchange-rate effects. The business sector felt the effects of the increasing slowdown in the mechanical engineering sector.

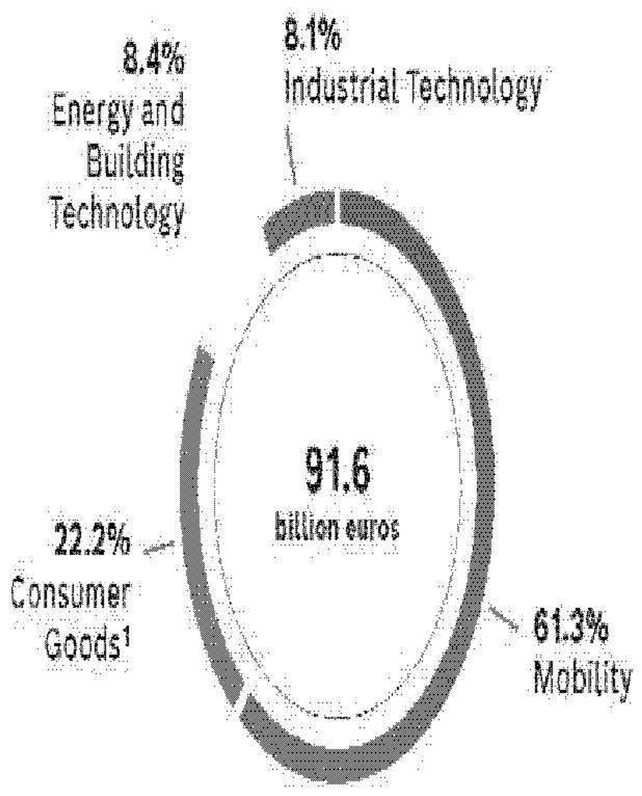
The Consumer Goods business sector felt the effect of the weak demand for consumer goods, whether power tools or home appliances. As a result, business was even slower than expected. In our forecast, we had assumed sales revenue growth of up to 3 percent. At 19.9 billion euros (excluding other activities), sales revenue were down overall by a nominal 6.6 percent year on year, due to the considerable exchange-rate effects caused by the devaluation of the Turkish lira and the Chinese renminbi, the exchange rate-adjusted decline was only 1.2 percent.

The Energy and Building Technology business sector sharply increased its sales revenue in 2023. Sales revenue rose 10.5 percent to 7.7 billion euros. Adjusted for exchange-rate effects, the increase was 13.2 percent, which exceeds our forecast of 8 percent. Here we benefited from heavy demand for energy-efficient and renewable heating technology in the Home Comfort division. Equally, the Bosch Global Service Solutions division achieved encouraging sales revenue growth. Sales revenue also grew in Building Technologies, albeit by a significantly smaller amount.

G 11

Sales revenue structure, 2023

Bosch Group sales revenue by business sector



1. Including other activities.

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Most important items of the income statement

in millions of euros

	2023	2022
Sales revenue	91,596	88,161
Cost of sales	–62,976	–59,767
Gross profit	**28,620**	28,450
Distribution cost and administrative expenses	–18,233	–17,813
Research and development cost	–7,331	–7,224
Other operating income and expenses	1,441	52
Result from companies included at equity	6	–4
Earnings before financial result and taxes (EBIT)	**4,503**	3,461
Financial result	–527	–361
Profit before tax	**3,976**	3,099
Income tax expenses	–1,336	–1,079
Profit after tax	**2,640**	2,020

The differences in our business sectors' fortunes mean that our sales revenue structure has changed. The share of sales revenue attributable to the Mobility business sector rose to 61.3 percent, up from 59.6 percent the previous year. The share of Industrial Technology is now 8.1%, compared with 7.9 percent in the previous year. The Consumer Goods business sector (including other activities) accounts for 22.2 percent, after 24.6 percent the previous year. The share contributed by the Energy and Building Technology business sector was 8.4 percent, following 7.9 percent in the previous year.

Results of operations

Bosch Group result

In the Bosch Group, we report an improved EBIT of 4.5 billion euros in 2023, compared with 3.5 billion euros the previous year. The application of IAS 29 led to a burden on result of roughly 280 million euros. In addition, the largely phased-out Russia business also had a negative effect. EBIT from operations increased to 4.8 billion euros from the previous-year figure of 3.8 billion euros. The EBIT margin from operations improved to 5.3 percent, compared with the previous year's figure of 4.3 percent. This means that we will achieve our forecast of a significant increase in EBIT margin from operations.

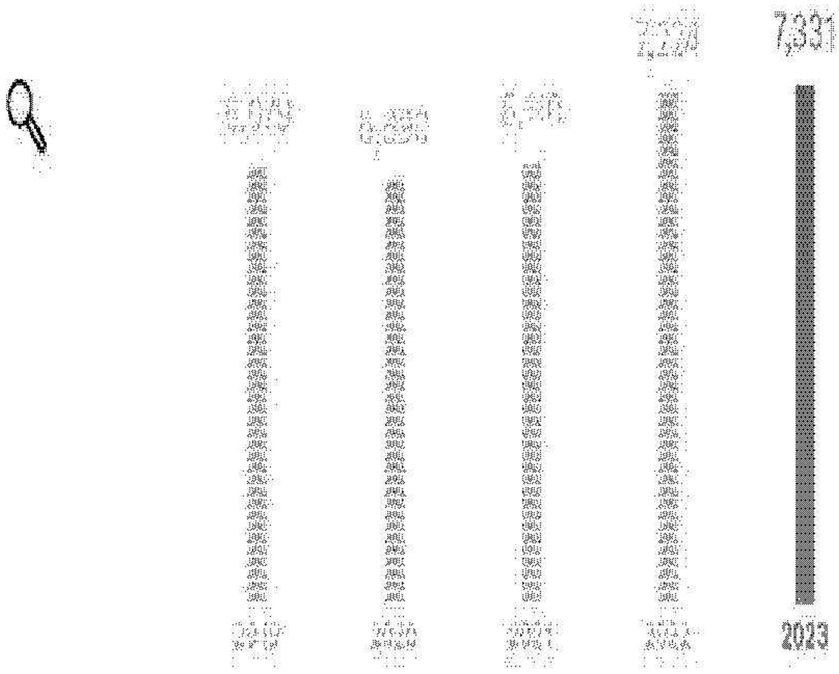
Administrative and distribution cost and research and development cost rose at a slower rate than sales revenue. In addition, restructuring cost was lower than in the previous year. There were also significantly positive effects in other operating income and expenses. A number of items played a role here, including gains from the reversal of provisions and lower expenses for the setup of provisions. One burdening

G 12

Research and development cost

Total expenditure, Bosch Group, 2019–2023

in millions of euros

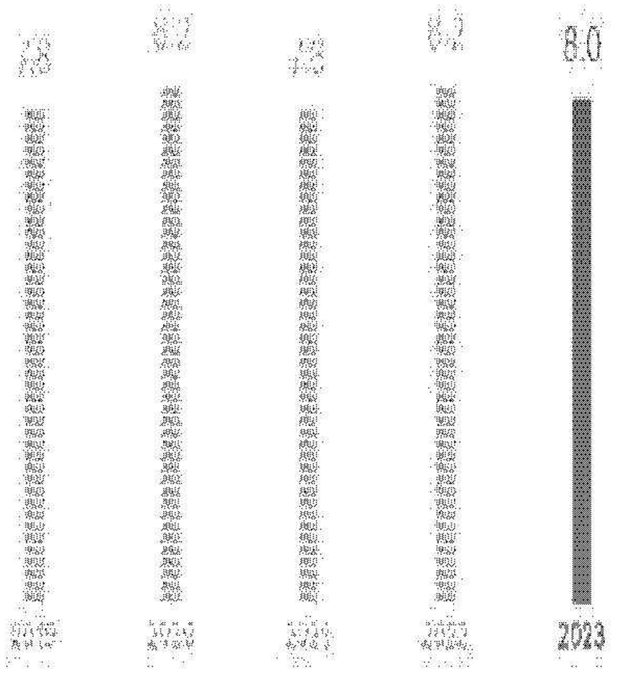


G 13

Research and development cost

Total expenditure, Bosch Group, 2019–2023

as a percentage of sales revenue



factor is the higher cost of materials and personnel expenses. These have an effect on cost of sales, and result in a lower gross margin.

As in previous years, the calculation of EBIT from operations, unlike EBIT as per the income statement, disregards the earnings impact of higher depreciation and amortization from the remeasurement of assets at the former Automotive Steering division and BSH Hausgeräte following the complete acquisition of these former joint ventures in 2015. These effects came to around 320 million euros in 2023, and were thus slightly lower than the previous year's figure of roughly 340 million euros.

The factors mentioned are reflected in various income-statement items. In 2023, cost of sales rose 5.4 percent to 63.0 billion euros. It thus rose faster than sales revenue, which grew 3.8 percent. As a result, gross margin fell slightly to 31.2 percent, from the previous year's level of 32.3 percent. At some 3.4 billion euros, depreciation of property, plant, and equipment was roughly 50 million euros lower than the previous year's level of approximately 3.5 billion euros. Distribution cost and administrative expenses rose year on year by 2.4 percent to 18.2 billion euros.

Owing to considerable upfront investments, research and development cost came to 7.3 billion euros in 2023, compared with 7.2 billion euros the previous year; this means research and development intensity, at 8.0 percent, fell from the previous year's figure of 8.2 percent.

The Mobility business sector again accounted for the largest share of research and development cost in 2023, at 72 percent (previous year 73 percent). The main focus of these upfront investments continues to be electrification, fuel cells, and driver assistance systems – also with a view to auto-

mated driving – as well as automotive electronics, semiconductors, and sensors. The percentage attributable to the Industrial Technology business sector rose to 7 percent, from 6 percent in the previous year. The percentage attributable to the Consumer Goods business sector fell to 15 percent, from 16 percent in the previous year. At 6 percent, the share of Energy and Building Technology is slightly above the level of the previous year.

On balance, we disclose a negative financial result of 527 million euros in 2023, which is an improvement from the previous year's negative balance of 561 million euros. Higher income from securities, mainly investment funds, is a major factor here. Running counter to this, there was a fall in interest result and in the balance resulting from currency effects, including foreign currency derivatives. Against this backdrop, profit before tax came to 4.0 billion euros, compared with 2.9 billion euros in the previous year. Pre-tax profit rose to 4.3 percent, up from 3.3 percent in the previous year. The result after tax amounts to 2.6 billion euros, compared with 1.8 billion euros the previous year.

At 28.4 percent, our in-house key performance indicator of average NWC as a percentage of Bosch Group sales revenue, although slightly lower than the previous year's comparable figure of 28.8 percent, did not fall as sharply as expected. This average figure is impacted by the fact that improvements in absolute NWC relate above all to the second half of the year. The year-on-year comparison is based on the comparable internal figure for the previous year.

Result situation by business sector

The result situation also varies by business sector, even if they all disclose a significantly positive result in relation to both EBIT and EBIT from operations. The main factors are the varying degrees of sales revenue growth, the varying intensity of upfront investments in areas of future importance, and the impact of production startups. On a business-sector level, EBIT margin developed encouragingly in Industrial Technology and Energy and Building Technology. But also the Mobility business sector was able to significantly increase its EBIT margin year on year. With the exception of Consumer Goods, all business sectors managed to reach their forecast EBIT margin from operations.

In the Mobility business sector, we disclose EBIT of 2.4 billion euros for 2023, compared with EBIT of 1.7 billion euros in the previous year. EBIT from operations comes to 2.5 billion euros, compared with the previous year's figure of 1.8 billion euros. This results in an EBIT margin from operations of 4.4 percent, compared with 3.4 percent the previous year. The increase is therefore in the lower half of our forecast corridor for a significant improvement in margin. Restructuring cost fell significantly year on year. The pressure on result remains very high. The main reasons for this are the heavy upfront investments in projects of future importance, production startups, and the increased cost of primary products.

Despite the weak market and the negative impact of the integration of HydraForce and Elmo Motion Control, the Industrial Technology business sector achieved a result of 672 million euros, meaning it was roughly able to maintain the previous year's level (683 million euros). That is equivalent to an EBIT margin of 9.1 percent (previous year 9.8 percent), and significantly exceeds our forecast margin of 8 percent. The business sector also benefited from intensive work on cost and structures, including the work done in previous years.

EBIT in the Consumer Goods business sector amounted to 683 million euros (previous year: 753 million euros). At

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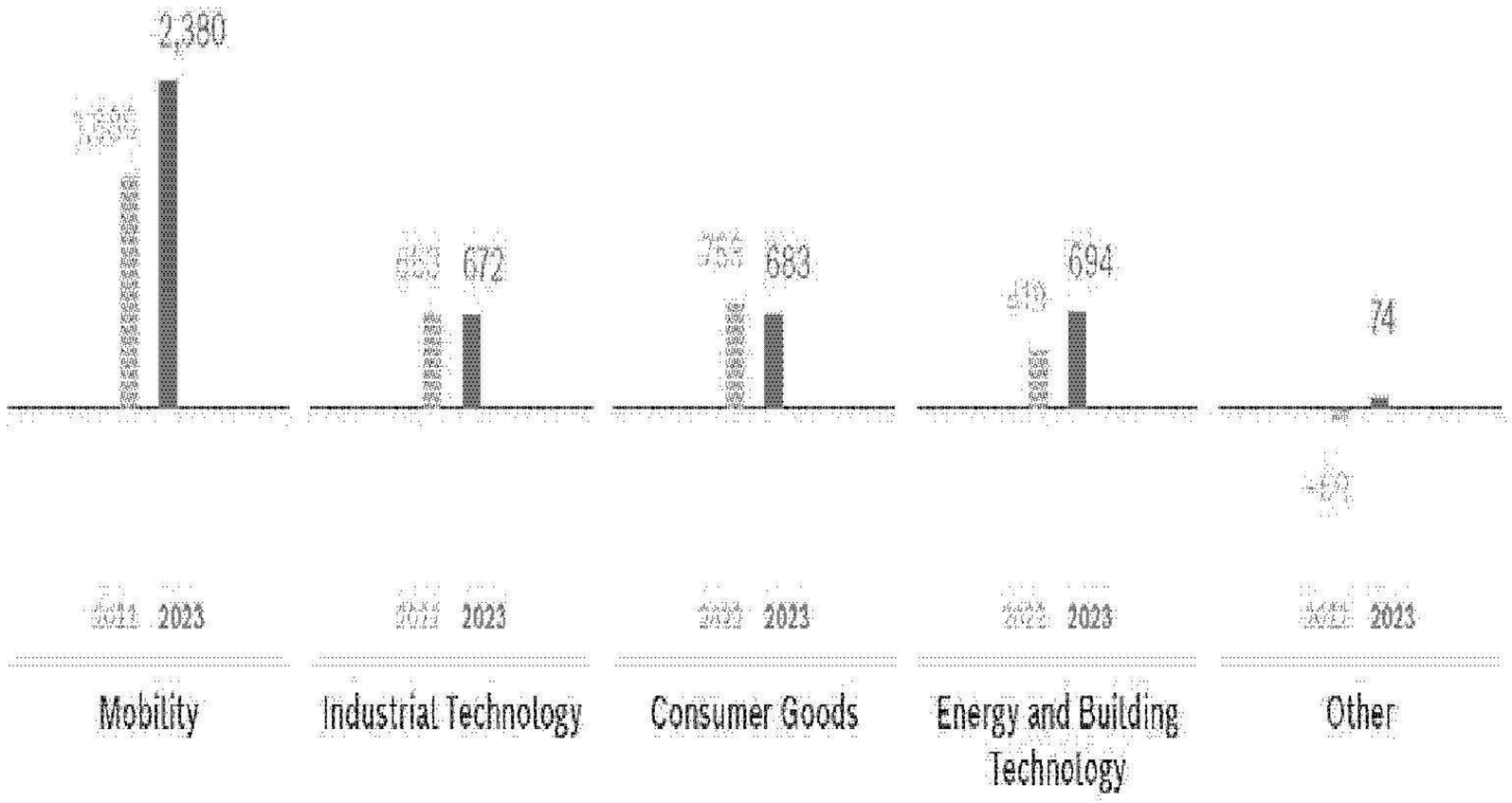
EBIT by business sector

Bosch Group, 2022–2023

in millions of euros



896 million euros, EBIT from operations was also less than the previous year's 970 million euros. This means that the EBIT margin from operations is on a par with the previous year at 4.5 percent. We were therefore unable to achieve the forecast slight improvement in margin. This was above all due to the sharp drop in demand. The business sector was once again burdened by the winding down of most of its Russia business. Furthermore, there are burdens from currency effects as described by IAS 29. The Energy and Building Technology business sector sharply increased its EBIT to 694 million euros, compared with 419 million euros the previous year. Margin came to 9.0 percent, compared with 6.0 percent in 2022. That means we exceeded our forecast of a significant improvement in result. The Home Comfort division performed particularly well.

The main reason for the slight overall decrease in the Bosch Group's average NWC as a percentage of sales revenue was the development in the Mobility business sector. As expected, NWC improved significantly to 27.6 percent, compared to the previous year's figure of 28.8 percent. The other three business sectors were unable to achieve their forecast, even though considerable progress was made in the second half of the year and the absolute value of NWC at the end of the year was in some cases significantly lower than in the previous year.

In the Industrial Technology business sector, average NWC rose to 33.8 percent, compared to the previous year's figure of 32.3 percent. In the Consumer Goods business sector, average NWC rose to 29.6 percent, compared with 29.1 percent the previous year. In Energy and Building Technology, average NWC increased to 21.5 percent, compared to 20.6 percent the previous year.

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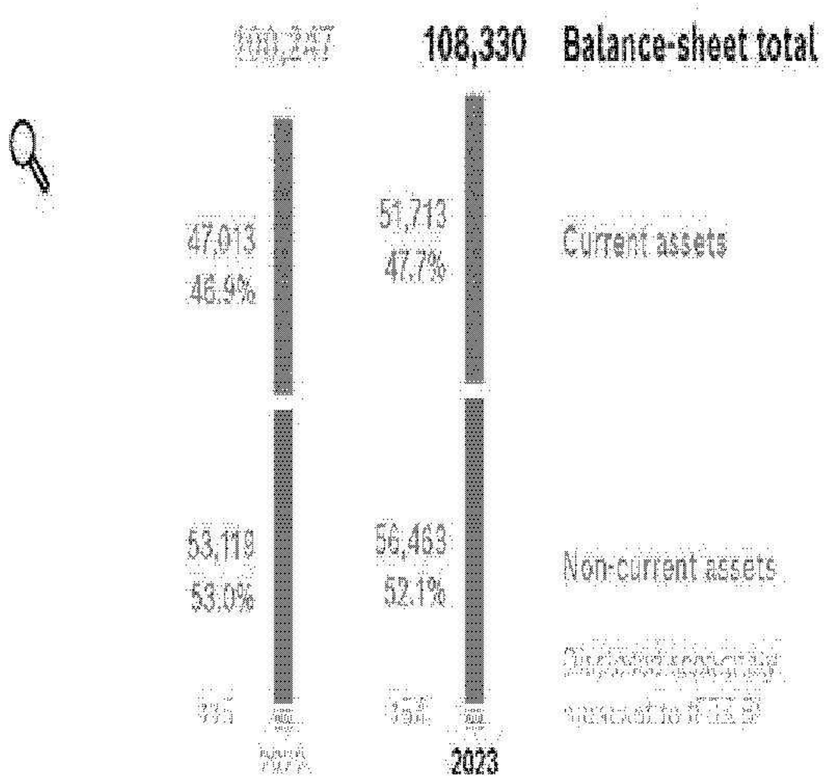
Balance-sheet structure

Bosch Group, 2022–2023

in millions of euros and as a percentage of balance-sheet total



1. Assets held for sale.
2. Liabilities directly associated with assets held for sale.

Net assets and financial position

Equity ratio and financial statement

The Bosch Group balance-sheet total as of the December 31, 2023, reporting date stood at 108.3 billion euros, exceeding the previous year's level of 100.2 billion euros. Compared to the previous year, the equity ratio fell 2.4 percentage points to 44.2 percent. The main reasons for the increase in the balance-sheet total are the higher liquidity as per the statement of financial position and higher property, plant, and equipment on the assets side as well as the higher non-current financial liabilities on the liabilities side.

On the assets side, our liquidity as reported in the statement of financial position rose to 26.7 billion euros as of the reporting date, compared with the previous year's 21.1 billion euros. Apart from cash and cash equivalents, liquidity as per the statement of financial position includes marketable securities and bank balances with a term of more than 90 days. This was mainly due to borrowing on the financial markets and a positive free cash flow.

The liabilities side saw changes mainly due to the issue of euro bonds and U.S. private placements in U.S. dollars. The financing structure is sound. The net financial position (defined as balance-sheet liquidity minus financial liabilities and provisions for pensions and similar obligations) is significantly positive. At 5.3 billion euros, it is virtually unchanged from its previous-year level. Due to the application of IFRS 5, assets held for sale and the liabilities associated with them are disclosed separately.

With a long-term rating of A (with a "stable" outlook) from the credit rating agencies Standard & Poor's and Fitch, Robert Bosch GmbH has good ratings. The financial liabilities of the Bosch Group include schuldschein loans and registered bonds with a nominal value of 3.2 billion euros and bearing interest between 1.028 percent and 4.893 percent. There are also bonds with a nominal value of 6.5 billion euros and bearing interest between 1.75 percent and 4.375 percent, and U.S. private placements with a nominal value of 1.2 billion U.S. dollars and bearing interest between 6.19 percent and 6.42 percent. The average interest rate for the bonds, schuldschein loans, and registered bonds has risen to 3.358 percent from the previous year's rate of 2.353 percent. The average interest rate for the U.S. private placements is 6.313 percent. The average residual term to maturity of the schuldschein loans and registered bonds is 5.00 years, compared with 5.27 years the previous year. The bonds' average residual term to maturity is 9.59 years, compared with 5.96 years the previous year. The average residual term to maturity of the U.S. private placements is 8.38 years.

There is a syndicated credit line with an ESG component totaling 5 billion euros, the term of which was extended by one year to 2026. In addition, there are bilateral U.S. loan facilities with a volume of 950 million U.S. dollars. These facilities have not been used. In 2023, new bonds totaling 4.5 billion euros were issued, as were U.S. private placements totaling 1.2 billion U.S. dollars. Furthermore, we repaid 500 million euros of a schuldschein loan. In the reporting year, we issued up to 650 million U.S. dollars under our revolving 2.0 billion U.S. dollar commercial paper program. In addition, we took out a syndicated loan facility in the U.S. totaling 1.2 billion U.S. dollars. The loan was repaid early from the proceeds of the U.S. private placement.

Capital expenditure

In 2023, as a result of many projects of future importance, capital expenditure on property, plant, and equipment rose to 5.5 billion euros from 4.9 billion euros the previous year. The capex ratio is 6.0 percent of sales revenue, compared with 5.6 percent in the previous year. Capital expenditure thus reached 161 percent of depreciation, compared with 141 percent in the previous year. As of the reporting date, existing investment commitments resulting from orders already placed total 1.5 billion euros, following a previous-year figure of 1.3 billion euros. Thanks to our comfortable liquidity position, we have ample financial resources at our disposal. We invested 620 million euros in intangible assets, compared with 647 million euros the previous year. These relate in almost equal parts to acquired software and capitalized development projects in the Mobility business sector.

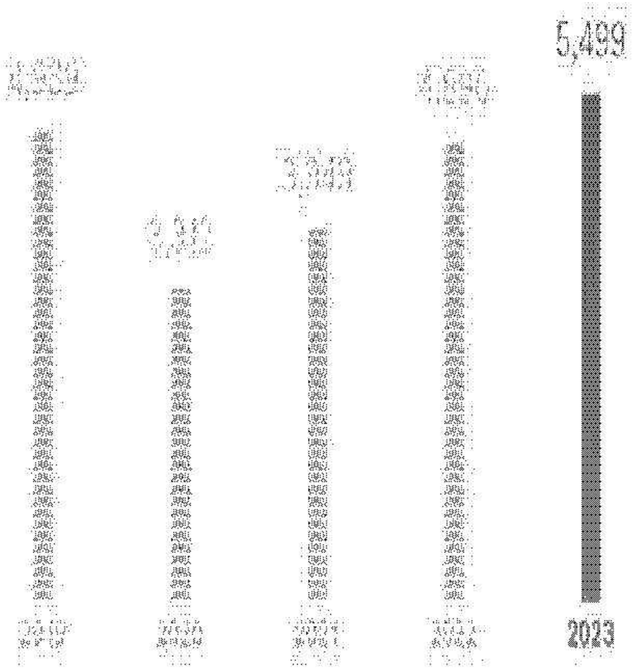
By business sector, the lion's share of capital expenditure – 3.8 billion euros, following 3.3 billion euros the previous year – once again went to Mobility. Among other things, the focus is on increasing investment in the areas of future importance: electromobility, fuel cells, and power electronics. In addition, there are investments in growth areas such as braking control systems, semiconductors and sensors, and driver assistance systems, as well as in our long-established business activities. Capital expenditure in Industrial Technology rose to 410 million euros, compared with 316 million euros the previous year. The focus of investment at Bosch Rexroth was on the construction of a new mobile-hydraulics plant in Querétaro, Mexico, the equipping of the new plant in Brnik, Slovenia, and logistics buildings in Lohr, Germany.

G 16

Capital expenditure

Bosch Group, 2019–2023

in millions of euros

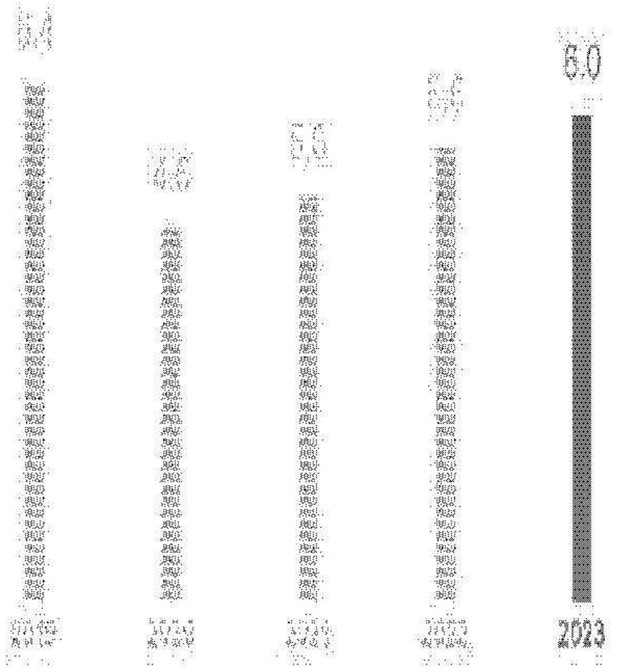


G 17

Capital expenditure

Bosch Group, 2019–2023

as a percentage of sales revenue



In the Consumer Goods business sector, capital expenditure was 839 million euros, compared with 845 million euros in the previous year. Major projects at BSH Hausgeräte are new factories: one in Monterrey, Mexico, for refrigerators and one in Madinat al-Aschir min Ramadan, near Cairo, Egypt, for stoves to support growth in emerging markets. Further investments relate to the location in Dillingen, Germany, where dishwashers are made. In addition, factories in Nazarje, Slovenia, and La Cartuja, Spain, were rebuilt following flooding in summer 2023. Capital expenditure in Power Tools focused on the expansion of manufacturing in the Accessories business unit at locations in the U.S., Italy, and Poland, as well as on battery production in Miskolc, Hungary.

In Energy and Building Technology, capital expenditure came to approximately 180 million euros, compared with 123 million euros the previous year. In Home Comfort, the focus was on expanding the heat-pump business with construction of a new plant in Dobromierz, Poland, and the extension of our existing factory and of warehouse space in Tranås, Sweden. In addition, there are other investments that are not allocated to the business sectors, such as the reorganization of the Paris location in France and the renovation of group headquarters in Gerlingen, Germany.

From a regional viewpoint, we invested 3.5 billion euros in our European locations, compared with 3.1 billion euros the previous year. Germany accounted for 2.1 billion euros of this, compared with 1.6 billion euros the previous year. We invested 1.3 billion euros in Asia Pacific, as in the previous year, and 767 million euros in the Americas, compared with 519 million euros in the previous year.

Bosch Group, statement of cash flows

in millions of euros

T02

	2023	2022
Liquidity at the beginning of the year (Jan. 1)	**6,459**	5,196
Cash flow from operating activities	8,430	1,852
Cash flow from investing activities	–11,211	[illegible]
Cash flow from financing activities	3,961	[illegible]
Other	–196	[illegible]
Liquidity at the end of the year (Dec. 31)	**7,443**	[illegible]

Liquidity

The Bosch Group is financially strong. Liquidity at year-end as per the consolidated statement of cash flows (cash and cash equivalents) stood at 7.4 billion euros, compared with 6.5 billion euros the previous year. Cash flow from operating activities rose to 8.4 billion euros or 9.2 percent of sales revenue in 2023; the previous-year figure was 2.1 percent. The main reasons for the improvement are higher EBIT and the significantly reduced commitments in current assets, in particular as a result of inventory reduction and the increase in liabilities.

Cash flows from investing activities amounted to 11.2 billion euros, compared to the previous-year figure of 2.3 billion euros. The main reasons for the sharp increase are the outflows from investments – higher than in the previous year – in current securities and bank deposits with terms of more than 90 days in order to favorably invest the present high level of liquidity. Investing activities also increased, mainly due to higher participating interests, in particular the acquisition of HydraForce, Paladin Technologies, PalAmerican Technologies, and TSI Semiconductors, and capital expenditure on property, plant, and equipment.

Cash flows from financing activities, including repayments of lease liabilities, disclosed an inflow of 4.0 billion euros in 2023, as opposed to an inflow of just 0.7 billion euros the previous year. The main financing measures in 2023 were the issue of bonds totaling 4.5 billion euros and the U.S. private placements of 1.2 billion U.S. dollars.

For 2023, we disclose a positive free cash flow of 2.2 billion euros, compared with the negative sum of 4.0 billion euros in the previous year. Free cash flow is calculated as the sum of cash flows from operating activities, cash flows from investing activities (without participating interests and other financial investments), and the repayment of lease liabilities. The main reasons for the significant improvement in free cash flow were the significant improvements in EBIT and NWC. This was offset by a further increase in capital expenditure.

Non-financial indicators

CO_2 emissions

Once again in 2023, the Bosch Group with its more than 400 locations worldwide was carbon neutral overall (scopes 1 and 2). In 2023, residual emissions of roughly 581,000 tons of CO_2 were offset through carbon credits to achieve this. Compared with the previous year's level, this is a decrease of some 136,000 metric tons of CO_2, or 19 percent. Above all, this decrease was achieved by further switching from gray to green electricity. The calculation of emissions is based on the standards of the International Energy Agency (IEA, Emission Factors 2022) and the Intergovernmental Panel on Climate Change (IPCC).

In total, the Bosch Group's locations consumed 7,537 gigawatt-hours (GWh) of energy in 2023 (previous year: 7,696 GWh). Bosch requires energy primarily in the form of power for manufacturing plant and machinery, and in the form of thermal energy to heat and air-condition buildings and to operate facilities such as foundry furnaces.

Occupational safety

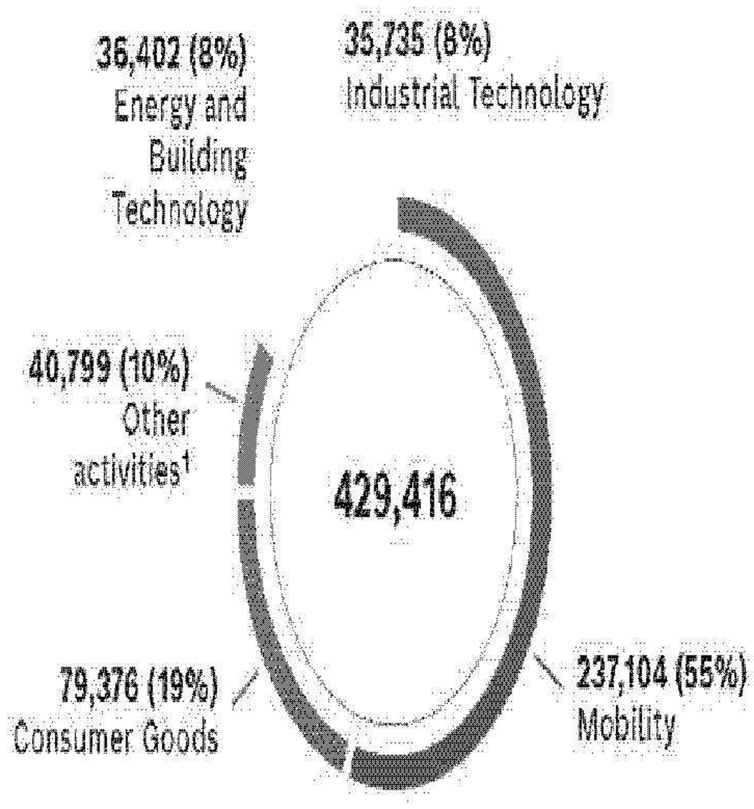
The accident rate was around 1.49 accidents per million hours worked. Unfortunately, there were two fatal accidents in 2023 in which workers employed by third-party companies lost their lives. The total number of workplace accidents in 2023 was 1,073, compared with 1,153 in 2022.

Headcount

The total number of Bosch Group associates rose to 429,416 at the end of 2023, compared with 421,338 at the end of 2022. Headcount thus increased at a slower rate than sales revenue. The number of Bosch associates thus increased by 8,078. Changes in the consolidated group primarily affected the Industrial Technology business sector, due to acquiring 1,824 associates at HydraForce. The acquisition of Paladin Technologies and PalAmerican added 1,577 associates to the Energy and Building Technology business sector and the acquisition of TSI Semiconductors added 220 associates to the Mobility business sector.

G 18

Bosch Group headcount, 2023
by business sector
as of Dec. 31, 2023



1. Corporate functions and research.

The workforce in the Mobility business sector rose to 237,104, compared with 233,077 at the end of 2022. The number of associates in the Industrial Technology business sector increased to 35,735, compared with 34,143 at the end of 2022. In the Consumer Goods business sector, the number of associates fell to 79,376, compared with 83,006 at the end of 2022. The number of associates in the Energy and Building Technology business sector rose to 36,402, compared with 34,437 at the end of the previous year. A total of 40,799 associates are employed in other activities, compared with 36,675 in the previous year.

The number of associates in research and development across all units worldwide grew again by 4,541 to stand at 90,084 at the end of the year. The expansion of the global research and development network affects almost all regions, and Asia Pacific (including other countries and Africa) most strongly. Regions outside Germany account for 63 percent of associates in research and development, with Asia Pacific accounting for 42 percent. The number of associates worldwide in the corporate sector for research and advance engineering ("Other activities") at year-end was 1,627, compared with the previous-year figure of 1,536.

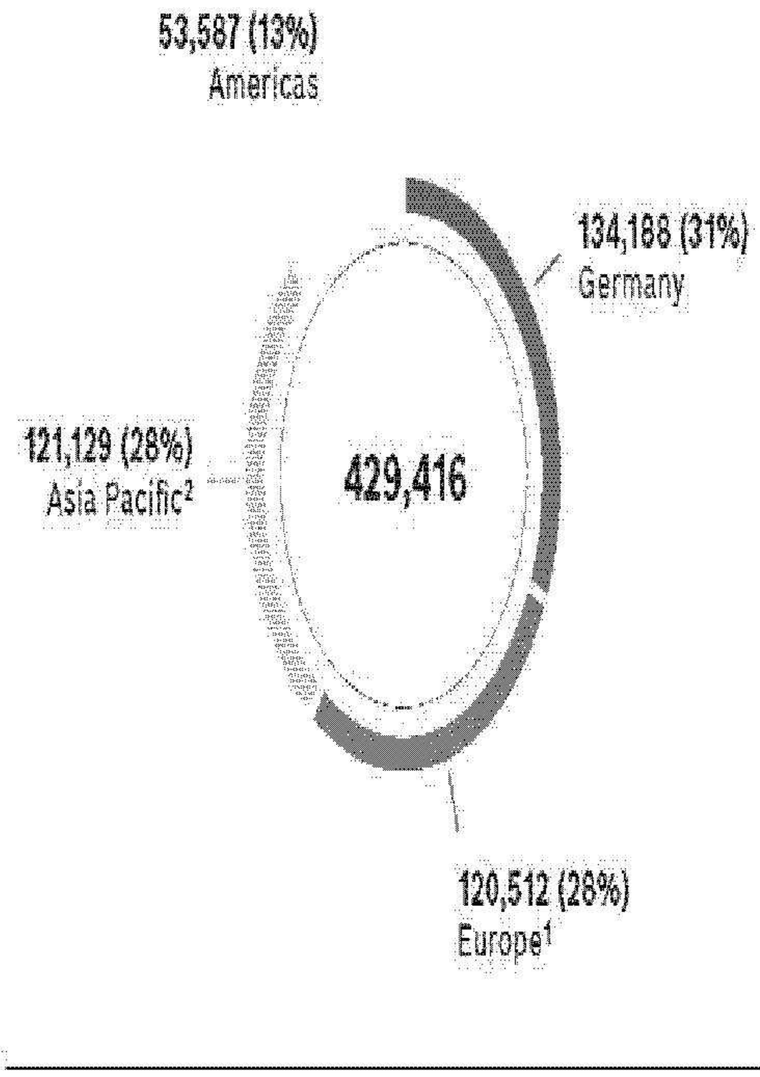
Headcount increased in all regions, but at different rates. As a result, the percentage distribution of Bosch Group associates by region has changed marginally, with the absolute number of associates rising in all regions.

G19

Bosch Group headcount, 2023

by region

as of Dec. 31, 2023



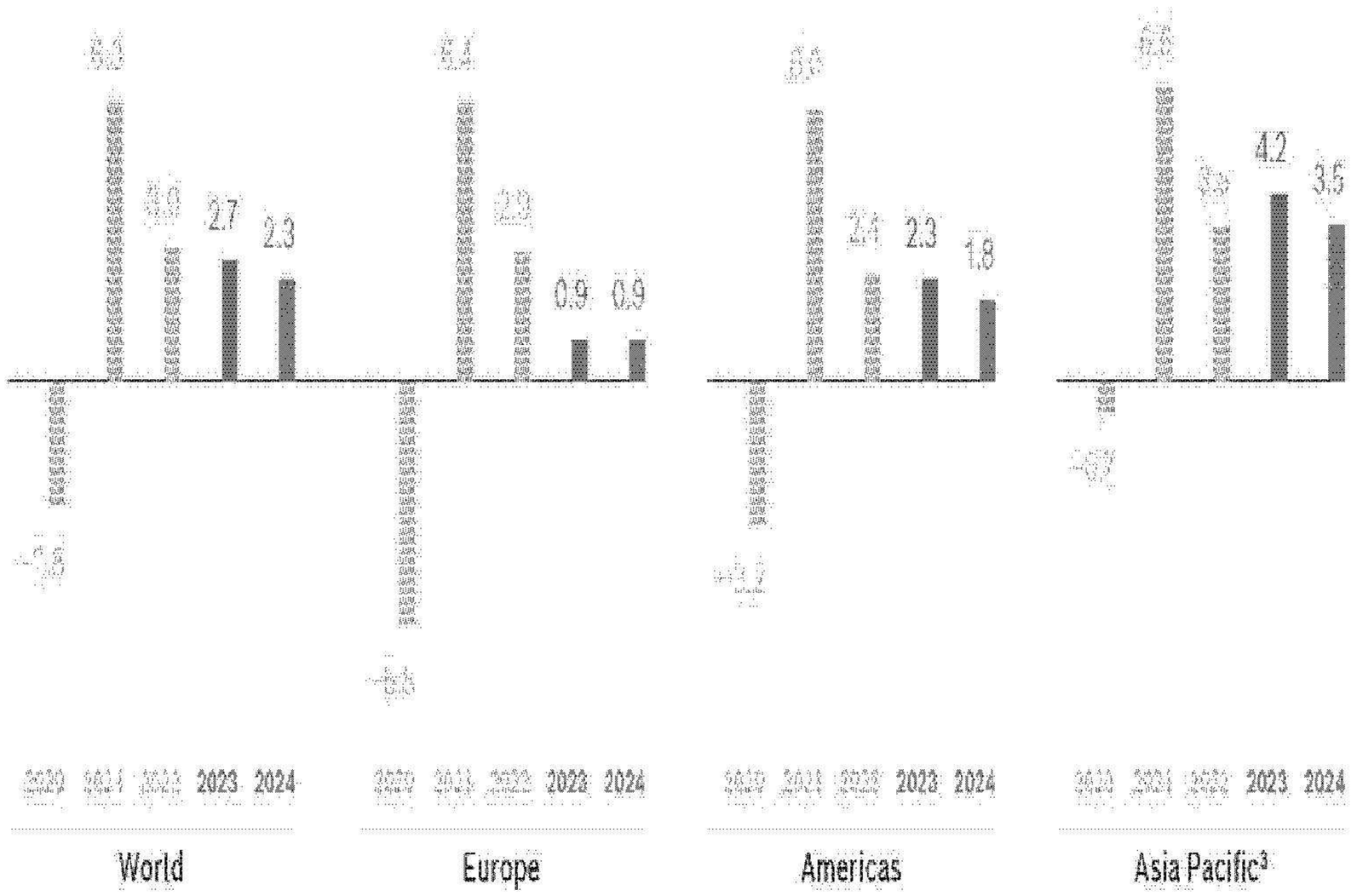
1. Excluding Germany.
2. Including other countries and Africa.

Outlook

The 2024 fiscal year is likely to be challenging as well. High prices will continue to dampen demand for consumer goods. In addition, the significant increases in bank rates in 2022 and 2023 are likely to continue to brake economic momentum. On top of this, there is uncertainty as a result of geopolitical tension, also in the Middle East. The war in Ukraine also continues. Important elections will also be held in a number of countries. Depending on their outcome, the geopolitical landscape may change. Nonetheless, we aim to grow sales revenue by between 5 and 7 percent. Additional burdens resulting from the far-reaching changes in diverse business fields and the adjustment measures connected to them, combined with considerable upfront investments in areas of future importance, mean that we assume an EBIT margin from operations roughly on a par with 2023. We also aim to achieve an FCF-to-sales revenue ratio of at least 1 percent. Our reorganization measures in particular will not produce their full effect until 2025. In addition, we will work intensively to reduce our costs in order to strengthen competitiveness. Moreover, we will drive forward the implementation of our growth strategy. For this purpose, we want to strengthen our portfolio through acquisitions and partnerships.

Economic growth by region, 2020–2024[1,2]

Real GDP, percentage change on previous year



1. Some previous-year figures changed from the 2022 annual report following an audit.
2. Forecast figures for 2024.
3. Including other countries.

Macroeconomic and sector-specific environment

Our plans are based on the assumption that global economic growth will remain weak in 2024 as well. For 2024, we forecast that global GDP will grow by between 2 and 2½ percent. For Europe, we expect developments to be weak. We see the prospects in the Americas as slightly more favorable. However, the consequences of the more restrictive monetary policy in the United States will likely dampen growth for the time being. Asia is once again expected to disclose the strongest growth. However, we expect that China will grow at a slower pace than in the previous year. The weak real-estate market is likely to brake developments there. The various geopolitical tensions are a further reason for the low-key outlook for the global economy. Moreover, the conflicts in the Middle East are again making global supply chains vulnerable, especially shipping routes. There is a risk of delayed deliveries and rising logistics costs, which will then make themselves felt in prices. Rising wages in North America and Europe may lead to further price increases.

Our assumption for 2024 is that the global inflation rate will fall further to between 3½ and 4 percent, following 5.8 per-

cent in 2023 and 7.9 percent in 2022. However, this means that we still expect inflation to be higher than the average over the past decade. We therefore expect central banks to be cautious and unlikely to loosen the monetary-policy reins to any major extent. The persistence of comparatively high interest rates is likely to hold back consumption and construction investment in 2024 as well.

For the Americas, we expect that GDP will rise by 1½ to 2 percent year on year in 2024. On the basis of current data, our forecast for Europe is a just under 1 percent rise in economic output. In this context, we expect the European Union to grow by ¾ percent year on year. For Germany, we currently expect stagnation. Growth rates in Asia Pacific (including other countries) will likely weaken year on year, to 3½ percent. Here, we expect growth in China to slow to 4 percent. As their point of reference, our forecasts are based on the data sources of Feri AG and the International Monetary Fund, as well as on our own assessments.

For the automotive sector, our most important market, we so far expect to see a similar level of production in 2024 as in 2023 (including heavy trucks), at around 93 million vehicles. Our forecast process is based on the third-party forecasts of S&P Global Mobility and Bosch in-house marketing analyses in the regions and at headquarters.

Bosch Group and business sectors

Sales revenue forecast

In 2024, we expect that Bosch Group sales revenue will rise within a range of 5 to 7 percent. As in previous years, we do not disclose exchange-rate effects separately in our forecast. At between 7 and 9 percent, we expect the strongest growth in our Mobility business sector. By contrast, we expect to see slight growth of up to 1 percent in the Industrial Technology business sector. In the Consumer Goods business sector, our planning foresees growth of between 3 and 5 percent, following the decline of previous years. The forecast moderate growth of between 2 and 4 percent in Energy and Building Technology is the result of subdued expectations in Home Comfort, as the European heating market is expected to significantly lose momentum.

Result forecast

Given the difficult economic environment and considerable upfront investments and adjustment measures, the Bosch Group's EBIT margin from operations is expected to be roughly on a par with 2023. In both the Mobility and Consumer Goods business sectors, we expect a significant improvement in EBIT margin from operations. In the Industrial Technology business sector, the EBIT margin is likely to be significantly lower than in the previous year, and in the Energy and Building Technology business sector considerably so. The forecast for the Energy and Building Technology business sector does not take the Building Technologies division's planned divestment of its product business into account.

Expectation for NWC and FCF

For the Bosch Group, we expect an FCF-to-sales revenue ratio of at least 1 percent. For all business sectors, we expect average NWC to fall significantly from previous-year levels. For NWC, the year-on-year comparisons are based on the comparable internal figure for the previous year.

Report on opportunities and risks

Opportunities

On the whole, we see good growth opportunities for the Bosch Group. For us as a supplier of technology, additional sales opportunities are opening up through changes in markets and technology – especially as a result of electrification, electronification, automation, and digitalization. There is also the growing economic and social focus on sustainability, and the growth potential of emerging regions such as ASEAN and Africa. For the sake of greater clarity, the "Outlook for the Bosch Group" section describes in detail the opportunities and specific strategies we derive from them for the company as a whole and the business sectors.

Risk report

Risk management system

In the Bosch Group, risk management encompasses the entire company, including all essential operations, functional areas, divisions, and business sectors. It is thus a core responsibility for all managers on every level of the Bosch Group. As far as possible, risks are identified and managed where they arise: in other words, above all in the divisions and their regional subsidiaries. The latter organizational units are also primarily responsible for introducing measures to reduce or control risks.

While the corporate departments for compliance, risk management, and internal control system exercise a governance function for their respective systems, specialist departments such as the legal services and tax departments support, govern, and monitor directives and focal points. Internal auditing also helps assess the appropriateness and effectiveness of these tasks, and where necessary submits proposals for the introduction of appropriate improvements to the board of management and the heads of the specialist departments.

The Bosch Group risk management system takes its lead from the ISO 31000, COSO III (ERM), and IDW PS 340 standards. It includes the systematic recording and follow-up of relevant risks and, where necessary, the identification and follow-up of measures to deal with those risks. In this context, the corporate coordinating office for the risk management system is responsible for continuously improving the system.

A corporate risk management directive sets out principles and responsibilities. It was revised in 2023. Reporting to the supervisory board's newly established audit committee has also been made a fixed component of this directive. In addition, it now features a "disruption radar" for the early detection of risks that lie outside the planning period. "Disruption" refers to groundbreaking developments that profoundly change customer expectations and markets through new functions, technological innovations, and new business models, and in this way may significantly affect the Bosch Group's business. These disruptions are clustered according to the PESTEL model (political, economic, social, technological, environmental, legal) and classified in three phases: "identify and observe," "evaluate and test," and "implement initiatives." In addition, a cross-functional risk committee is tasked with identifying significant risk areas across the operating units and pinpointing potentially disruptive technological and strategic risks.

Overall risk assessment

We are not currently aware of any risks, beyond those listed in this report, which could materially affect the net assets, financial position, and results of operations of the Bosch Group in 2024. From a current perspective, there are no risk exposures that could jeopardize the Bosch Group's continued existence as a going concern.

Risk assessment on the basis of the risk management system

Fundamental remarks

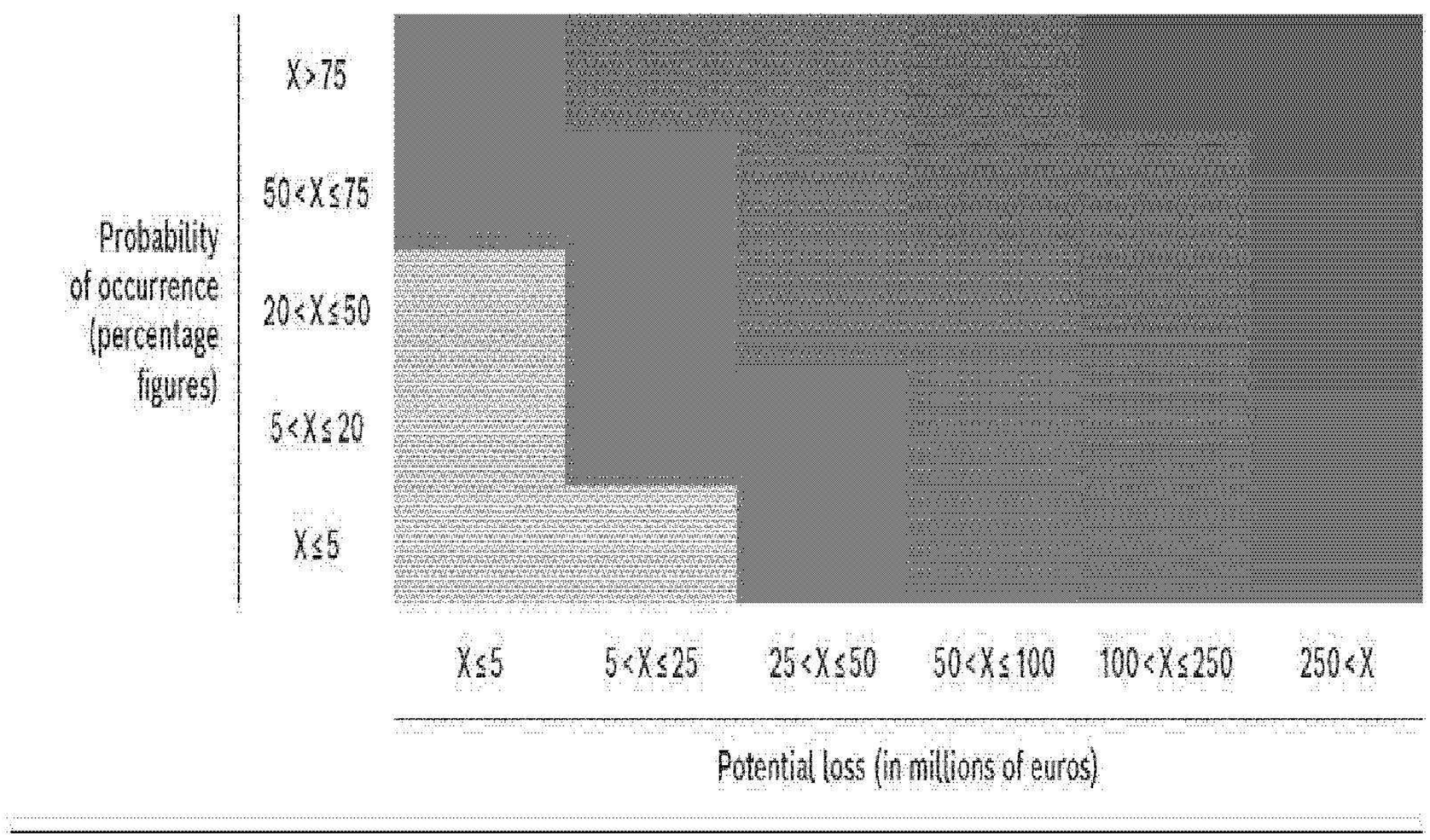
Risk assessment on the basis of the risk management system considers a time horizon up to 2027. The risk situation has not changed in principle, even though there have been methodological changes in the way risks are classified. The number of reported risks (at year-end 2023) has fallen further compared with previous years. The financial risk ("monetary risk") is calculated from a risk matrix of probability of occurrence and potential loss. It thus gives an indication of how high any likely losses are. This risk has fallen 31 percent year on year. While the likelihood of occurrence has remained the same, the potential loss has dropped significantly.

Here, the potential scale of loss is based on a three-point estimate for the worst-case, realistic, and best-case scenarios, in a ratio of 1:4:1. Risk reporting uses the residual method. Risks with a probability of occurrence of at least 50 percent are still considered in our annual or interim sales revenue and income forecasts as a matter of principle. The assessment is based on our current planning.

As a supplement to the procedure followed in previous years, we have formed a number of thematic focal points under which individual risks are clustered. These focal points take their lead from the size of the aggregate financial risk. Seven of these thematic focal points involve a financial risk in excess of 700 million euros.

The most significant focal point is changes in the market and competitive environment. As a result of greater volatility, it is becoming increasingly challenging to work existing markets, as well as to access new ones, and this is making the competitive situation as a whole tougher. Another focal point is macroeconomic developments, from which risks arise such as exchange-rate fluctuations, persistent inflation, and changes in interest rates. These are described in the section "Hedging policy and financial risks." One further risk cluster concerns the Bosch Group's global supply chains. Above all, the individual risks include the limited availability of electronic components (especially semiconductors), despite the improvements in the past fiscal year, the insolvency of critical suppliers, and loss events such as natural disasters at critical suppliers' or at our own locations, including the possibility of far-reaching production stoppages. In the "projects and customers" thematic area, we consider the risks relating to individual customers as well as delays in fundamental technological developments. There is also the thematic focal point of risks arising from legislation and regulations. These may lead to restrictions on competition or increased costs as a result of additional measures. This cluster also includes risks in the area of data protection. Geopolitical risks are a further category. This includes risks such as U.S.-Chinese

Risk matrix of potential loss



trade, the war in Ukraine, and the conflict in the Middle East. Cybersecurity remains one of the seven most important risk categories. It includes risks with respect to core IT processes and connected products, and the danger of business processes being interrupted.

The 250-million-euro threshold for individual financial risks was exceeded by the risks of interrupted business processes in the cybersecurity category and the availability of electronic components, particularly semiconductors.

With respect to the thematic focal points and major individual risks, we are keeping a close watch on developments and are designing scenario-based measures. As concerns the changes in the market and competitive environment, we are using our growth strategy to strengthen our position in existing areas, to open up new areas of business, and to extend our global market footprint. On the subject of global supply chains, we are analyzing the structure of our procurement sources and monitoring the development of critical suppliers; this applies in greater measure to electronic components. Our response to risks relating to projects and customers is the close monitoring of milestones and greater consideration of superordinate levels. To reduce the risks arising from legislation and regulations, we closely monitor political developments in order to be able to adapt to changed framework conditions at an early stage. With respect to geopolitical risks, it is part of our strategy to balance our business internationally and to grow more strongly in markets that have so far been under-represented.

We take comprehensive measures with respect to the biggest individual risk – interruption of business processes as a result of cyberattacks. Bosch's company-wide cybersecurity organization identifies and evaluates potential risks in connection with cyberthreats and develops appropriate measures to minimize them. Through regular security audits and checks, weaknesses are identified and remedied in order to

minimize the risk of security breaches. Here, the cybersecurity organization works closely with the various company departments in order to ensure that security considerations are integrated right from the start of the development process. In addition, we collaborate with third-party partners and authorities in order to exchange information about current threats and to adopt best practices.

Risks by business sector

Of the business sectors, Mobility has the highest financial risk. The biggest risk here is the availability of electronic components, especially semiconductors. We take extensive measures to keep any impact on customers to a minimum – for example, by including extra procurement sources. The Consumer Goods business sector is currently faced above all with risks resulting from changes in its competitive environment. The measures it takes include strengthening competitiveness by improving cost efficiency and revising its product strategy.

In proportion to their share of sales revenue, the financial risk of the Industrial Technology and Energy and Building Technology business sectors is lower than in the rest of the Bosch Group. In Industrial Technology, one material risk concerns the impact of the bankruptcy of critical suppliers. To minimize this risk, the situation at critical suppliers is monitored closely, in addition to adjustments to procurement strategy. In Energy and Building Technology, the highest risks result from uncertain regulatory policies for the heating market in the United Kingdom and Germany. Our strategy here is to supply technologies that are appropriate to the market and that satisfy requirements.

Hedging policy and financial risks

Hedging policy principles and financial derivatives

The business operations of the Bosch Group are impacted in particular by fluctuations in exchange and interest rates and additionally, on the procurement side, by commodity price risks. Business policy aims to limit these risks by means of hedging. Hedging transactions are managed at corporate level. Internal regulations and guidelines set down a mandatory framework and define the responsibilities related to investment and hedging transactions. According to these regulations, derivatives may only be used in connection with business operations, financial investments, or financing transactions; speculative transactions are not allowed. Trader limits are an important component of the guidelines. Hedges are generally concluded via banks with good credit ratings from leading agencies and taking into account current risk assessments in financial markets. The creditworthiness of the Bosch Group's banking partners is closely monitored, and the risk mitigated by counterparty limits.

To reduce the credit risk of the bank, fixed-term deposits are in some cases also entered into as secured deposits in tri-party repo transactions. In such cases, the bank provides predefined securities as collateral. The transaction settlement, as well as the management and valuation of the securities, are managed by a clearing center. The decision-making bodies are committees for commodities, foreign currencies, and investments that meet at regular intervals. There is a functional segregation of trading, settlement, and control functions. Key tasks of the control function above all include determining risks and continuously checking compliance with instructions and guidelines.

Each month, the risk of financial investments is calculated using the value-at-risk concept. Risks relating to financial investments are assessed through ad hoc studies of asset-allocation strategy, and limited by diversifying investment. In foreign-exchange and investment committee meetings, the board of management member responsible is informed monthly about risk analyses and the results of investments and hedges.

Currency risks

Currency risks from cash flows in business operations are mitigated by the central management of invoicing and purchasing currencies. The currency risk is determined on the basis of the worldwide consolidated cash flows in the respective currencies. Based on annual forecasts, estimated inflows and outflows in the various currencies for the reporting period are aggregated in a foreign exchange balance plan. The resulting net position is then used for the central management of currency exposures. The biggest net currency positions of the planned cash flow are in Chinese renminbi, U.S. dollar, British pound, and Mexican peso.

Hedging largely takes the form of forward exchange contracts; currency options and currency swaps are used to a lesser extent. These transactions, which are only entered into with banks, are subject to minimum requirements with respect to nature and scope. The risk attaching to material foreign currency items from operations is determined using the cash-flow-at-risk concept. These risk analyses and the hedge result are determined monthly and also presented to the management board member responsible in the foreign-exchange and investment committee meetings.

A sensitivity analysis in the notes to the financial statements shows the effect of a 10 percent change in the euro exchange rate on the profit before tax. The analysis includes the major currencies. In the case of the Chinese renminbi, the Hungarian forint, the Japanese yen, and the Mexican peso, the effect of such a change on profit before tax would in each case run into a low eight-figure sum. These effects with respect to the Czech crown and British pound would be a mid-range eight-figure sum. The U.S. dollar would be the only currency where the effect would be in the high eight-figure range. For the most part, the effects on earnings shown here result both from foreign-currency positions relating to operations and from loans within the Bosch Group if, by way of an exception, the loan was granted in a currency other than the local currency of the borrower – for example, because it can be repaid from expected cash flows in this currency. The currency risk presented in financial reporting deviates from the purely economic currency risk, as the latter is determined solely on the basis of the planned cash flow from operating activities.

Interest-rate risks

Risks from changes in interest rates on investments and borrowings are limited by select use of derivative financial instruments. These are mainly interest rate swaps and interest rate futures. In a sensitivity analysis, the assets and liabilities subject to floating interest rates, fixed-rate securities, pension and money-market funds, and interest derivatives were considered. The effect of a 100-basis-point change in the market interest rate (based on the interest rate on the reporting date) on the profit before tax would be a mid-range eight-figure sum.

Other price risks

Derivatives are used to limit the risks of fluctuating commodity prices. The analysis of the commodity-price risk took into account commodity-price derivatives measured as of the reporting date. The effect on the profit before tax of a change in the forward-rate level of 10 percent (starting from forward rate on the reporting date) would be a mid-range eight-figure sum. As of the reporting date, the Bosch Group is not aware that it is exposed to any significant other price risks.

Share-price risks

The Bosch Group holds stock as a part of its financial investments used to cover non-current pension obligations. It also holds investments in quoted companies. The analysis of the share-price takes into account share portfolios, quoted investments, equity funds, and share derivatives. In the 2023 financial statements, these had a carrying amount of 5,028 million euros. A change in the share price of 10 percent (taking the share price on the reporting date as the baseline) would have an effect on the financial instruments recognized in equity of roughly 380 million euros. For the profit before tax, the effect would be 130 million euros. To reduce share-price risks, a broadly diversified investment strategy is pursued across various regions and sectors.

Credit risks

The credit risk from customer receivables is recorded and monitored on an ongoing basis. Responsibilities and duties relating to credit risks are governed by an internal directive. This mainly concerns the stipulation of payment terms, fixing of credit limits, release of deliveries, and receivables monitoring.

The credit risk for trade receivables is reduced by processing invoices with the corresponding credit notes in a single work step, the net amount is reported in the statement of financial position. This procedure is only performed if there is a legal right to offset and the customer intends to settle the receivable on a net basis or to settle the receivable by offsetting against the corresponding liability. Moreover, trade receivables are partly secured by retention of title. For some trade receivables, collateral has been additionally provided in the form of guarantees, property liens, and mortgages. Due to the measures that have been taken, we do not see any material credit risk.

Liquidity risks

Changes in financial assets and liabilities are monitored on an ongoing basis. Internal directives regulate the duties and responsibilities of liquidity management and planning. The liquidity risk is reduced by processing invoices for trade payables with the corresponding credit notes received in a single work step. This procedure is only performed if there is a legal right to offset and there is an intention to settle the liability based on the net amount or to settle the liability by offsetting against the corresponding receivable. Moreover, collateral is provided in the form of guarantees.

Thanks to our comfortable liquidity position, presented above in the section on net assets and financial position, we have ample financial resources at our disposal. We therefore evaluate the liquidity risk as low.

Risks pursuant to the compliance management system

In 2023, we did not register any unusual corruption-related risks within the organization. As before, the general corruption-related risks concern the handling of special payments to our customers and business partners whose risk profile is high. Also as before, there are even more and even tighter national and international laws and official requirements with respect to effective compliance, data protection, and information security management systems. They relate above all to current technological developments such as artificial intelligence. The focus on data privacy, whistleblower protection, and more stringent prosecution of companies and natural persons remains.

The corporate compliance organization was further modified in 2023. For example, we have reorganized our internal investigation processes in Germany. We are also continuing to systematically digitalize our core compliance processes. To minimize risk, we have further extended our checks. In data privacy and information security, we have above all adapted our regulations and processes to new local requirements, such as the implementation of new data laws in China. We have also started to implement a revised training model in order to address subjects such as cybersecurity and artificial intelligence. We have continued to implement the European and local directives relating to whistleblower systems and protection, including the setup of new in-house reporting offices. In addition, the company-wide sensitization campaign has been continued. It aims to increase awareness and use of the whistleblower system and to reinforce trust in internal investigations. Moreover, we have extended our training program and revised our training courses.

Foreign-trade risks

Geopolitical developments such as the war in Ukraine and the tense trade relations between the U.S. and China are leading internationally to new and tighter rules that restrict global free trade. They include export controls and sanctions regulations in many countries. These are backed up by sanctions of their own and past or future violations may lead to penalties, claims for damages, and damage to reputation. The challenges here are the abruptness with which new sanctions and the related tools are imposed, the extension of restrictions to include various business processes, and the steadily increasing general risk of evasion resulting from sanctions. With respect to the resulting economic, legal, and reputational risks, Bosch is continuously developing its export-control organization.

Legal risks

With respect to emissions from diesel vehicles, various automakers are being investigated by German and non-German authorities. In occasional cases, these investigations also concern Bosch in its capacity as a supplier of engine control units. With respect to the events concerning various automakers' diesel vehicle emissions, Bosch is still a defendant in class and individual civil-law actions in a few countries. In 2023, Bosch was able to successfully conclude many proceedings relating to diesel emissions, including several class actions against Bosch in the United States and the Netherlands. In none of the proceedings concluded does Bosch acknowledge the validity of the claims brought forward, nor does it concede any liability. The proceedings and actions still pending, as well as possible further ones, still pose risks. Taken together, however, we now regard them as more minor than previously. In all these proceedings, Bosch is asserting its rights.

Bosch is also engaged in compensation discussions with customers in respect of potential civil-law risks associated with closed antitrust proceedings. Investigations by the antitrust authorities against Bosch are continuing in certain countries. The French antitrust authority has completed its investigations of BSH Hausgeräte in France for a possible violation of antitrust law and has notified BSH France of the allegations made as part of the ongoing proceedings. As part of a settlement, the authorities and BSH have agreed on the scope of a possible fine. The final decision is expected in the first half of 2024.

On the basis of the facts relating to antitrust law and engine control units that were available when the financial statements were prepared and that the board of management has assessed, the board of management believes that sufficient precautions have been taken in the form of provisions for legal risks. For the various legal risks outlined above, provisions throughout the group amount to 386 million euros. From the 2023 fiscal year, the board of management is not aware of any further legal risks that could, from a present perspective, materially impair the company's net assets, financial position, or results of operations.

Consolidated financial statements

of Robert Bosch GmbH

as of December 31, 2023

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Consolidated income statement

for the period from January 1 to December 31, 2023

in millions of euros

	Note	2023	2022
Sales revenue	7	**91,596**	[illegible]
Cost of sales	8	-62,976	[illegible]
Gross profit		**28,620**	[illegible]
Distribution and administrative cost	8	-18,233	[illegible]
Research and development cost	8	-7,391	[illegible]
Other operating income	9	3,470	[illegible]
Other operating expenses	10	-2,029	[illegible]
Result from entities included at equity	6	6	[illegible]
Earnings before financial result and taxes (EBIT)		**4,503**	[illegible]
Financial income	11	3,980	[illegible]
Financial expenses	11	-4,507	[illegible]
Financial result		**-527**	[illegible]
Profit before tax		**3,976**	[illegible]
Income taxes	12	-1,336	[illegible]
Profit after tax		**2,640**	[illegible]
of which attributable to non-controlling interests		539	[illegible]
of which attributable to shareholders of the parent company		2,101	[illegible]

Consolidated statement of comprehensive income

for the period from January 1 to December 31, 2023

T04

in millions of euros

	2023	2022
Profit after tax	**2,640**	1,858
Change in debt instruments, measured at fair value	384	-423
reclassified to profit or loss	189	65
Currency translation of subsidiaries outside the euro zone	-919	23
reclassified to profit or loss	26	185
Items that may be reclassified to profit or loss	**-535**	-415
Change in equity instruments, measured at fair value	37	-265
Remeasurement of pension provisions	-237	2,440
Items that will not be reclassified to profit or loss	**-200**	1,958
Other comprehensive income after tax	**-735**	955
Comprehensive income	**1,905**	2,813
of which attributable to non-controlling interests	396	452
of which attributable to shareholders of the parent company	1,509	1,975

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Consolidated statement of financial position

for the year ended December 31, 2023

Assets

in millions of euros

	Note	12/31/2023	12/31/2022
Current assets			
Cash and cash equivalents	14	7,443	6,458
Trade receivables	15	17,081	16,528
Other financial assets	16	7,822	3,892
Contract assets	17	1,176	1,306
Income tax receivables		379	357
Other assets	18	2,628	2,462
Inventories	19	15,184	15,328
		51,713	47,931
Non-current assets			
Financial assets	16	14,538	11,824
Contract assets	17	695	587
Income tax receivables		205	315
Property, plant, and equipment	20	24,616	23,014
Right-of-use assets	32	2,276	1,958
Intangible assets	21	11,055	10,350
Investments measured at equity	6	53	86
Other assets	18	1,008	974
Deferred taxes	12	2,017	2,003
		56,463	53,113
Assets held for sale	6	**154**	115
Total assets		**108,330**	101,247

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Equity and liabilities

in millions of euros

	Note	12/31/2023	12/31/2022
Current liabilities			
Trade payables	22	12,205	13,761
Lease liabilities	32	553	542
Other financial liabilities	23	2,772	3,519
Contract liabilities	24	1,820	1,944
Income tax liabilities	12	675	749
Other liabilities	25	8,418	8,568
Other provisions	25	5,176	4,950
		31,619	28,241
Non-current liabilities			
Financial liabilities	23	10,399	9,457
Lease liabilities	32	1,798	1,856
Contract liabilities	24	836	808
Other liabilities	25	51	45
Pension provisions	26	9,666	9,354
Other provisions	25	5,324	5,376
Deferred taxes	12	599	572
		28,673	28,215
Liabilities directly associated with assets held for sale	6	**144**	64
Equity	27		
Issued capital		1,200	1,200
Capital reserve		4,557	4,557
Retained earnings		39,776	35,403
Equity attributable to shareholders of the parent company		**45,533**	41,249
Non-controlling interests		2,361	2,487
		47,894	43,737
Total equity and liabilities		**108,330**	100,257

Consolidated statement of changes in equity

T06

in millions of euros

Note 27			Retained earnings								
					Other comprehensive income						
	Issued capital	Capital reserve	Earned profit	Treasury stock	Currency translation	Financial instruments	Pensions	Total	Equity parent company	Equity non-controlling interests	Group equity
1/1/2022	1,200	4,557	42,206	-62	-1,083	209	-1,906	-2,780	45,121	2,377	47,498
Profit after tax			2,101						2,101	539	2,640
Other comprehensive income after tax					-772	418	-238	-592	-592	-143	-735
Comprehensive income			2,101		-772	418	-238	-592	1,509	396	1,905
Dividends			-162					0	-162	-542	-704
Changes in ownership interests in subsidiaries			-4						-4		-4
Other changes			501		-900	1	468	-431	70	9	79
12/31/2022	1,200	4,557	44,642	-62	-2,755	627	-2,676	-3,023	46,334	2,240	48,574
Profit after tax			2,101						2,101	539	2,640
Other comprehensive income after tax					-772	418	-238	-592	-592	-143	-735
Comprehensive income			**2,101**		**-772**	**418**	**-238**	**-592**	**1,509**	**396**	**1,905**
Dividends			-162					0	-162	-542	-704
Changes in ownership interests in subsidiaries									0		0
Other changes			111			-165		-165	-54	20	-34
12/31/2023	**1,200**	**4,557**	**43,642**	**-62**	**-1,755**	**627**	**-2,676**	**-3,804**	**45,533**	**2,361**	**47,894**

Consolidated statement of cash flows

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in millions of euros

	Note 28	2023	2022[2]
Earnings before financial result and taxes (EBIT)		4,503	3,478
Depreciation and amortization[1]		4,961	5,245
Gains/losses on disposal of non-current assets		–125	17
Result from investments measured at equity		–6	1
Other expenses and income, not cash effective		11	180
Change in inventories		1,050	3,715
Change in receivables and other assets		–855	–2,081
Change in liabilities		1,326	1,756
Change in pension provisions and other provisions		–1,215	–1,532
Interest paid		–411	–240
Interest and dividends received		701	365
Other financial expenses and income, cash effective		4	–324
Income taxes paid		–1,514	–1,345
Cash flows from operating activities (A)		**8,430**	8,839
Acquisition of subsidiaries, net of cash acquired		–1,426	–152
Disposal of subsidiaries, net of cash disposed of		14	–21
Additions to non-current assets		–6,596	–6,386
Disposal of non-current assets		506	743
Change in securities and time deposits (term of more than 90 days)		–3,709	4,329
Cash flows from investing activities (B)		**–11,211**	–2,336

1. After offsetting write-ups of EUR 63 million (previous year: EUR 2 million).
2. Some of the previous year's figures within cash-flows from operating activities have been restated; for further details see note 2 in the notes to the consolidated financial statements.

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Consolidated statement of cash flows

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T 07

in millions of euros

	Note 28	2023	2022
Acquisition of non-controlling interests		-1	-1
Borrowing		7,141	2,542
Repayment of financial liabilities		-1,887	-345
Repayment of lease liabilities		-588	-538
Dividends paid		-704	-548
Cash flows from financing activities (C)		**3,961**	**-701**
Change in liquidity (A+B+C)		**1,180**	**-124**
Liquidity at the beginning of the period (January 1)		**6,459**	**6,735**
Exchange rate-related change in liquidity		-208	-32
Change in liquidity due to changes in the consolidated group		10	17
Change in liquidity held for sale		2	-1
Liquidity at the end of the period (December 31)		**7,443**	**6,459**

2. Some of the previous year's figures within cash-flows from operating activities have been restated; for further details see note 2 in the notes to the consolidated financial statements.

Notes to the consolidated financial statements

Principles and methods

1 – General information

Robert Bosch Gesellschaft mit beschränkter Haftung (Stuttgart Local Court, HRB 14000; referred to in the following as Robert Bosch GmbH) is headquartered in Stuttgart, Germany. Its business address is Robert-Bosch-Platz 1, 70839 Gerlingen, Germany. The shareholders of Robert Bosch GmbH are Robert Bosch Stiftung Gesellschaft mit beschränkter Haftung, Stuttgart (93.99 percent of the shares), ERBO II Gesellschaft mit beschränkter Haftung, Stuttgart (5.36 percent of the shares), and Robert Bosch Industrietreuhand KG, Stuttgart (0.01 percent of the shares), which performs the entrepreneurial ownership functions. Robert Bosch GmbH holds treasury stock equivalent to 0.64 percent of capital. For further information on the Bosch Group's business activities, please refer to the group management report.

The consolidated financial statements of Robert Bosch GmbH as of December 31, 2023, have been prepared in accordance with the International Financial Reporting Standards (IFRSs) as adopted by the EU at the end of the reporting period in accordance with Regulation (EC) No. 1606/2002 of the European Parliament and of the Council on the application of international accounting standards. In addition, the provisions of Sec. 315e (3) HGB [*Handelsgesetzbuch*: German Commercial Code] have been observed. The previous-year figures have been determined using the same principles.

To enhance the clarity and transparency of the consolidated financial statements, individual line items of the consolidated income statement and the consolidated statement of financial position have been combined. These items are explained separately in the notes to the consolidated financial statements. The income statement has been prepared using the function of expense method.

The group currency is the euro (EUR). Unless otherwise stated, all figures are in millions of euros (EUR million).

The consolidated financial statements prepared as of December 31, 2023, were authorized for publication by the board of management on March 6, 2024. The consolidated financial statements and group management report will be filed with the Company Register [*Unternehmensregister*] and published there.

2 – Changes in financial reporting

Accounting standards applied for the first time in the fiscal year 2023

The following new or revised standards became effective for the first time in the reporting year:

- IFRS 17 *Insurance Contracts* (including the amendments from June 2020 and December 2021),
- Amendments to IAS 1 *Presentation of Financial Statements* (Disclosure of Accounting Policies),
- Amendments to IAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors* (Definition of Accounting Estimates),
- Amendments to IAS 12 *Income Taxes* (Deferred Tax related to Assets and Liabilities arising from a Single Transaction),

– Amendments to IAS 12 *Income Taxes* (International Tax Reform – Pillar Two Model Rules).

The Bosch Group has not adopted the above amendments early.

The above amendments are not expected to have any material effects on the consolidated financial statements of Robert Bosch GmbH. Disclosures on possible effects from the implementation of the OECD Pillar Two Model Rules are presented in note 12 "Income taxes."

First-time adoption of the above amendments is not expected to have any material effects on the consolidated financial statements of Robert Bosch GmbH.

Accounting standards not adopted early

The EU endorsed amendments to the following accounting standards in the reporting year:

– IAS 1 *Presentation of Financial Statements* (Classification of Liabilities as Current or Non-current and Non-current Liabilities with Covenants) and
– IFRS 16 *Leases* (Lease Liability in a Sale and Leaseback).

The IASB also published amendments to the following standards in the reporting year:

– IAS 7 *Statement of Cash Flows* and IFRS 7 *Financial Instruments: Disclosures* (Supplier Finance Arrangements), which will become effective for fiscal years beginning on or after January 1, 2024, and
– IAS 21 *The Effects of Changes in Foreign Exchange Rates* (Lack of Exchangeability), which will become effective for fiscal years beginning on or after January 1, 2025.

These changes have yet to be endorsed by the EU.

Correction of the previous year's figures

In the fiscal year, the allocation of individual items under cash flows from operating activities was changed in the consolidated statement of cash flows. This relates in particular to the presentation of changes in inventories from customer development projects. Changes that were previously reported in the item "other expenses and income, not cash effective" are reported consistently with other changes in inventories in the items "change in inventories," "change in receivables and other assets," and "change in liabilities" from the reporting year onward.

In order to ensure the comparability of the previous year's figures, the following restatements were made in the previous year's figures in accordance with IAS 8.42: The line item "other expenses and income, not cash effective" was increased by EUR 313 million, while the line item "change in inventories" was reduced by EUR 459 million. The line item "change in receivables and other assets" was reduced by EUR 223 million, and the line item "change in liabilities" was increased by EUR 369 million.

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3 – Currency translation

In the separate financial statements of the group companies, monetary assets and liabilities denominated in currencies other than the euro are measured at the closing rate, regardless of whether they are hedged or not. Exchange-rate gains and losses from revaluations are recorded in profit or loss.

Financial statements prepared in foreign currency are translated into euros in accordance with IAS 21 *The Effects of Changes in Foreign Exchange Rates*. Assets and liabilities are translated at the closing rate, while equity is translated at historical rates. The line items of the income statement are translated into euros at the annual average exchange rates. Any resulting exchange-rate differences are recorded directly in equity as a separate line item until the disposal of the subsidiaries.

For the most important non-euro currencies of the Bosch Group, the following exchange rates apply:

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		Closing rate		Average rate	
	EUR 1 =	12/31/2023	12/31/2022	2023	2022
Australia	AUD	1.63	1.57	1.63	1.57
Brazil	BRL	5.36	5.64	5.40	5.44
Canada	CAD	1.46	1.44	1.46	1.37
China	CNY	7.85	7.36	7.66	7.09
Czech Republic	CZK	24.72	24.12	24.00	24.49
Hungary	HUF	382.80	400.87	381.76	391.87
India	INR	91.90	88.12	89.33	82.72
Japan	JPY	156.33	140.66	151.90	147.03
Korea	KRW	1,433.66	1,344.09	1,413.29	1,357.34
Mexico	MXN	18.72	20.86	19.19	21.27
Poland	PLN	4.34	4.68	4.54	4.69
Romania	RON	4.98	4.95	4.95	4.93
Switzerland	CHF	0.93	0.98	0.97	1.00
Turkey	TRY	32.65	19.96	32.65	18.26
United Kingdom	GBP	0.87	0.89	0.87	0.85
United States	USD	1.11	1.07	1.08	1.05

The financial statements of consolidated entities in hyperinflationary economies are prepared in accordance with IAS 29 *Financial Reporting in Hyperinflationary Economies*. In the reporting year, this concerns the subsidiaries in Argentina and Turkey. To identify economies as hyperinflationary, reference is made to the pronouncements issued by the Center for Audit Quality's International Practices Task Force (IPTF). In accordance with IAS 29, non-monetary assets and liabilities, equity, and all line items of the income statement and statement of comprehensive income are indexed to the respective country's general price index. In Turkey, the consumer price index issued by the Turkish Statistical Institute TURKSTAT is used. On December 31, 2023, this stood at 1,859.38 (previous year: 1,128.45). Argentina uses the consumer price index set by the FACPCE, which stood at 3,533.19 on December 31, 2023 (previous year: 1,134.59). Monetary items of the statement of financial position are not restated. The gain or loss on the net monetary position is recognized in the financial result under expenses or income from exchange-rate fluctuations.

4 – Accounting policies

The accounting policies used in the preparation of the consolidated financial statements of Robert Bosch GmbH are presented in the notes to the individual line items of the income statement and the statement of financial position. The accounting policies applicable to financial instruments are presented together in note 30 "Additional disclosures on financial instruments."

In general, the accounting policies applied are unchanged from the previous year, with the exceptions outlined in note 2.

5 – Assumptions and estimates

The preparation of consolidated financial statements in accordance with IFRSs requires that assumptions and estimates be made for some line items. These assumptions and estimates have an effect on the amount and presentation of the assets and liabilities, income and expenses, and on the contingent liabilities disclosed in the reporting period. Uncertainty involved in these assumptions and estimates could result in actual outcomes that require a restatement to the carrying amount of assets or liabilities concerned in future periods. Assumptions and estimates mainly concern the following:

The determination of loss allowances on receivables and contract assets is based on estimates and assumptions with respect to the credit standing of individual customers. The measurement of inventories requires assumptions and estimates to be made, including for determining the net realizable value. The discounted future cash flows used as a basis for testing goodwill, other intangible assets, and property, plant, and equipment for impairment are based on estimates. Assumptions are also made in the determination of the discount rates and growth rates used. Determining lease terms requires assumptions and estimates with respect to the likelihood of options to terminate or extend the lease being exercised. The recognition of deferred tax assets is premised on their future recoverability being probable. Consequently, assumptions have to be made regarding future taxable income and the expected timing of the reversal of temporary differences. Further assumptions are required to determine the useful lives of items subject to wear and tear within property, plant, and equipment, as well as of intangible assets. The determination of carrying amounts of investments also involves making assumptions and estimates. Provisions for pensions and similar obligations are measured using actuarial methods. This requires various assumptions,

including with respect to life expectancy, salary trends, the pension growth rate, and the discount factor. The recognition and measurement of other provisions is based on estimates of amounts and the probability of future events. To the extent possible, such estimates are based on past experience, and are regularly reviewed and adjusted as necessary. Assumptions and estimates are involved to a high degree in measuring provisions for legal risks and for possible compensation claims by customers. Uncertainties exist in particular with regard to the production volumes affected, the amount of claims, and the course of negotiations.

Macroeconomic trends in the reporting year, such as the development of inflation and rising interest rates, were appropriately taken into account in impairment testing of goodwill and other non-current assets, but also when calculating provisions. In the reporting year, there were no effects on the recognition and measurement of assets and only immaterial effects on the measurement of provisions.

With respect to the consideration of climate-related matters in the preparation of the consolidated financial statements, the relevant legislation is continuously monitored. The effects of legal requirements relating to internal-combustion engines, as well as structural changes such as the transition to electromobility and increasing electrification in many fields, must be assessed in terms of their impact on financial reporting. The assumptions on which the measurement of assets and liabilities is based, in particular when testing assets for impairment, must take the above-mentioned matters into account. This applies both to the underlying medium-term planning and to the valuation parameters used, in particular the growth rate. The useful lives applied to non-current assets must also be regularly reviewed, particularly in light of the effects of changes in legal requirements. In the reporting year, climate-related matters and other structural changes had no effects on the recognition and measurement of assets and liabilities.

As in the previous year, the credit risk for receivables from entities domiciled in Russia, Belarus, and Ukraine was reassessed on account of the continuing war in Ukraine and the sanctions and trade restrictions imposed as a result. This reassessment led to write-downs that were immaterial in scope. Further effects have arisen with regard to the planned sale of further subsidiaries based in Russia. Related disclosures are provided in note 6 "Consolidation."

6 – Consolidation

Basis of consolidation

Besides Robert Bosch GmbH, the consolidated financial statements include all subsidiaries over which Robert Bosch GmbH has control pursuant to the criteria set out in IFRS 10 *Consolidated Financial Statements*. These entities are included in the consolidated financial statements from the date on which the Bosch Group obtains control. Conversely, subsidiaries are no longer fully consolidated when control of the entity is lost.

The capital of the entities consolidated in the reporting year for the first time is accounted for pursuant to IFRS 3 *Business Combinations*, using the acquisition method of accounting. The acquisition-date cost of the investment is offset against the proportionate share of revalued equity. As a matter of principle, assets, liabilities, and contingent liabilities are carried at fair value. Remaining debit differences are accounted for as goodwill. Negative goodwill is recognized in profit or loss after reassessment. Any difference resulting from the purchase and disposal of non-controlling interests without loss of control is offset against equity.

All intercompany profits and losses, sales revenue, expenses, and other income, as well as receivables and liabilities or provisions, are eliminated. In the case of consolidation measures with an effect on profit or loss, income tax effects are considered and deferred taxes recognized.

Consolidated group

Besides Robert Bosch GmbH, the consolidated group comprises a further 468 (previous year: 468) fully consolidated entities. The group developed as follows:

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	Germany	Outside Germany	Total
Included in consolidation at January 1, 2022	81	388	469
Additions/formations in fiscal year 2022	3	40	43
Disposals/mergers in fiscal year 2022	–6	–36	–42
Included in consolidation at December 31, 2022	78	392	470
Additions/formations in fiscal year 2023	3	20	23
Disposals/mergers in fiscal year 2023	–4	–19	–23
Included in consolidation at December 31, 2023	**77**	**392**	**469**

The consolidated group includes four special funds, as well as other investments.

In fiscal year 2023, the following companies were consolidated for the first time:

- Action Electric Ltd., Vancouver, BC, Canada,
- Automobility Services and Solutions Private Limited, Bengaluru, India,
- Bosch Electrical Drives SK s.r.o., Bratislava, Slovakia,
- Bosch Global Business Services S.R.L., Timişoara, Romania,
- Bosch Global Software Technologies Ltd., Tokyo, Japan,
- Bosch Mobility Platform & Solutions GmbH, Gerlingen, Germany,
- Bosch Mobility Platform & Solutions LLC, Wilmington, DE, United States,
- BSH Home Appliances (Vietnam) Co. Ltd., Ho Chi Minh City, Vietnam,
- eesy-ic GmbH, Erlangen, Germany,
- ELPRO Corporation, Tokyo, Japan,
- ETAS Ltd., York, United Kingdom,
- HydraForce, Inc., Lincolnshire, IL, United States,
- HydraForce China LLC, Lincolnshire, IL, United States,
- HydraForce Hydraulics, Ltd., Birmingham, United Kingdom,
- HydraForce Hydraulics, Ltda., Taboao da Serra, Brazil,
- HydraForce Hydraulics Systems (Changzhou) Co., Ltd., Changzhou, China,
- MoTeC (Europe) Limited, Oxford, United Kingdom,
- Paladin Technologies Inc., Vancouver, BC, Canada,
- Paladin Technologies (USA) Inc., Dover, DE, United States,
- PalAmerican Technologies Inc., Tumwater, WA, United States,
- Robert Bosch Semiconductor LLC, Wilmington, DE, United States,
- Service Maintenance Installation, Inc., Burnsville, MN, United States,
- susteco solutions GmbH, Berlin, Germany.

Due to changes to the consolidated group, sales revenue increased by EUR 850 million in the reporting year and total assets as of December 31, 2023, by EUR 1,516 million.

128 Condensed financial information on fully consolidated subsidiaries with material non-controlling interests

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in millions of euros

	Bosch Powertrain Systems Co., Ltd., Wuxi, China		United Automotive Electronic Systems Co., Ltd., Shanghai, China	
	2023	2022	2023	2022
Current assets	1,679	1,597	2,846	2,435
Non-current assets	419	476	1,506	1,511
Current liabilities	1,063	1,055	2,032	1,657
Non-current liabilities	3	4	236	232
Sales revenue	1,829	1,847	4,780	4,633
Profit after tax	366	428	520	478
Comprehensive income	286	345	374	451
Cash flows from operating activities	312	436	563	388
Cash flows from investing activities	–50	–57	–219	–303
Cash flows from financing activities	–262	–332	–398	–216
Share of capital attributable to non-controlling interests	34.0%	34.0%	49.0%	49.0%
Profit/loss after tax attributable to non-controlling interests	124	145	255	233
Equity attributable to non-controlling interests	351	423	1,021	1,015
Dividends paid to non-controlling interests	218	104	184	353

T11

in millions of euros

	Bosch HUAYU Steering Systems Group, Shanghai, China		Bosch Ltd., Bengaluru, India	
	2023	2022	2023	2022
Current assets	1,192	1,204	1,108	1,032
Non-current assets	595	622	922	931
Current liabilities	1,051	1,062	540	658
Non-current liabilities	52	51	50	46
Sales revenue	1,866	1,736	1,834	1,695
Profit after tax	208	219	177	179
Comprehensive income	161	156	129	133
Cash flows from operating activities	275	234	187	211
Cash flows from investing activities	–93	–110	–8	–46
Cash flows from financing activities	–121	–108	–214	–98
Share of capital attributable to non-controlling interests	49.0%	49.0%	29.5%	29.5%
Profit/loss after tax attributable to non-controlling interests	102	107	52	53
Equity attributable to non-controlling interests	335	328	425	407
Dividends paid to non-controlling interests	85	55	47	72

The condensed financial information of the respective entities corresponds to the figures before consolidation entries.

Joint ventures and joint operations

The accounting for joint arrangements in accordance with IFRS 11 *Joint Arrangements* is based on whether they are classified as a joint operation or a joint venture, which in turn depends on the contractually agreed rights and obligations of the parties to the arrangement. With regard to joint operations, the Bosch Group recognizes, in relation to its interest, its rights to the assets, liabilities, expenses, and revenue in the related line items in the consolidated financial statements. Investments in joint ventures within the meaning of IFRS 11 are accounted for using the equity method in accordance with IAS 28 *Investments in Associates and Joint Ventures*. The carrying amount of these interests is subsequently measured in accordance with the change in equity of the jointly controlled entity attributable to the Bosch Group, less any impairment, where appropriate.

The following joint ventures are subject to joint control in accordance with IFRS 11 and were recognized in the consolidated financial statements as of December 31, 2023, using the equity method in accordance with IAS 28:

- Bosch BASF Smart Farming GmbH, Cologne, Germany (50 percent),
- BS Systems GmbH & Co. KG, Zusmarshausen, Germany (50 percent),
- MAGURA Bosch Parts & Services GmbH & Co. KG, Bad Urach, Germany (50 percent),
- North America Fuel Systems Remanufacturing LLC, Kentwood, MI, United States (50 percent).

The share of capital indicated corresponds to the share of voting rights. The carrying amounts of the investments in the latter three entities were determined on the basis of the most recent available financial statements as of December 31, 2022.

Condensed financial information on individually immaterial joint ventures

T12

In millions of euros

	2023	2022
Carrying amount of the investments	33	21
Group share of profit after tax	10	0
Group share of other comprehensive income after tax	–1	
Group share of comprehensive income	9	0

The carrying amount of the investments in the above-mentioned individually immaterial joint ventures corresponds to the proportionate share in these entities' equity.

Since 2022, a cooperation arrangement has been in place between Robert Bosch GmbH and the Volkswagen group entity CARIAD SE, Wolfsburg, Germany, for the development of a software platform for partially and highly automated driving. The principal place of business of the joint operation is Ingolstadt, Germany. The development costs incurred are shared equally between the parties. Each party is granted rights to use and market the jointly developed results; the results of the development efforts are not marketed jointly.

Associated entities

Pursuant to IAS 28, investments are also included in the consolidated financial statements using the equity method if significant influence can be exercised.

The following associated entities are accounted for using the equity method in accordance with IAS 28 as of December 31, 2023:

- ads-tec Energy plc, Dublin, Ireland (20.7 percent),
- plc2 Design GmbH, Endingen am Kaiserstuhl, Germany (25 percent).

To determine the carrying amount of ads-tec Energy plc, the most recent available financial statements as of December 31, 2022, were used.

131 Condensed financial information on individually immaterial associated entities

T 13

in millions of euros

	2023	2022
Carrying amount of the investments	20	28
Group share of profit after tax	–4	–1
Group share of other comprehensive income after tax	0	
Group share of comprehensive income	–4	–1

Business combinations

Business combinations in the reporting year

On February 3, 2023, 100 percent of the shares in HydraForce Inc., Lincolnshire, IL, United States, including its 13 subsidiaries, were acquired. The acquisition of HydraForce is intended to strengthen the Drive and Control Technology division's presence (Industrial Technology business sector) in North America and expand its global hydraulics business. The purchase price for the shares came to EUR 979 million and was settled by transferring cash. Allocated to the Industrial Technology business sector, the acquired entities are included in Robert Bosch GmbH's consolidated financial statements as of February 3, 2023. The transaction resulted in goodwill of EUR 452 million, which is deductible for tax purposes. The goodwill is allocated to the Drive and Control Technology division and represents part of the synergy potential and the value of the workforce. From the date of first-time consolidation, HydraForce contributed EUR 453 million to the group's sales revenue and a loss of EUR 4 million to the group's profit after tax.

On August 31, 2023, parts of the business of TSI Semiconductors LLC, Roseville, CA, United States, were acquired. The acquisition is intended to strengthen the semiconductor business by building up manufacturing capacity in North America. The purchase price came to EUR 130 million and was settled by transferring cash. The acquired business is allocated to the Mobility Solutions business sector and was included in the consolidated financial statements of Robert Bosch GmbH as of September 1, 2023. The business combination led to the recognition of goodwill of EUR 32 million, which is deductible for tax purposes. The goodwill is allocated to the Automotive Electronics division and represents part of the expected synergies and the value of the workforce. From the date of initial consolidation, sales revenue of EUR 6 million was generated and negative earnings after tax of EUR 25 million were incurred.

Effective August 31, 2023, 100 percent of the shares in Paladin Technologies Inc., Vancouver, BC, Canada, and Pal-American Technologies Inc., Tumwater, WA, United States, were acquired. The acquisition also included a subsidiary in Canada and two subsidiaries in the United States. The acquisition of Paladin Technologies, a leading provider of security solutions and services in the field of systems integration, is intended to expand the building services business in North America. Due to the complexity of the transaction, the final determination of the purchase price and the measurement of the acquired assets and liabilities had not yet been completed at the time the consolidated financial statements were released for publication. The provisional purchase price for the shares came to EUR 338 million and was mainly settled by transferring cash. The purchase price includes contingent consideration that will fall due over the next three years. Allocated to the Energy and Building Technology business sector, the acquired entities are included in Robert Bosch GmbH's consolidated financial statements as

of September 1, 2023. The acquisition gave rise to provisional goodwill of EUR 205 million, which is not deductible for tax purposes and mainly represents part of the synergy potential and the value of the workforce. The goodwill is allocated to the Building Technologies division. From the date of first-time consolidation, Paladin Technologies contributed EUR 130 million to the group's sales revenue and a loss of EUR 4 million to the group's profit after tax.

The fair values acquired in the above business combinations are presented in the following table:

T14

in millions of euros

	HydraForce	TSI Semiconductors	Paladin Technologies (provisional figures)	Total of fair values
Current assets	**225**	**8**	**140**	**373**
of which cash	28		1	29
of which trade receivables	79	2	93	174
Non-current assets	**980**	**129**	**328**	**1,437**
Property, plant, and equipment	109	97	22	228
Intangible assets	859	32	294	1,185
of which goodwill	452	32	205	689
Other assets including deferred taxes	12		12	24
Current liabilities	**122**	**4**	**73**	**199**
Non-current liabilities	**104**	**3**	**57**	**164**
Provisions		3		3
Liabilities including deferred taxes	104		57	161

The gross amount of trade receivables acquired amounted to EUR 178 million. Of this amount, EUR 4 million is expected to be uncollectible.

The following individually immaterial acquisitions were also closed in the reporting year:

- On February 28, 2023, 100 percent of the shares in eesy-IC GmbH, Erlangen, Germany, were acquired. The entity designs microchips that can also process analog signals, and is assigned to the Mobility Solutions business sector.
- On September 8, 2023, the business operations of West Coast Fire & Integration, Inc., Yorba Linda, CA, United States, were acquired. The entity specializes in fire protection, security, and voice/data solutions for buildings. Assigned to the Energy and Building Technology business sector, the acquisition is intended to further expand the systems integration business in North America.

The total purchase price amounted to EUR 33 million, and goodwill totaling EUR 29 million was recognized. On aggregate, as of the acquisition date the above individually immaterial business combinations contributed EUR 9 million to the group's sales revenue and generated a profit after tax of EUR 1 million.

Assuming that the business combinations had already taken place as of January 1, 2023, the Bosch Group's sales revenue would have amounted to EUR 92,518 million and its profit after tax to EUR 2,551 million.

Business combinations recognized provisionally in the previous year

On November 30, 2022, the group acquired 100 percent of the shares in Elmo Motion Control Ltd., Petah Tikva, Israel, including its nine subsidiaries. The entity was included in the consolidated financial statements of Robert Bosch GmbH for the first time as of December 31, 2022, and is allocated to the Industrial Technology business sector. The final purchase price came to EUR 665 million and was settled by transferring cash. Elmo Motion Control Ltd. develops and manufactures high-end electric servo drives and motion controllers for industrial automation. The acquisition is intended to strengthen the Drive and Control Technology division's factory automation business.

Measurement of the acquired entity's assets and liabilities and the purchase price allocation had not been completed by the date on which the consolidated financial statements for the previous year were released for publication. The final amounts of the acquired assets and liabilities as of the date of first-time inclusion in the consolidated financial statements are presented in the table below:

T 15

In millions of euros

	Elmo Motion Control Ltd.
Current assets	**63**
of which cash	19
of which trade receivables	14
Non-current assets	**667**
Financial assets	5
Property, plant, and equipment	4
Intangible assets	658
of which goodwill	503
Current liabilities	**56**
Non-current liabilities	**9**
Provisions	1
Liabilities including deferred taxes	8

The goodwill arising from the acquisition of EUR 503 million is assigned to the Drive and Control Technology division and is not tax deductible. It represents part of the expected synergy potential and the value of the workforce.

In relation to the provisional carrying amounts recognized in the previous year, only immaterial adjustments were made.

Non-current assets held for sale and disposal groups

Non-current assets and disposal groups are classified as held for sale if their carrying amount will be recovered principally through a sale transaction. The corresponding assets and disposal groups are available for immediate sale and the sale is highly probable. In accordance with IFRS 5 *Non-current Assets Held for Sale and Discontinued Operations*, they are measured at the lower of carrying amount or fair value less costs to sell, unless another standard prescribes a different measurement method. Any impairment loss in excess of the balance of non-current assets is recognized by recording current provisions.

As of December 31, 2023, the following operations meet the criteria for classification as a disposal group within the meaning of IFRS 5:

The planned divestment of the passenger car brake disc business, allocated to the Mobility Solutions business sector, had already been announced in the 2021 fiscal year. The reason for this decision is that brake disc production within the Bosch Group has hardly any synergies with existing business areas. The aim of the sale is to better utilize the potential of the business. The sale concerns shares held in the entities Buderus Guss GmbH, Breidenbach, and Robert Bosch Lollar Guss GmbH, Lollar, both in Germany. Contrary to the original intention, the transaction was not completed in the reporting year as the selling negotiations were delayed beyond the end of the reporting year. The contracts for the sale of both entities were signed on February 2, 2024, and the transaction is expected to be completed in the second quarter of 2024.

In the reporting year, the decision was made to sell the shares held in the Russian subsidiaries OOO Bosch Thermotechnik, Moscow, and OOO BSH Bytowije Pribory, St. Petersburg.

OOO Bosch Thermotechnik is active in the sale of heating appliances; the entity is assigned to the Energy and Building Technology business sector. OOO BSH Bytowije Pribory, which is part of the Consumer Goods business sector, sells household appliances and provides the associated customer service. The divestments are expected to be completed in the third and first quarters of 2024 respectively. The reason for the planned divestments is to be seen in the sanctions regime, and the resulting inability or only limited ability to continue manufacturing operations.

Also in the reporting year, the sale of the manufacturing activities belonging to Robert Bosch (France) S.A.S, Saint-Ouen, France, relating to electronic and mechatronic components for the automotive and consumer goods sectors was announced in order to secure the long-term prospects of these activities. The activities are assigned to the Mobility Solutions business sector and the transaction is scheduled for completion in the fourth quarter of 2024.

As part of the classification of the above operations as a disposal group, an expense of EUR 125 million was recognized in sundry other operating expenses in the reporting year. Of that amount, EUR 52 million is attributable to the impairment of non-current assets and EUR 73 million to the recognition of current sundry other provisions.

As of December 31, 2023, the main groups of assets held for sale and the directly associated liabilities are as follows:

T16

in millions of euros

	2023
Cash and cash equivalents	20
Trade receivables	30
Inventories	71
Property, plant, and equipment and intangible assets	23
Other financial and non-financial assets	10
Assets held for sale	**154**
Trade payables	32
Pension provisions	30
Other provisions	35
Other financial and non-financial liabilities	47
Liabilities directly associated with assets held for sale	**144**

The accumulated decrease in equity through other comprehensive income related to disposal groups amounts to EUR 13 million. Of this amount, EUR 5 million relates to the revaluation reserve from pensions and EUR 8 million to currency translation differences.

Divestments completed in the reporting year

On May 10, 2023, the sale of the Russian subsidiaries OOO Bosch Power Tools (Consumer Goods business sector, production of power tools for professional applications), OOO Robert Bosch Saratov (Mobility Solutions business sector, production of components for motor vehicles), and Bosch Heating Systems LLC (Energy and Building Technology business sector, production of boilers), all located in Engels, was completed. The sale of OOO Robert Bosch Samara (Mobility Solutions business sector, production of components for motor vehicles), Samara, Russia, was closed on June 21, 2023. The divestments were made because the sanctions regime limited the aforementioned entities' ability to continue manufacturing operations.

In total, current assets of EUR 56 million (including cash of EUR 21 million) and non-current assets of EUR 5 million were sold, and current liabilities of EUR 16 million transferred. The loss of EUR 27 million resulting from the transactions was recorded in other operating expenses. An amount of EUR 22 million was reclassified from the currency translation reserve. The purchase prices totaling EUR 40 million were settled by transferring cash.

Notes to the income statement

7 – Sales revenue

In accordance with IFRS 15 *Revenue from Contracts with Customers*, sales revenue is recognized when the customer obtains control of the goods or services and is thus able to direct the use of, and obtain substantially all the remaining benefits from, the goods or services. This is based on the assumption that there is a contract that creates enforceable rights and obligations; in addition, it must be probable that the Bosch Group will collect the consideration for the goods and services transferred. Revenue is recognized at the amount of the transaction price, i.e. the amount of consideration that the Bosch Group is expected to collect in exchange for the transfer of goods and services arranged. IFRS 15 sets forth a consistent, five-step model for determining the amount of revenue to be reported, which is generally applicable for all customer contracts.

In the sale of goods, control is typically transferred to the customer on delivery. Invoicing usually takes place at the same time. Revenue from services is mostly recognized once the service has been rendered in its entirety and invoiced. In the case of development work, milestone payments or downstream separate remuneration are also agreed. When invoicing the sale of goods, services, and development work, country- and industry-specific payment terms are granted; these averaged 46 days, as in the previous year. For customer-specific products that are allocable to the Mobility Solutions business sector and do not create an asset with an alternative use for the group, revenue is recognized over time; the same applies to plant engineering contracts in the Industrial Technology business sector and the Energy and Building Technology business sector. Revenue is recognized according to the percentage of completion, which can be determined using input or output methods. Output methods

recognize revenue on the basis of the value to the customer of the goods or services transferred relative to the remaining goods or services promised under the contract. Input methods recognize revenue on the basis of costs incurred relative to the estimated total costs. Depending on the underlying business model, the Bosch Group uses input methods as well as output methods in determining the percentage of completion.

Sales revenue comes to EUR 91,596 million (previous year: EUR 88,201 million). Of this amount, EUR 56,182 million (previous year: EUR 52,573 million) is attributable to the Mobility Solutions business sector, EUR 7,418 million (previous year: EUR 6,946 million) to the Industrial Technology business sector, EUR 19,943 million (previous year: EUR 21,342 million) to the Consumer Goods business sector, EUR 7,693 million (previous year: EUR 6,964 million) to the Energy and Building Technology business sector, and EUR 360 million (previous year: EUR 376 million) to other activities.

Sales revenue includes an amount of EUR 1,542 million (previous year: EUR 1,287 million) that had been included in the balance of current contract liabilities at the beginning of the reporting year.

In relation to performance obligations not satisfied in full or in part as of the reporting date, an amount of EUR 118 million (previous year: EUR 118 million) is expected to be realized as sales revenue within the next two years and an amount of EUR 29 million (previous year: EUR 24 million) thereafter. These amounts relate to long-term construction contracts.

Sales revenue recognized over time amounts to EUR 55,581 million (previous year: EUR 44,484 million) in the Mobility Solutions business sector, EUR 0 million (previous year: EUR 35 million) in the Industrial Technology business sector, and EUR 944 million (previous year: EUR 743 million) in the Energy and Building Technology business sector. The previous year's figure for the Energy and Building Technology business sector has been restated.

A breakdown of sales revenue by region is provided in note 29 "Segment reporting."

8 – Functional costs

Cost of sales contains the cost of internally manufactured goods sold and the cost price of resold merchandise. The cost of internally manufactured goods sold contains materials and production cost that can be allocated directly, the allocable parts of indirect production overheads, including depreciation of production equipment and amortization of other intangible assets, and write-downs of inventories. Cost of sales also includes development work charged directly to customers and amortization of capitalized development work.

The **distribution and administrative cost** breaks down as follows:

T17

in millions of euros

	2023	2022
Distribution cost	13,409	12,354
Administrative cost	4,824	4,458
	18,233	16,812

The distribution cost includes personnel and non-personnel costs, depreciation charged in the distribution function, customer service, logistics, market research, sales promotion, shipping, advertising, and warranty costs.

Research and development cost contains both research cost and development cost that cannot be capitalized.

T18

in millions of euros

	2023	2022
Total research and development cost	7,564	7,183
Development cost capitalized in the reporting period	–234	–224
Impairment losses on capitalized development cost	1	2
	7,331	6,961

Cost of materials amounted to EUR 43,839 million in the reporting year (previous year: EUR 42,145 million).

9 – Other operating income

T19

in millions of euros

	2023	2022
Income from exchange-rate fluctuations	934	1,172
Income from derivatives	281	441
Income from the reversal of loss allowances on trade receivables and other financial assets	105	83
Income from the disposal of non-current assets	271	58
Income from rent and leases	9	8
Income from the reversal of provisions	958	245
Sundry other operating income	912	870
	3,470	2,877

The income from exchange-rate fluctuations is offset by expenses that are disclosed in other operating expenses.

Income from derivatives includes income from foreign exchange and commodity derivatives allocated to operating activities.

Income from the reversal of provisions mainly concerns the sundry other provisions.

Government grants are recognized pursuant to IAS 20 *Accounting for Government Grants and Disclosure of Government Assistance* only if it is sufficiently certain that the assistance will be granted and the conditions attached to the assistance are satisfied. Grants related to income are presented as part of profit or loss in the period in which the related expenses are incurred. They are offset against the respective

expenses. If there are no such expenses, the grants are disclosed in sundry other operating income. In the reporting year, grants related to income totaled EUR 395 million (previous year: EUR 207 million).

10 – Other operating expenses

T20

in millions of euros

	2023	2022
Expenses from exchange-rate fluctuations	1,045	1,245
Expenses from derivatives	161	405
Loss allowances on trade receivables and other financial assets	128	129
Expenses from the disposal of non-current assets	157	102
Other taxes	30	45
Expenses from the recognition of provisions	89	302
Sundry other operating expenses	419	253
	2,029	2,381

"Expenses from derivatives" includes expenses from foreign exchange and commodity derivatives allocated to operating activities.

11 – Financial result

T21

in millions of euros

	2023	2022
Interest and similar income	762	482
Interest and similar expenses	–1,188	–449
Interest result	**–426**	33
Profit/loss from investments	–1	55
Income from securities	518	241
Expenses from securities	–279	–368
Income from exchange-rate fluctuations	1,670	1,515
Expenses from exchange-rate fluctuations	–1,694	–1,784
Income from derivatives	1,019	1,271
Expenses from derivatives	–1,305	–2,092
Other income	11	8
Other expenses	–40	–52
Other financial result	**–101**	–639
Financial result, total	**–527**	–606
of which financial income	3,980	3,869
of which financial expenses	–4,507	–4,475

The line item "interest and similar income" contains dividend income from shares of EUR 73 million (previous year: EUR 73 million) and income from investment funds of EUR 26 million (previous year: EUR 30 million). The line item "interest and similar expenses" does not include any negative interest income in the reporting year (previous year EUR 7 million).

The profit/loss from investments comprises dividend income as well as changes in the fair value of investments measured at fair value through profit or loss.

Income and expenses from securities include the changes in the fair value of securities measured at fair value through profit or loss, gains and losses on the disposal of securities measured at fair value through other comprehensive income, as well as impairment losses and income from the reversal of impairment losses on such securities.

The line items "income from derivatives" and "expenses from derivatives" contain transactions to hedge financial assets, mainly from foreign-currency derivatives.

Interest income and expenses are attributable to financial instruments not measured at fair value through profit or loss as follows:

T22

in millions of euros

	2023		2022	
	Interest income	Interest expenses	Interest income	Interest expenses
Financial assets measured at amortized cost (AC)	324		135	7
Financial assets measured at fair value through other comprehensive income (FVOCI wR)	202		167	
Financial liabilities measured at amortized cost (AC)		426		176
	526	**426**	302	183

12 – Income taxes

Income tax obligations comprise certain and uncertain income tax liabilities.

In accordance with IAS 12 *Income Taxes*, deferred tax assets and liabilities are recorded for temporary differences between the tax carrying amounts and the carrying amounts in the consolidated statement of financial position unless they arise from the initial recognition of an asset or liability in a transaction that is not a business combination and that, at the time of the transaction, affected neither the profit before tax nor the taxable income. Deferred tax assets arising from tax losses and tax credits are recognized only if it is sufficiently certain that they can be utilized. The deferred tax item equals the estimated tax expense or relief in later periods. The tax rate applicable at the time of realization is taken as a basis. If it is uncertain whether recognized deferred tax assets can be realized, they are adjusted accordingly.

Income tax expenses are classified according to their origin as follows:

T23

in millions of euros

	2023	2022
Current taxes	1,401	1,475
Deferred taxes	–65	403
	1,336	1,878

Current taxes contain tax income not related to the reporting period totaling EUR 11 million (previous year: tax expenses of EUR 32 million).

Deferred taxes break down as follows:

T24

in millions of euros

	2023	2022
Temporary differences	–80	–394
Tax losses and tax credits	15	–9
	–65	–403

Deferred taxes are calculated on the basis of the tax rates that apply or are expected to apply given the current legislation in the individual countries at the expected time of realization. The corporate income tax rate for German companies is 15 percent. Taking into account the solidarity surcharge of 5.5 percent and the trade tax levied on profits recorded in Germany, the total tax rate is 30 percent (previous year: 30 percent). The tax rates outside Germany range between 6 percent and 35 percent (previous year: between 9 percent and 35 percent).

142 As of December 31, the deferred tax assets and liabilities presented in the statement of financial position are attributable to the following items:

T25

in millions of euros

	2023		2022	
	Assets	Liabilities	Assets	Liabilities
Receivables, other assets, and inventories	1,143	738	1,163	980
Securities and investments	119	107	92	67
Property, plant, and equipment	250	747	238	675
Right-of-use assets		462		529
Intangible assets	293	919	262	1,019
Other asset items	420	63	370	71
Liabilities	1,119	152	1,154	192
Lease liabilities	491		538	
Provisions	1,068	95	1,163	90
Other liabilities	7	373	10	253
Tax losses and tax credits	164		135	
Total	**5,074**	**3,656**	5,163	3,982
Netting	–3,057	–3,057	–2,851	–2,851
	2,017	**599**	2,312	1,131

Of the reported deferred tax assets, EUR 88 million (previous year: EUR 120 million) relates to entities that incurred losses in the reporting year or in the previous year. It is assumed that sufficient taxable income or taxable temporary differences will be available in subsequent years to permit the deferred tax assets to be realized.

143

No deferred tax assets were recognized in the statement of financial position for the items presented in the table below, as it is not probable that sufficient taxable profit will be available in the future:

T26

in millions of euros

	2023	2022
Temporary differences	2,715	2,479
Tax losses	11,846	10,785
Tax credits	3	3
	14,564	**13,267**

The utilization of tax losses and tax credits for which no deferred tax assets have been recognized to date resulted in a reduction of the current tax expense in the reporting year of EUR 4 million (previous year: EUR 7 million).

The tax losses for which no deferred taxes were recognized expire as follows:

T27

in millions of euros

	2023	2022
Within one year	46	35
Later than one year and no later than two years	62	64
Later than two years and no later than three years	58	55
Later than three years	191	246
Without expiry date	11,489	10,385
	11,846	**10,785**

Deferred tax liabilities are recognized on temporary differences relating to investments in subsidiaries if these are expected to reverse in the following year due to planned dividend distributions. No further deferred tax liabilities were recognized on temporary differences in this connection as it is not probable that the temporary differences will reverse in the foreseeable future. As of the reporting date, retained profits of subsidiaries amount to EUR 8,051 million (previous year: EUR 8,244 million). If these profits are distributed, this could lead to an income tax or withholding tax expense at Robert Bosch GmbH or at the level of intermediate holding entities.

Deferred taxes recognized in other comprehensive income in the fiscal year are presented in the following table:

T28

in millions of euros

	2023	2022
Change in equity instruments	–5	29
Change in debt instruments	–3	42
Remeasurement of pension provisions	–3	–97
	–11	**–26**

Deferred tax income of EUR 0 million (previous year: EUR 73 million) is attributable to the change in debt instruments measured at fair value through other comprehensive income, which was reclassified to profit or loss in the reporting year.

The basis for the expected income tax expense is the German tax rate of 30 percent (previous year: 30 percent). The difference between expected and disclosed income tax expense is attributable to the following factors:

T29

in millions of euros

	2023	2022
Profit before tax	3,976	2,693
Expected income tax expense	1,193	808
Variances due to tax rate	–274	–136
Non-deductible expenses	182	220
Zero-rated income	–308	–435
Recognition/measurement of deferred tax assets	407	793
Withholding taxes	238	216
Tax effects not related to the reporting year	23	81
Other differences	–125	8
Income tax expense disclosed	**1,336**	**1,675**
Effective tax rate	34%	62%

"Variances due to tax rate" includes effects resulting from changed tax rates. In the reporting year, these resulted in deferred tax income of EUR 4 million (previous year: EUR 2 million).

"Other differences" mainly includes effects from tax credits, effects from temporary differences in connection with shares in subsidiaries, and effects from changes in permanent differences.

International Tax Reform – Pillar Two Model Rules

In Germany, the country of domicile of Robert Bosch GmbH as the ultimate parent company of the Bosch Group, the act on ensuring a global minimum level of taxation for corporate groups (*Mindeststeuergesetz*: German Minimum Tax Act) came into force on December 28, 2023. This is based on the OECD's model rules on global minimum taxation (Pillar Two). The provisions of the law will become effective for fiscal years beginning after December 30, 2023. In addition, laws were passed in some other countries in 2023 to introduce a qualified domestic minimum tax. For the Bosch Group, the relevant German and foreign regulations are to be applied for the first time for the 2024 fiscal year. As a result, the Bosch Group was not subject to any tax expense from global minimum taxation in the reporting year.

In accordance with the regulations on global minimum taxation, a corporate group must pay a top-up tax for those countries in which its operating units/entities based there achieve an aggregate effective tax rate of less than 15 percent calculated in accordance with the regulations of the German Minimum Tax Act. The levying of a top-up tax is intended to ensure that the minimum tax rate of 15 percent is reached in each country.

Due to the high complexity of the regulations and the late entry into force of the German Minimum Tax Act, the project to implement the corresponding requirements in the Bosch Group had not yet been completed at the time the consolidated financial statements were released for publication. The quantitative effects of first-time application of the provisions of the German Minimum Tax Act can therefore not yet be reliably estimated. However, simulations based on available data, including from the previous year, have shown that a top-up tax is likely to be incurred in a few cases only, and that potential payments for the top-up tax are unlikely to be significant. Nevertheless, as the simulations carried out were not able to take into account all the adjustments required by law, it cannot be ruled out that the actual amount of top-up tax may be higher than currently assumed.

With regard to the recognition of deferred taxes, use is made of the exemption in IAS 12, which does not require deferred taxes to be recognized in connection with the global minimum taxation rules.

13 – Personnel expenses and headcount

Disclosures on personnel expenses

Personnel expenses break down as follows:

T 30

in millions of euros

	2023	
Remuneration	21,980	
Social security costs	3,821	
Post-employment benefit costs	1,020	
	26,821	

Headcount

T 31

	Annual average 2023	
EU countries	221,376	
Rest of Europe	33,536	
Americas	53,606	
Asia, Africa, Australia	120,849	
	429,367	

Notes to the statement of financial position

14 – Cash and cash equivalents

T 32

in millions of euros

	2023	
Bank balances (term up to 90 days)	7,443	
Cash	0	
	7,443	

Disclosures on restricted cash and cash equivalents are provided in note 28 "Statement of cash flows."

15 – Trade receivables

The accounting policies applicable to trade receivables are explained in note 30 "Additional disclosures on financial instruments."

In the reporting year, trade receivables came to EUR 17,081 million (previous year: EUR 16,528 million). Trade receivables due in more than one year amounted to EUR 14 million (previous year: EUR 0 million).

Information about loss allowances on trade receivables is contained in the credit risk section of note 31 "Capital and risk management."

16 – Other current and non-current financial assets

T33

in millions of euros

	2023		2022	
	up to 1 year	more than 1 year	up to 1 year	more than 1 year
Securities	3,859	11,991	2,369	11,412
Investments		2,123		2,042
Bank balances (term of more than 90 days)	3,301	65	936	63
Loan receivables	104	14	65	14
Derivatives	132	41	207	58
Receivables from finance leases	37	146	36	147
Sundry other financial assets	389	158	285	129
	7,822	14,538	3,898	13,864

The securities classified as current assets are listed securities with a residual term of less than one year as well as securities which are intended for sale within a year.

Non-current securities consist of interest-bearing and other securities, investment funds, and shares. In the reporting year, shares and investments in corporations with a fair value of EUR 1,423 million (previous year: EUR 1,256 million) were sold. Related to this, an amount of EUR 165 million (previous year: EUR 398 million) was reclassified from the reserve from financial instruments to earned profit. Disposals of investments in corporations are carried out based on business-policy decisions.

The pledged securities have a carrying amount of EUR 1,609 million (previous year: EUR 1,366 million). The pledged securities satisfy the legal requirement to secure obligations to members of the workforce and bank guarantees. Fund units equivalent to at least the value of the claims were pledged as collateral.

The bank balances are partly invested as secured deposits in tri-party repo transactions. As of the reporting date, the secured deposits have a carrying amount of EUR 1,100 million (previous year: EUR 0 million). The bank provides collateral of the same amount in the form of securities.

Disclosures on loss allowances on loan receivables, sundry other financial assets, and finance lease receivables are contained in the section on credit risks in note 31 "Capital and risk management."

Note 32 "Leases" contains additional disclosures on receivables from finance leases.

17 – Contract assets

In accordance with IFRS 15, any performance surpluses at contract level are presented as a contract asset. The asset constitutes the Bosch Group's right to consideration in exchange for goods or services it has transferred to the customer.

The contract assets from revenue recognition over time present the excess of the Bosch Group's performance, presented as sales revenue, over consideration already received from the customer. At the point in time when control is transferred to the customer, contract assets from development work have to be disclosed for all separate consideration to be subsequently reimbursed by the customer for separately commissioned research and development work.

T 34

in millions of euros

	2023		2022	
	up to 1 year	more than 1 year	up to 1 year	more than 1 year
From revenue recognition over time	676	41	552	3
From development work	500	654	451	556
	1,176	**695**	1,003	559

18 – Other current and non-current assets

T 35

in millions of euros

	2023		2022	
	up to 1 year	more than 1 year	up to 1 year	more than 1 year
Prepaid expenses	279	101	257	91
Receivables from tax authorities (without income tax receivables)	1,788	64	1,718	62
Deferred consideration to customers	108	331	115	432
Sundry other assets	453	512	335	286
	2,628	**1,008**	2,422	871

19 – Inventories

Inventories include raw materials, consumables, and supplies; work in process, finished goods, and merchandise; and prepayments. Inventories are stated at purchase cost or cost of conversion using the average cost method, or at net realizable value if lower. In addition to direct cost, cost of conversion includes an allocable portion of materials and production overheads as well as production-related depreciation that can be directly allocated to the production process. Appropriate allowance is made for risks of slow-moving goods or obsolescence associated with holding and selling inventories.

Inventories break down as follows:

T36

in millions of euros

	2023	2022
Raw materials, consumables, and supplies	5,879	6,930
Work in process	3,377	3,633
Finished goods and merchandise	5,842	6,228
Prepayments	86	153
	15,184	16,944

In the Mobility Solutions business sector, development cost incurred for research and development work separately commissioned and separately charged is recognized as work in process under inventories until the date when control is transferred (revenue recognition at a point in time), and not as research and development cost through profit or loss. This development work in process is generally measured on the same basis as all other work in process, except that no allowances for slow-moving goods or obsolescence are applied.

In the reporting year, the change in impairment losses of EUR 31 million was recognized as an expense in profit or loss (previous year: EUR 140 million). No inventories were pledged as collateral.

20 – Property, plant, and equipment

Property, plant, and equipment are measured at cost less depreciation and, if necessary, impairment losses. Depreciation is charged on a straight-line basis over the economic useful life.

Depreciation is based on the following ranges of useful lives:

T37

	Useful life
Buildings	10–50 years
Plant and equipment	8–11 years
Other equipment, fixtures, and furniture	3–25 years

In accordance with IAS 36 *Impairment of Assets*, impairment losses are recorded on property, plant, and equipment if their recoverable amount has fallen below their carrying amount. Impairment losses are reversed if the reasons for the impairment loss from previous years no longer apply. Repair costs are recognized in the income statement.

In accordance with IAS 23 *Borrowing Costs*, **borrowing costs** are capitalized if they are directly attributable to the acquisition, construction, or production of a qualifying asset. All other borrowing costs are expensed in the period in which they are incurred. Write-downs on capitalized borrowing costs are reported in cost of sales. In the reporting year, borrowing costs of EUR 15 million (previous year: EUR 9 million) were capitalized. The underlying borrowing rate is 3.0 percent (previous year: 2.0 percent).

Government grants are recognized pursuant to IAS 20 only if it is sufficiently certain that the assistance will be granted and the conditions attached to the assistance are satisfied. Grants related to assets are deducted in order to calculate the carrying amount of the asset.

T38

151 In millions of euros

	Land, buildings including rights to use land and buildings	Investment property	Plant and machinery	Other equipment, operating and office equipment	Advance payments and assets under construction	Total
Gross values 12/31/2021	12,591	35	29,679	19,192	1,873	63,370
Transitional effects from IAS 29	191	1	651	76	29	1,002
Gross values 1/1/2022	12,782	36	30,330	19,268	1,902	64,318
Changes in consolidated group	52		25	30	7	114
Additions	315	2	969	921	2,893	5,100
Reclassifications	415	1	1,745	497	-2,657	
Disposals	-435	-3	-1,251	-770	-45	-2,504
Exchange-rate differences	65	1	274	95	5	440
Assets held for sale	-38		-42	-45	-4	-129
Gross values 12/31/2022	13,156	37	30,050	19,006	2,091	64,340
Depreciation 12/31/2021	5,121	9	17,651	11,023	30	33,834
Transitional effects from IAS 29	85	1	124	55	1	266
Depreciation 1/1/2022	5,206	10	17,775	11,078	31	34,100
Changes in consolidated group	8		29	31		68
Additions	364		1,218	1,178	4	2,764
Reclassifications	8		61	34	1	104
Disposals	-83	-3	-1,032	-725	-6	-1,849
Write-ups	1		1			2
Exchange-rate differences	45	1	224	54		324
Assets held for sale	-18		-34	-20	-2	-74
Depreciation 12/31/2022	5,733	11	17,562	10,631	28	33,965
Carrying amounts 12/31/2022	7,670	18	6,971	3,165	3,650	21,474

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in millions of euros

	Land, buildings belonging to operating assets	Investment property	Plant and equipment	Other equipment, fixtures, and furniture, leased products	Prepayments and assets under construction	Total
Gross values 1/1/2023	**13,403**	**29**	**30,434**	**13,842**	**3,306**	**61,014**
Changes in consolidated group	86		167	37	14	304
Additions	213		1,193	854	3,239	5,499
Reclassifications	184	8	1,419	497	–2,108	
Disposals	–134	–1	–1,316	–704	–48	–2,203
Exchange-rate differences	–198		–545	–199	–51	–993
Assets held for sale	–89		–65	–27	–1	–182
Gross values 12/31/2023	**13,465**	**36**	**31,287**	**14,300**	**4,351**	**63,439**
Depreciation 1/1/2023	**5,733**	**11**	**21,563**	**10,677**	**16**	**38,000**
Changes in consolidated group	10		66	25	4	105
Additions	368		1,886	1,158	9	3,421
Reclassifications	–10	4	13	–5	–2	
Disposals	–91		–1,097	–667		–1,855
Write-ups	–39		–19	–4	–1	–63
Exchange-rate differences	–90		–365	–169		–624
Assets held for sale	–68		–65	–27	–1	–161
Depreciation 12/31/2023	**5,813**	**15**	**21,982**	**10,988**	**25**	**38,823**
Carrying amounts 12/31/2023	**7,652**	**21**	**9,305**	**3,312**	**4,326**	**24,616**

The depreciation charge for the reporting year contains the following impairment losses:

- Land and buildings: EUR 3 million (previous year: EUR 23 million),
- Plant and equipment: EUR 1 million (previous year: EUR 19 million),
- Other equipment, furniture, and fixtures, assets under construction: EUR 2 million (previous year: EUR 17 million).

The corresponding expenses are recognized in functional costs.

Purchase commitments for items of property, plant, and equipment amounted to EUR 1,489 million (previous year: EUR 1,325 million); there were no restrictions on title in either the reporting year or the previous year. Government grants for assets of EUR 58 million (previous year: EUR 25 million) were deducted from the additions in the reporting year.

Investment property comprises rented land and buildings which were measured at depreciated cost in accordance with IAS 40 *Investment Property*. Measured at fair value, the portfolio comes to EUR 29 million (previous year: EUR 24 million). The fair values were calculated at corporate headquarters by the competent specialist department. The residential property in Germany and Asia allocated to level 3 of the fair-value hierarchy pursuant to IFRS 13 *Fair Value Measurement* is measured using the discounted earnings or comparative method based on the ImmoWertV [*Verordnung über die Grundsätze für die Ermittlung der Verkehrswerte von Grundstücken*: Ordinance on principles to assess the market value of land] and taking the current fabric and market values of the individual properties into account. Rental income from investment property came to EUR 5 million (previous year: EUR 3 million), maintenance expenses totaled EUR 2 million (previous year: EUR 2 million).

21 – Intangible assets

Acquired and internally generated intangible assets are recognized pursuant to IAS 38 *Intangible Assets* if a future economic benefit will flow to the entity from the use of the asset and the cost of the asset can be reliably determined. These assets are generally carried at cost and amortized using the straight-line method over their economic useful life. The useful life of acquired and internally generated intangible assets is generally four years. The useful life of intangible assets recognized in the context of business combinations is generally between ten and twenty years, in exceptional cases up to fifty years.

Goodwill is tested annually for impairment. Intangible assets subject to wear and tear are only tested for impairment if there is an indication that they may be impaired. Impairment losses are recorded in accordance with IAS 36 if the recoverable amount of the asset concerned has fallen below its carrying amount. Impairment losses are reversed if the reasons for the impairment loss from previous years no longer apply.

	Acquired intangible assets	Acquired goodwill	Internally generated intangible assets	Total
Gross values 12/31/2021	9,626	5,054	1,892	16,572
Transitional effects from IAS 29	1	1		2
Gross values 1/1/2022	9,627	5,055	1,892	16,574
Changes in consolidated group	303	240	28	571
Additions	339		253	592
Disposals	-70		-285	-355
Exchange-rate differences	73	74	1	148
Assets held for sale				
Gross values 12/31/2022	10,272	5,369	1,889	17,530
Amortization 12/31/2021	6,554	264	1,153	7,971
Transitional effects from IAS 29	1			1
Amortization 1/1/2022	6,555	264	1,153	7,972
Changes in consolidated group	19		17	36
Additions	617		243	860
Disposals	-71		-283	-354
Exchange-rate differences	5	4	1	10
Assets held for sale				
Amortization 12/31/2022	7,125	268	1,131	8,524
Carrying amounts 12/31/2022	3,147	5,101	758	9,006

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in millions of euros

	Acquired intangible assets (without goodwill)	Acquired goodwill	Internally generated intangible assets	Total
Gross values 1/1/2023	**9,684**	**6,759**	**1,747**	**18,190**
Changes in consolidated group	501	721	5	1,227
Additions	335	0	285	620
Disposals	–138	–3	–401	–542
Exchange-rate differences	–138	–54	1	–191
Assets held for sale	0			0
Gross values 12/31/2023	**10,244**	**7,423**	**1,637**	**19,304**
Amortization 1/1/2023	**6,158**	**807**	**971**	**7,936**
Changes in consolidated group	7		1	8
Additions	710		239	949
Disposals	–144		–401	–545
Exchange-rate differences	–99	–1	1	–99
Assets held for sale				
Amortization 12/31/2023	**6,632**	**806**	**811**	**8,249**
Carrying amounts 12/31/2023	**3,612**	**6,617**	**826**	**11,055**

Amortization of internally generated and acquired intangible assets is recognized in functional costs.

The amortization charge for the reporting year contains the following impairment losses:

- Acquired intangible assets (without goodwill): EUR 0 million (previous year: EUR 1 million),
- Internally generated intangible assets: EUR 1 million (previous year: EUR 12 million).

The impairment losses recognized on internally generated intangible assets relate to capitalized development projects and are attributable to the Energy and Building Technology business sector. They are recognized in research and development cost. The impairment losses were charged because an economic benefit was no longer expected.

Goodwill from business combinations represents the difference between the purchase price on the one hand and the proportionate share of equity at acquisition-date fair value on the other. Goodwill is allocated to the divisions (cash-generating units) that are expected to benefit from the synergies of the business combination and is subjected to an annual impairment test. In accordance with the requirements of IAS 36, an impairment loss is recorded when the recoverable amount is below the carrying amount of the net assets of a cash-generating unit (including the goodwill allocated to it). An asset's recoverable amount is the higher of its fair value less costs of disposal and its value in use. The recoverable amount for all cash-generating units is determined based on fair value less costs to sell, which is derived from the future cash flows. Fair value is largely determined by the present value of the perpetual annuity, which in turn is influenced above all by the applicable discount rate and the growth rate assumed. This is based in particular on a risk-free interest rate, a market-risk premium, as well as business sector-specific beta factors and leverage ratios. Fair value less costs to sell is assigned to level 3 of the fair value hierarchy in accordance with IFRS 13. The cash flows are determined by reference to business plans with a planning period of five years and based on the medium-term planning approved by management. Planning reflects expectations concerning future market shares, growth in the respective markets, technological change, and the profitability of products and services. It is based on past experience and the group's internal assessments as well as market studies, if available. This is used to derive the factors relevant for determining future cash flows, such as EBIT, change in net working capital, and planned capital expenditure. Cash flows after the detailed planning period are determined by reference to an expected long-term growth rate. In the Mobility Solutions business sector, the expected far-reaching technological change from combustion technology to electrification and the associated change in the market and competitive landscape are important factors influencing the business. While it is assumed that sales revenue in the combustion engine business will decline from the middle of the decade, it is also assumed that more than half of all new passenger cars will be electrified by 2030, and that this will generate corresponding sales revenue. Electrification and the use of renewable energy will also become considerably more important in the Energy and Building Technology business sector. Despite the expected technological changes, the effects of which are taken into account in medium-term planning, there were no significant changes to the planning assumptions in the reporting year, meaning that the growth rate in particular remained unchanged compared with the previous year.

157 The parameters used in impairment testing are presented in the following table:

T40

Percentage figures

	Mobility Solutions		Industrial Technology		Consumer Goods		Energy and Building Technology	
	2023	2022	2023	2022	2023	2022	2023	2022
Growth rate	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
After-tax discount rate	10.7	10.7	10.4	10.6	9.6	9.2	10.0	9.9

A risk-free interest rate of 2.8 percent (previous year: 2.0 percent) and a market-risk premium of 6.5 percent (previous year: 6.5 percent) are assumed. The standard tax rate used is 30 percent (previous year: 30 percent).

In both the reporting year and the previous year, the annual impairment test did not give rise to any need to recognize an impairment loss on goodwill.

The sensitivity analysis of the cash-generating units to which goodwill is allocated considered the following assumed changes: an increase in the after-tax discount rate of 0.5 percentage points, a reduction in the growth rate of 0.5 percentage points, and a reduction in EBIT of 5 percent. An increase in the discount rate would have led to an impairment loss of EUR 49 million in the Building Technologies division (Energy and Building Technology business sector). A 0.5 percentage-point reduction in growth rate would have resulted in an impairment loss of EUR 4 million. A decrease in EBIT would have resulted in an impairment loss of EUR 40 million. The goodwill recognized in the Building Technologies division in 2021 and 2023 related to its integrator business.

158 Goodwill of EUR 6,617 million (previous year: EUR 5,952 million) is attributable to the divisions (cash-generating units) as follows:

T41

in millions of euros

Division	Reportable segment	2023	2022
Powertrain Solutions	Mobility Solutions	384	462
Automotive Aftermarket	Mobility Solutions	358	371
Cross-Domain Computing Solutions	Mobility Solutions	126	124
Automotive Electronics	Mobility Solutions	122	75
Drive and Control Technology	Industrial Technology	2,504	2,663
Power Tools	Consumer Goods	431	428
BSH Hausgeräte GmbH	Consumer Goods	548	583
Building Technologies	Energy and Building Technology	883	878
Home Comfort (formerly Thermotechnology)	Energy and Building Technology	993	997
Bosch Global Service Solutions	Energy and Building Technology	145	137
Other		123	128
		6,617	5,952

The changes in goodwill are attributable to business combinations and currency effects. Further information about entities acquired is contained in the section on business combinations in note 6 "Consolidation."

22 – Trade payables

T 42

in millions of euros

	2023	2022
Trade payables	12,190	10,723
Notes payable	15	81
	12,205	**10,804**

The Bosch Group has concluded reverse factoring agreements for a share of the trade payables amounting to EUR 647 million (previous year: EUR 522 million). Under these programs, suppliers can assign their receivables from Bosch Group companies to the commercial bank offering the program in return for a discount and thus receive the discounted invoice amount early. The companies of the Bosch Group settle the invoice amount with the bank on the originally agreed due date. Due to the connection with the operating business, it was decided not to reclassify the corresponding liabilities to financial liabilities.

Trade payables due in more than one year came to EUR 56 million (previous year: EUR 0 million).

Further disclosures on trade payables are contained in the section on liquidity risks in note 31 "Capital and risk management."

23 – Other current and non-current financial liabilities

T43

in millions of euros

	2023		2022	
	up to 1 year	more than 1 year	up to 1 year	more than 1 year
Bonds	749	6,797		[illegible]
Schuldschein loans, registered bonds		3,199	[illegible]	[illegible]
Liabilities to banks	194	118	[illegible]	[illegible]
Commercial papers	588		[illegible]	
Loans	76	33	[illegible]	[illegible]
Derivatives	304	30	[illegible]	[illegible]
Sundry other financial liabilities	861	222	[illegible]	[illegible]
	2,772	10,399	[illegible]	[illegible]

The line item "bonds" contains bonds with a nominal value of EUR 6.5 billion and bearing interest between 1.75 percent and 4.375 percent as well as U.S. private placements with a nominal value of USD 1.2 billion and bearing interest between 6.19 percent and 6.42 percent. The bonds' average residual term to maturity is 9.59 years, compared with 5.96 years the previous year. The average residual term to maturity of the U.S. private placements is 8.38 years.

The financial liabilities of the Bosch Group additionally include schuldschein loans and registered bonds with a nominal value of EUR 3,203 million and bearing interest between 1.028 percent and 4.893 percent. The average residual term to maturity of the schuldschein loans and registered bonds is 5.00 years, compared with 5.27 years the previous year.

The average interest rate for the bonds, schuldschein loans, and registered bonds has risen to 3.358 percent from the previous year's rate of 2.353 percent. The average interest rate for the U.S. private placements is 6.313 percent.

Sundry other financial liabilities also include financial liabilities to members of the workforce.

Further disclosures on other financial liabilities are contained in the section on liquidity risks in note 31 "Capital and risk management."

24 – Contract liabilities

In accordance with IFRS 15, existing performance obligations to customers at contract level for which consideration has been or will be received must be recognized as contract liabilities.

Contract liabilities break down as follows:

T44

In millions of euros

	2023		2022	
	up to 1 year	more than 1 year	up to 1 year	more than 1 year
From revenue recognition over time	70	60	75	53
From development work	1,132	453	1,324	459
From other items	618	323	653	377
	1,820	**836**	2,052	889

Contract liabilities from development work include advance payments from customers for separately contracted research and development work. Contract liabilities from other items mainly include advance payments from customers for deliveries of goods and other outstanding performance obligations.

25 – Other liabilities, other provisions, and contingent liabilities

Other liabilities

T45

in millions of euros

	2023			
	up to 1 year	more than 1 year	[illegible]	[illegible]
Accruals in the personnel area	3,143		[illegible]	
Accruals in the sales and marketing area	2,654		[illegible]	
Other accruals	1,280		[illegible]	
Tax liabilities (without income taxes)	927		[illegible]	
Deferred income	66	19	[illegible]	[illegible]
Sundry other liabilities	348	32	[illegible]	[illegible]
	8,418	**51**	[illegible]	[illegible]

The accruals in the personnel area mainly relate to vacation and salary entitlements as well as accrued special payments, while those in the sales and marketing area mainly pertain to bonus and commission payments.

Other provisions

Pursuant to IAS 37 *Provisions, Contingent Liabilities, and Contingent Assets*, other provisions are recognized if there is a current obligation from a past event which will probably lead to an outflow of resources embodying economic benefits in the future. In addition, it must be possible to reliably estimate the amount of this outflow. Other provisions are measured at full cost. Provisions due in more than one year are stated at their discounted settlement amount if the effect is material. Discounting is based on a current pre-tax market interest rate with matching maturities. Individual provisions in the personnel area are recognized and measured in accordance with IAS 19 *Employee Benefits*.

163 A breakdown of other provisions is presented in the following table:

T46

in millions of euros

	2023		2022	
	up to 1 year	more than 1 year	up to 1 year	more than 1 year
Tax provisions (without income taxes)	22	21	53	22
Provisions in the personnel area	990	2,658	1,389	2,339
Provisions in the sales and marketing area	2,281	1,555	2,578	1,252
Sundry other provisions	1,883	1,090	1,948	2,172
	5,176	**5,324**	6,068	5,785

Provisions in the personnel area relate to obligations from personnel adjustment measures, long-service bonuses, early phased retirement, and from other special benefits. Provisions in the sales and marketing area mainly take account of losses from delivery and warranty obligations, including risks from recall, exchange, and product liability cases. Sundry other provisions are recognized, among other things, for risks from purchase commitments, environmental protection obligations, litigation risks, and legal risks.

Other provisions developed as follows:

T47

in millions of euros

	1/1/2023	Changes in consolidated group	Amounts used	Amounts reversed	Amounts added	Other changes	12/31/2023
Tax provisions (without income taxes)	53	1	-11	-9	10	-1	43
Provisions in the personnel area	3,728	0	-756	-337	1,039	-26	3,648
Provisions in the sales and marketing area	3,630	6	-1,250	-522	2,038	-66	3,836
Sundry other provisions	3,755	14	-433	-1,091	724	4	2,973
	11,166	**21**	**-2,450**	**-1,959**	**3,811**	**-89**	**10,500**

Additions include an amount of EUR 254 million relating to the reversal of the discount (previous year: EUR 21 million).

Other changes include effects from currency translation and reclassification to liabilities directly associated with assets held for sale.

With respect to emissions from diesel vehicles, various automakers are being investigated by German and non-German authorities. In occasional cases, these investigations also concern Bosch in its capacity as a supplier of engine control units. With respect to the events concerning various automakers' diesel vehicle emissions, Bosch is still a defendant in class and individual civil-law actions in a few countries. In 2023, Bosch was able to successfully conclude many proceedings relating to diesel emissions, including several class actions against Bosch in the United States and the Netherlands. In none of the proceedings concluded does Bosch acknowledge the validity of the claims brought forward, nor does it concede any liability. The proceedings and actions still pending, as well as possible further ones, still pose risks. Taken together, however, we now regard them as more minor than previously. In all these proceedings, Bosch is asserting its rights.

Bosch is also engaged in compensation discussions with customers in respect of potential civil-law claims associated with closed antitrust proceedings. Investigations by the antitrust authorities against Bosch are continuing in certain countries. The French antitrust authority has completed its investigations of BSH Hausgeräte in France for a possible violation of antitrust law and has notified BSH France of the allegations made as part of the ongoing proceedings. As part of a settlement, the authority and BSH have reached an agreement on the scope of a possible fine. The final decision is expected in the first half of 2024.

On the basis of the facts relating to antitrust law and engine control units that were available when the consolidated financial statements were prepared and that the board of management has assessed, the board of management believes that sufficient precautions have been taken in the form of provisions for legal risks. For the various legal risks outlined above, provisions throughout the group amount to EUR 386 million (previous year: EUR 505 million).

The increased demand from the automotive industry and the high demand for semiconductors from the consumer electronics, IT, and communications sectors have in recent years caused bottlenecks in the global supply of semiconductors, which were exacerbated by disruptions of production at certain semiconductor manufacturers. The semiconductor bottlenecks were largely overcome in the course of the reporting year. The commercial risk still existing as of the reporting date was assessed taking into account the relevant assumptions and estimates and has been reflected in the consolidated financial statements. The same applies to the commercial risk from further delivery obligations that may lead to compensation claims by customers. Applying IAS 37.92, no further disclosures are made.

Contingent liabilities

No provisions were recognized for the following contingent liabilities, as it is more likely than not that they will not occur:

T48

in millions of euros

	2023	2022
Contingent liabilities from guarantees	26	30
Contingent liabilities to tax authorities	48	29
Other contingent liabilities	14	23
	88	82

26 – Provisions for pensions and similar obligations

Pursuant to IAS 19 *Employee Benefits*, pension provisions are recognized using the projected unit credit method, taking estimated future increases in pensions and salaries into account, among other things. The expense from unwinding the discount on pension provisions is reported in the financial result under interest expenses.

The workforce of the companies included in the consolidated financial statements have certain rights in connection with the company pension scheme, depending on the conditions existing in the various countries. The benefit obligations include both currently claimed benefits and future benefit obligations of active associates or associates that have left the company.

The group's post-employment benefits include both defined contribution plans and defined benefit plans. In the case of defined contribution plans, the company pays contributions to state or private pension or insurance funds, either based on legal or contractual provisions or on a voluntary basis. The payment of these contributions does not give rise to any further payment obligations for the company. The defined benefit plans are funded or unfunded pension systems, as well as systems financed by insurance premiums.

Plan assets are invested based on the underlying defined benefits granted. Asset-liability studies are performed regularly for this purpose. The funding status is an important controlling variable in this context. Bosch continuously monitors it with the involvement of external experts. The investment strategy is derived from the corresponding governance guidelines. External asset managers are tasked with investing the assets.

The major defined benefit plans and post-employment medical-care plans operated by the Bosch Group are described below. These plans are subject to actuarial risks such as longevity risks, interest fluctuation risks, and capital market risks.

Germany

The company pension scheme ("Bosch pension plan"), introduced on January 1, 2006, is a defined contribution plan with salary-based contributions for accumulating retirement benefits. The Bosch pension plan is partly funded via an external pension fund, Bosch Pensionsfonds AG. The value of the assets of Bosch Pensionsfonds AG is offset against the pension obligation calculated using the projected unit credit method.

During the vesting period, employer and employee contributions are added to the assets of Bosch Pensionsfonds AG up to the tax-allowed ceiling in accordance with Sec. 3 No. 63 EStG [*Einkommensteuergesetz*: German Income Tax Act]. Contributions that exceed the tax-allowed ceiling are allocated to the unfunded obligation. Irrespective of whether contributions are allocated to Bosch Pensionsfonds AG or to direct commitments, the amount of the total entitlement develops in line with the performance of the Bosch pension fund. Entitlements to retirement benefits from commitments predating the introduction of the Bosch pension plan were transferred to the Bosch pension plan. For a constantly decreasing number of associates in the vesting period, a transitional arrangement guarantees a fixed rate of return on the defined benefit obligation.

On reaching retirement, or in the event of death, the earned benefits are paid out in the form of a lump-sum payment, in installments, or as a lifelong annuity, depending on the beneficiary's choice. For benefits triggered from January 1, 2016, onward, a fund-based retirement pension payment is made through Bosch Pensionsfonds AG. Owing to the low likelihood of claims being made against Bosch, the Bosch pension plan is treated as a defined contribution plan from the beginning of the pension phase.

Japan

The majority of the pension obligations are corporate pension plans (CPPs) in the form of funded career average pension plans. The benefits are based on salary-dependent contributions that are subject to interest. The rate of return depends on the structure of the pension plan.

There are also pension obligations from unfunded retirement allowance plans, the benefits of which are based on years of service and final salary.

All benefits are paid out as lump-sum payments on termination, death, or reaching retirement age. In some CPPs, associates can draw pension payments after a certain period of service.

Switzerland

Bosch has a funded pension plan. The Bosch pension plan is organized as a foundation. All the demographic and financial risks are borne by the foundation and regularly assessed by the foundation's board of trustees. In the case of a deficit, adjustments can be made such as a change in the pension factors or an increase in future contributions.

Pension plans are governed by the BVG [*Bundesgesetz über die berufliche Alters-, Hinterlassenen- und Invalidenvorsorge*: Swiss Pension Fund Law]. All benefits are defined by law, and the BVG stipulates the minimum benefits to be paid. The Bosch pension plan meets all legal requirements.

Both employer and employees make contributions to the Bosch pension plan. The benefits are paid out either as a lump sum or a lifelong annuity.

United Kingdom

Bosch finances a closed final-salary-based defined benefit plan. The pension obligation is funded via a trust association which is legally independent of Bosch, and which is operated in accordance with the law. The trustees are required to comply with the legal requirements. There is a restructuring plan that is expected to be completed in 2024.

The benefits earned are paid out on reaching retirement age, or in the event of occupational disability or death.

United States

Bosch operates the Bosch pension plan as well as other smaller defined benefit and funded pension plans. These were merged into one plan, the Bosch pension plan, at the end of the reporting year; at the same time, the termination of the Bosch pension plan was resolved and the corresponding process initiated. The termination is subject to approval by the U.S. Pension Benefit Guaranty Corporation. The termination process is expected to take between 18 and 24 months.

This does not affect unfunded pension plans that provide benefits for certain members of management or for members of the Bosch pension plan whose income lies above the statutory contribution assessment basis. The benefits depend on age, years of service, and salary, and are paid out on reaching retirement age or in the event of death. The pension plans are closed to new entrants.

In addition, Bosch finances unfunded plans for post-employment medical care. The level of benefits and the contributions for pensioners vary depending on location, age, and years of service. The benefits include healthcare benefits and life assurance contributions for pensioners and their spouses. The plans are also closed to new entrants.

Actuarial calculations and estimates are made for all defined benefit plans. Besides assumptions about life expectancy, and taking index-linked developments into account, the calculations are based on the following parameters, which vary from one country to another depending on local economic circumstances:

T49

Percentage figures

	Germany		Japan		Switzerland		United Kingdom		United States		Total	
	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022
Discount factor	3.6	4.1	1.3	1.1	1.4	2.1	4.5	4.9	4.7	5.3	3.7	4.1
Projected salaries	3.0	3.0	2.9	2.8	1.9	1.9	3.0	3.1	3.5	3.5	3.1	3.1
Projected pensions	2.2	2.2	n.a.	n.a.	0.0	0.0	2.8	2.8	n.a.	n.a.	2.0	2.0

n.a. Not applicable

To determine the discount factor in the euro zone, reference was made to corporate bonds rated AA by at least one leading rating agency as of the reporting date.

Projected salaries are future salary increases estimated on the basis of the economic situation and inflation, among other factors.

The pension trend (projected pensions) for inflation-linked pension payments is based on the development of country-specific, recognized indices.

The pension plans are measured using the current mortality tables as of December 31 of the fiscal year concerned. As of December 31, 2023, the following mortality tables are used:

T 50

Germany	Heubeck 2018G mortality tables
Japan	2020 MHLW Standard Table
Switzerland	BVG 2020 with CMI_2016 improvement factors, LTR of 1.5 percent
United Kingdom	116 percent for males, 108 percent for females of S3PXA tables with 2019 CMI projections and 1.5 percent long-term improvement
United States	Pri-2012, projected by MP2021; aggregate for some plans, collar adjustments for others

As of December 31, 2022, the following mortality tables were used in the key countries:

T 51

Germany	Heubeck 2018G mortality tables
Japan	2020 MHLW Standard Table
Switzerland	BVG 2020 with CMI_2016 improvement factors, LTR of 1.5 percent
United Kingdom	116 percent for males, 108 percent for females of S3PXA tables with 2019 CMI projections and 1.5 percent long-term improvement
United States	Pri-2012, projected by MP2021; aggregate for some plans, collar adjustments for others

169 For the key regions, the present value of the defined benefit obligation can be reconciled to the provision as follows:

T52

in millions of euros

	Present value of the obligation	Plan assets	Other assets	Unrecognized asset	Provision
12/31/2023					
Germany	14,565	–5,523	0	0	9,042
Japan	165	–237	2	96	26
Switzerland	918	–1,111	27	169	3
United Kingdom	233	–289	56	0	0
United States	1,500	–1,415	106	0	191
Other	645	–249	7	1	404
	18,026	**–8,824**	**198**	**266**	**9,666**
12/31/2022					
Germany	13,671	–4,725	3	1	8,954
Japan	155	–241	4	93	11
Switzerland	849	–1,107	28	185	3
United Kingdom	222	–272	56	1	7
United States	1,581	–1,913	68	4	160
Other	631	–247	12	7	403
	17,109	**–8,505**	**171**	**291**	**9,538**

170 The development of the net liability of the defined benefit obligation is presented in the following table:

T53

in millions of euros

	Present value of the obligation	Plan assets	Other assets	Unrecognized asset	Provision
1/1/2023	**16,981**	**-8,026**	**177**	**252**	**9,384**
Pension cost charged to profit or loss					
Current service cost	694				694
Past service cost	0				0
Gains/losses from plan settlements not related to past service cost	-1				-1
Net interest income/expense	693	-322		5	376
Other	0	5			5
	1,386	**-317**		**5**	**1,074**
Remeasurement					
Return on plan assets (excluding amounts included in net interest)		-365			-365
Gains/losses arising from changes in demographic assumptions	1				1
Gains/losses arising from changes in financial assumptions	374				374
Experience gains/losses	269				269
Other adjustments		0		8	8
	644	**-365**		**8**	**287**

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in millions of euros

	Present value of the obligation	Plan assets	Other assets	Unrecognized asset	Provision
Contributions					
Employer		-448			-448
Beneficiaries	17	-17			0
	17	**-465**			**-448**
Benefits paid[1]	-941	341			-600
Special events (plan settlement)	0	0			0
Transfers	0	0			0
Currency translation	-56	10		1	-45
Changes in consolidated group	4	-2			2
Changes in other assets			21		21
Disposal groups	-9	0	0	0	-9
12/31/2023	**18,026**	**-8,824**	**198**	**266**	**9,666**

1. Including EUR 97 million for transfer payments to Bosch Pensionsfonds at the beginning of the pension phase for payment of a fund-based retirement pension.

	Present value of the obligations	Plan assets	Other assets	Unrecognized asset	Provision
1/1/2022	20,099	-8,862	224	123	11,663
Pension cost charged to profit or loss					
Current service cost	678				678
Past service cost	3				3
Gains/losses from plan settlements not related to past service cost	-1				-1
Net interest income/expense	258	-124		1	135
Other	6	-5			1
	944	-129		1	816
Remeasurement					
Return on plan assets (excluding amounts included in net interest)		1,235			1,235
Gains/losses arising from changes in demographic assumptions	-3				-3
Gains/losses arising from changes in financial assumptions	-3,455				-3,455
Experience gains/losses	-455				-455
Other adjustments				62	62
	-3,913	1,235		62	-2,616

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in millions of euros

	Present value of the obligation	Plan assets	Other assets	Unrecognized asset	Provision
Contributions					
Employer		-61			-61
Beneficiaries	-16	16			0
	-16	-45			-61
Benefits paid[1]	650	-534			116
Special events (plan settlement)	-9	9			0
Transfers	45	-45			0
Currency translation	113	-109		-4	-12
Changes in consolidated group	31	-31			0
Changes in other assets			-17		-17
12/31/2022	16,981	-6,328	177	393	11,223

1. Including EUR 69 million for transfer payments to Bosch Pensionsfonds at the beginning of the pension phase for payment of a fund-based retirement pension.

174 The plan assets comprise the following components:

T55

Percentage figures

	Germany		Japan		Switzerland		United Kingdom		United States	
	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022
Cash and cash equivalents	**2**	4	**0**	0	**1**	3	**5**	4	**2**	6
Equity instruments	**50**	52	**30**	29	**27**	25	**0**	24	**0**	19
of which Europe	63	63	10	13	43	32	0	27	0	3
of which North America	17	13	39	38	38	33	0	53	0	85
of which Asia Pacific	12	11	51	57	6	5	0	14	0	7
of which emerging markets	7	9	0	2	12	13	0	6	0	5
of which other	1	1	0	0	1	4	0	6	0	0
Debt instruments	**44**	41	**65**	66	**28**	29	**92**	72	**98**	59
of which government bonds	26	25	75	75	21	21	46	63	28	32
of which corporate bonds	73	64	22	23	77	75	54	36	71	65
of which other debt instruments	1	1	3	2	2	4	0	1	1	3
Property	**3**	3	**0**	0	**34**	37	**0**	3	**0**	0
of which owner-occupied	85	97	0	5	0	0	0	5	0	7
of which non-owner-occupied	15	3	0	5	100	100	0	9	0	3
Insurance	**0**	0	**5**	5	**0**	0	**3**	3	**0**	0
Other	**1**	0	**0**	0	**10**	5	**0**	0	**0**	0

Quoted prices in an active market are available for equity instruments. For the other classes of assets, there are in most cases no quoted prices in an active market. The "other" line item mainly contains investments in infrastructure facilities.

Duration and estimated maturities of the pension obligation

The weighted duration of the pension obligation as of December 31, 2023, is 10.4 years (previous year: 10.6 years).

Estimated maturities of the undiscounted estimated pension payments

T 56

in millions of euros

	2023	2022
Less than one year	923	854
Between one and two years	970	879
Between two and three years	1,046	988
	2,939	2,721

The estimated contributions to plan assets in fiscal year 2024 amount to EUR 473 million (previous year: EUR 439 million).

The estimated benefits to be paid directly in fiscal year 2024 amount to EUR 575 million (previous year: EUR 539 million).

Sensitivity of the defined benefit obligation in relation to actuarial parameters

T 57

Percentage figures

	Germany		Japan		Switzerland		United Kingdom		United States	
	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022
Discount factor										
Increase of 0.25 percentage points	–1.2	–1.2	–1.8	–1.9	–2.7	–2.5	–3.2	–3.2	–2.4	–2.5
Decrease of 0.25 percentage points	1.2	1.3	1.9	1.9	2.9	2.7	3.3	3.3	2.5	2.5
Projected salaries										
Increase of 0.25 percentage points	n.a.	n.a.	0.8	0.9	0.2	0.2	0.2	0.2	0.0	0.0
Decrease of 0.25 percentage points	n.a.	n.a.	–0.7	–0.7	–0.2	–0.2	–0.2	–0.2	0.0	0.0
Projected pensions										
Increase of 0.25 percentage points	0.6	0.6	n.a.	n.a.	2.6	2.5	1.9	1.9	n.a.	n.a.
Decrease of 0.25 percentage points	–0.6	–0.6	n.a.	n.a.	–2.5	–2.5	–1.7	–1.7	n.a.	n.a.
Life expectancy										
Increase by one year	1.9	1.9	n.a.	n.a.	3.1	3.1	4.9	4.9	3.1	3.1

n.a. Not applicable

The sensitivity analyses of the defined benefit obligation for the main actuarial assumptions are based on the same methods as those used for the post-employment benefit obligations presented in the consolidated statement of financial position (projected unit credit method). In each case, one assumption was changed and the other assumptions were

left unchanged. This means that possible correlation effects were not considered.

Defined contribution plans

Defined contribution plans mainly include employee contributions to statutory pension schemes and employer contributions for the company's defined contribution plans. Expenses for defined contribution plans amounted to EUR 1,718 million (previous year: EUR 1,642 million).

27 – Equity

The issued capital of EUR 1,200 million and capital reserve of EUR 4,557 million correspond with the items of the statement of financial position disclosed by Robert Bosch GmbH. The issued capital is divided between the shareholders as follows:

Shareholders of Robert Bosch GmbH

T 59

Percentage figures

	Share-holding	Voting rights
Robert Bosch Stiftung GmbH	93.99	
Robert Bosch Industrietreuhand KG	0.01	93.17
ERBO II GmbH	5.36	
Robert Bosch Familientreuhand KG	0.00	6.83
Robert Bosch GmbH (treasury stock)	0.64	

Retained earnings contain undistributed profits generated in the past by the entities included in the consolidated financial statements, as well as accumulated other comprehensive income. The amount recognized outside profit or loss in the reporting year under financial instruments increases the revaluation reserve from equity instruments by EUR 34 million (previous year: decrease of EUR 987 million) and the revaluation reserve from debt instruments by EUR 384 million (previous year: decrease of EUR 483 million). As in the previous year, the other changes reported in the consolidated statement of changes in equity in the reporting year mainly comprise effects from the disposal of equity instruments.

Retained earnings also include treasury stock of EUR 62 million (previous year: EUR 62 million).

The board of management proposes to distribute a dividend of EUR 170 million.

Non-controlling interests

The non-controlling interests in the equity of the consolidated subsidiaries mainly comprise the non-controlling interests in United Automotive Electronic Systems Co., Ltd., Shanghai, Bosch Powertrain Systems Co., Ltd., Wuxi, Bosch HUAYU Steering Systems Group, Shanghai, all China, and Bosch Ltd., Bengaluru, India. Condensed financial information on the above entities is included in note 6 "Consolidation."

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Other notes

28 – Statement of cash flows

The statement of cash flows presents cash inflows and outflows from operating activities, investing activities, and financing activities.

Cash flows are derived indirectly, starting from EBIT. EBIT is earnings before the financial result and before tax. Cash flows from operating activities are adjusted for non-cash expenses and income (mainly depreciation and amortization of non-current assets) and take into account changes in working capital as well as cash-effective financial expenses, financial income, and taxes.

Investing activities mainly comprise additions to non-current assets including leased products, the acquisition and disposal of subsidiaries, and changes in securities and time deposits with a term to maturity of more than 90 days. Within the changes in securities and time deposits, cash inflows and outflows are netted, as these are essentially revolving asset reallocations. In the reporting year, the investment of financial liabilities taken out as time deposits with a term of more than 90 days and in money market funds in particular led to a cash outflow from investing activities.

Financing activities combine the cash inflows and outflows from borrowing and repayment of financial liabilities, from the repayment of lease liabilities, and from dividends.

Changes in items of the statement of financial position contained in the statement of cash flows cannot be directly derived from the statement of financial position, as they have been adjusted for exchange-rate effects and changes in the consolidated group.

Interest and dividends received contains interest received of EUR 677 million (previous year: EUR 464 million) and income received from equity investments of EUR 24 million (previous year: EUR 43 million).

The liquidity reported in the statement of cash flows includes cash and cash equivalents of EUR 7,443 million (previous year: EUR 6,459 million). In the reporting year, cash and cash equivalents of EUR 103 million (previous year: EUR 201 million) were subject to restrictions, including EUR 86 million (previous year: EUR 185 million) in Russia and in Ukraine as a result of restrictions on capital movements in the two countries.

Changes in liabilities from financing activities during the reporting year and the previous year are presented in the following table:

T59

178 In millions of euros

		Cash-effective changes		Non-cash changes			
	1/1/2023	Borrowing	Repayment	Changes in consolidated group	Exchange rate-related changes	Other changes	12/31/2023
Bonds	1,992	5,576			–24	2	7,546
Schuldschein loans, registered bonds	3,698		–500			1	3,199
Other financial liabilities	732	1,565	–1,387	88	–27	–71	900
Lease liabilities	2,167		–588	32	–27	767	2,351
	8,589	**7,141**	**–2,475**	**120**	**–78**	**699**	**13,996**

T60

In millions of euros

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bonds	[illegible]		[illegible]			[illegible]	[illegible]
Schuldschein loans, registered bonds	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]
Other financial liabilities	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
Lease liabilities	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

The other changes in lease liabilities mainly comprise the effects of new or amended lease agreements.

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29 – Segment reporting

Disclosures on operating segments

T61

in millions of euros

	Mobility Solutions		Industrial Technology		Consumer Goods	
	2023	2022	2023	2022	2023	2022
External sales revenue	56,171	52,475	7,467	7,541	19,943	21,372
Intersegment sales revenue	205	195	806	894	468	477
Total sales revenue	**56,376**	**52,670**	**8,273**	**7,698**	**20,411**	**21,849**
EBIT from operations	2,518	1,833	679	586	896	845
of which: result from entities included at equity	10	1				
Amortization and depreciation of intangible assets, right-of-use assets, and property, plant, and equipment	3,408	3,451	297	324	1,023	995
Impairment losses on intangible assets, right-of-use assets, and property, plant, and equipment		18			6	8
Non-cash expenses (without depreciation and amortization)	3,089	2,984	225	255	766	710
Non-cash income	1,725	284	80	304	275	193
Additions to property, plant, and equipment	3,799	3,711	410	316	839	845
Net working capital	15,567	13,123	2,795	2,332	6,040	6,316

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in millions of euros

	Energy and Building Technology		Other		Consolidation		Group	
	2023	2022	**2023**	2022	**2023**	2022	**2023**	2022
External sales revenue	7,563	6,952	335	253			91,479	88,058
Intersegment sales revenue	489	440	201	145	-2,169	-1,587		
Total sales revenue	**8,052**	7,392	**536**	398	**-2,169**	-1,587	**91,479**	88,058
EBIT from operations	696	477	76	-65			4,865	3,422
of which: result from entities included at equity	-4						6	-1
Amortization and depreciation of intangible assets, right-of-use assets, and property, plant, and equipment	216	209	63	78			5,007	4,937
Impairment losses on intangible assets, right-of-use assets, and property, plant, and equipment	2	3					8	25
Non-cash expenses (without depreciation and amortization)	381	278	53	96			4,514	3,798
Non-cash income	134	97	36	28			2,250	1,566
Additions to property, plant, and equipment	180	124	271	352			5,499	4,936
Net working capital	1,730	1,648	-196	-152			25,936	25,397

Based on the internal management and reporting structure, the Bosch Group is divided into four business sectors. These are the reportable segments and result from the combination of divisions in accordance with the criteria set forth in IFRS 8 *Operating Segments*. Business operations within the business sectors are the responsibility of the divisions.

The Mobility Solutions business sector mainly comprises the following areas of business: powertrain products and solutions, systems for active and passive driving safety, assistance and convenience functions, technology for user-friendly infotainment as well as vehicle-to-vehicle and vehicle-to-infrastructure communication, concepts, technology, and services for the automotive aftermarket, steering systems for passenger cars and commercial vehicles, connected mobility services, and a wide-ranging portfolio for e-bikes.

The Industrial Technology business sector combines the following activities:

- Automation technology (technologies for drives, controls, and motion)
- Industry 4.0 software activities and projects

The operations of the Consumer Goods business sector comprise the production and distribution of:

- Power tools (tools for professionals, industry, and DIY, accessories, garden tools, as well as industrial tools and measuring equipment)
- Household appliances (appliances for cooking, dishwashing, laundry, drying, cooling, freezing, floor care, etc.)

The Energy and Building Technology business sector comprises the following activities:

- Security systems (video surveillance, public address systems, evacuation systems, and access control)
- Services to increase energy efficiency in non-residential buildings
- Thermotechnology (heating and hot-water boilers including open- and closed-loop control systems and products and services to increase comfort in the home)
- Service solutions (business solutions for internal and external customers, shared services for the Bosch Group)

Operating segments which are not reportable are combined and presented in the category "Other." This mainly relates to financial, holding, and other service companies as well as operations that are not allocated to a business sector.

The divisions allocated to a business sector are aggregated into a single reportable segment, as they have similar economic characteristics. Above all, the economic performance of all the divisions aggregated in one segment depends to a similar extent on the same core markets (automotive production, capital goods, consumer goods, and energy and building technology).

Line items allocable to financing activities are not included in segment reporting as they are not part of the reported earnings.

The main controlling variables reported to the board of management are sales revenue growth, EBIT from operations as a percentage of sales revenue (EBIT adjusted for negative effects on earnings from purchase price allocations in the fiscal year 2015), and net working capital as a percentage of sales revenue as an indicator of the capital that is generally tied up in the short term. EBIT is earnings before the financial result and before tax. Net working capital is an average of inventories, trade receivables, and contract assets, in each case before valuation allowances, plus capitalized deferred consideration to customers, less trade payables and contract liabilities.

Transfer prices between the operating segments are determined at arm's length.

The main items included in non-cash expenses are bad debt allowances, additions to provisions, as well as losses on the disposal of items of property, plant, and equipment, and of intangible assets.

The main items included in non-cash income are income from the reversal of provisions.

Reconciliation statements

T 62

in millions of euros

	2023	2022
Sales revenue		
Sales revenue of reportable segments	93,112	89,819
Sales revenue of "Other"	536	595
Consolidation	–2,169	–1,917
Differences in the consolidated group	117	98
Group sales revenue	**91,596**	88,595
Earnings		
EBIT from operations of reportable segments	4,789	2,891
EBIT from operations of "Other"	76	–36
Adjustments from purchase price allocations	–321	127
Differences in the consolidated group	–41	–8
Financial income	3,980	3,825
Financial expenses	–4,507	–4,996
Profit before tax	**3,976**	1,803
Net working capital		
Net working capital of reportable segments	26,132	25,459
Net working capital of "Other"	–196	–152
Reconciliation of average values to carrying amounts as of 12/31	–3,848	–575
Valuation allowances on segment assets	–2,308	2,319
Group net working capital	**19,780**	27,051

in millions of euros

	Sales revenue by registered office of the customer		Non-current assets[1]	
	2023	2022	2023	2022
Europe	**46,769**	44,334	**23,902**	22,550
of which Germany	18,854	17,638	14,447	13,758
of which United Kingdom	3,868	3,567	740	737
of which France	3,087	3,030	397	439
of which Italy	2,643	2,458	567	564
Americas	**16,952**	16,167	**5,756**	4,979
of which United States	12,402	12,077	4,448	3,981
Asia	**26,622**	25,283	**8,103**	8,388
of which China	17,201	17,535	5,243	5,472
of which Japan	2,789	2,761	565	488
Other regions	**1,253**	1,323	**186**	179
	91,596	87,107	**37,947**	36,096

1. Non-current assets consist of intangible assets, right-of-use assets, and property, plant, and equipment.

The customer structure of the Bosch Group in the reporting year and in the previous year does not reveal any concentration on individual customers.

30 – Additional disclosures on financial instruments

In accordance with IAS 32 *Financial Instruments: Presentation*, a financial instrument is any contract that gives rise to a financial asset of one entity and to a financial liability or equity instrument of another entity.

Financial assets and financial liabilities are recognized in the statement of financial position when the Bosch Group becomes party to the contractual provisions of the financial instrument. For regular way purchases or sales, however, the settlement date is the relevant date for initial recognition and for derecognition from the statement of financial position. On initial recognition, financial assets and financial liabilities are measured at fair value and classified in accordance with IFRS 9 *Financial Instruments*. Unless subsequent measurement is at fair value through profit or loss, directly attributable transaction costs are taken into account on initial recognition. The fair-value option pursuant to IFRS 9 is not exercised. Hedge accounting is not used in the Bosch Group.

On initial recognition, financial assets are classified either as at amortized cost (AC), at fair value through profit or loss (FVPL), or at fair value through other comprehensive income (FVOCI). The classification depends on the business model underlying the financial assets as well as the contractual cash flow characteristics of the asset. Classification is determined by

- whether the financial asset is held within a business model whose objective is to hold financial assets in order to collect contractual cash flows ("hold" business model), whether the objective is achieved by both collecting contractual cash flows and selling financial assets ("hold and sell" business model), or solely by selling financial assets ("sell" business model), and
- whether the contractual cash flows are "solely payments of principal and interest" (SPPI).

The business model is determined on the basis of the Bosch Group's corporate management. For this purpose, the financial instruments are grouped together by their underlying business model. The contractual cash flow characteristics are reviewed at the level of the individual financial instrument.

Financial assets whose cash flows are solely payments of principal and interest on the principal amount outstanding and held within the "hold" business model are measured at amortized cost (AC). These are trade receivables, cash and cash equivalents, bank balances, loan receivables, and sundry other financial assets. These assets are subsequently measured using the effective interest method; impairment gains and losses, or gains or losses from the derecognition of assets, are recognized in profit or loss.

If the group also intends to collect cash flows from selling financial assets ("hold and sell" business model), the financial assets are measured at fair value through other comprehensive income (with recycling, FVOCI wR). Gains and losses are recorded in other comprehensive income in this case. Cumulative changes in fair value are reclassified to profit or loss when the instruments are sold. Impairment losses are likewise reclassified from other comprehensive income to profit or loss. Interest income is recognized in profit or loss using the effective interest method. Most of the Bosch Group's interest-bearing securities are measured in this category.

Financial assets that do not satisfy the cash flow criterion owing to there not being solely payments of principal and interest on the principal amount outstanding are measured at fair value through profit or loss (FVPL). Changes in fair value and income from these assets are recognized immediately in profit or loss. This category mainly comprises interests in partnerships, shares in investment funds, certain interest-bearing securities, and derivatives with a positive fair value which are mainly used to limit currency, interest, and commodity risks in accordance with internal risk management.

The group may, at initial recognition, irrevocably designate equity instruments that are not held for trading as measured at fair value through other comprehensive income (no recycling, FVOCI noR) rather than as measured at fair value through profit or loss. In that case, all changes in value are recognized in other comprehensive income. Cumulative changes in value are not reclassified to profit or loss even when the financial asset is sold. Dividend income, however, is recognized in profit or loss. As this measurement method appropriately presents the net assets and results of operations, the Bosch Group has decided to apply this option to investments in corporations and to shares reported under securities.

With regard to financial assets (not including equity instruments) that are not measured at fair value through profit or loss, IFRS 9 requires loss allowances to be recognized for any expected credit losses. The extent to which expected losses are recognized is determined based on three stages that differ in terms of the extent to which the credit risk on financial assets has significantly increased since initial recognition. Stage 1 includes all financial assets whose credit risk has not increased significantly and whose outstanding payments are up to 30 days past due. For such assets, credit losses are recognized in relation to the probability of a default occurring over the next 12 months. If the borrower's credit risk has increased significantly, the financial instrument is allocated to stage 2, and loss allowances are recognized at an amount equal to the expected losses over the lifetime of the financial asset. A significant increase in credit risk is assumed when either agreed payments are more than 30 days past due or information is available about a deterioration in the borrower's financial situation. If there is additional evidence that the financial asset is credit-impaired, it is allocated to stage 3. Such evidence includes payments more than 90 days past due, observable data about significant financial difficulty of the borrower, a high probability that the borrower will enter bankruptcy, and significant changes in the issuer's technological, economic, regulatory, or market environment.

The simplified approach to impairment is used for trade receivables, contract assets, and lease receivables. Accordingly, a loss allowance is always recognized at the lifetime expected credit losses irrespective of any changes in the credit risk since initial recognition of the financial asset. As a practical expedient, a loss allowance table is used in the Bosch Group for receivables that are not credit-impaired, which determines the expected losses over the remaining term as a flat-rate percentage in relation to the number of days past due. Historical probabilities of default are used as a basis, supplemented by forward-looking parameters of relevance for the credit risk. If there is any information available about financial difficulty of the borrower, the assets are analyzed individually and a loss allowance for credit-impaired receivables is recognized. According to internal group guidelines, the carrying amounts of receivables are generally adjusted via a loss allowance account. Loss allowances are not recognized if receivables are collateralized or credit insurance exists.

Financial liabilities are generally subsequently measured at amortized cost using the effective interest method. In the Bosch Group, this applies to trade payables, bonds, schuldschein loans, registered bonds, liabilities to banks, commercial papers, loan liabilities, and other financial liabilities. The main exception to this rule concerns financial liabilities held for trading, which are measured at fair value through profit or loss. In the Bosch Group, these are derivatives with a negative fair value.

When determining the fair value of financial assets and financial liabilities, the input factors of the valuation techniques pursuant to IFRS 13 are categorized as follows:

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities that the accounting entity can access at the measurement date
- Level 2: Inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly or indirectly
- Level 3: Inputs that are not based on observable market data

The fair value of current financial assets and liabilities is assumed to correspond to their carrying amount.

Financial assets are derecognized when the rights to cash flows have expired, e.g. after completion of bankruptcy proceedings or after a court ruling. They are also derecognized when the Bosch Group transfers substantially all risks and rewards from a financial asset. Financial liabilities are derecognized when the obligations specified in the contract have been discharged or canceled, or when they have expired.

Financial assets and financial liabilities are offset and presented as a net amount in the statement of financial position when there is a legal right to offset and the group either intends to settle on a net basis, or when the asset and the liability are to be settled at the same time.

Net gain/loss by category

The table below presents the net gains and losses from financial instruments recognized in the income statement, classified by the categories defined in IFRS 9:

T 64

in millions of euros

	2023	2022
Financial assets measured at amortized cost (AC)	382	216
Financial assets measured at fair value through other comprehensive income (FVOCI wR)	–79	12
Financial assets and financial liabilities measured at fair value through profit or loss (FVPL)	285	–922
Equity instruments measured at fair value through other comprehensive income (FVOCI nR)	95	108
Financial liabilities measured at amortized cost (AC)	–478	–535

The net gain/loss from equity instruments measured at fair value through other comprehensive income includes dividend income. In all other categories, foreign-currency gains and losses as well as interest income and expenses are disclosed. The net gain/loss from financial assets and financial liabilities measured at fair value through profit or loss additionally includes the result from changes in the fair values of investments, securities, and derivatives. Moreover, the net gain/loss from financial assets measured at amortized cost discloses the gains/losses from the measurement of receivables and loans. The gain/loss from financial assets measured at fair value through other comprehensive income includes the gains/losses from the release of the reserve from financial instruments in equity.

The dividend income of EUR 95 million (previous year: EUR 108 million) reported in net gains/losses from investments in equity instruments includes dividend income amounting to EUR 8 million (previous year: EUR 4 million) from equity instruments derecognized in the reporting year.

The measurement gains and losses from securities and investments recognized in other comprehensive income are presented in the statement of comprehensive income.

188 Carrying amounts and fair values by category

Assets

in millions of euros

		2023		2022	
	Category pursuant to IFRS 9	Carrying amount	Fair value	Carrying amount	Fair value
Cash and cash equivalents	AC	**7,443**		6,859	
Trade receivables	AC	**17,081**		16,824	
Current other financial assets		**7,822**		3,883	
Securities	FVPL	3,606	3,606	2,005	2,005
	FVOCI wR	253	253	362	362
Bank balances	AC	3,301		470	
Loan receivables	AC	104		95	
Derivatives	FVPL	132	132	255	255
Receivables from finance leases	n.a.	37		28	
Sundry other financial assets	AC	389		668	
Non-current financial assets		**14,538**		14,824	
Securities	FVOCI nR	2,808	2,808	2,371	2,371
	FVOCI wR	4,529	4,529	4,529	4,529
	FVPL	4,654	4,654	4,760	4,760
Investments	FVPL	145	145	164	164
	FVOCI nR	1,848	1,848	1,777	1,777
	n.a.	130		153	
Bank balances	AC	65	65	69	69
Loan receivables	AC	14	14	14	14
Derivatives	FVPL	41	41	33	33
Receivables from finance leases	n.a.	146	146	147	147
Other financial assets	AC	158	158	129	129

AC At amortized cost
FVPL At fair value through profit or loss
FVOCI wR At fair value through other comprehensive income, with recycling
FVOCI nR At fair value through other comprehensive income, no recycling
n.a. Not applicable

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Equity and liabilities

in millions of euros

		2023		2022	
	Category pursuant to IFRS 9	Carrying amount	Fair value	Carrying amount	Fair value
Trade payables	**AC**	**12,205**		[illegible]	
Current other financial liabilities		**2,772**		[illegible]	
Bonds	AC	749			
Schuldschein loans, registered bonds	AC			[illegible]	
Liabilities to banks	AC	194		[illegible]	
Commercial papers	AC	588		[illegible]	
Loans	AC	76		[illegible]	
Derivatives	FVPL	304	304	[illegible]	[illegible]
Sundry other financial liabilities	AC	861		[illegible]	
Non-current financial liabilities		**10,399**		[illegible]	
Bonds	AC	6,797	7,291	[illegible]	[illegible]
Schuldschein loans, registered bonds	AC	3,199	3,124	[illegible]	[illegible]
Liabilities to banks	AC	118	118	[illegible]	[illegible]
Loans	AC	33	33	[illegible]	[illegible]
Derivatives	FVPL	30	30	[illegible]	[illegible]
Other financial liabilities	AC	222	222	[illegible]	[illegible]

AC At amortized cost
FVPL At fair value through profit or loss
FVOCI wR At fair value through other comprehensive income, with recycling
FVOCI nR At fair value through other comprehensive income, no recycling
n.a. Not applicable

190 The carrying amounts of the financial assets and liabilities, classified by IFRS 9 measurement categories, are as follows:

T 66

in millions of euros

	2023	2022
Financial assets measured at amortized cost (AC)	28,555	28,346
Financial assets measured at fair value through other comprehensive income (FVOCI wR)	4,782	4,333
Equity instruments measured at fair value through other comprehensive income (FVOCI nR)	4,656	4,542
Financial assets measured at fair value through profit or loss (FVPL)	8,578	5,455
Financial liabilities measured at fair value through profit or loss (FVPL)	334	189
Financial liabilities measured at amortized cost (AC)	25,042	30,234

191 The tables presented below show the fair values of financial assets and financial liabilities measured at fair value determined by using the fair value hierarchy in accordance with IFRS 13:

T 67

in millions of euros

		2023			
	Category pursuant to IFRS 9	Level 1[1]	Level 2[2]	Level 3[3]	Total
Financial assets					
Securities	FVPL	42	7,656	562	8,260
	FVOCI wR	157	4,625		4,782
	FVOCI nR	2,806	2		2,808
Investments	FVPL			145	145
	FVOCI nR	972		876	1,848
Derivatives	FVPL	8	165		173
Financial liabilities					
Derivatives	FVPL	5	329		334

1. Fair value is measured on the basis of quoted, unadjusted market prices in active markets.
2. Fair value is measured on the basis of market data such as share prices, exchange rates, or interest curves using market-based valuation techniques.
3. Fair value is measured on the basis of unobservable market data.

T 68

In millions of euros

	Category pursuant to IFRS 9	2022			
		Level 1	Level 2	Level 3	Total
Financial assets					
Securities					
Investments					
Derivatives					
Financial liabilities					
Derivatives					

1. Fair value is measured on the basis of quoted, unadjusted market prices in active markets.
2. Fair value is measured on the basis of market data such as share prices, exchange rates, or interest curves using market-based valuation techniques.
3. Fair value is measured on the basis of unobservable market data.

Investments measured at fair value through other comprehensive income include the equity investments in Ceres Power Holdings plc (fair value of EUR 71 million; previous year: EUR 134 million), in Husqvarna AB (EUR 518 million; previous year: EUR 182 million), in Nikola Corporation (EUR 6 million; previous year: EUR 14 million), in Powercell Sweden AB (EUR 24 million; previous year: EUR 63 million), and in Weifu High Technology Group Co., Ltd. (EUR 250 million; previous year: EUR 321 million).

The fair value of financial assets and liabilities measured at amortized cost is determined on the basis of observable market data such as share prices, exchange rates, and interest curves (level 2).

At the end of the fiscal year, items are reviewed to determine whether they need to be reclassified between individual levels of the fair-value hierarchy. There were no reclassifications in the reporting year. In the previous year, a small volume of securities measured at fair value through other comprehensive income were reclassified from level 1 to level 2, as they were no longer measured at their stock market price. A small volume of securities were reclassified from level 2 to level 1, as measurement at stock market price was possible as of the previous year. The table presenting the changes in financial assets allocated to level 3 includes reclassifications relating to this level.

Equity investments measured at fair value through profit or loss and those measured at fair value through other comprehensive income are allocated to level 3. Various methods are used to determine the fair values, mainly based on price information from third parties and financing rounds carried out in the reporting year, the discounted cash flow method is also applied. In addition, in certain cases, cost is used as the best estimate of fair value.

Units in a closed fund are also allocated to level 3 (reported under securities). The fair value of the fund units is notified by the asset management firm; it is measured based on the fund's net asset value. The fair value is dependent on changes in the market value of the respective investments within the fund.

Changes during the reporting year and the previous year in financial assets allocated to level 3 are presented in the tables below.

T69

in millions of euros

	1/1/2023	Additions	Disposals	Reclassifications	Changes recognized in other comprehensive income	Changes recognized in profit or loss	Other changes	12/31/2023
Investments FVOCI nR	987	82	-16	-11	-159		-7	876
Investments FVPL	164	9	-1			-25	-2	145
Securities FVPL	462	67				33		562

T70

in millions of euros

	1/1/2022	Additions	Disposals	Reclassifications	Changes recognized in other comprehensive income	Changes recognized in profit or loss	Other changes	12/31/2022
Investments FVOCI nR	857	202	-45		-5		-22	987
Investments FVPL	153	11	-5			15	2	164
Securities FVPL	371	101				37		462

Changes recognized in profit or loss are presented in the financial result, while changes recognized in other comprehensive income are reported in the gains/losses on financial instruments.

Due to the IPO of an entity, the Bosch Group's corresponding equity investment in the entity was reclassified from level 3 to level 1. There were no reclassifications in the previous year. Neither in the reporting year nor in the previous year were there any reclassifications of securities allocated to level 3.

31 – Capital and risk management

Capital management

The Bosch Group's goal is to achieve sustainable growth through innovation while maintaining its financial independence. To achieve this goal, it is necessary to maintain a high internal financing ability, along with unrestricted access to capital markets, which is ensured by a solid A rating at a minimum. Capital structure and other financial performance indicators, such as free cash flow, are tracked as part of financial planning. As of December 31, 2023, the Bosch Group's equity ratio as a percentage of total assets was 44 percent (previous year: 47 percent). Depending on market circumstances, the volume required, and the preferred currency, the Bosch Group generally raises debt capital on capital markets in the form of bonds, schuldschein loans, registered bonds, and commercial paper programs. Bilateral and syndicated loan facilities with banks are also in place.

Hedging policy and financial derivatives

The business operations of the Bosch Group are impacted in particular by fluctuations in exchange and interest rates and additionally, on the procurement side, by commodity price risks. Business policy aims to limit these risks by means of hedging. Hedging transactions are managed at corporate level.

Internal regulations and guidelines set down a binding framework and define the responsibilities relating to investment and hedging transactions. According to these regulations, derivatives may only be used in connection with business operations, financial investments, or financing transactions; speculative transactions are not allowed. Trader limits are an important component of the guidelines. Hedges are generally concluded via banks with good credit ratings from leading agencies and taking into account current risk assessments in financial markets. The creditworthiness of the Bosch Group's banking partners is closely monitored, and the risk mitigated by counterparty limits.

To reduce the credit risk of the bank, fixed-term deposits are in some cases also entered into as secured deposits in triparty repo transactions. In such cases, the bank provides predefined securities as collateral. The transaction settlement, as well as the management and valuation of the securities, are managed by a clearing center. Further information is provided in note 16 "Other current and non-current financial assets."

The decision-making bodies are committees for commodities, foreign currencies, and investments that meet at regular intervals. There is a functional segregation of trading, settlement, and control functions, with the latter primarily charged with continuously monitoring compliance with instructions and guidelines.

Each month, the risk of financial investments is calculated using the value-at-risk concept. Risks relating to financial assets are monitored using ad hoc asset allocation studies and limited by diversifying investment. In foreign-exchange and investment committee meetings, the member of the board of management responsible is informed monthly about risk analyses and the results of investments and hedges.

Currency risks

Currency risks from cash flows in business operations are mitigated by the central management of invoicing and purchasing currencies. The currency risk is determined on the basis of the worldwide consolidated cash flows in the respective currencies. Based on annual forecasts, estimated inflows and outflows in the various currencies for the reporting period are aggregated in a foreign exchange balance plan. The resulting net position is then used for the central management of currency exposures.

The biggest net currency positions of the planned cash flows are in CNY, USD, GBP, and MXN.

Hedging largely takes the form of forward exchange contracts; currency options and currency swaps are used to a lesser extent. These transactions, which are only entered into with banks, are subject to minimum requirements with respect to nature and scope.

The risk attaching to material foreign currency items from operations is determined using the cash-flow-at-risk concept. These risk analyses and the hedge result are determined monthly and also presented to the member of the board of management responsible in the foreign-exchange and investment committee meetings.

To present the currency risks for the most important foreign currencies of the Bosch Group in accordance with IFRS 7 *Financial Instruments: Disclosures*, all monetary assets and monetary liabilities denominated in foreign currency for all consolidated companies were analyzed as of the reporting date and sensitivity analyses carried out for the respective currency pairs, in terms of the net risk.

196 A change in the EUR of 10 percent (taking the closing rate as the baseline) against the foreign currencies listed in the table would have the following effects on the profit before tax:

in millions of euros

	10% increase in EUR		10% decrease in EUR	
	2023	2022	2023	2022
AUD	2	6	–2	–6
BRL	–4	–6	4	6
CAD	9	8	–9	–8
CHF	2	1	–2	–1
CNY	27	23	–27	–23
CZK	–54	–49	54	49
GBP	39	31	–39	–31
HUF	–22	–14	22	14
INR	–7	–13	7	13
JPY	–33	–31	33	31
KRW	–2	–2	2	2
MXN	–26	–14	26	14
PLN	–19	–15	19	15
TRY	–15	–11	15	11
USD	–89	–85	89	85

A change in the USD of 10 percent (taking the closing rate as the baseline) against the foreign currencies listed in the table would have the following effects on the profit before tax:

T72

197 in millions of euros

	10% increase in USD		10% decrease in USD	
	2023	2022	2023	2022
CNY	–19	–9	19	9

For the most part, the effects on the reported profit or loss result from foreign currency positions relating to operations as well as from loans within the Bosch Group if, by way of an exception, the loan was granted in a currency other than the local currency of the borrower – for example, because it can be repaid from expected cash flows in this currency. The currency risk presented in financial reporting deviates from the purely economic currency risk, as the latter is determined on the basis of forecast cash flows from operations.

Interest-rate risks

Risks from changes in interest rates on investments and borrowings are limited by select use of derivative financial instruments. These are mainly interest rate swaps and interest rate futures.

An analysis of the interest-rate risk was carried out in accordance with IFRS 7. The sensitivity analysis considered assets and liabilities subject to floating interest rates, fixed-rate securities, pension and money market funds, as well as interest derivatives.

A change in the market interest rate by 100 basis points (taking the interest rate on the reporting date as the baseline) would have the following effect on the gains/losses on financial instruments recognized in equity and the profit before tax:

T73

in millions of euros

	Increase in market interest level by 100 basis points		Decrease in market interest level by 100 basis points	
	2023	2022	2023	2022
Reserve from financial instruments	–223	–226	223	226
Profit before tax	–60	–8	60	8

Share-price risks

The Bosch Group holds stock as part of its financial investments used to cover non-current pension obligations. It also holds investments in publicly quoted companies. The analysis of the share-price risk in accordance with IFRS 7 took into account share portfolios, quoted investments, equity funds, and share derivatives with a total carrying amount of EUR 5,028 million (previous year: EUR 4,854 million).

A change in the share price of 10 percent (taking the share price on the reporting date as the baseline) would have the following effect on the gains/losses on financial instruments recognized in equity and the profit before tax:

T74

In millions of euros

	10% increase in share price		10% decrease in share price	
	2023	2022	2023	2022
Reserve from financial instruments	378	282	–378	–282
Profit before tax	130	132	–130	–132

To reduce share-price risks, a broadly diversified investment strategy is pursued across various regions and sectors.

Other price risks

Derivatives are used to limit the risks of fluctuating commodity prices. The analysis of the commodity-price risk in accordance with IFRS 7 took into account commodity derivatives measured as of the reporting date.

A change in the forward-rate level of 10 percent (taking the forward rate on the reporting date as the baseline) would have the following effect on the profit before tax:

T75

In millions of euros

	10% increase in forward rates		10% decrease in forward rates	
	2023	2022	2023	2022
Profit before tax	62	39	–62	–39

As of the reporting date, the Bosch Group is not aware that it is exposed to any further significant other price risks as defined by IFRS 7.

The Bosch Group holds several physical power purchase agreements (PPAs) with terms of up to 16 years, under which electricity is purchased at a fixed price for its own use, as well as the associated green electricity certificates. The physical PPAs are therefore subject to the own-use exception and are for the most part not accounted for as derivatives in accordance with IFRS 9. The physical PPAs contain additional clauses to an insignificant extent. In these cases, the PPA is accounted for as a derivative in accordance with IFRS 9.

Credit risks

The maximum credit risk for each category of financial instruments is the carrying amount of the financial assets recognized in the statement of financial position.

The credit risk from customer receivables is recorded and monitored on an ongoing basis. Responsibilities and duties relating to credit risks are governed by an internal directive. This mainly concerns the stipulation of payment terms, fixing of credit limits, release of deliveries, and receivables monitoring.

The credit risk for trade receivables is reduced by processing invoices with the corresponding credit notes in a single work step; the net amount is reported in the statement of financial position. This procedure is only performed if there is a legal right to offset and the customer intends to settle the receivable on a net basis or to settle the receivable by offsetting against the corresponding liability. Moreover, trade receivables are partly secured by retention of title. For some trade receivables, collateral has been additionally provided in the form of guarantees, property liens, and mortgages.

The table below shows the remaining credit risk for trade receivables:

T76

in millions of euros

	2023	2022
Trade receivables (before offsetting of credit notes)	17,865	[illegible]
Offsetting of credit notes	–784	[illegible]
Trade receivables (carrying amount)	17,081	[illegible]
Financial guarantee contracts (received)	–2,203	[illegible]
Remaining credit risk	**14,878**	[illegible]

The following table presents the development of loss allowances on trade receivables (credit-impaired and not credit-impaired) as well as on loan receivables and sundry other financial assets (according to the three-stage approach to impairment) for the reporting year and the previous year:

T77

in millions of euros

	Trade receivables	Loan receivables and sundry other financial assets	
		Stage 1	Stage 2/3
1/1/2022	253	6	108
Changes in consolidated group	0	0	0
Amounts added	94	1	13
Amounts utilized	–25	0	0
Amounts reversed	–76	–2	–1
Exchange-rate differences	–19	0	0
12/31/2022	227	5	120
Changes in consolidated group	–4	0	0
Amounts added	94	1	13
Amounts utilized	–25	0	0
Amounts reversed	–76	–2	–1
Exchange-rate differences	–19	0	0
12/31/2023	**260**	**4**	**124**

As of December 31 of the reporting year, loss allowances on contract assets amount to EUR 11 million (previous year: EUR 16 million) and loss allowances on finance lease receivables amount to EUR 2 million (previous year: EUR 2 million).

The following table shows the gross carrying amounts of trade receivables:

T78

in millions of euros

	2023	2022
Trade receivables	17,341	11,516
of which not exposed to default risk	5,520	5,123
of which credit-impaired	317	253
of which not credit-impaired	11,504	11,402
not due	10,411	10,346
up to 30 days past due	668	612
31–90 days past due	214	223
91–180 days past due	98	109
more than 180 days past due	113	112

201 The development of loss allowances on securities measured at fair value through other comprehensive income is presented in the following table:

T79

in millions of euros

	Stage 1	Stage 2/3
1/1/2022	12	33
Changes in consolidated group	0	0
Additions	9	34
Amounts utilized		0
Amounts reversed	-15	-31
Reclassifications	7	-7
Exchange-rate differences	0	0
12/31/2022	13	29
Changes in consolidated group	0	0
Additions	11	40
Amounts utilized	0	0
Amounts reversed	-14	-46
Reclassifications	2	-2
Exchange-rate differences	0	0
12/31/2023	**11**	**41**

Derivative transactions are entered into in accordance with either the German master agreement for financial forward transactions or the ISDA (International Swaps and Derivatives Association). These do not satisfy the set-off criteria of IAS 32 as netting is only enforceable in the case of insolvency.

The credit risk for derivatives with a positive fair value that do not currently satisfy the set-off criteria of IAS 32 (offsetting only enforceable in the case of insolvency of the contracting party) is presented in the following table:

T80

in millions of euros

	2023	2022
Derivatives with a positive fair value	173	315
Amounts not offset in the statement of financial position		
Derivatives	-106	-93
Cash collateral received	-54	-73
Remaining credit risk	**13**	**149**

Liquidity risks

Changes in financial assets and liabilities are monitored on an ongoing basis. Internal directives regulate the duties and responsibilities of liquidity management and planning. The company has liquidity reserves in the form of highly liquid assets totaling EUR 11,302 million (previous year: EUR 8,824 million). There is a syndicated credit line with an ESG component totaling EUR 5 billion, the term of which was extended by one year to 2026. Furthermore, there are bilateral U.S. loan facilities with a volume of USD 950 million. These facilities have not been drawn. In 2023, new bonds totaling EUR 4.5 billion were issued, as were U.S. private placements totaling USD 1.2 billion. Furthermore, we repaid EUR 500 million of a schuldschein loan. In the reporting year, we issued up to USD 650 million under our revolving USD 2.0 billion commercial paper program. In addition, we took out a syndicated loan facility in the U.S. totaling USD 1.2 billion. The loan was repaid early from the proceeds of the U.S. private placements.

The liquidity risk is reduced by processing invoices for trade payables with the corresponding credit notes received in a single work step. This procedure is only performed if there is a legal right to offset and there is an intention to settle the liability on a net basis or to settle the liability by offsetting against the corresponding receivable. Moreover, collateral is provided in the form of guarantees.

The table below shows the remaining liquidity risk for trade payables:

T61

in millions of euros

	2023	2022
Trade payables (before offsetting of credit notes)	12,989	13,255
Offsetting of credit notes	–784	–792
Trade payables (carrying amount)	12,205	12,463
Financial guarantee contracts (issued)	–6	–8
Remaining liquidity risk	**12,199**	**12,455**

The liquidity risk for derivatives that do not currently satisfy the set-off criteria of IAS 32 (offsetting only enforceable in the case of insolvency) is presented in the following table:

T62

in millions of euros

	2023	2022
Derivatives with a negative fair value	334	189
Amounts not offset in the statement of financial position		
Derivatives	–106	–102
Cash collateral provided		–1
Remaining liquidity risk	**228**	**86**

203 The undiscounted cash outflows of the non-derivative and derivative financial liabilities are presented in the tables below.

T83

in millions of euros

	Carrying amount	Undiscounted cash flows					
	2023	2024	2025	2026	2027	2028	2029 et seq.
Non-derivative financial liabilities							
Trade payables	12,205	12,149				64	
Bonds	7,546	1,045	282	282	1,032	1,005	7,100
Schuldschein loans, registered bonds	3,199	100	651	877	713	40	1,348
Liabilities to banks	312	198	92	26	0	0	3
Commercial papers	588	588					
Lease liabilities	2,351	632	536	397	307	212	670
Loans	109	77	16	8	4	3	5
Other financial liabilities	1,083	863	25	64	24	1	110
Derivatives							
Gross settlement	269						
Cash outflows		10,375	604	48	37		
Cash inflows		10,114	596	47	37		
Net settlement	65						
Cash outflows		43	7	1	1	2	11

T84

in millions of euros

	Carrying amount	Undiscounted cash flows					
		2023	2024	2025	2026	2027	2028–2032
Non-derivative financial liabilities							
Trade payables	12,763	12,763					
Bonds	1,987	42	788	45	45	45	1,282
Schuldschein loans, registered bonds	1,044	361	28	524	83	69	1,016
Liabilities to banks	201	83	1	45	9	6	4
Commercial papers	328	328					
Lease liabilities	1,197	435	402	342	265	200	1,063
Loans	151	105	27	6	6	3	5
Other financial liabilities	457	373	23	10	7	1	43
Derivatives							
Gross settlement	15						
Cash outflows		1,131	22			15	
Cash inflows		1,127	21			15	
Net settlement	55						
Cash outflows		38	3			2	

The undiscounted cash outflows contain interest and principal payments. All on-call financial liabilities are allocated to the earliest possible period. Variable interest payments were calculated using the most recent interest rate determined before the respective reporting date.

32 – Leases

Contracts that convey the right to control the use of an identifiable asset for a period of time in exchange for consideration are accounted for as leases in accordance with IFRS 16.

Bosch as lessee

The lessee generally recognizes leases based on the right-of-use approach. With certain exceptions, this requires recognizing right-of-use assets and liabilities for the payment obligations under the lease in the statement of financial position. These accounting requirements are not applied to short-term leases and leases of low-value assets; lease payments under such leases are recognized in functional costs on a straight-line basis over the lease term. In addition, the requirements of IFRS 16 are not applied to leases of intangible assets.

Lease liabilities are measured at the present value of the lease payments over the lease term. Lease payments include fixed payments for lease components and non-lease components as well as variable lease payments based on an index or an interest rate. The payments are generally discounted using the incremental borrowing rate for the appropriate currency and lease term. In determining the lease term, termination and extension options are considered if it is reasonably certain that they will be exercised.

At the commencement date, right-of-use assets are recognized at the amount of the lease liability, plus initial direct costs and less any lease incentives received. Right-of-use assets are typically depreciated over the lease term, with depreciation recognized in functional costs.

As lessees, entities of the Bosch Group have entered into leases mainly for land and buildings and, to a lesser extent, vehicles, plant and equipment, and other equipment, fixtures, and furniture.

The right-of-use assets recognized in the statement of financial position and the corresponding depreciation charge are as follows:

T85

in millions of euros

	2023		2022	
	Carrying amount	Depreciation	Carrying amount	Depreciation
Land and building	1,821	436	1,893	435
Plant, fixtures, and furniture	186	60	182	60
Vehicles	269	149	275	234
	2,276	645	2,350	729

In the previous year, depreciation includes impairment losses of EUR 24 million relating to right-of-use assets of the BSH Hausgeräte division's Russian subsidiary (Consumer Goods business sector). The impairment losses were recognized on account of the applicable sanctions and the associated changes in the economic and legal environment.

Additions to right-of-use assets came to EUR 882 million in the reporting year (previous year: EUR 856 million).

The following amounts were additionally recognized in the income statement:

T86

in millions of euros

	2023	2022
Interest expenses relating to lease liabilities	89	58
Expenses relating to short-term leases	175	197
Expenses relating to leases of low-value assets	87	83
Expenses for variable lease payments	25	25

Cash outflows from leases totaled EUR 964 million in the reporting year (previous year: EUR 893 million). The maturity analysis of future lease payments is contained in the section on liquidity risks in note 31 "Capital and risk management."

Bosch as lessor

Lessors are required to classify a lease as either a finance lease or an operating lease.

Finance leases transfer substantially all the risks and rewards incidental to ownership to the lessee. For such leases, a receivable is recognized at the amount of the net investment in the lease and disclosed under financial assets.

The receivables from finance lease agreements mainly stem from products leased by the Building Technologies division. As a rule, the agreed lease term is ten years. The receivables are due as follows:

T 87

in millions of euros

	2023	2022
Gross investment in finance leases, not discounted		
due no later than one year	42	42
due later than one year and no later than two years	36	55
due later than two years and no later than three years	30	36
due later than three years and no later than four years	26	25
due later than four years and no later than five years	22	24
due later than five years	46	45
	202	227
Present value of outstanding minimum lease payments		
due no later than one year	37	36
due later than one year and no later than two years	33	32
due later than two years and no later than three years	27	27
due later than three years and no later than four years	24	23
due later than four years and no later than five years	20	20
due later than five years	44	45
	185	184
Unearned finance income	**17**	23

In relation to finance leases, finance income in the reporting year came to EUR 6 million (previous year: EUR 6 million) and losses on disposal amounted to EUR 3 million (previous year: EUR 4 million). There were no unguaranteed residual values.

Under operating leases, the lessor retains substantially all the risks and rewards incidental to ownership. The assets concerned are recognized in property, plant, and equipment and, unless recognized as sales revenue, the lease payments received are recorded in other operating income.

The outstanding undiscounted minimum lease payments from operating lease agreements with entities of the Bosch Group as lessors stem mainly from activities of the Building Technologies and BSH Hausgeräte GmbH divisions. They are due as follows in the reporting year:

T88

in millions of euros

	2023	2022
Within one year	51	41
Later than one year and no later than two years	9	5
Later than two years and no later than three years	3	4
Later than three years and no later than four years	2	1
Later than four years and no later than five years	2	1
Later than five years	2	2
	69	54

In the reporting year, income from operating leases came to EUR 57 million (previous year: EUR 51 million).

33 – Related party disclosures

As shareholder, Robert Bosch Industrietreuhand KG exercises the majority of voting rights at Robert Bosch GmbH. In addition, Robert Bosch Industrietreuhand KG is responsible for the internal audit of the Bosch Group. The related costs incurred of EUR 21 million (previous year: EUR 20 million) were borne by Robert Bosch GmbH. As in the previous year, there were only immaterial other transactions and outstanding balances as of the reporting date.

A part of the pension obligations and funds has been outsourced to Bosch Pensionsfonds AG. Robert Bosch GmbH is the sole shareholder of Bosch Pensionsfonds AG. In the fiscal year, contributions were made to the plan assets of Bosch Pensionsfonds AG to finance pension obligations. For further details, see note 26 "Provisions for pensions and similar obligations."

Robert Bosch Stiftung GmbH, Stuttgart, is the lessee of several properties belonging to Robert Bosch GmbH, Stuttgart. As of the reporting date, Robert Bosch GmbH has a liability of EUR 47 million (previous year: EUR 33 million) to Robert Bosch Stiftung GmbH.

Business transactions with related entities

Related entities of the Bosch Group include the joint ventures, associated entities, and the entities in which non-controlling interests are held (investees) as well as entities not consolidated on materiality grounds. Transactions with these entities are presented in the following table:

T89

in millions of euros

	Goods and services sold		Goods and services purchased		Receivables		Liabilities	
	2023	2022	2023	2022	2023	2022	2023	2022
Joint ventures	83	84	24	1	10	15	19	23
Associated entities and investees	55	136	20	18	25	24	102	69

The following business relationships existed with entities not consolidated on materiality grounds in the reporting year:

- Goods and services sold: EUR 113 million
- Goods and services purchased: EUR 207 million
- Receivables: EUR 209 million
- Liabilities: EUR 86 million

All transactions with related parties were at arm's length.

Total remuneration of key management personnel

The key management personnel are the general partners of Robert Bosch Industrietreuhand KG and any limited partners who are concurrently members of the board of management of Robert Bosch GmbH, as well as the members of the supervisory board and the members of the board of management of Robert Bosch GmbH.

Total remuneration of key management personnel breaks down as follows:

T 90

in millions of euros

	2023	2022
Short-term benefits	24	24
Post-employment benefits	13	37
Other long-term benefits	6	6
Termination benefits	2	8

For obligations from pensions and deferred compensation, provisions totaling EUR 77 million (previous year: EUR 59 million) have been recognized.

Share-based payments are not made.

Beyond this, the companies of the Bosch Group have not conducted any reportable transactions with key management personnel.

34 – Remuneration of members of the board of management and supervisory board

The total remuneration of the members of the board of management comes to EUR 27 million in fiscal year 2023 (previous year: EUR 25 million), and that of the former members of the board of management and their dependants to EUR 22 million (previous year: EUR 26 million). An amount of EUR 275 million (previous year: EUR 274 million) has been accrued for pension obligations to former members of the board of management and their surviving dependants.

The remuneration of the members of the supervisory board comes to approximately EUR 2 million.

35 – Auditor's fees

The fees of the group auditor for audit and advisory services in Germany amount to:

T 91

in millions of euros

	2023	2022
Fees for		
Audit services	8	7
Other assurance services	1	0
Tax advisory services	1	1
Other services	6	7

List of shareholdings of the Bosch Group

as of December 31, 2023

A. Subsidiaries

1. Fully consolidated entities

Region/country	Company name	Registered office	Percentage share of capital
Germany	AJNS New Media GmbH	Berlin	100.0
	AS Abwicklung Dritte Produktion GmbH i.L.	Stuttgart	100.0
	AS Abwicklung und Solar-Service GmbH	Stuttgart	100.0[1]
	AS Guss Beteiligungsgesellschaft mbH	Stuttgart	100.0
	Bosch Access Systems GmbH	Aachen	100.0[1]
	Bosch Automotive Service Solutions GmbH	Pollenfeld-Preith	100.0[1]
	Bosch Building Automation GmbH	Verl	100.0[1]
	Bosch Charging Solutions GmbH	Stuttgart	100.0[1]
	Bosch Energy and Building Solutions GmbH	Ditzingen	100.0[1]
	Bosch Engineering GmbH	Abstatt	100.0[1]
	Bosch Global Software Technologies GmbH	Stuttgart	100.0[1]
	Bosch Healthcare Solutions GmbH	Waiblingen	100.0[1]
	Bosch Hilfe GmbH	Stuttgart	100.0
	Bosch Industriekessel GmbH	Gunzenhausen	100.0[1]
	Bosch KWK Systeme GmbH	Lollar	100.0[1]
	Bosch Mobility Platform & Solutions GmbH	Gerlingen	100.0[1]
	Bosch Pensionsgesellschaft mbH	Stuttgart	100.0[1]
	Bosch Rexroth AG	Stuttgart	100.0[1,2]
	Bosch Rexroth Vermögensverwaltung GmbH i.L.	Lohr am Main	100.0[1]
	Bosch Sensortec GmbH	Kusterdingen	100.0[1]
	Bosch Service Solutions GmbH	Stuttgart	100.0[1]
	Bosch Service Solutions Leipzig GmbH	Leipzig	100.0[1]

Region/country	Company name	Registered office	Percentage share of capital
	Bosch Service Solutions Magdeburg GmbH	Magdeburg	100.0[1]
	Bosch Sicherheitssysteme Engineering GmbH	Nuremberg	100.0[1]
	Bosch Sicherheitssysteme GmbH	Stuttgart	100.0[1,2]
	Bosch Sicherheitssysteme Montage und Service GmbH	Amt Wachsenburg	100.0[1]
	Bosch Solar Services GmbH	Arnstadt	100.0[1,2]
	Bosch Solar Thin Film GmbH	Arnstadt	100.0[1]
	Bosch Solarthermie GmbH	Wettringen	100.0[1]
	Bosch Technology Licensing Administration GmbH	Gerlingen	100.0[1]
	Bosch Telecom Holding GmbH	Stuttgart	100.0[1,2]
	Bosch Thermotechnik GmbH	Wetzlar	100.0[1,2]
	Bosch Wohnungsverwaltungsgesellschaft mbH & Co. KG	Stuttgart	100.0[3]
	Bosch.IO GmbH	Berlin	100.0[1]
	BSH Hausgeräte GmbH	Munich	100.0[1,2]
	BSH Hausgeräte Service GmbH	Munich	100.0[1]
	BSH Hausgeräte Service Nauen GmbH	Nauen	100.0[1]
	BSH Hausgerätewerk Nauen GmbH	Nauen	100.0[1]
	BSH Vermögensverwaltungs-GmbH	Munich	100.0[1]
	Buderus Guss GmbH	Breidenbach	100.0[1]
	COBI.Bike GmbH	Frankfurt am Main	100.0[1]
	Constructa-Neff Vertriebs-GmbH	Munich	100.0
	DAA GmbH	Hamburg	100.0[1]
	eesy-ic GmbH	Erlangen	100.0
	ELPRO Messtechnik GmbH	Schorndorf	100.0[1]
	ETAS GmbH	Stuttgart	100.0[1,2]
	EVI Audio GmbH	Straubing	100.0[1]
	Gaggenau Hausgeräte GmbH	Munich	100.0[1]
	grow platform GmbH	Stuttgart	100.0[1]
	Holger Christiansen Deutschland GmbH	Wilnsdorf	100.0[1]
	Hörburger GmbH	Waltenhofen	100.0[1]

Region/country	Company name	Registered office	Percentage share of capital
	ITK Engineering GmbH	Rülzheim	100.0
	ITK Holding GmbH	Rülzheim	100.0[1]
	Moehwald GmbH	Homburg	100.0[1]
	Neff GmbH	Munich	100.0[1]
	Pollux Solar-Service GmbH	Arnstadt	100.0
	Residential IoT Services GmbH	Stuttgart	100.0[1]
	Robert Bosch Automotive Steering GmbH	Schwäbisch Gmünd	100.0[1,2]
	Robert Bosch Elektronik GmbH	Salzgitter	100.0[1]
	Robert Bosch Fahrzeugelektrik Eisenach GmbH	Eisenach	100.0[1]
	Robert Bosch Hausgeräte GmbH	Munich	100.0[1]
	Robert Bosch Lollar Guss GmbH	Lollar	100.0[1]
	Robert Bosch Manufacturing Solutions GmbH	Stuttgart	100.0[1,2]
	Robert Bosch Power Tools GmbH	Leinfelden-Echterdingen	100.0[1]
	Robert Bosch Risk and Insurance Management GmbH	Stuttgart	100.0[1]
	Robert Bosch Sechste Vermögensverwaltungsgesellschaft mbH	Gerlingen	100.0[1]
	Robert Bosch Semiconductor Manufacturing Dresden GmbH	Dresden	100.0[1]
	Robert Bosch Smart Home GmbH	Stuttgart	100.0[1]
	Robert Bosch Steering Columns GmbH	Stuttgart	100.0[1]
	Robert Bosch Venture Capital GmbH	Gerlingen	100.0[1]
	Robert Bosch Wohnungsgesellschaft mbH	Stuttgart	100.0[1]
	Security and Safety Things GmbH	Munich	100.0
	SEG Hausgeräte GmbH	Munich	100.0[1]
	susteco solutions GmbH	Berlin	100.0
	WeWash GmbH	Munich	100.0[1]
	WOGE Service- und Regiebetrieb GmbH	Stuttgart	100.0[1]

1. These companies make use of the exemption provided for in Sec. 264 (3) HGB.
2. These companies make use of the exemption provided for in Sec. 291 (2) HGB.
3. This company makes use of the exemption provided for in Sec. 264b HGB.

Region/country	Company name	Registered office	Percentage share of capital
Europe			
Austria	Bosch General Aviation Technology GmbH	Vienna	100.0
	Bosch Industriekessel Austria GmbH	Bischofshofen	100.0
	Bosch Rexroth GmbH	Pasching	100.0
	BSH Finance and Holding GmbH	Vienna	100.0
	BSH Hausgeräte Gesellschaft mbH	Vienna	100.0
	Robert Bosch AG	Vienna	100.0
	Robert Bosch Holding Austria GmbH	Vienna	100.0
Belgium	Bosch Rexroth N.V.	Anderlecht	100.0
	Bosch Thermotechnology N.V. / S.A.	Mechelen	100.0
	BSH Home Appliances S.A.	Brussels	100.0
	Robert Bosch Produktie N.V.	Tienen	100.0
	Robert Bosch S.A.	Anderlecht	100.0
	sia Abrasives Belgium N.V. / S.A.	Mollem	100.0
	The KOBI Company B.V.	Leuven	100.0
Bulgaria	Bosch Digital EOOD	Sofia	100.0
	BSH Domakinski Uredi Bulgaria EOOD	Sofia	100.0
Croatia	BSH kućanski uređaji d.o.o.	Zagreb	100.0
Czech Republic	Bosch Powertrain s.r.o.	Jihlava	100.0
	Bosch Rexroth spol.s.r.o.	Brno	100.0
	Bosch Thermotechnika s.r.o.	Prague	100.0
	BSH domácí spotřebiče s.r.o.	Prague	100.0
	Robert Bosch odbytova s.r.o.	Prague	100.0
	Robert Bosch, spol.s.r.o.	České Budějovice	100.0

Region/country	Company name	Registered office	Percentage share of capital
Denmark	Bosch Rexroth A/S	Hvidovre	100.0
	BSH Hvidevarer A/S	Ballerup	100.0
	ELPRO NORDIC ApS	Roskilde	100.0
	Holger Christiansen A/S	Esbjerg	100.0
	Kassow Robots ApS	Copenhagen	100.0
	Robert Bosch A/S	Ballerup	100.0
Finland	Bosch Rexroth Oy	Vantaa	100.0
	BSH Kodinkoneet Oy	Helsinki	100.0
	Robert Bosch Oy	Vantaa	100.0
France	Bosch Automotive Service Solutions S.A.S.	Saint-Ouen	100.0
	Bosch Rexroth DSI S.A.S.	Vénissieux	100.0
	Bosch Rexroth S.A.S.	Vénissieux	100.0
	Bosch Security Systems France S.A.S.	Drancy	100.0
	BSH Electroménager S.A.S.	Saint-Ouen	100.0
	e.l.m. leblanc S.A.S.	Drancy	100.0
	ETAS S.A.S.	Saint-Ouen	100.0
	Gaggenau Industrie S.A.S.	Lipsheim	100.0
	Holger Christiansen France S.A.S.	Olivet	100.0
	Robert Bosch (France) S.A.S.	Saint-Ouen	100.0
	Robert Bosch Automotive Steering Marignier S.A.S.	Marignier	100.0
	Robert Bosch Automotive Steering Vendôme S.A.S.	Vendôme	100.0
Greece	BSH Ikiakes Syskeves A.B.E.	Athens	100.0
	Robert Bosch S.A.	Koropi (Athens)	100.0
Hungary	Automotive Steering Column Kft.	Eger	100.0
	Bosch Rexroth Kft.	Budapest	100.0

Region/country	Company name	Registered office	Percentage share of capital
	BSH Háztartási Készülék Kereskedelmi Kft.	Budapest	100.0
	ELPRO Systems Kft.	Budapest	100.0
	Robert Bosch Automotive Steering Kft.	Maklár	100.0
	Robert Bosch Elektronika Gyártó Kft.	Hatvan	100.0
	Robert Bosch Energy and Body Systems Kft.	Miskolc	100.0
	Robert Bosch Kft.	Budapest	100.0
	Robert Bosch Power Tool Elektromos Szerszámgyártó Kft.	Miskolc	100.0
Ireland	Robert Bosch Ireland Ltd.	Dublin	100.0
Italy	ARESI S.p.A.	Brembate	100.0
	Bosch Automotive Service Solutions S.r.l.	Parma	100.0
	Bosch Rexroth Oil Control S.p.A.	Milan	100.0
	Bosch Rexroth S.p.A.	Cernusco	100.0
	Bosch Security Systems S.p.A.	Milan	100.0
	BSH Elettrodomestici S.p.A.	Milan	100.0
	Centro Studi Componenti per Veicoli S.p.A.	Modugno (Bari)	100.0
	EDiM S.p.A.	Villasanta	100.0
	Freud S.p.A.	Milan	100.0
	Holger Christiansen Italia S.r.l.	San Lazzaro di Savena	100.0
	ROBERT BOSCH S.p.A. Società Unipersonale	Milan	100.0
	Tecnologie Diesel S.p.A. Società Unipersonale	Modugno (Bari)	100.0
Kazakhstan	BSH Home Appliances LLP	Almaty	100.0
	TOO Robert Bosch	Almaty	100.0
Latvia	Robert Bosch SIA	Riga	100.0

Region/country	Company name	Registered office	Percentage share of capital
Luxembourg	BSH électroménagers S.A.	Senningerberg	100.0
	Ferroknepper Buderus S.A.	Esch-sur-Alzette	100.0
Netherlands	Bosch Energy and Building Solutions B.V.	Nieuwegein	100.0
	Bosch Power Tools B.V.	Breda	100.0
	Bosch Rexroth B.V.	Boxtel	100.0
	Bosch Security Systems B.V.	Eindhoven	100.0
	Bosch Thermotechniek B.V.	Deventer	100.0
	Bosch Transmission Technology B.V.	Tilburg	100.0
	BSH Huishoudapparaten B.V.	Amsterdam	100.0
	Digicontrol Benelux B.V.	Apeldoorn	100.0
	ELPRO Benelux B.V.	s'-Hertogenbosch	100.0
	Hacousto Holland B.V.	Berkel en Rodenrijs	100.0
	ItoM Services B.V.	Eindhoven	100.0
	Nefit Vastgoed B.V.	Deventer	100.0
	Robert Bosch Asset Managing C.V.	Boxtel	100.0
	Robert Bosch B.V.	Boxtel	100.0
	Robert Bosch Finance Nederland B.V.	Boxtel	100.0
	Robert Bosch Holding Nederland B.V.	Boxtel	100.0
	Robert Bosch Investment Nederland B.V.	Boxtel	100.0
Norway	Bosch Rexroth AS	Ski	100.0
	BSH Husholdningsapparater AS	Oslo	100.0
	Robert Bosch AS	Trollåsen	100.0
Poland	Bosch Rexroth Sp. z o.o.	Warsaw	100.0
	BSH Sprzet Gospodarstwa Domowego Sp. z o.o.	Warsaw	100.0
	ROBERT BOSCH Sp. z o.o.	Warsaw	100.0
	SIA Abrasives Polska Sp. z o.o.	Goleniów	100.0

Region/country	Company name	Registered office	Percentage share of capital
Portugal	Bosch Car Multimedia Portugal, S.A.	Braga	100.0
	Bosch Security Systems, S.A.	Ovar	100.0
	Bosch Termotecnologia S.A.	Lisbon	100.0
	BSHP Electrodomésticos, S.U., Lda.	Carnaxide	100.0
	Robert Bosch, S.A.	Lisbon	100.0
Romania	Bosch Automotive S.R.L.	Blaj	100.0
	Bosch Global Business Services S.R.L.	Timişoara	100.0
	Bosch Rexroth Sales S.R.L.	Blaj	100.0
	Bosch Service Solutions S.R.L.	Timişoara	100.0
	BSH Electrocasnice S.R.L.	Bucharest	100.0
	ROBERT BOSCH S.R.L.	Bucharest	100.0
	S.C. Hörburger s.r.l.	Sibiu	100.0
Russian Federation	OOO "Construction & investments"	Khimki	100.0
	OOO Bosch Rexroth	Moscow	100.0
	OOO Bosch Thermotechnik	Moscow	100.0
	OOO BSH Bytowije Pribory	St. Petersburg	100.0
	OOO Robert Bosch	Moscow	100.0
Serbia	BSH Kućni Aparati d.o.o. Beograd	Belgrade	100.0
	Robert Bosch d.o.o. Beograd	Belgrade	100.0
Slovakia	Bosch Electrical Drives SK s.r.o.	Bratislava	100.0
	BSH Drives and Pumps s.r.o.	Michalovce	100.0
	Robert Bosch spol.s.r.o.	Bratislava	100.0
	Robert Bosch Production Slovakia, s.r.o.	Bernolákovo	100.0

Region/country	Company name	Registered office	Percentage share of capital
Slovenia	Bosch Rexroth d.o.o.	Brnik - Aerodrom	100.0
	BSH Hišni Aparati d.o.o. Nazarje	Nazarje	100.0
Spain	Bosch Rexroth, S.L.U.	Madrid	100.0
	Bosch Service Solutions, S.A.U.	Madrid	100.0
	BOSCH SISTEMAS DE FRENADO, S.L.U.	Madrid	100.0
	BSH Electrodomésticos España, S.A.	Zaragoza	100.0
	ROBERT BOSCH ESPAÑA FÁBRICA ARANJUEZ S.A.U.	Aranjuez	100.0
	ROBERT BOSCH ESPAÑA FÁBRICA CASTELLET S.A.U.	Castellet	100.0
	ROBERT BOSCH ESPAÑA FÁBRICA MADRID S.A.U.	Madrid	100.0
	ROBERT BOSCH ESPAÑA, S.L.U.	Madrid	100.0
Sweden	Bosch Rexroth AB	Stockholm	100.0
	Bosch Thermoteknik AB	Tranås	100.0
	BSH Home Appliances AB	Stockholm	100.0
	Robert Bosch AB	Kista	100.0
Switzerland	Bosch Rexroth Schweiz AG	Buttikon	100.0
	BSH Hausgeräte AG	Geroldswil	100.0
	Bosch Thermotechnik AG	Pratteln	100.0
	ELPRO-BUCHS AG	Buchs	100.0
	Elpro Group AG	Buchs	100.0
	Robert Bosch AG	Zuchwil	100.0
	Robert Bosch Internationale Beteiligungen AG	Oberdorf	100.0
	Scintilla AG	Zuchwil	100.0
	sia Abrasives Industries AG	Frauenfeld	100.0
Turkey	Bosch Fren Sistemleri Sanayi ve Ticaret A.S.	Bursa	84.5
	Bosch Rexroth Otomasyon Sanayi ve Ticaret A.S.	Bursa	100.0

Region/country	Company name	Registered office	Percentage share of capital
	Bosch Sanayi ve Ticaret A.S.	Bursa	100.0
	Bosch Termoteknik Isitma ve Klima Sanayi Ticaret A.S.	Manisa	100.0
	BSH Ev Aletleri Sanayi ve Ticaret A.S.	Istanbul	100.0
Ukraine	MBT Trade T.B.O.	Kyiv	100.0
	SC "Robert Bosch Production Ukraine"	Krakovets	100.0
	Robert Bosch Ltd.	Kyiv	100.0
	TOV BSH Pobutova Technika	Kyiv	100.0
	Zelmer Ukraine T.B.O.	Kyiv	100.0
United Kingdom	Bosch Automotive Service Solutions Ltd.	Brixworth	100.0
	Bosch Lawn and Garden Ltd.	Stowmarket	100.0
	Bosch Rexroth Ltd.	St. Neots	100.0
	Bosch Service Solutions Ltd.	Denham	100.0
	Bosch Thermotechnology Ltd.	Worcester	100.0
	BSH Home Appliances Ltd.	Milton Keynes	100.0
	ELPRO UK Ltd.	Worthing	100.0
	ETAS Ltd.	York	100.0
	Five AI Limited	Cambridge	100.0
	Gas Alarm Systems Limited	Nelson	100.0
	HydraForce Hydraulics, Ltd.	Birmingham	100.0
	Lynteck Limited	Nelson	100.0
	MoTeC (Europe) Limited	Oxford	100.0
	Protec Camerfield Limited	Nelson	100.0
	Protec Fire and Security Group Limited	Nelson	100.0
	Protec Fire Detection Plc	Nelson	100.0
	Protec Fire Detection (Export) Limited	Nelson	100.0
	Robert Bosch Investment Ltd.	Worcester	100.0
	Robert Bosch Ltd.	Denham	100.0

Region/country	Company name	Registered office	Percentage share of capital
	Robert Bosch UK Holdings Limited	Denham	100.0
	sia Abrafoam Ltd.	Alfreton	100.0
	sia Abrasives (G.B.) Ltd.	Greetland	100.0
	sia Abrasives Holding Ltd.	Greetland	100.0
	sia Fibral Ltd.	Greetland	100.0
	Worcester Group Ltd.	Worcester	100.0

Region/country	Company name	Registered office	Percentage share of capital
Americas			
Argentina	Bosch Rexroth S.A.I.C.	Buenos Aires	100.0
	Robert Bosch Argentina Industrial S.A.	Buenos Aires	100.0
Brazil	Bosch Rexroth Ltda.	Itatiba	100.0
	Bosch Soluções Integradas Brasil Ltda.	Campinas	100.0
	Bosch Telecom Ltda.	São Paulo	100.0
	HydraForce Hydraulics, Ltda.	Taboao da Serra	100.0
	Robert Bosch Direção Automotiva Ltda.	Sorocaba	100.0
	Robert Bosch Ltda.	Campinas	100.0
Canada	Action Electric Ltd.	Vancouver, BC	100.0
	Bosch Rexroth Canada Corporation	Welland, ON	100.0
	BSH Home Appliances Ltd./ Électroménagers BSH Ltée	Mississauga, ON	100.0
	Freud Canada Inc.	Mississauga, ON	100.0
	Paladin Technologies Inc.	Vancouver, BC	100.0
	ROBERT BOSCH INC.	Mississauga, ON	100.0

Region/country	Company name	Registered office	Percentage share of capital
Chile	Bosch Rexroth Chile S.p.A.	Santiago de Chile	**100.0**
	Robert Bosch S.A.	Santiago de Chile	**100.0**
Colombia	BSH Electrodomesticos S.A.S.	Bogotá	**100.0**
	Robert Bosch Ltda.	Bogotá	**100.0**
Costa Rica	Robert Bosch Service Solutions – Costa Rica Sociedad Anonima	Heredia	**100.0**
Mexico	Bosch Rexroth, S.A. de C.V.	Mexico City	**100.0**
	BSH Home Appliances S.A. de C.V.	Mexico City	**100.0**
	Frenados Mexicanos, S.A. de C.V.	Aguascalientes	**100.0**
	Robert Bosch México Sistemas Automotrices, S.A. de C.V.	San Luis Potosí	**100.0**
	Robert Bosch México Sistemas de Frenos, S. de R.L. de C.V.	Juárez	**100.0**
	Robert Bosch México Sistemas de Seguridad, S.A. de C.V.	Hermosillo	**100.0**
	Robert Bosch México, S.A. de C.V.	Mexico City	**100.0**
	Robert Bosch Sistemas Automotrices, S.A. de C.V.	Juárez	**100.0**
	Robert Bosch Tool de México, S.A. de C.V.	Mexicali	**100.0**
	Robert Bosch, S. de R.L. de C.V.	Toluca	**100.0**
	SPLT México, S.A. de C.V.	Mexico City	**100.0**
Panama	Robert Bosch Panama Colón, S.A.	Panama City	**100.0**
Peru	BSH Electrodomésticos S.A.C.	Callao/Lima	**100.0**
	Robert Bosch S.A.C.	Lima	**100.0**
United States	Automotive Steering Column LLC	Florence, KY	**100.0**
	Bosch Automotive Service Solutions LLC	Wilmington, DE	**100.0**
	Bosch Automotive Workshop Services LLC	Wilmington, DE	**100.0**
	Bosch Aviation Technology LLC	Novi, MI	**100.0**

Region/country	Company name	Registered office	Percentage share of capital
	Bosch Brake Components LLC	Oakbrook Terrace, IL	100.0
	Bosch grow platform LLC	Wilmington, DE	100.0
	Bosch Mobility Platform & Solutions LLC	Wilmington, DE	100.0
	Bosch Rexroth Corporation	Lehigh Valley, PA	100.0
	Bosch Security Systems LLC	Burnsville, MN	100.0
	Bosch Thermotechnology Corp.	Londonderry, NH	100.0
	BSH Home Appliances Corporation	Irvine, CA	100.0
	Climatec, LLC	Phoenix, AZ	100.0
	Elmo Motion Control Inc.	Nashua, NH	100.0
	ELPRO Services, Inc.	Marietta, OH	100.0
	ETAS Inc.	Wilmington, DE	100.0
	FHP Manufacturing Company	Fort Lauderdale, FL	57.0
	Freud America Inc.	High Point, NC	100.0
	HydraForce, Inc.	Lincolnshire, IL	100.0
	HydraForce China LLC	Lincolnshire, IL	100.0
	Nimbus Holdings LLC	Wilmington, DE	100.0
	Paladin Technologies (USA) Inc.	Dover, DE	100.0
	PalAmerican Technologies Inc.	Tumwater, WA	100.0
	Robert Bosch Automotive Steering LLC	Florence, KY	100.0
	Robert Bosch Finance LLC	Mt. Prospect, IL	100.0
	ROBERT BOSCH FUEL SYSTEMS LLC	Kentwood, MI	100.0
	Robert Bosch LLC	Farmington Hills, MI	100.0
	Robert Bosch North America Corporation	Oakbrook Terrace, IL	100.0
	Robert Bosch Semiconductor LLC	Wilmington, DE	100.0
	Robert Bosch Tool Corporation	Mt. Prospect, IL	100.0
	Service Maintenance Installation, Inc.	Burnsville, MN	100.0
	sia Abrasives, Inc. USA	Raleigh, NC	100.0

Region/country	Company name	Registered office	Percentage share of capital
Asia Pacific (including other countries)			
Australia	Bosch Automotive Service Solutions Pty. Ltd.	Clayton	100.0
	Bosch Rexroth Pty. Ltd.	Kings Park	100.0
	Bosch Security Systems Pty. Ltd.	Sydney	100.0
	BSH Home Appliances Pty. Ltd.	Heatherton	100.0
	MoTeC PTY LTD	Croydon South	100.0
	MoTeC Holdings PTY LTD	Docklands	100.0
	Protec Fire Detection Pty Ltd	Sydney	100.0
	Robert Bosch (Australia) Pty. Ltd.	Clayton	100.0
	sia Abrasives Australia Pty. Ltd.	Rowville	100.0
Botswana	Bosch Rexroth Botswana (Pty) Ltd.	Gaborone	100.0
China	Bosch (Chengdu) Information Technology Service Co., Ltd.	Chengdu	100.0
	Bosch (China) Investment Ltd.	Shanghai	100.0
	Bosch (Donghai) Automotive Test & Technology Center Co., Ltd.	Donghai	100.0
	Bosch (Hulunbeier) Automotive Test and Technology Centre Co., Ltd.	Yakeshi	100.0
	Bosch (Ningbo) e-scooter Motor Co., Ltd.	Ningbo	100.0
	Bosch (Shanghai) Digital Technology Ltd.	Shanghai	100.0
	Bosch (Shanghai) Investment Consulting Co., Ltd.	Shanghai	100.0
	Bosch (Shanghai) Security Systems Ltd.	Shanghai	100.0
	Bosch (Shanghai) Smart Life Technology Ltd.	Shanghai	100.0
	Bosch (Shanghai) Venture Capital Investment Co., Ltd.	Shanghai	100.0
	Bosch (Zhuhai) Security Systems Co., Ltd.	Zhuhai	100.0
	Bosch Automotive Aftermarket (China) Co., Ltd.	Nanjing	100.0
	Bosch Automotive Components (Changchun) Co., Ltd.	Changchun	55.0
	Bosch Automotive Products (Changsha) Co., Ltd.	Changsha	100.0
	Bosch Automotive Products (Chengdu) Co., Ltd.	Chengdu	100.0

Region/country	Company name	Registered office	Percentage share of capital
	Bosch Automotive Products (Suzhou) Co., Ltd.	Suzhou	100.0
	Bosch Automotive Service Solutions (Suzhou) Co., Ltd.	Suzhou	100.0
	Bosch Automotive Steering (Jinan) Co., Ltd.	Jinan	100.0
	Bosch Automotive Systems (Wuxi) Co., Ltd.	Wuxi	100.0
	Bosch Automotive Technical Service (Beijing) Co., Ltd.	Beijing	100.0
	Bosch Connected Mobility Solutions Ltd.	Wuxi	100.0
	Bosch Electronics Trading (Suzhou) Co., Ltd.	Suzhou	100.0
	Bosch HUAYU Steering Systems (Nanjing) Co., Ltd.	Nanjing	100.0
	Bosch HUAYU Steering Systems (Wuhan) Co., Ltd.	Wuhan	100.0
	Bosch HUAYU Steering Systems (Yantai) Co., Ltd.	Yantai	100.0
	Bosch HUAYU Steering Systems Co., Ltd.	Shanghai	51.0
	Bosch Hydrogen Powertrain Systems (Chongqing) Co., Ltd.	Chongqing	60.0
	Bosch Innovation and Software Development (Wuxi) Co., Ltd.	Wuxi	100.0
	Bosch Laser Equipment (Dongguan) Limited	Dongguan	100.0
	Bosch Power Tools (Chengdu) Co., Ltd.	Chengdu	100.0
	Bosch Power Tools (China) Co., Ltd.	Hangzhou	100.0
	Bosch Powertrain Systems Co., Ltd.	Wuxi	66.0
	Bosch Rexroth (Beijing) Hydraulic Co., Ltd.	Beijing	100.0
	Bosch Rexroth (Changzhou) Co., Ltd.	Changzhou	100.0
	Bosch Rexroth (China) Ltd.	Hong Kong	100.0
	Bosch Rexroth (Xi'an) Electric Drives and Controls Co., Ltd.	Xi'an	100.0
	Bosch Security Systems Ltd.	Hong Kong	100.0
	Bosch Thermotechnology (Beijing) Co., Ltd.	Beijing	100.0
	Bosch Thermotechnology (Shanghai) Co., Ltd.	Shanghai	100.0
	Bosch Thermotechnology (Wuhan) Co., Ltd.	Wuhan	100.0
	Bosch Trading (Shanghai) Co., Ltd.	Shanghai	100.0
	BSH Electrical Appliances (Jiangsu) Co., Ltd.	Nanjing	100.0
	BSH Home Appliances (China) Co., Ltd.	Nanjing	100.0
	BSH Home Appliances Co., Ltd.	Chuzhou	100.0

Region/country	Company name	Registered office	Percentage share of capital
	BSH Home Appliances Holding (China) Co., Ltd.	Nanjing	100.0
	BSH Home Appliances Ltd.	Hong Kong	100.0
	BSH Home Appliances Service Jiangsu Co., Ltd.	Nanjing	100.0
	BSW Household Appliances Co., Ltd.	Wuxi	100.0
	ETAS Automotive Technology (Shanghai) Co., Ltd.	Shanghai	100.0
	Gaggenau Home Appliances (Shanghai) Co., Ltd.	Shanghai	100.0
	Guangzhou sia Abrasives Company Ltd.	Guangzhou	100.0
	HydraForce Hydraulics Systems (Changzhou) Co., Ltd.	Guangzhou	100.0
	Le-AutomatiX (Shanghai) Co., Ltd.	Shanghai	100.0
	Le-HydraulIX (Suzhou) Co., Ltd.	Suzhou	100.0
	Le-HydraulIX BoWei (Shanghai) Co., Ltd.	Shanghai	50.0
	Robert Bosch Company Ltd.	Hong Kong	100.0
	Shanghai Bosch Rexroth Hydraulics & Automation Ltd.	Shanghai	100.0
	Taixiang Vehicle Replace Parts (Shenzhen) Co., Ltd.	Shenzhen	100.0
	United Automotive Electronic Systems (Chongqing) Co., Ltd.	Chongqing	65.0
	United Automotive Electronic Systems (Liuzhou) Co., Ltd.	Liuzhou	100.0
	United Automotive Electronic Systems Co., Ltd.	Shanghai	51.0
Egypt	BSH Home Appliances Holding LLP	New Cairo	100.0
	BSH Home Appliances LLC	New Cairo	100.0
Ghana	Bosch Rexroth Ghana Ltd.	Accra	100.0
India	Automobility Services and Solutions Private Limited	Bengaluru	100.0
	Bosch Automotive Electronics India Private Ltd.	Bengaluru	100.0
	Bosch Chassis Systems India Private Ltd.	Pune	100.0
	Bosch Global Software Technologies Private Limited	Bengaluru	100.0
	Bosch Ltd.	Bengaluru	70.5
	Bosch Rexroth (India) Private Limited	Ahmedabad	100.0

Region/country	Company name	Registered office	Percentage share of capital
	BSH Household Appliances Manufacturing Private Limited	Mumbai	100.0
	ETAS Automotive India Private Ltd.	Bengaluru	100.0
	Robert Bosch Automotive Steering Private Limited	Pune	100.0
	Robert Bosch India Manufacturing and Technology Private Limited	Bengaluru	100.0
Indonesia	PT. Robert Bosch	Jakarta	100.0
	PT BSH Home Appliances	Jakarta	100.0
Israel	BSH Home Appliances Ltd.	Herzliya	100.0
	Elmo Motion Control Ltd.	Petah Tikva	100.0
Japan	Bosch Corporation	Tokyo	100.0
	Bosch Engineering K.K.	Yokohama	100.0
	Bosch Global Software Technologies Ltd.	Tokyo	100.0
	Bosch Rexroth Corporation	Tsuchiura-shi	99.9
	Bosch Security Systems Ltd.	Tokyo	100.0
	ELPRO Corporation	Tokyo	100.0
	ETAS K.K.	Yokohama	100.0
	FA Niigata Co., Ltd.	Niigata	100.0
	Fuji Aitac Co., Ltd.	Saitama	100.0
	Gunma Seiki Co., Ltd.	Gunma	100.0
	Nippon Injector Corporation	Odawara	50.0
Korea	Bosch Electrical Drives Co., Ltd.	Sejong	100.0
	Bosch Rexroth Korea Ltd.	Busan	100.0
	ETAS Korea Co., Ltd.	Seoul	100.0
	KB Wiper Systems Co., Ltd.	Daegu	100.0
	Robert Bosch Korea Limited Company	Daejeon	100.0

Region/country	Company name	Registered office	Percentage share of capital
Malaysia	Bosch Power Tools Engineering Sdn. Bhd.	Penang	100.0
	Bosch Rexroth Sdn. Bhd.	Kuala Lumpur	100.0
	BSH Home Appliances Sdn. Bhd.	Kuala Lumpur	100.0
	Robert Bosch (Malaysia) Sdn. Bhd.	Penang	100.0
	Robert Bosch Power Tools Sdn. Bhd.	Penang	100.0
	Robert Bosch Automotive Steering Sdn. Bhd.	Penang	100.0
	Robert Bosch Sdn. Bhd.	Kuala Lumpur	100.0
	Robert Bosch Semiconductor Manufacturing Penang Sdn. Bhd.	George Town Pulau Pinang	100.0
Morocco	BSH Electroménagers (SA)	Casablanca	100.0
	Robert Bosch Morocco S.A.R.L.-A.U.	Casablanca	100.0
Mozambique	Bosch Rexroth Mozambique Lda.	Maputo	100.0
	Bosch Rexroth Matola Lda.	Matola	100.0
Namibia	Bosch Rexroth Namibia (Pty.) Ltd.	Walvis Bay	100.0
New Zealand	BSH Home Appliances Ltd.	Auckland	100.0
Philippines	Bosch Service Solutions, Inc.	Manila	100.0
	Robert Bosch Inc.	Manila	100.0
Singapore	AquaEasy Pte. Ltd.	Singapore	100.0
	Bosch Rexroth Pte. Ltd.	Singapore	100.0
	BSH Home Appliances Pte. Ltd.	Singapore	100.0
	ELPRO Pte. Ltd.	Singapore	100.0
	Robert Bosch (South East Asia) Pte. Ltd.	Singapore	100.0
	Robert Bosch Security Solutions Pte. Ltd.	Singapore	100.0

Region/country	Company name	Registered office	Percentage share of capital
South Africa	Bosch Rexroth South Africa (RF) (Pty) Ltd.	Johannesburg	100.0
	BSH Home Appliances (Pty.) Ltd.	Johannesburg	100.0
	Corgam Property Investments Pty. Ltd.	Kempton Park	100.0
	Hydraulic and Automation Warehouse Pty. Ltd.	Kempton Park	100.0
	Hytec Engineering Pty. Ltd.	Kempton Park	100.0
	Hytec Fluid Technology Pty. Ltd.	Kempton Park	100.0
	Bosch Rexroth Africa Development (RF) (Pty.) Ltd.	Kempton Park	100.0
	Hytec South Africa (RF) (Pty) Ltd.	Kempton Park	75.0
	Robert Bosch (Pty.) Ltd.	Midrand	100.0
	Tectra Automation Pty. Ltd.	Kempton Park	100.0
Taiwan	Bosch Rexroth Co. Ltd.	Taipei City	100.0
	BSH Home Appliances Private Limited	Taipei City	100.0
	Robert Bosch Taiwan Co., Ltd.	Taipei City	100.0
Thailand	Bosch Automotive Thailand Co. Ltd.	Rayong	87.9
	BSH Home Appliances Ltd.	Bangkok	100.0
	Robert Bosch Automotive Technologies (Thailand) Co., Ltd.	Rayong	100.0
	Robert Bosch Ltd.	Bangkok	100.0
United Arab Emirates	BSH Home Appliances FZE	Dubai	100.0
	BSH Home Appliances General Trading LLC	Dubai	100.0
	Robert Bosch Middle East FZE	Dubai	100.0
Vietnam	Bosch Vietnam Co., Ltd.	Dong Nai Province	100.0
	Bosch Global Software Technologies Co. Ltd.	Ho Chi Minh City	100.0
	BSH Home Appliances (Vietnam) Co. Ltd.	Ho Chi Minh City	100.0
Zambia	Bosch Rexroth Zambia Ltd.	Kitwe	100.0

2. Non-consolidated entities

Region/country	Company name	Registered office	Percentage share of capital
Germany	Advanced Driver Information Technology GmbH	Hildesheim	**100.0**
	AIG Planungs- und Ingenieurgesellschaft mbH	Stuttgart	**100.0**
	Bosch Climate Solutions GmbH	Stuttgart	**100.0**
	Bosch Management Support GmbH	Leonberg	**100.0**
	Bosch Pensionsfonds AG	Stuttgart	**100.0**
	BSH Altersfürsorge GmbH	Munich	**100.0**
	Circular Economy Solutions GmbH	Göttingen	**100.0**
	eAx solutions GmbH	Stuttgart	**100.0**
	ECP Energiecontracting GmbH	Heidelberg	**81.0**
	Elmo Motion Control GmbH	Viernheim	**100.0**
	for you Insurance Services GmbH	Gerlingen	**100.0**
	GFI – Gesellschaft für Infrastrukturdienste mbH	Reutlingen	**100.0**
	Home Connect GmbH	Munich	**100.0**
	HydraForce Hydraulics GmbH	Zweibrücken	**100.0**
	Joos MSR GmbH	Spraitbach	**51.0**
	Kassow Robots GmbH	Ulm	**100.0**
	Koller + Schwemmer GmbH	Nuremberg	**100.0**
	Mobility Media GmbH	Gerlingen	**100.0**
	Prüfzentrum Boxberg GmbH	Boxberg	**100.0**
	Service- und Betriebsgesellschaft Heidehof mbH	Stuttgart	**100.0**

Region/country	Company name	Registered office	Percentage share of capital
Europe			
Austria	ITK Engineering GmbH	Premstätten	**100.0**
Belarus	Robert Bosch OOO	Minsk	**100.0**
Bulgaria	Robert Bosch EOOD	Sofia	**100.0**
Croatia	Robert Bosch d.o.o.	Zagreb	**100.0**
Czech Republic	KR Soft s.r.o.	Prague	**100.0**
Estonia	Robert Bosch OÜ	Tallinn	**100.0**
Georgia	Robert Bosch Ltd.	Tbilisi	**100.0**
Greece	Bosch Rexroth S.A.	Athens	**100.0**
Italy	Elmo Italy S.R.L.	Milan	**100.0**
Lithuania	UAB Robert Bosch	Vilnius	**100.0**
Netherlands	Semiconductor Ideas To The Market (ItoM) B.V.	Eindhoven	**100.0**
	ItoM Enschede B.V.	Enschede	**100.0**
Poland	Elmo Motion Control Poland Sp. z o.o.	Warsaw	**100.0**
Romania	Bosch Servicii Termotehnica S.R.L.	Bucharest	**100.0**
	BSH Electrocasnice Manufacturing S.R.L.	Bucharest	**100.0**

Region/country	Company name	Registered office	Percentage share of capital
Slovenia	BSH Hišni aparati I.D. INVALIDSKA DRUŽBA d.o.o.	Nazarje	**100.0**
	Robert Bosch d.o.o.	Ljubljana	**100.0**
Spain	Bosch Automotive Service Solutions S.A.U.	Madrid	**100.0**
	BOSCH HOME COMFORT GROUP SERVICE ESPANA, S.L.	Madrid	**100.0**
	ITK Systems Engineering, S.L.U.	Barcelona	**100.0**
Switzerland	Elmo Motion Control AG	Biel	**100.0**
United Kingdom	Bosch Automotive Training Limited	Motherwell	**100.0**
	Camerfield Limited	Nelson	**100.0**
	Face Macanda Limited	Nelson	**100.0**
	Firepro Systems Limited	Nelson	**100.0**
	HydraForce Ltd.	Birmingham	**100.0**
	LAGTA Group Training Limited	Motherwell	**100.0**
	XL Fire Detection Systems Ltd.	Nelson	**100.0**

Region/country	Company name	Registered office	Percentage share of capital
Americas			
Brazil	Bosch Management Support Ltda.	Campinas	100.0
	Metapar Usinagem Ltda.	Curitiba	100.0
	Robert Bosch Centro de Comunicação Limitada	Joinville	100.0
	sia Abrasivos Industriais Ltda.	São José dos Pinhais	100.0
Canada	ETAS Embedded Systems Canada Inc.	Waterloo, ON	100.0
Ecuador	Robert Bosch Sociedad Anónima – Ecuabosch	Guayaquil	100.0
Mexico	Bosch Management Services México, S.C.	Mexico City	100.0
Paraguay	Robert Bosch Sociedad Anonima	Asunción	100.0
Peru	Bosch Rexroth S.A.C.	Lima	100.0
United States	Bosch Management Services Corporation	Wilmington, DE	100.0
	Bosch Solar Energy Corp.	Detroit, MI	100.0
	HydraForce India LLC	Lincolnshire, IL	100.0
	HydraForce Japan LLC	Lincolnshire, IL	100.0
	HydraForce Korea LLC	Lincolnshire, IL	100.0
	HydraForce Sweden LLC	Lincolnshire, IL	100.0
	ITK Engineering, LLC	Farmington Hills, MI	100.0
Uruguay	Robert Bosch Uruguay S.A.	Montevideo	100.0
Venezuela	Robert Bosch S.A.	Caracas	100.0

Region/country	Company name	Registered office	Percentage share of capital
Asia Pacific (including other countries)			
Angola	Robert Bosch, Limitada	Luanda	**100.0**
Australia	Pacifica Group Pty. Ltd.	Melbourne	**100.0**
Bangladesh	Robert Bosch (Bangladesh) Ltd.	Dhaka	**100.0**
Cambodia	Robert Bosch (Cambodia) Co., Ltd.	Phnom Penh	**100.0**
China	Elmo Motion Control Technology (Shanghai) Co., Ltd.	Shanghai	**100.0**
	Freud International Trading (Shanghai) Co., Ltd.	Shanghai	**100.0**
	ITK Engineering Technology (Wu Xi) Co., Ltd.	Wuxi	**100.0**
	KB Wiper Systems (JiangYin) Co., Ltd.	Jiangyin	**100.0**
	Shanghai Boyuan Jiacheng Venture Investment Partnership	Shanghai	**99.0**
Egypt	Bosch Rexroth Egypt LLC	Cairo	**100.0**
	RBEG LLC	Cairo	**100.0**
	Robert Bosch Holding-Egypt LLC	Cairo	**100.0**
	Robert Bosch Ltd.	Cairo	**100.0**
Ghana	Robert Bosch Ghana Ltd.	Accra	**100.0**
India	KB Wiper Systems India Private Ltd.	Oragadam	**100.0**
	MIVIN Engineering Technologies Private Ltd.	Bengaluru	**100.0**
	Newtech Filter India Private Limited	Nalagarh	**100.0**
	Precision Seals Manufacturing Ltd.	Chakan	**100.0**

Region/country	Company name	Registered office	Percentage share of capital
Indonesia	PT Aquaeasy Technology Indonesia	Jakarta	100.0
	PT Bosch Rexroth	Jakarta	100.0
	PT KB Wiper Systems Indonesia	Cikarang	100.0
	PT Robert Bosch Automotive	Jakarta	100.0
Iran	Bosch Tejarat Pars	Tehran	100.0
Israel	Robert Bosch Technologies Israel Ltd.	Tel Aviv	100.0
Japan	Bosch Service Solutions Corporation	Tokyo	100.0
	ITK Engineering Japan, Inc.	Tokyo	100.0
	Kanto Seiatsu Kogyo Co., Ltd.	Honjo	92.9
Kenya	Robert Bosch East Africa Ltd.	Nairobi	100.0
Korea	Elmo Motion Control APAC Ltd.	Hwaseong	100.0
Laos	Robert Bosch (Lao) Sole Co., Ltd.	Vientiane Capital	100.0
Malaysia	Robert Bosch (Penang) Sdn. Bhd.	Penang	100.0
Morocco	Bosch Rexroth Morocco S.A.R.L.	Casablanca	100.0
New Zealand	Bosch Rexroth Ltd.	Auckland	100.0
	Robert Bosch Ltd.	Auckland	100.0
Nigeria	Robert Bosch Limited	Lagos	100.0

Region/country	Company name	Registered office	Percentage share of capital
Saudi Arabia	BSH Home Appliances Saudi Arabia LLC	Jeddah	51.0
	Robert Bosch Saudi Arabia Ltd.	Riyadh	100.0
Singapore	Elmo Motion Control (Singapore) PTE Ltd.	Singapore	100.0
	WhatsEGG Pte. Ltd.	Singapore	78.6
South Africa	Hägglunds Drives South Africa (Pty.) Ltd.	Fourways	100.0
Sri Lanka	Robert Bosch Lanka (Pvt.) Ltd.	Colombo	100.0
Thailand	FMP Distribution Ltd.	Bangkok	50.1
	FMP Group (Thailand) Ltd.	Rayong	50.7
	Pacific BBA (Thailand) Ltd.	Bangkok	100.0
	WhatsEgg (Thailand) Co. Ltd.	Bangkok	70.0
Tunisia	Robert Bosch Tunisie S.A.R.L.	Tunis	100.0

B. Joint ventures and associated entities

1. Entities measured using the equity method

Region/country	Company name	Registered office	Percentage share of capital
Germany	Bosch BASF Smart Farming GmbH	Cologne	**50.0**
	BS Systems GmbH & Co. KG	Zusmarshausen	**50.0**
	MAGURA Bosch Parts & Services GmbH & Co. KG	Bad Urach	**50.0**
	plc2 Design GmbH	Endingen am Kaiserstuhl	**25.0**

Region/country	Company name	Registered office	Percentage share of capital
Europe			
Ireland	ads-tec Energy plc	Dublin	**20.7**

Region/country	Company name	Registered office	Percentage share of capital
Americas			
United States	North America Fuel Systems Remanufacturing LLC	Kentwood, MI	**50.0**

2. Entities not measured using the equity method on materiality grounds

Region/country	Company name	Registered office	Percentage share of capital
Germany	Alltrucks GmbH & Co. KG	Munich	**33.3**
	Blauhut & Partner Informationssysteme GmbH	Egling	**42.9**
	European Center for Information and Communication Technologies – EICT GmbH	Berlin	**20.0**
	Aranea Battery Solutions GmbH	Stuttgart	**50.0**
	MAGURA Bosch Parts & Services Verwaltungs-GmbH	Bad Urach	**50.0**
	Siliconally GmbH	Dresden	**38.8**
	SupplyOn AG	Hallbergmoos	**42.1**

Region/country	Company name	Registered office	Percentage share of capital
Europe			
Hungary	Kazántrade Kft.	Budapest	**30.0**
Italy	BARI SERVIZI INDUSTRIALI Società consortile a r.l.	Modugno	**50.0**
	Oleodinamica Gambini S.r.l.	Modena	**20.0**
Netherlands	Euroradiators Holding B.V.	Boxtel	**49.0**
	Nederlandse Veiligheidsdienst Groep Meldkamer B.V.	Goes	**20.0**
	Tradeplace B.V.	Amsterdam	**20.0**
Poland	Loos Centrum Sp.z o.o.	Warsaw	**26.0**
United Kingdom	Megasets Ltd.	London	**25.1**

Region/country	Company name	Registered office	Percentage share of capital
Americas			
Brazil	PEÇA AI.COM S.A.	São Paulo	**20.0**
Mexico	PartsTech S.A. de C.V.	Guadalajara	**49.0**
United States	Shop-Ware Inc.	San Francisco, CA	**21.0**

Region/country	Company name	Registered office	Percentage share of capital
Asia Pacific (including other countries)			
Australia	FMP Group (Australia) Pty. Ltd.	Ballarat	**49.0**
	The Yield Technology Solution Pty. Ltd.	Hobart	**28.7**
China	HEFEI M&B Air Conditioning Equipment Co., Ltd.	Heifei	**40.0**
India	AMP Solar Infrastructure Private Limited	New Delhi	**26.0**
	Autozilla Solutions Pvt. Ltd.	Hyderabad	**26.0**
	Hinduja Renewables One Pvt. Ltd.	Mumbai	**26.0**
	Prebo Automotive Pte. Ltd.	Pune	**40.0**
	Simyog Technology Pvt. Ltd.	Bengaluru	**24.7**
Israel	Electra Industries Ltd.	Rishon LeZion	**40.0**

C. Other investments

Region/country	Company name	Registered office	Percentage share of capital
Europe			
Austria	RobArt GmbH	Linz	**24.8**
Netherlands	Intrinsic ID B.V.	Eindhoven	**28.2**
United Kingdom	Sunlight.io Ltd.	Cambridge	**27.0**

Region/country	Company name	Registered office	Percentage share of capital
Asia Pacific (including other countries)			
China	Boyuan (Shanghai) Investment Management Co., Ltd.	Shanghai	**50.0**
Israel	Allegro Artificial Intelligence Ltd.	Ramat Gan	**20.4**

Stuttgart, March 6, 2024

Robert Bosch Gesellschaft mit beschränkter Haftung
The board of management

Dr. Stefan Hartung
Dr. Christian Fischer
Dr. Markus Forschner
Stefan Grosch
Dr. Markus Heyn
Dr. Frank Meyer
Dr. Tanja Rückert

Auditor's report

Independent auditor's report

To Robert Bosch Gesellschaft mit beschränkter Haftung

Opinions

We have audited the consolidated financial statements of Robert Bosch Gesellschaft mit beschränkter Haftung, Stuttgart and its subsidiaries (the Group), which comprise the consolidated income statement and consolidated statement of comprehensive income for the fiscal year from January 1 to December 31, 2023, the consolidated statement of financial position as at December 31, 2023, the consolidated statement of changes in equity and the consolidated statement of cash flows for the fiscal year from January 1 to December 31, 2023, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the group management report of Robert Bosch Gesellschaft mit beschränkter Haftung for the fiscal year from January 1 to December 31, 2023. In accordance with the German legal requirements, we have not audited the content of the statement on corporate governance pursuant to Sec. 289f (4) HGB ["Handelsgesetzbuch": German Commercial Code] included in the "Corporate governance report" section of the group management report (disclosure on female representation on executive boards).

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB and, in compliance with these requirements, give a true and fair view of the assets, liabilities and financial position of the Group as at December 31, 2023, and of its financial performance for the fiscal year from January 1 to December 31, 2023, and
- the accompanying group management report as a whole provides an appropriate view of the Group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. We do not express an opinion on the content of the statement on corporate governance referred to above.

Pursuant to Sec. 322 (3) Sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with Sec. 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the group management report.

Other information

The supervisory board is responsible for the supervisory board report. The executive directors are responsible for the other information. The other information comprises the corporate governance statement mentioned above pursuant to Sec. 289f (4) HGB (disclosures on the quota for women on executive boards). Furthermore, the other information comprises additional parts to be included in the annual report, of which we obtained a version prior to issuing this auditor's report, in particular the sections: "Foreword", "Board of management", "Supervisory board report", "Supervisory board", "Industrial Trust and International Advisory Committee", "Business sectors", "Highlights 2023", "Stories 2023" and "Robert Bosch Stiftung", but not the consolidated financial statements, not the group management report disclosures whose content is audited and not our auditor's report thereon.

Our opinions on the consolidated financial statements and on the group management report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the group management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

Responsibilities of the executive directors and the supervisory board for the consolidated financial statements and the group management report

The executive directors are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB, and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position and financial performance of the Group. In addition, the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud (i.e., fraudulent financial reporting and misappropriation of assets) or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the executive directors are responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The supervisory board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the consolidated financial statements and on the group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sec. 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than the risk of not detecting a material misstatement resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB.

– Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.

– Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with [German] law, and the view of the Group's position it provides.

– Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Stuttgart, March 6, 2024

EY GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft

Somes
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Ten-year summary of the Bosch Group

T02

in millions of euros

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Sales revenue	46,351	70,340	73,163	78,066	78,185	77,734	71,496	78,746	88,201	91,596
Research and development cost[1]	4,969	6,871	6,041	7,284	5,999	6,078	5,899	6,210	7,224	7,331
as a percentage of sales revenue	10.7	9.8	8.3	9.3	7.7	7.8	8.3	7.9	8.2	8.0
EBIT	3,930	4,587	3,235	4,328	5,342	2,903	1,057	2,811	3,474	4,503
as a percentage of sales revenue	8.5	6.5	4.4	5.5	6.8	3.7	1.5	3.6	3.9	4.9
Profit after tax	3,007	3,337	2,784	3,324	4,674	1,768	749	1,921	1,835	2,640
as a percentage of sales revenue	6.5	4.7	3.8	4.2	6.0	2.3	1.0	2.4	2.1	2.9
Capital expenditures	2,685	4,054	4,729	4,385	4,044	4,869	3,317	3,949	4,844	5,499
as a percentage of sales revenue	5.8	5.7	6.5	5.6	5.2	6.3	4.6	5.0	5.5	6.0
as a percentage of depreciation	126	135	97	110	103	116	101	115	135	161
Depreciation of property, plant, and equipment	1,886	2,799	3,362	3,275	3,763	3,824	3,282	3,399	3,474	3,421
Total assets	63,434	67,166	69,816	69,679	83,394	85,861	91,459	94,823	100,247	108,330
Equity	30,852	34,128	36,183	37,956	39,935	41,673	40,968	44,704	46,257	47,894
as a percentage of total assets	49	51	52	54	48	49	45	47	47	44
Dividend of Robert Bosch GmbH	183	183	138	138	242	198	97	145	145	170
Headcount as of December 31 of the year	281,162	284,779	389,731	400,155	409,831	394,186	398,934	402,614	421,143	429,416
Personnel expenses	15,248	20,318	21,046	22,264	22,219	22,453	22,693	23,753	24,832	26,821

1. Up to 2017: including development work charged directly to customers.

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CROSSROADS

Sustainability report

2023

BOSCH

02

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03

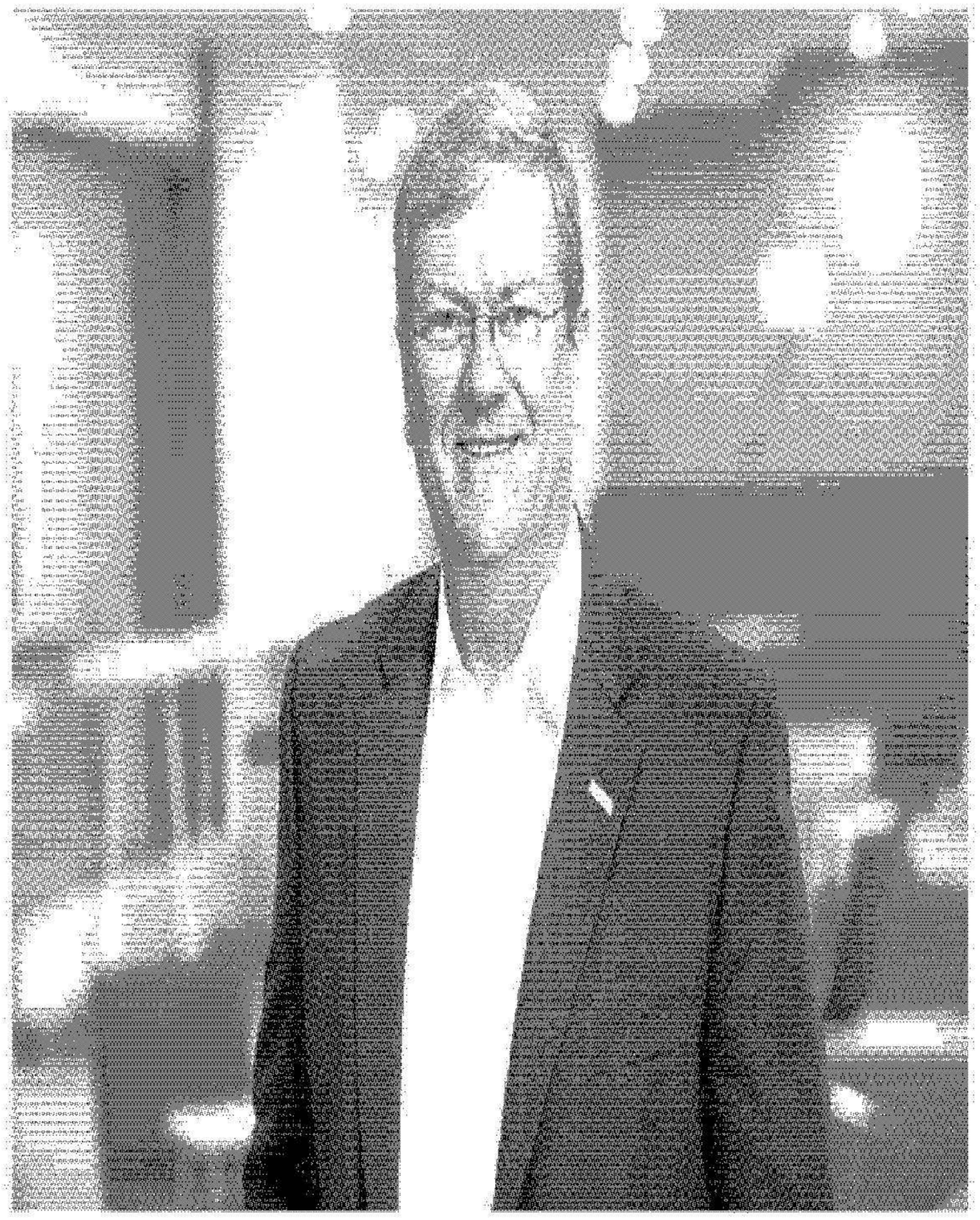
Foreword

Dear readers,

Anyone looking at our world today can see that it is by and large in a state of permanent crisis. But seeing only problems is not a basis for shaping the future.

If we want to flip the switch and encourage action that will safeguard our lives and the lives of future generations on Earth, we need to broaden our horizons and see the positives, too. The present is not just a time of major challenges, it also offers much cause for encouragement and optimism. The number of people living in poverty is steadily declining, for example, and we are prevailing in the fight against hunger. Global health is continuously improving and life expectancy along with it. People are living longer – around the world and despite all the current crises. This is not least thanks to technological achievements.

We are even making progress in how we deal with one of the greatest challenges facing humanity: mitigating climate change is now a global objective for all nations.



DR. STEFAN HARTUNG

04

The need to move away from fossil fuels, which have driven our mobility and our prosperity for centuries, is no longer up for debate. Are the decisions and measures already taken sufficient? Definitely not, but we are making progress. And there is a lot more we can do.



STEFAN GROSCH

Industry has a major role to play here – it is part of the problem but also part of the solution. As an innovation driver and technology provider, industry must preserve our existing achievements, strive for further progress, and also transform itself. More than 20 percent of global CO_2 emissions are attributable to industry – to factories that form the basis for the ecological transformation of all sectors of the economy. This is where technologies are being developed for generating, storing, and distributing energy, for promoting careful use of resources and recycling, for electrifying mobility and alternative powertrains. The ecological transformation will only work if we start here. It hinges on industry – on technology companies like Bosch.

Sustainability is an integral part of corporate culture for Bosch. With its more than 400 locations worldwide, the Bosch Group has been carbon neutral overall since 2020 (scope 1 & 2).[1] Bosch creates technology that is "Invented for life." Our solutions aim to fascinate, improve quality of life, and help conserve natural resources. Our operations must be ecological, economical, and socially sustainable. For us, sustainability is a non-negotiable part of doing business.

Bosch is continually striving for improvement in all its areas of activity as part of its commitment to the environment and climate. For example, we aim to

[1] For terms and details see the "Environment | Climate action" section.

increase the proportion of recycled materials in household appliances. Our ambition is to use, repair, and reuse products and materials for as long as possible. We also focus on sustainability in the use phase of our products – such as in manufacturing, where innovative solutions such as connected hydraulics are enabling increased energy efficiency. There, for example, our variable-speed drive solutions have the potential to reduce energy consumption by up to 80 percent.

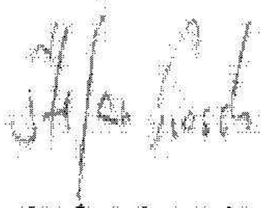
At the same time, Bosch is investing in new technologies – with an increasing focus on green tech for the ecological transformation. Taking energy generation as an example, by 2030 we plan to spend more than a billion euros on heat pump technology. Hydrogen is also a strategically important market where Bosch is playing a leading role. Few companies can offer such a broad portfolio: We are developing technologies for water processing as well as for the production, compression, storage, and use of hydrogen in a variety of sectors. Bosch is undertaking up-front investments in this regard: Between 2021 and 2026, we will invest roughly 2.5 billion euros in hydrogen technologies. Our electromobility business is beginning to bear fruit. In 2022, we were able to increase production of components for electric driving by a good 50 percent compared with the previous year, while our customer numbers doubled in the period from 2019 to 2023. In 2026, Bosch plans to generate sales of 6 billion euros with electromobility solutions. We are on the right track.

Key factors for sustainable action and establishment of new technologies include a sense of conviction, a clear strategy, practical implementation, and persistence. Under the right conditions, companies can thus successfully transform and even occasionally reinvent themselves, while helping to build interdependence between ecology and economy, and reconcile the discord between humans and our environment. At Bosch we want to play our part in creating a more climate-friendly world.

We wish you an enjoyable read and thank you for your interest.



Dr. Stefan Hartung
Chairman of the board of management



Stefan Grosch
Member of the board of management and director of industrial relations

Strategy and management

Strategy and management

By acting in an economically, environmentally, and socially responsible manner, we want to improve people's quality of life and safeguard the livelihoods of present and future generations.

Bosch Group profile

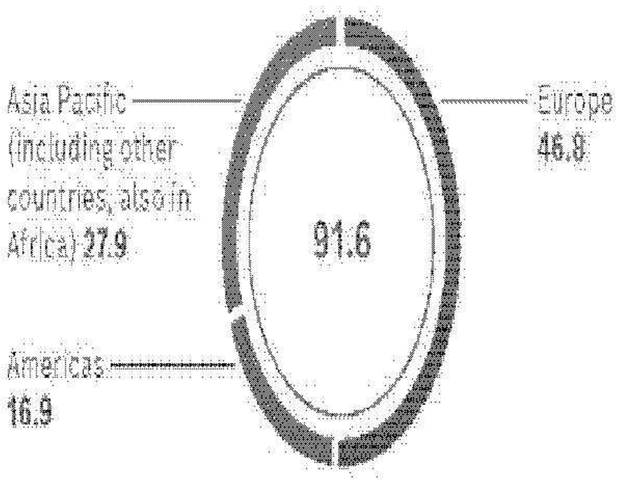
The Bosch Group is a leading global supplier of technology and services. It employs roughly 429,000 associates worldwide (as of December 31, 2023). The company generated sales of 91.6 billion euros in 2023. Its operations are divided into four business sectors: Mobility, Industrial Technology, Consumer Goods, and Energy and Building Technology. Universal trends such as automation, electrification, digitalization, and connectivity, as well as an orientation to sustainability, are increasingly determining the group's business operations. In this context, Bosch's broad footprint as a global and diversified technology company strengthens its innovativeness and robustness.

Bosch uses its proven expertise in sensor technology, software, and services to offer customers cross-domain solutions from a single source. It also applies its expertise in connectivity and artificial intelligence in order to develop and manufacture user-friendly, sustainable products. With technology that is "invented for life," Bosch wants to help improve quality of life and conserve natural resources.

G 01

Sales revenue

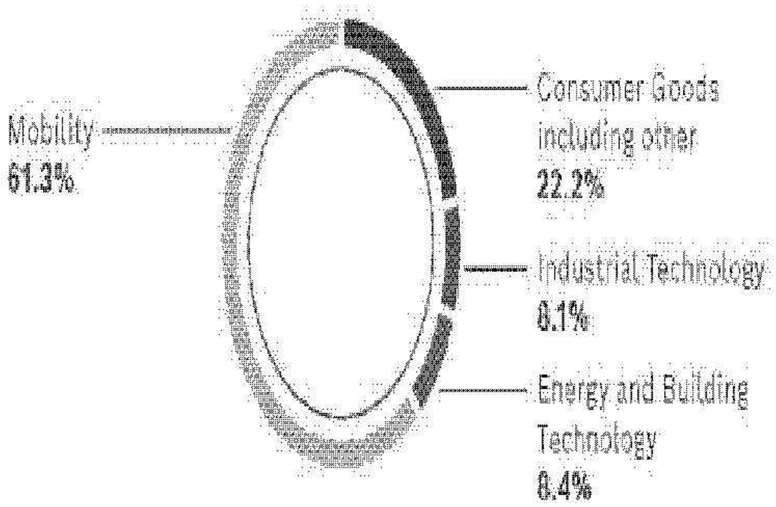
Bosch Group 2023 by region, in billions of euros



G 02

Sales revenue structure

Sales revenue Bosch Group 2023 by business sector

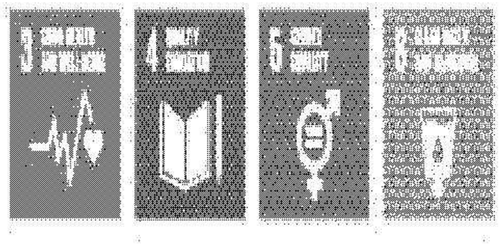


With its more than 400 locations worldwide, the Bosch Group has been carbon neutral overall (scope 1 & 2) since 2020. As part of this, residual emissions of some 581,000 metric tons of CO_2 were offset with carbon credits in 2023. Year on year, this is a decrease of roughly 136,000 metric tons of CO_2, or 19 percent.[2]

The Bosch Group comprises Robert Bosch GmbH and its roughly 470 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global production, engineering, and sales network covers nearly every country in the world. Bosch's innovative strength is key to the company's further development. At 136 locations across the globe, Bosch employs some 90,000 associates in research and development, of which nearly 48,000 are software engineers. You will find further details on research and development at Bosch online and in the 2023 annual report, page 90 et seq.

The company was set up in Stuttgart in 1886 by Robert Bosch (1861–1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant upfront investments in the safeguarding of its future. Ninety-four percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The remaining shares are held by Robert Bosch GmbH and by a corporation owned by the Bosch family. The majority of voting rights are held by Robert Bosch Industrietreuhand KG. Further information on the organization of the Bosch Group, the activities of the business sectors and the company's economic situation can be found in the current annual report.

[2] Scopes 1, 2, and 3 are used in accordance with the Greenhouse Gas Protocol: Corporate Accounting and Reporting Standard. For further details about the Bosch Group's carbon neutrality (scope 1 & 2), see the "Environment | Climate action" section.



Bosch supports the Sustainable Development Goals (SDG) of the United Nations.

09 Sustainability management

To us, sustainability means striking a balance between the economic, environmental, and social dimensions of our business activities as part of responsible corporate governance. Back in 2018, we summarized the focus areas of our sustainability management in a vision that describes six dimensions. Each of these is specified and continually enhanced by reference to two focus activities with clearly defined, medium-term targets. Derived from market and competitor analyses, they set the framework for our actions. Our sustainability activities consider the entire value chain – from materials and goods purchasing or manufacturing operations at Bosch sites to the use phase of products sold and right through to their end of life.

Sustainability as a growth driver

We are convinced that sustainability can make a significant contribution to Bosch achieving its growth objectives. We therefore continually strive to create win-win situations by achieving economic success while enhancing sustainability at the same time. Our target vision for sustainability with its six dimensions defines the strategic focal points in this respect.

Compliance with legal parameters, social values, and norms, as well as good positioning on the market create the "license to operate" for our company, so to speak. Topics such as climate action, circular economy, and water offer further potential to stand out positively from the competition. Examples of this are energy-efficient or water-conserving products as well as recyclable packaging or repairable products. This is how our "Invented for life" mission statement becomes a reality: Bosch products aim to fascinate, improve quality of life, and help conserve natural resources.

Bosch uses value driver analysis as a methodology to systematically identify and assess the potential available on the market. Individual sustainability measures can thus be analyzed and their impact simulated – for example, substitution of natural gas with electricity from renewable sources and the resulting reduction in CO_2 emissions. Because the analysis not only describes the physical relationships – such as between energy sources, energy consumption, and the resulting CO_2 emissions – but also the financial effects of the measures, a comprehensive financial and non-financial evaluation can be produced. This means that we can create measurable economic, ecological, and social added value using just a limited number of levers and associated measures (see the "Environment" section).

Target vision

Our ambition: By acting in an economically, environmentally, and socially responsible manner, we want to improve people's quality of life and safeguard the livelihoods of present and future generations.



Climate action
1 | Reducing CO_2 emissions
2 | Energy efficiency and renewable energies

It is Bosch's ambition to become a climate action pioneer – advancing the expansion of renewables and striving continuously for energy efficiency.

Water
1 | Water scarcity
2 | Water quality

For Bosch, water is a resource to be treated sparingly. Regions in which water is scarce are a special concern.

Health
1 | Occupational health and safety
2 | Substances of concern

Bosch contributes to people's health – with innovative products and services and by ensuring that people and the environment do not come to harm through its production processes.

Circular economy
1 | Materials efficiency
2 | Second life

Bosch is reducing its ecological footprint and striving to create social benefit. In this endeavor, Bosch takes its lead from the circular economy principle.

Human rights
1 | Responsibility
2 | Transparency

Bosch takes on responsibility and is sensitive to human rights being respected – along the entire value chain.

Diversity
1 | Equity
2 | Inclusion

For Bosch diversity, equity, and inclusion are key to long-term success in business. In addition, Bosch contributes to the common good in the communities at its locations.

11

T 01

Goals and goal achievement

Climate action	It is Bosch's ambition to be a climate action pioneer – advancing the expansion of renewables and striving continuously for energy efficiency.	
	Reducing CO_2 emissions Operating carbon neutral in scopes 1 and 2 and continuously improving the mix of measures by 2030	With its more than 400 locations worldwide, the Bosch Group has been carbon neutral overall since 2020 (scope 1 & 2). Four levers were used to achieve carbon neutrality: increasing energy efficiency, generating our own energy from renewable sources (new clean power), purchasing electricity from renewable sources (green electricity), and – as the last resort – using carbon credits to offset residual CO_2 emissions. In 2023, residual emissions of some 581,000 metric tons of CO_2 were offset by carbon credits. This represents a decrease of 19 percent on the previous year's level (see the "Environment | Climate action" section).
	Lowering absolute scope 3 CO_2 emissions by 15 percent by 2030 (baseline year 2018)	Since 2018, we have cut our scope 3 emissions by around 23 percent, down to 253 million metric tons of CO_2 in 2022. In this process, we are focusing on the categories that make up around 98 percent of our scope 3 emissions. Upstream emissions in the Bosch value chain primarily concern purchased goods and services as well as logistics. Downstream emissions are mainly caused by the use of our products (see the "Environment | Climate action" section).
	Energy efficiency and renewable energies Saving 1.7 TWh through increased energy efficiency by 2030	Since 2019, we have initiated around 6,000 energy-efficiency projects worldwide, with roughly 1,300 new projects added in 2023 alone. With them, we have so far captured savings potential of 984 GWh in total. This corresponds to a goal achievement level of 58 percent.
	Increasing own renewable generation at our sites to 400 GWh and 100 percent green electricity by 2030	In 2023, we generated 149 GWh of power from renewable sources in-house at our company sites. Accordingly, we have already reached 37 percent of our target value. In addition, around 99 percent of the Bosch Group's global electricity requirement was covered by green electricity (electricity purchased from renewable sources) (see the "Environment | Climate action" section).
Water	For Bosch, water is a resource to be treated sparingly. Regions in which water is scarce are a special concern.	
	Water scarcity Reducing absolute water withdrawal at company locations in regions with water scarcity by 25 percent by 2025	Since 2019, we have launched more than 260 projects and reduced water withdrawal by 25.6 percent compared with 2017 at company locations in regions with water scarcity. The company locations were identified using the Water Risk Filter of the World Wildlife Fund for Nature (see the "Environment | Water" section).
	Water quality Improving the quality of wastewater flows	In 2023, Bosch's wastewater volume decreased to 15.46 million m^3 (prior year: 16.98 million m^3). We have established standard processes in the company for monitoring local wastewater quality requirements and standards (see the "Environment | Water" section).

Circular economy	Bosch is reducing its ecological footprint and striving to create social benefit. In this endeavor, Bosch takes its lead from the circular economy principle.	
Materials efficiency Improving materials efficiency	For years, materials efficiency has been a fixed criterion in the Bosch product development process, where it is anchored in our Design for Environment (DfE) principle (see the "Environment I Circular economy" section).	
Second life Extending product life cycle and reusing materials and components	Our activities range from reusing products and their components to repairs and right through to remanufacturing – in each case with the objective of extending product and component life cycles. The individual divisions of Bosch each have their own objectives in this regard, depending on market and product-specific framework conditions (see the "Environment I Circular economy" section).	
Diversity	For Bosch diversity, equity, and inclusion are key to long-term success in business. In addition, Bosch contributes to the common good in the communities at its locations.	
Equity Ensuring equitable opportunities and increasing the proportion of female executives to 25 percent by 2030	Globally, the proportion of female executives rose to 20.0 percent in 2023 (prior year: 19.2 percent) across all management levels (see the "Social I Bosch as an employer" section).	
Inclusion Promoting inclusion at Bosch and in the communities around company locations	In 2023, the Bosch Group donated 26.6 million euros to charitable causes worldwide (prior year: 27.4 million euros). Some regional companies have established their own charitable institutions to carry out their CSR activities (see the "Strategy and management I Sustainability culture" section).	
Human rights	Bosch takes on responsibility and is sensitive to human rights being respected – along the entire value chain.	
Responsibility Ensuring human rights are respected along the value chain	We contribute to improving human rights conditions worldwide by implementing due diligence obligations concerning human rights in our operational processes. At the same time, we actively demand respect for human rights in our global supply chains as well and take appropriate remedial action in the case of violations (see the "Social I Complying with due diligence obligations relating to human rights and the environment" section).	
Transparency Increasing transparency about compliance with environmental and social standards	By the end of 2023, we had assessed around 76 percent of our relevant direct materials suppliers (excluding BSH Hausgeräte GmbH) for compliance with our requirements. We also assessed 85 percent of indirect materials suppliers who are particularly relevant in terms of country risk and field of materials risk (see the "Social I Complying with due diligence obligations relating to human rights and the environment" section).	

Health	Bosch contributes to people's health – with innovative products and services and by ensuring that people and the environment do not come to harm through its production processes.	
Occupational health and safety Reducing the accident rate to 1.45 accidents per 1 million hours worked or less by 2025	The accident rate was reduced to 1.49 accidents per 1 million hours worked (prior year: 1.62) (see the "Social	Bosch as an employer" section).
Substances of concern Continuously upgrading materials data management	Bosch handles substances of concern responsibly. To efficiently manage prohibitions and restrictions on materials, we are continuously upgrading our IT-based Material Data Management for Compliance and Sustainability (MaCS) system (see the "Environment	Circular economy" section).

[3] Scopes 1, 2, and 3 are used here in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard. We have taken into account the effects of CO_2 and of other greenhouse gases, as well as climate-relevant substances, to the extent that these are of relevance for the analysis. To enable comparability between the climate impact of the various greenhouse gases and substances of relevance for the climate, emissions are presented in CO_2 equivalents. For ease of reading, we use the terms CO_2 and CO_2 equivalents synonymously.

Responsibilities and regulations

Defined as a group-wide task within the Bosch Group, sustainability is coordinated by the Sustainability and EHS (Environment, Health, Safety) corporate department. The business sectors pursue the jointly set goals on the basis of systematic sustainability management. The contents, tasks, and related controlling are anchored in the company's processes. Internal company regulations define the organization and responsibilities for sustainability and EHS in the Bosch Group.

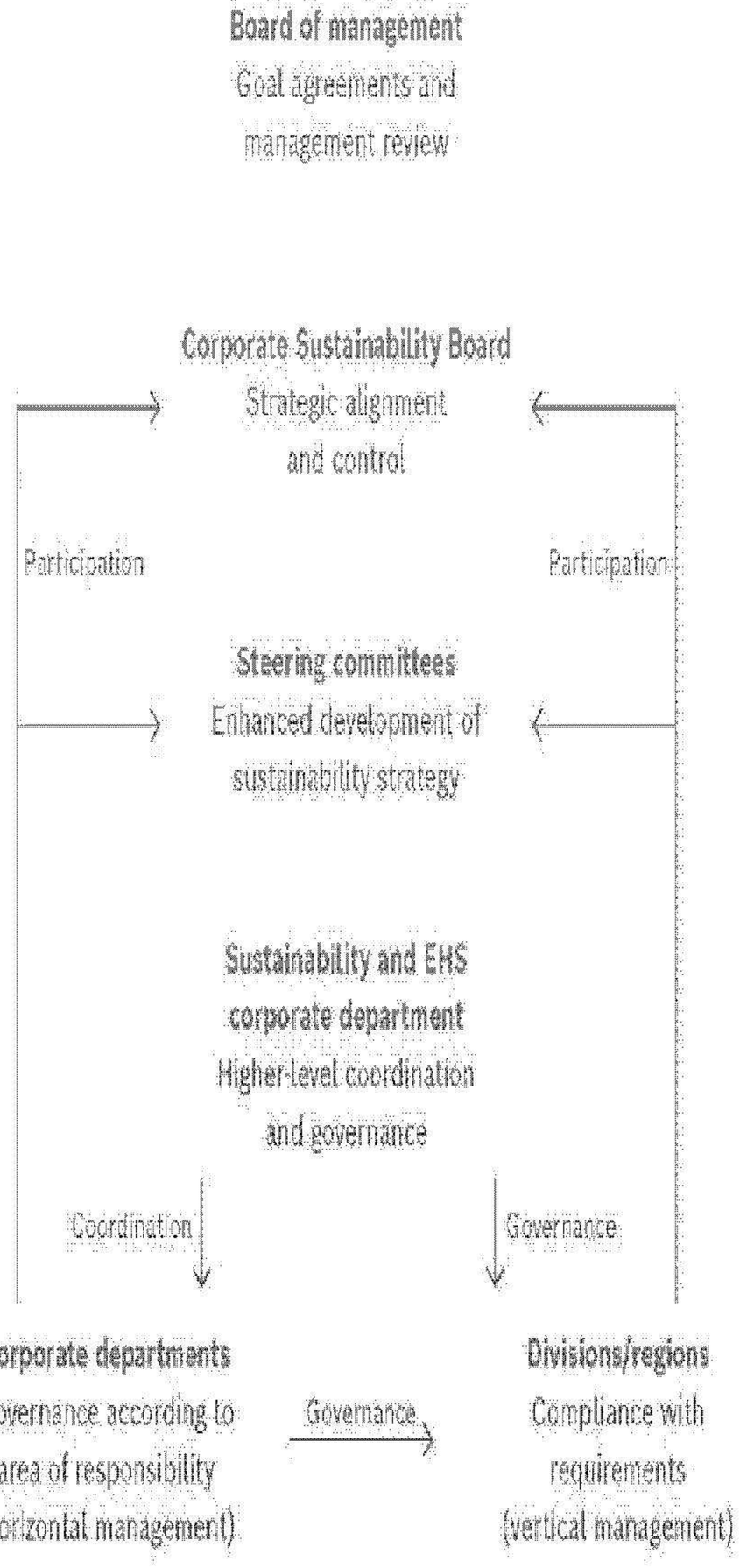
At Bosch, the highest technical committee for sustainability is the Corporate Sustainability Board (CSB) under the aegis of the chairman of the board of management of Robert Bosch GmbH and the board of management member responsible for sustainability. The Sustainability and EHS corporate department is responsible for the organizational and functional management of the CSB, which convenes twice a year.

The CSB members are the heads of the corporate departments responsible for the relevant matters: Research and Advance Engineering, Purchasing and Logistics, Real Estate and Facilities, HR, Legal, Compliance, Finance, as well as Corporate Communications and Governmental Affairs. The CSB also includes the executive management of various divisions and the presidents of the individual regions. Further members are included when required. The committee's main tasks are to define the sustainability strategy and targets for the Bosch Group, to adopt sustainability activities, to provide transparency and decide in the event of conflicting objectives, to monitor implementation of the sustainability strategy and activities, and to coordinate group-wide position papers on sustainability topics.

Goal agreements and management reviews for all sustainability-related issues are the responsibility of the chairman of the board of management and the board of management member responsible for sustainability. For information on Robert Bosch GmbH's board of management and supervisory board, see the 2023 annual report from page 10.

G 04

How sustainability is organized at Bosch



The Sustainability and EHS corporate department is responsible for sustainability management, which mainly entails setting and tracking goals, designing and accompanying programs, preparing concepts for further development, and sustainability reporting. It is accountable for governance in all matters concerning sustainability and EHS and coordinates implementation of regulatory requirements throughout the group. The Corporate Communications and Governmental Affairs corporate department is responsible for sustainability communications and interaction with stakeholders around the world.

Our global sustainability management is summarized in a central process that is based on the ISO standard process definitions, especially ISO 31000. The competent officers at corporate headquarters and in the divisions are responsible for implementing the sustainability strategy worldwide and for monitoring the achievement of goals. Coordinators offer professional support to the divisions, for example for implementing strategies and establishing processes and rules. In addition, we review the effectiveness of the respective measures.

The associates responsible in the regions and at the Bosch sites worldwide are tasked with ensuring that the relevant requirements are observed locally and that the defined framework conditions are complied with by means of established processes. In parallel, corporate headquarters regularly performs internal sustainability and EHS audits.

Steering committees, supported by topic-specific competence centers, have been established within the company for key sustainability topics. The steering committees are made up of experts from various corporate departments, divisions, and regions. They are responsible for the enhanced development of the sustainability strategy.

Risk management

The dimensions of the sustainability strategy are replicated in the Bosch Group's risk management system. Risk management encompasses the entire company, including all essential operations, functions, divisions, and business sectors.

The Bosch Group's risk management system is based on the ISO 31000 and COSO III (ERM) standards, as well as IDW PS 340. It comprises the systematic detection and tracking of relevant risks and, where necessary, identification and monitoring of measures to manage these risks. In this context, the corporate coordinating office for the risk management system is responsible for continuously refining the system.

For further information and a description of material risks, see the 2023 annual report (page 104 et seq.). The material antitrust and legal risks are also described there.

Materiality analysis

As a leading global supplier of technology and services, Bosch operates in a large number of markets around the world. Directly or indirectly, our operations affect the interests of a wide range of stakeholders. To parse out what these interests are and take account of them in our activities, we actively seek to enter into dialogue with our stakeholders. We address issues that are brought to our attention via the different communication channels and seek dialogue on those issues that we ourselves want to raise in the social discourse. As a result, we hold a continuous exchange on a broad range of highly diverse topics from which all participants benefit (see T 02).

Commitment and cooperation

We want to make a relevant contribution to overcoming global social challenges, which is why we are involved in numerous initiatives. For instance, Robert Bosch GmbH has been a member of the United Nations Global Compact since 2004 and is committed to its globally applicable principles concerning human rights, labor standards, environmental protection, and anti-corruption. With this publication, we satisfy the related requirement to report on relevant progress we made in 2023 in these areas. Bosch is also a founding member of UN Global Compact Netzwerk Deutschland e. V. We are active in a large number of further sustainability-related initiatives though memberships – including Transparency International Deutschland e. V. which we have been supporting as a corporate member since 1995. In addition, we are active on the executive board of econsense – Forum Nachhaltige Entwicklung der Deutschen Wirtschaft e.V. (Forum for Sustainable Development of German Business).

T 02

Overview of key stakeholder groups, forms of dialogue, and topics

Associates	Dialogue with associates and executives, surveys, internal media, Bosch Business Dialog	• Reducing carbon emissions across the value chain, particularly with regard to the Bosch Group's carbon neutrality (scope 1 & 2) and its scope 3 target • Reducing water withdrawal in regions with water scarcity • Closing product and materials loops, using secondary materials and raw materials • Environmental and social standards in supply chains, particularly for high-risk raw materials • Health, including occupational health and safety and substances of concern • Diversity, equity, and inclusion • Implications of the mobility transformation • Responsible corporate governance
Customers	Surveys, social media, trade fairs, media	
Suppliers and partners	Supplier days, training programs, supplier awards, supplier assessments, dialogue as part of industry initiatives	
Associations	Participation in committees and working groups, initiative and association memberships	
Universities and research institutes	Presentations, dialogue events, trade fairs	
Policymakers	Contact for questions from policymakers; involvement in committees organized by governments or ministries; dialogue events; one-on-one talks	
Media	Press releases, site visits, information events, trade fairs	
Local stakeholders	Local community talks, plant visits	
Civil society and NGOs	Dialogue events, answering questions	

17 Bosch also supports the United Nations Sustainable Development Goals (SDGs) adopted in 2015. Accordingly, we regularly benchmark our sustainability activities against the 17 SDGs (see T 01). Bosch's diverse activities also support other UN goals.

Sustainability culture

The Bosch value "responsibility and sustainability" has always characterized our entrepreneurial activity and is an integral part of our mission statement "We are Bosch." For Bosch, it is key to involve as many associates as possible in sustainability management. Each and every one at Bosch is called upon to contribute and advance sustainability in their individual sphere of influence. The aim is for sustainability to become a shared mindset within the company – shouldered by each associate through their conduct. Specific impetus is provided in seven action areas (see G 05).

The following measures are examples of our activities in 2023:

- Sustainability multipliers

At Bosch, executives are role models and, as such, multipliers for sustainability. They are required to attend web-based training to familiarize themselves with the sustainability strategy and the targets set. Since the training program's launch in 2014, around 33,000 executives with and without team management responsibilities have already completed the course.

- Sustainability days at Bosch locations worldwide

A live stream event entitled "Word Tour of Sustainability" was held for the first time in 2023. The one-day event focused on a total of 35 sustainability initiatives, activities, and projects, which were promoted by teams from around the globe. Apart from project presentations and information on Bosch's sustainability strategy, a special item featured on the agenda was the announcement of the winning teams of the "Sustainability, Environment, Health, and Safety Awards." The award

G 05

Seven action areas for embedding sustainability culture



Graphic based on: Network for Business Sustainability (2010) and Majka Baur (2016)

honors outstanding projects each year in the categories "CO_2 and energy efficiency," "resource efficiency," "occupational safety," "sustainable products," and "sustainability culture."

Events took place again at various locations in 2023 to put the spotlight on the topic of sustainability in the company. For example, Bosch Japan hosted a sustainability week in October during which around 900 associates took the opportunity to find out about sustainability at Bosch by taking part in 18 online sessions. The event focused on sustainable mobility solutions such as battery electric and fuel cell electric drives.

On-site events and virtual sessions marked the "Sustainability and EHS Week" at the Mexican site in San Luis Potosí, with an attendance of roughly 2,200 associates. The goal was to raise awareness of sustainable action among associates. Attention focused primarily on topics ranging from occupational health and safety to energy efficiency and environmental protection.

Social involvement

We see ourselves as a corporate citizen and engage actively in society, also beyond the scope of our own business activities. Through our charitable donations, for example, we chiefly support initiatives in the following areas:

- Living sustainably:
Citizen projects promoting climate action in everyday life

- Education for the high-tech world:
Projects to develop socially disadvantaged children's and young people's skills for technological change

- Social cohesion:
Projects strengthening democracy and tolerance, especially at Bosch sites

- Emergency aid in disaster situations:
Donations to aid organizations and people on the ground, especially when catchment areas around Bosch sites are affected

Our social involvement in the form of donations is handled by the operating units in the countries in question. In the reporting year, the Bosch Group donated 26.6 million euros worldwide (prior year: 27.4 million euros) to charitable causes, including donations in kind. Internal company regulations set out corresponding principles, assessment criteria, and responsibilities. Depending on the amount involved, either the management of the operating units or the members of Robert Bosch GmbH's board of management decide how the funds raised should be spent. All donation transactions must be documented in writing. In addition, the persons responsible keep an annual ledger of donations that is accessible for audit purposes. At a minimum, this ledger must indicate the group of recipients and the amount of the donation, along with the reasons for the donation and the date on which confirmation of receipt was received.

One focus of global donation activities in 2023 was on emergency aid in the event of a disaster. This included aid for the people affected by the earthquake in Turkey and Syria. Robert Bosch GmbH provided one million euros to the German Red Cross in this instance. In addition, Bosch supported the earthquake victims in Turkey with donations in kind and cash to the value of half a million euros. The

19 Turkish subsidiary of BSH Hausgeräte GmbH also donated home appliances worth in excess of one million euros for the people affected and for children's aid organizations working locally.

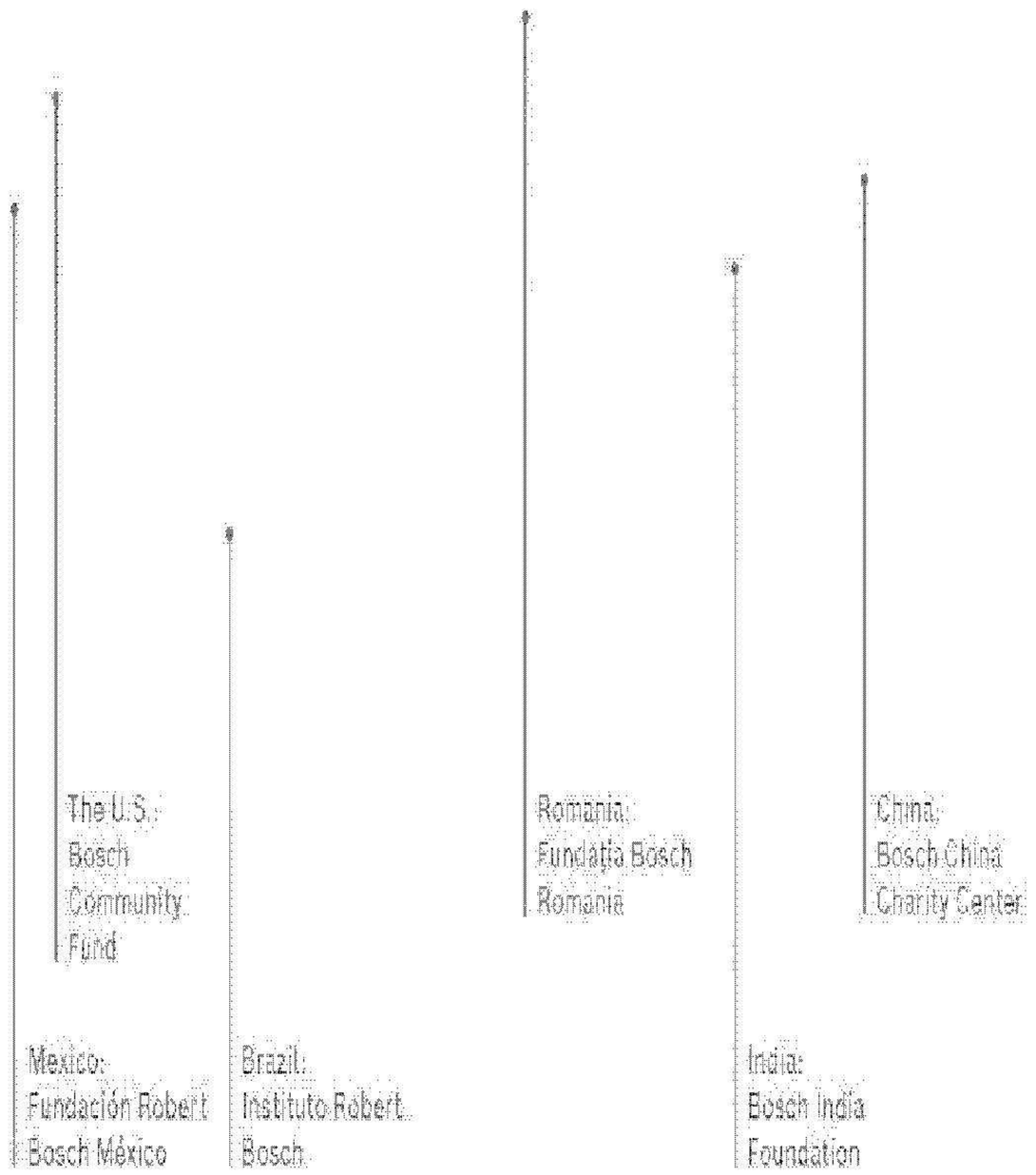
In view of developments in Israel and the Middle East, Bosch donated one million euros in emergency aid to the German Red Cross for humanitarian purposes to support its local sister organizations in the affected regions.

Bosch is not only financially active at many of its locations, but also through the volunteer work of its associates locally. In some countries, dedicated non-profit institutions engage in corporate social responsibility activities. Such institutions are usually active in the vicinity of company locations and concentrate on country-specific priorities.

As an independent, not-for-profit foundation, Robert Bosch Stiftung GmbH demonstrates its commitment to society worldwide by supporting or implementing innovative and lighthouse projects.

G 06

Bosch's non-profit institutions



Environment

Environment

Bosch's activities should have as little impact on the environment as possible. We are working to fulfil this aspiration with a Group-wide environmental management system and specific targets. In particular, we want to use targeted strategies to protect the climate, save water, especially where it is scarce, and strengthen the circular economy.

Organization and responsibilities

Internal company regulations define the principles and requirements for sustainability and EHS in the Bosch Group and specify the organization and responsibilities. Occupational safety and environmental protection policy is framed in the publicly accessible Guidelines of Work Safety and Environmental Protection.

Bosch has clearly defined environmental criteria for the design, planning, and acquisition of facilities, machinery, and manufacturing equipment, for example with regard to energy efficiency, the use of renewable energy sources, and water consumption in regions with water scarcity. These criteria also play a role in the decision-making process when choosing new company locations.

Audits on environmental topics

Regular briefings, workshops, and internal audits are held at the company locations on topics of relevance for the environment in order to verify compliance with requirements. Locations are selected based on risks or specific events, while their size, measured by headcount or the proportion of resources consumed in the Group, also plays a role. Audit findings are documented in Bosch's company-wide database. As a result, it is also possible to track corrective actions in the event of deviations. Any deviations detected, their causes, and improvement opportunities identified are taken into account in the following year's audit program. The results of the analyses are also considered in determining the content and focus of our environmental protection campaigns.

At production locations, relevant environmental issues are audited on a risk basis by company headquarters as part of corporate audits. The auditors have in-depth knowledge of ISO 19011 audit methodologies as well as external and internal EHS requirements. In 2023, the EHS audit team performed a total of 94 corporate audits.

In total, 97 percent of our relevant production and development locations[1] operate an environmental management system, which in most cases (98 percent) is certified to the ISO 14001 standard. Similarly, 91 percent of the energy management systems used are certified to ISO 50001 (also see T 03). In general, we intend to have all relevant locations operating with certified environmental management systems.

T 03

Environmental and energy management systems Bosch Group 2023

Production and development locations[1]	**247**
Environmental management system implemented according to ISO 14001	240
Environmental management system certified according to ISO 14001	235
Energy management system implemented according to ISO 50001	66
Energy management system certified according to ISO 50001	60

[1] The following applies to information on environmental and energy management systems: production locations and development locations (with material responsibility) with more than 50 associates that have been included in the scope of consolidation for more than three years.

22

Competence development and training

In web-based training and classroom courses, we promote the methodological and technical competence of our associates, thereby creating the conditions for safe and environmentally compatible work processes. We therefore ensure that those responsible for environmental protection, for instance, are specifically familiarized with the relevant regulations and standards in training programs that have been standardized worldwide. In supplementary training sessions, we address the specific requirements of individual business units, locations, and regions. In addition, we also train and brief associates of external companies and visitors to our locations on health, safety, and environmental protection at Bosch.

Uniform sustainability methodology enables systematic control

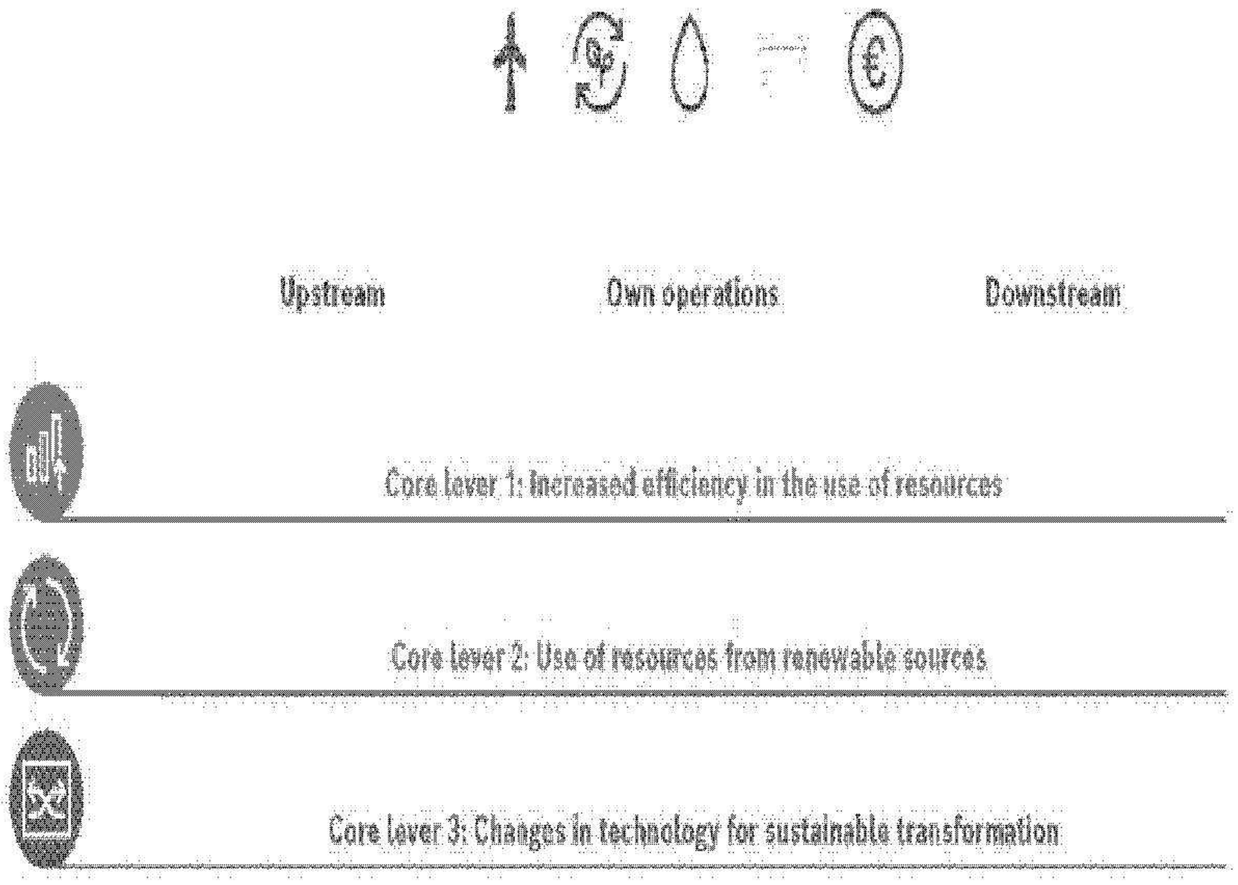
In the course of enhancing our sustainability methodology in 2023, we extended our systematic approach to achieving carbon neutrality (scope 1 & 2) by including additional sustainability topics and value creation stages (see the "Strategy and management" section). As a result, it has become apparent that the environmental dimensions of our vision for sustainability are underpinned by the same logic. This is characterized by three core levers: increasing efficiency, purchasing resources from renewable sources, and changing the technology used. The three core levers can be applied to all value creation stages – from purchasing materials and goods (upstream) to subsequent processing at our plants (own operations) through to use of the products by our customers (downstream). In this way, we create transparency with regard to the impact of the different measures, we show the relationships and interactions between the various influencing factors – and we thus provide the basis for in-depth scenarios in order to capture and control the effects of decisions in their entirety. This also reveals the additional differentiation potential of sustainability topics that will be of particular importance to Bosch in the future – as illustrated by trend and market analyses.

The next sections on the dimensions of climate, circular economy, and water already follow the new methodology. The assignment of the different measures and action fields to the relevant core levers and value creation stages is presented uniformly to provide a complete picture of our activities and our potential to exert influence.

G 07

Sustainability methodology

Core levers for improving sustainability performance along the value chain



Climate action

Opportunities and risks of climate change

Counteracting climate change is a task for society as a whole. We see this not only as an obligation for our company, but also as an opportunity to contribute to protecting the climate with innovative solutions and technologies. Bosch's growing self-sufficiency and energy efficiency will also reduce its dependence on volatile energy markets and, in turn, its exposure to price fluctuation risks.

When analyzing the opportunities and risks that climate change poses for Bosch, we are guided by the specifications of the Task Force on Climate-related Financial Disclosures (TCFD) to help us identify transitory and physical risks in particular. The time horizon for our analysis stretches to 2050. The focus is on both acute risks (such as those related to flooding) and permanent climate risks (such as those that arise on account of global warming).

The analysis is based on the scenarios of the International Energy Agency and the energy scenarios of the Bosch corporate sector for Research and Advance Engineering. A central role in this context is played by the internal climate change report. Prepared by our experts every two years, it highlights fundamental climate change developments and their significance for our company and for society.

When assessing climate-related issues and suitable measures, we distinguish between measures to mitigate impacts (mitigation) and activities that serve to adapt the company to the changed framework conditions (adaptation). We also include our products in these considerations. Climate aspects also play a role in the choice of company locations. This is something that demands Bosch's adaptability, for example, with respect to water and energy supply. To manage the respective risks and opportunities, the individual divisions use the results of the risk assessment for market forecasts and incorporate them in specific plans.

The risks posed by climate change include water scarcity and extreme weather events, which are occurring with increasing frequency and causing ever greater damage. They can jeopardize production at our locations and the stability of the supply chain.

Other risks include the shortage of raw materials and changes in the regulatory framework, such as bans on certain technologies or the tightening of CO_2 emissions standards for vehicles. Also important in this context are the increasing variety of customer preferences, which can change rapidly – often in response to political decisions. Increasingly, the focus is also on the processes upstream of our production and the use of materials. For example, we are increasingly receiving inquiries about the proportion of green electricity (purchased electricity from renewable sources) in our energy mix or recyclates in materials (see "Circular economy").

We address these challenges with our climate action strategy and systematic research and development. At the same time, we are convinced that we must work together if we are to successfully counter the effects of climate change. That is why we take an active role in the relevant associations and committees (see the "Governance" section).

Climate action strategy

Bosch wants to make a contribution to climate action, an aspiration it has anchored in its sustainability vision. We support the United Nations 2015 Paris Agreement on climate action and the goal formulated therein of limiting global warming to as close to 1.5 degrees Celsius as possible. By making our company's activities carbon neutral (scope 1 & 2)[5], we are making a measurable contribution to this goal.

As early as 2020, the Bosch Group with its more than 400 locations worldwide has been carbon neutral overall (scope 1 & 2). Four levers were used to achieve carbon neutrality: increasing energy efficiency, generating our own energy from renewable sources (new clean power), purchasing electricity from renewable sources (green electricity), and – as the last resort – using carbon credits to offset residual CO_2 emissions. In 2023, residual emissions of around 581,000 metric tons of CO_2 were offset by carbon credits.

[5] Scopes 1, 2, and 3 are used here in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard. We have taken into account the effects of CO_2 and of other greenhouse gases, as well as climate-relevant substances, to the extent that these are of relevance for the analysis. To enable comparability between the climate impact of the various greenhouse gases and substances of relevance for the climate, emissions are presented in CO_2 equivalents. For ease of reading, we use the terms CO_2 and CO_2 equivalents synonymously.

At the same time, we also want to reduce emissions produced outside Bosch's direct sphere of influence (scope 3), for example at suppliers, in logistics, or when our products are used. Our aim is to reduce these upstream and downstream emissions by 15 percent in absolute terms by 2030, compared with the baseline year 2018 – irrespective of our company's growth.

As early as 2020, the Science Based Targets initiative (SBTi) endorsed our climate targets for the 1.5 degree pathway.[6] Bosch now has science-based climate targets for the entire value chain – from purchasing to the product use phase.

[6] Robert Bosch GmbH's entry in the SBTi's target dashboard

G 08

Sustainability methodology, focus on climate action

Measures for improving sustainability performance along the value chain



Four levers for carbon neutrality (scope 1 & 2)

In 2023 also, we continued to improve the mix of levers by increasing energy efficiency, generating our own energy from renewable sources, and purchasing green electricity. This is reflected in the further reduction of CO_2 emissions to be offset.

Around 72 percent of the total energy demand stems from renewable energy sources including purchased green electricity (prior year: 67 percent). While the consumption of purchased energy (scope 2) accounts for most of our energy demand, the majority of CO_2 emissions are generated by stationary combustion, primarily through heat generation (scope 1). Bosch requires energy primarily in the form of electrical power for manufacturing plants and machinery, and in the form of thermal energy to heat and air-condition buildings and to operate foundry furnaces.

T 04

Energy demand

Bosch Group 2021–2023, in GWh

	2021	2022	2023
Bosch Group	**8,042**	**7,696**	**7,537**
Natural gas	1,587	1,325	1,132
Heating oil	55	49	57
LPG	39	34	36
Coke/coal	98	100	101
Renewable energy	102	128	156
Other (inter alia gasoline, diesel)	451	482	512
Direct energy (own combustion)	**2,332**	**2,118**	**1,993**
Electricity	5,437	5,334	5,323
thereof green electricity	4,817	5,049	5,250
District heat, steam, cooling energy	273	244	221
Indirect energy (purchased)	**5,710**	**5,578**	**5,544**

T 05

Greenhouse gas emissions

Bosch Group 2021–2023, in 1,000 metric tons of CO_2e

	2021	2022	2023
Bosch Group with carbon offsets	**0**	**0**	**0**
Carbon offsets	907	717	581
Bosch Group	**907**	**717**	**581**
Manufacturing	383	328	295
Vehicle fleet	109	117	129
Volatile GHG	76	78	77
Scope 1	**569**	**523**	**501**
Electricity	248	119	15
District heat, steam, cooling energy	90	75	65
Scope 2	**338**	**194**	**80**

Energy intensity

in MWh/million euros of sales revenue

	2021	2022	2023
Bosch Group	**102.2**	**87.3**	**82.3**

Emissions intensity

in metric tons/million euros of sales revenue, without carbon offsets

	2021	2022	2023
Bosch Group	**11.53**	**8.13**	**6.34**

Lever 1: Energy efficiency

By 2030, we want to substantially increase our energy efficiency and implement measures at our company locations with savings potential totaling 1.7 terawatt hours (TWh). An annual budget has been available for this purpose since 2019. Overall, Bosch plans to invest one billion euros in increasing energy efficiency by 2030. Since 2022, we have been using part of the energy efficiency budget to fund CO_2 reduction measures, such as the electrification of the heat supply or the use of district heating. An internal CO_2 pricing mechanism is used to determine the rate of return of the individual measures.

Already today we have achieved roughly 58 percent of our efficiency target: Since 2019, we have initiated around 6,000 projects worldwide, capturing savings potential of 984 GWh. In 2023 alone, more than 1,300 new projects with savings potential of 179 GWh were introduced.

Lever 2: New clean power

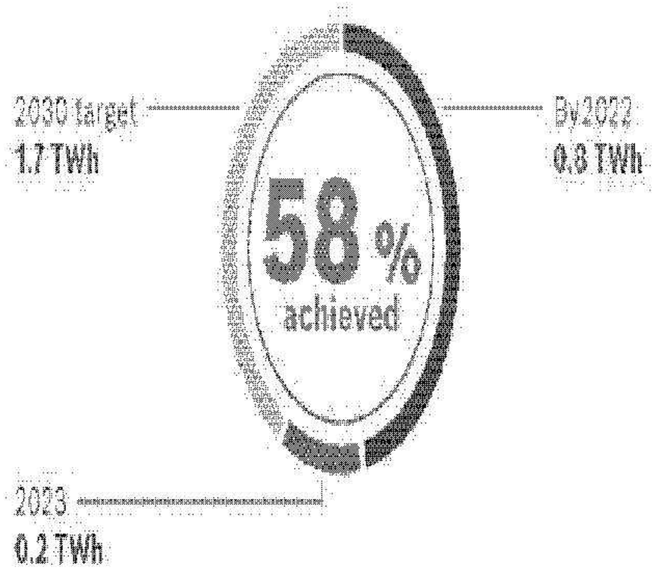
By 2030, we want to generate 400 GWh of the annual energy demand in-house at our company locations from renewable sources. We are placing particular emphasis here on photovoltaics (PV). A total of 114 Bosch sites were already using solar power for their energy supply at the end of 2023. We also operate a hydroelectric power station at our site in Blaichach, Germany.

In total, we generated around 149 GWh of renewable energy at Bosch in 2023, which means that as of year-end we have already achieved 37 percent of the target. Locations in India accounted for around 28 percent of the volume of renewable energy generated at Bosch, followed by China (24 percent), and Germany (23 percent).

G 09

Goal achievement for energy efficiency

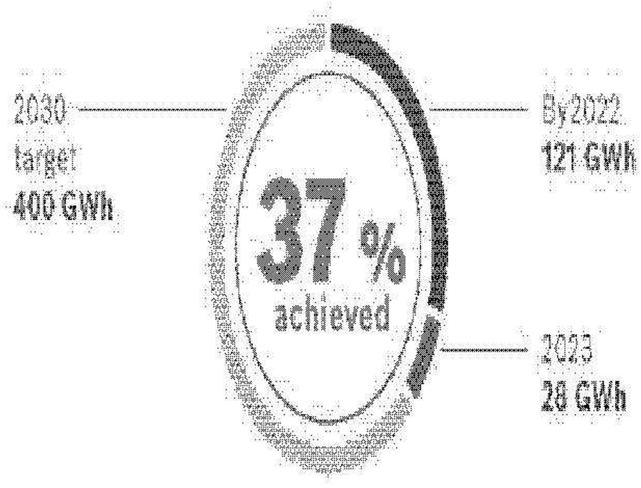
Savings potential captured with measures to increase energy efficiency



G 10

Goal achievement for new clean power

In-house energy generation from photovoltaics and hydroelectric power



In 2023, we carried out a number of projects that allowed us to further increase energy efficiency at our company locations and improve the potential to generate our own energy from renewable sources. These are some examples.

Worcester: Testing on site rather than in the lab – and making direct use of the input energy

Efficiency increases in qualitative endurance testing of gas heating appliances at the Worcester site in the UK have resulted in annual energy savings of more than 3 GWh and a corresponding reduction in CO_2 emissions by 576 metric tons. The improvements were achieved on the one hand by shortening internal tests while, on the other hand, the majority of laboratory tests were replaced by field tests with a number of British households. The input energy will therefore no longer be consumed in the laboratory, but in the households for heating and hot water preparation.

Braga: From natural gas to electricity from renewable sources

In the city of Braga in Portugal, a two-year decarbonization project was concluded in 2023, which involved substituting natural gas with electricity from renewable sources. The project involved the installation of a geothermal heat pump, efficient cooling units with heat recovery systems, and a comprehensive building management system. Since November 2023, Bosch has ceased using natural gas in Braga and switched instead to electrical energy. The company generates some of this energy directly on site using around 6,000 newly installed photovoltaic modules, which cover roughly 10 percent of the site's annual electricity demand.[1]

Further increase in the use of solar power

Bosch expanded its photovoltaic capacity in 2023 through a number of projects. In China, for example, the existing facilities at sites in Wuhan and Nanjing were extended by additional solar modules. This increased the capacity of the facility in Nanjing by 1.5 MW_{Peak} to a total of 4.1 MW_{Peak}, which means that roughly 23 percent of the site's annual electricity demand[1] can be covered in the future. An additional 3.89 MW_{Peak} will be available in the future in Wuhan, thus increasing the capacity of the facility to 4.99 MW_{Peak} and covering around 17 percent of the annual electricity demand[1] on site.

Existing photovoltaic systems were also extended at various locations in Germany in 2023. For example, a total of 5,550 solar modules with a capacity of 2.1 MW_{Peak} were installed in Salzgitter, thus increasing the total output of the photovoltaic system locally to 4.85 MW_{Peak}. In the future, around a quarter of the annual electricity demand[1] locally will therefore be generated from solar power.

[1] Calculation based on electricity consumption in 2023.

Lever 3: Green electricity

Bosch has concentrated on purchasing green electricity from existing plants and has been greatly expanding its purchase volume from green electricity with corresponding guarantees of origin since 2019. In total, around 99 percent of the Bosch Group's global electricity demand was already covered using green electricity in the reporting year. We have therefore already reached our interim target for 2025 and are set to exclusively source green electricity by 2030. Bosch has already successfully made the transition in a number of countries – Japan, Malaysia, Singapore, and South Korea followed in 2023.

At the same time, we have been involved in long-term agreements with our energy suppliers (Power Purchasing Agreements, PPAs) since 2020 and in 2023 concluded new agreements in Germany and the Netherlands. All told, Bosch purchased around 426 GWh in 2023 through long-term power purchasing agreements.

Lever 4: Carbon offsets

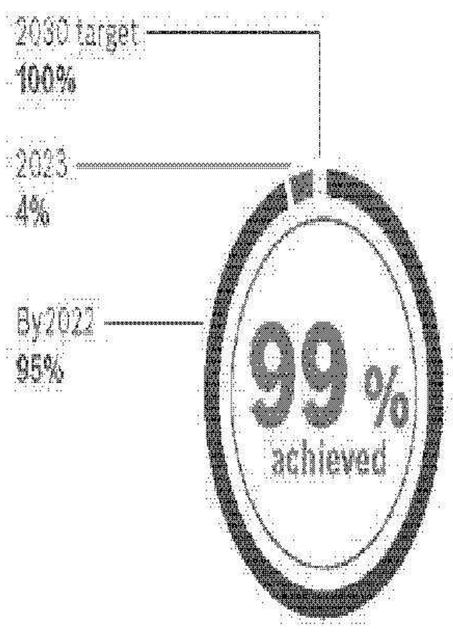
At present, we use carbon credits to offset residual CO_2 emissions, such as those from combustion processes (heating, process heat). In addition, we refer to carbon credits to offset electricity sourced in countries with only limited availability of green electricity.

As we make progress with levers 1 to 3, we want to further reduce the share that we offset to achieve carbon neutrality (scope 1 & 2) to no more than 15 percent by 2030 (baseline year 2018). In 2023, we came another step closer to achieving this target – especially as a result of progressively switching from gray to green electricity (gray electricity: electricity from fossil fuels). We cut the volume of emissions to be offset to some 581,000 metric tons of CO_2 in the reporting year. This is around 136,000 metric tons of CO_2 or 19 percent less than in the previous year (see T 05).

G 11

Goal achievement for green electricity

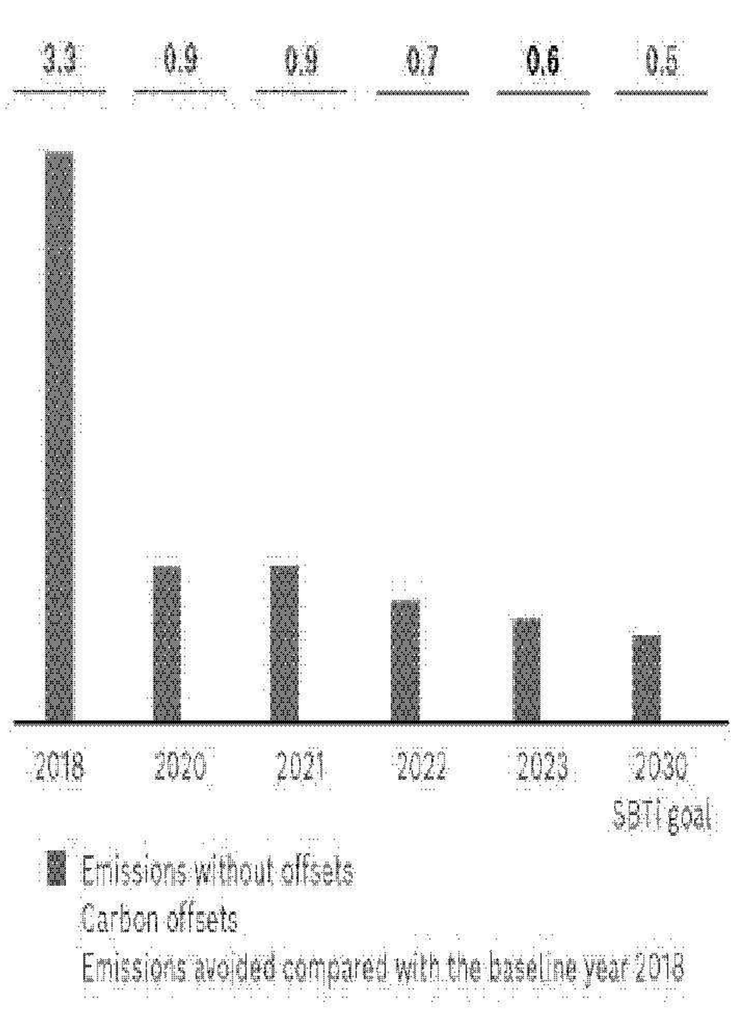
Global electricity demand covered by green electricity



G 12

Climate action at Bosch – the path to 2030

CO_2 emissions (scope 1 & 2) in millions of metric tons



When selecting carbon offset projects, we are guided by internationally recognized and independent certifications, such as the Gold Standard. In the future we want to focus our carbon offset measures even more intensively on nature-based removals. The relevant projects involve sequestering CO_2 in biomass, for example by afforestation.

Bosch calculates the emissions it needs to offset using the standards of the International Energy Agency (IEA, Emission Factors 2022) and the Intergovernmental Panel on Climate Change (IPCC). In 2020, we switched to a market-based presentation. Previously, we had used the location-based approach (up to and including 2019). In the calculation, we focus on the greenhouse gas CO_2 as well as on emitted process gases and hydrofluorocarbons (HFCs). An internal analysis has shown that Bosch does not produce or emit any other greenhouse gases to any material extent that would be subject to disclosure requirements.

Air emissions

Air pollutants can affect people's health and should therefore be reduced. In 2019, Bosch launched a project to analyze which air pollutants are produced and at what levels in the relevant business processes in manufacturing, such as surface treatment, foundry processes, and building heating. The results show that air pollutant emissions have no significant impact on people and the environment and are therefore not subject to disclosure requirements.

Outlook: Climate action strategy extends beyond 2030

Bosch has set itself clear climate action targets for 2030, but is already looking beyond this date. Since Bosch is aiming to use green electricity exclusively by then, the relevant potential must be leveraged in particular through changes in technology – such as in the area of mobility and heating of buildings. In addition, increases in energy efficiency and the measures pursued with the "New clean power" lever can deliver further climate action improvements. An analysis of all 430 locations in 2023 showed that further advances in climate action can still be achieved beyond 2030 – with a wealth of relevant projects already in the pipeline. However, the fact that the cost effectiveness of the energy efficiency projects will decrease over time must be considered. In other words, further improvements will require increasing effort. We are therefore striving to enhance the cost-effectiveness of the projects in partnership with customers so that we can contribute as best as possible to climate action with the resources available to us.

Goal management and implementation

The Corporate Sustainability Board is the central body for goal management in climate action and convenes twice a year. It makes decisions on implementing the climate action strategy (scope 1, 2, 3) and manages implementation of the adopted action plans (see the "Strategy and management" section).

To achieve the group-wide targets set for 2030, all Bosch divisions are pursuing staggered annual targets. These targets are set based on energy demands and the savings achieved so far. Targets are cascaded down to individual company locations at the discretion of the respective divisions and the degree to which targets are met is tracked centrally. On this basis, those responsible at the divisions and company locations make decisions to implement measures to improve energy efficiency or to initiate projects to generate their own energy.

As the availability and quality of green electricity and the legal conditions for the expansion of renewable energy differ between countries, the regional organizations are responsible for green electricity and new clean power projects. Carbon offsets are regulated centrally to ensure the quality of projects. The sites themselves order and transact the measures.

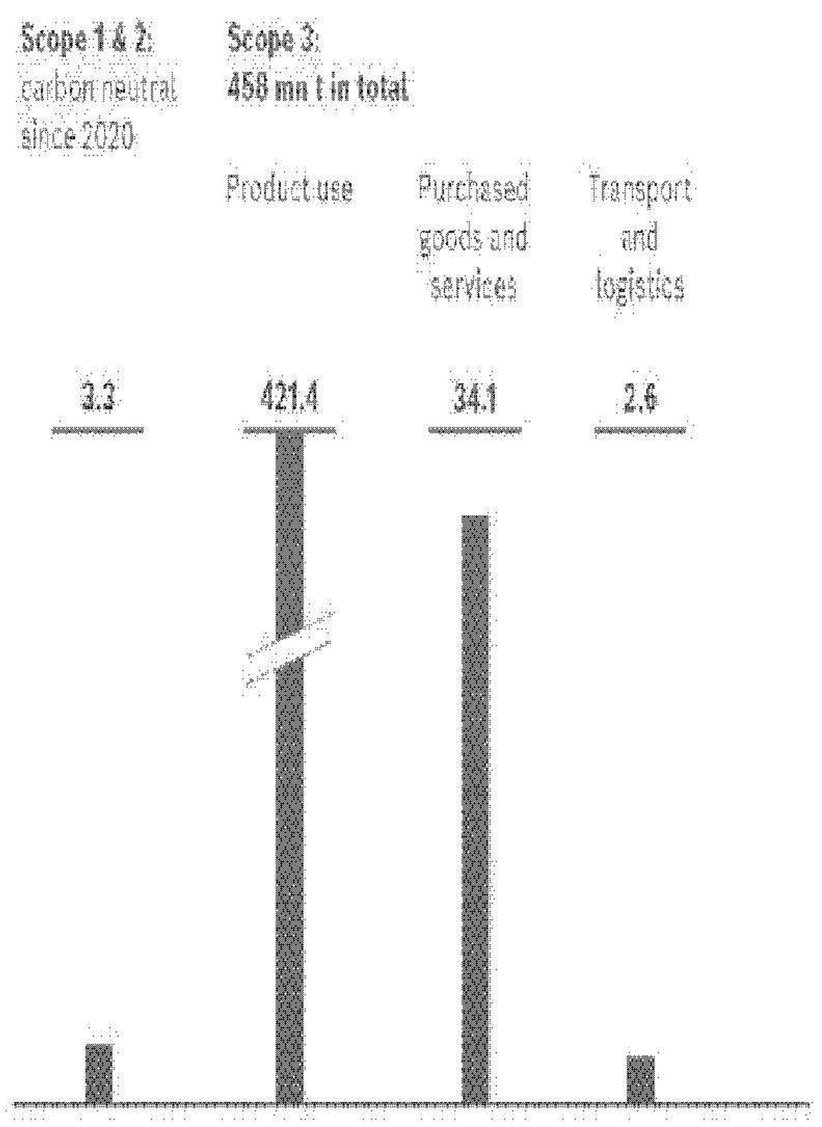
Upstream and downstream emissions (scope 3)

We want to shape climate action beyond our immediate sphere of influence (scope 1 & 2) and also systematically reduce upstream and downstream emissions (scope 3). We aim to cut these by 15 percent in absolute terms by 2030 compared with the baseline year 2018. In this process, we are focusing on the categories that make up around 98 percent of our scope 3 emissions. Upstream emissions in the Bosch value chain primarily concern purchased goods and services as well as logistics. Downstream emissions are mainly caused by the use of our products.

G 13

Main scope 3 categories in baseline year

Bosch Group 2018, in millions of metric tons of CO_2



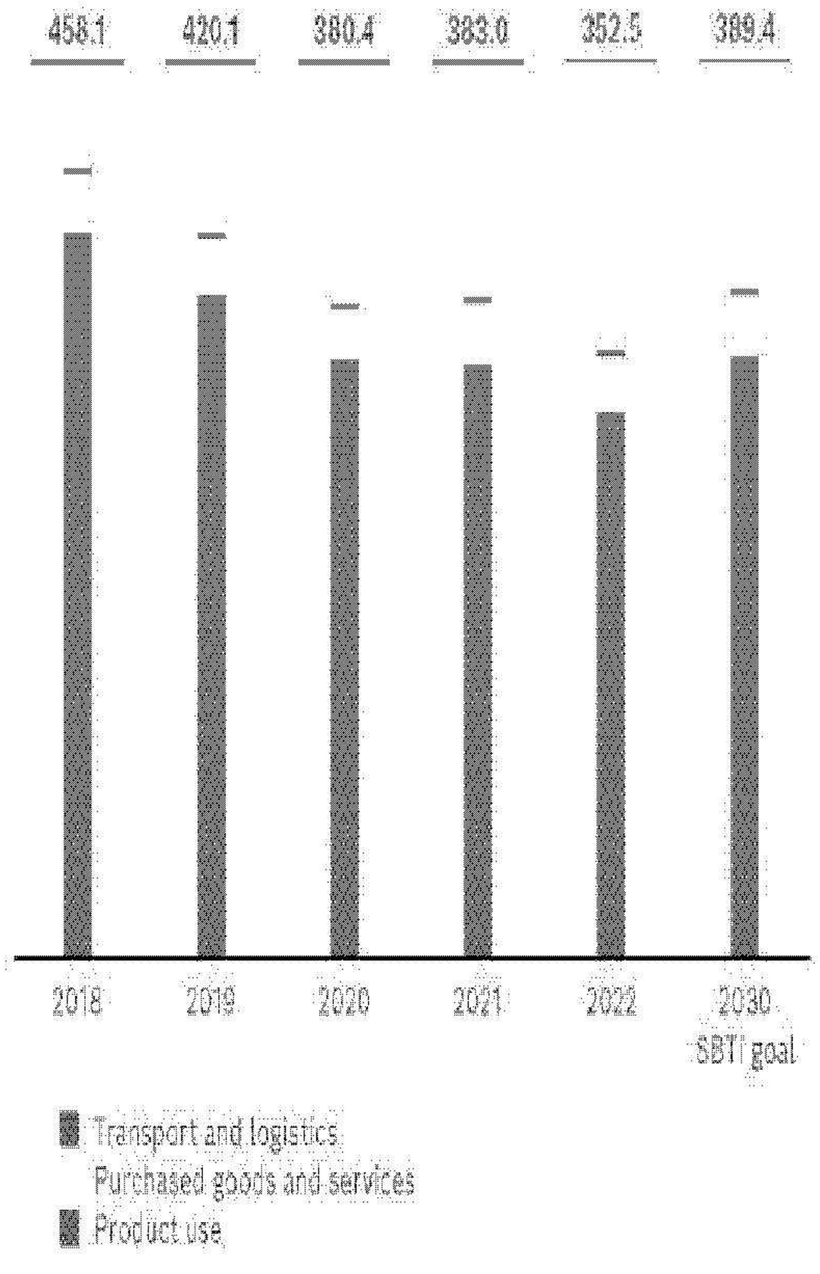
To improve data quality further, the calculation of scope 3 emissions was revised in 2023. In the process, we have included additional business activities in the calculation in the "product use" category and are using primary data increasingly in the "purchased goods and services" category.

At 458 million metric tons of CO_2 in the baseline year 2018, upstream and downstream emissions exceeded those in scopes 1 and 2 several times over (see G 13). Since 2018, we have cut our scope 3 emissions by around 23 percent, down to 353 million metric tons of CO_2 in 2022 (see G 14). The main challenge now is to mitigate future emissions relating to the anticipated sales growth by 2030. This is because the percentage target value for reducing emissions was purposefully set independently of sales growth, which means that the absolute amount to be mitigated will increase steadily as the company grows in future. We can directly influence the achievement of targets through more efficient products. On the other hand, there are also a large number of external factors that Bosch can only influence indirectly, such as suppliers' success in reducing CO_2 emissions, the speed of transformation processes in the energy and mobility sector, or general economic development (see G 15).

G 14

Development of scope 3 emissions

Bosch Group 2018–2022, in millions of metric tons of CO_2



The corresponding scope 3 figures for 2023 were not available before publication of this report, but will be published without delay in the key figures tool at sustainability.bosch.com.

G 15

Key levers for achieving the scope 3 target

Calculation base and main direct and indirect levers

Scope 3 categories	Calculation base	Key levers for reducing CO_2 (Direct → Indirect)		
		Realign top-down	Refine status quo	Transform energy sector
Upstream emissions **Purchased goods and services** (including machinery and equipment) **Transport and logistics** (also downstream)	• Purchasing volume • Goods categories • Source region • Mode of transport	• Supplier selection • Sourcing of secondary raw materials • Mode of transport (sea, land, air)	• Supplier development • Route optimization	• Green electricity • Hydrogen • Biogas
		Energy efficiency		**Transformation and portfolio optimization**
Downstream emissions **Product use**	• Volume • Sales revenue • Efficiency • Energy source • Emissions factors • Product life	• Increased efficiency • Digitalization • Optimized use		• Investment in growth areas (e-mobility, heat pumps) • Phaseout of products with lowest energy efficiency

In order to achieve our goal, we are taking a step-by-step approach. Having identified the main scope 3 categories, we increased the granularity of our calculations. This allows us now to identify significant drivers for emissions within purchasing and logistics as well as in the use of our products, and to derive measures that make a measurable contribution to climate action.

Scope 3, upstream: Purchased goods and services

To reduce upstream CO_2 emissions in purchasing, we drew up a steering concept in 2022 that is mandatory for all divisions. The individual instruments fit seamlessly into Bosch's higher-level sustainability methodology system.

We want to make sure that suppliers can use their resources as efficiently as possible. With this in mind we do not influence the measures they choose to reduce CO_2 emissions, rather we aim to enter into target agreements with our suppliers.

General target agreements

We use general target agreements with suppliers to improve CO_2 performance, based on valid and transparent data on carbon emissions and preferably in combination with a specific SBTi commitment.[8] More than 450 of our suppliers had already committed to specific CO_2 targets by 2023 (prior year: 232 suppliers) and are thus following the path Bosch has also taken with its climate targets (scope 1, 2, 3).

[8] The SBTi commitment refers to the voluntary commitment by companies to set science-based targets for reducing greenhouse gas emissions. Through this commitment, companies demonstrate their willingness to contribute actively to climate action and to align their business practices with the goals of the Paris Climate Agreement.

Individual ambition levels were developed with all relevant Bosch divisions in 2023, which cover the period from 2024 to 2030. We are collaborating with our suppliers on this basis to obtain detailed information and data on group-wide CO_2 emissions (scope 1, 2, 3) for around 80 percent of our purchasing volume by 2030. This figure stands at 60 percent at the moment. At the same time, we intend to source more than 50 percent of our purchasing volume from suppliers that have already committed to the Science Based Targets initiative (SBTi) and set themselves targets in line with the Paris Climate Agreement. We will track the progress made centrally in the coming years.

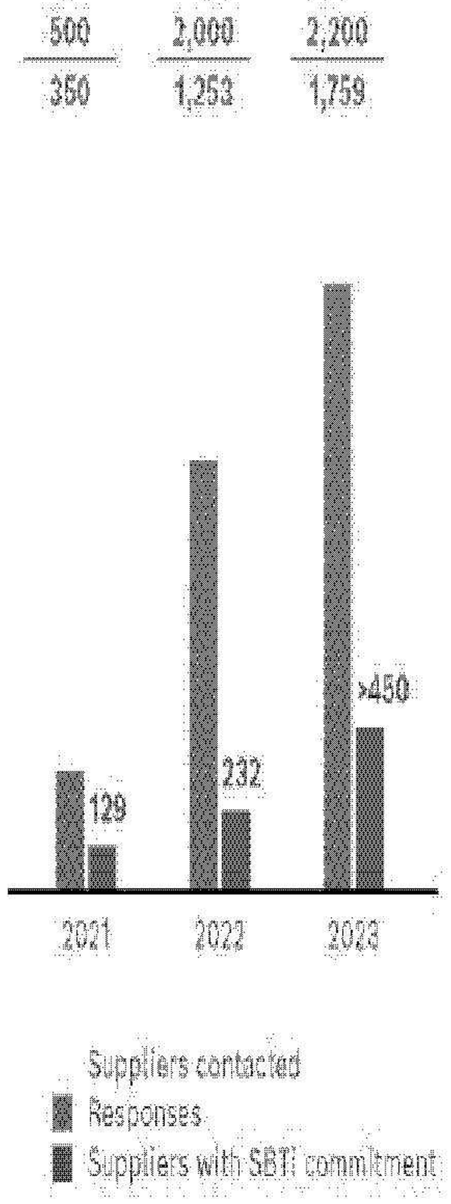
Following the successful completion of a number of pilot projects, many of the Bosch divisions have taken account of the sustainability performance of potential suppliers in the purchasing process since 2023, in order to support the achievement of targets in the award process. Apart from the direct effects on our upstream CO_2 emissions (scope 3), this approach gives Bosch a multiplier effect, which exceeds the effects in its own supply chain many times over. This is because the improvements initiated by Bosch in the CO_2 performance of the suppliers also impact their other products and business relationships.

Specific agreements for focus materials

We also use specific agreements with our suppliers for focus materials such as steel, aluminum, copper, and plastics as these materials are responsible for a significant portion of CO_2 emissions in the supply chain. To purchase materials that are as low-carbon as possible in the future, we carried out a number of measures in 2023, including analyzing the specific CO_2 reduction potential and identifying reduction paths, as well as launching initial pilot projects in some divisions.

G 16

Results of surveys via the CDP platform



Approach and methodology for improving scope 3 data quality

Clear rules and targets require uniform definitions and calculation standards because this is the only way to make performance transparent and comparable. This is particularly true when it comes to advancing sustainability issues overall across supply chains. As there is still no international standardization and the information currently available is sometimes of poor quality, we rely on a combination of approaches to obtain supply chain data and try in this way to improve the quality and comparability of the data collected.

We prefer to use primary data that we request our suppliers to provide. Through these direct requests, for example via the CDP platform, we obtain specific data on our suppliers' individual emissions profile and make their specific development transparent. If no primary data is available, we use secondary data from established databases. In that case, for example, emissions for specific products are recorded using industry averages that also take account of the technology used in the manufacturing process and geographical factors. The corporate carbon footprint (CCF) is calculated on this basis. The CCF is the share of the supplier's emissions that is attributed to Bosch as the buyer on the basis of sales. At present, we mainly use secondary data that we obtain using input/output models at company level. This enables us to benchmark all suppliers based on comparable standards and to manage them strategically. We plan to use primary data largely in the future so that our calculations are as precise as possible. We continued to follow this approach in 2023 too by carrying out a comprehensive CDP survey (see figure).

The product carbon footprint (PCF) is a means for us to record those emissions caused during a product's manufacturing and production process. Here, too, primary data is preferable to secondary data because they are of greater informative value, as directly requested product-related information provides the greatest possible transparency and accuracy. A lack of international standards is still making data comparisons difficult at present. Bosch therefore supports cross-company standardization along the complex value chains in the automotive sector and is involved in initiatives such as Catena-X. In addition, we are working with external partners on a software solution to obtain primary data on the PCF from our suppliers. At the same time, existing database structures will continue in parallel for recording product-related primary data.

Determining the corporate carbon footprint or product carbon footprint

Improving data quality in two stages, scope 3, upstream

	Scope 3	
	Secondary data (sources)	Primary data (sources)
Corporate carbon footprint (CCF)	Databases	Supplier survey, e.g. via the CDP platform
Product carbon footprint (PCF)	Databases	Development of standards, e.g. in initiatives such as Catena-X

Scope 3, upstream: Transport and logistics

In logistics, we primarily aim to reduce CO_2 emitted during the transport of goods. We have a variety of instruments at our disposal here:

Optimizing freight

Transport management centers (TMC) have been established worldwide to manage shipments between suppliers, Bosch plants, and customers. We have already achieved a high degree of standardization in this area and can guarantee efficient transport – also with respect to environmental criteria – by pooling freight. To secure even higher capacity utilization, especially for road shipments, a new transport management system was introduced at Bosch in 2023. This system enables cyclical strategic planning of the transport network and short-term operational planning of routes, modes of transport, and load quantities.

Our goal is to increase transport capacity utilization by truck from its current level of 65 percent to 80 percent in 2025 and thus reduce carbon emissions with this mode of transport by up to 10 percent.

At the same time, we are working on moving freight transport from road to rail. BSH Hausgeräte GmbH has been operating what it calls a "Vierecks-Zug" since 2023, which supplies the four locations in Giengen, Łódź, Nauen, and Wrocław with components and finished appliances. The annual reduction in carbon emissions compared with the previous road transport is around 1,200 metric tons of CO_2, which corresponds to a saving of 36 percent.

Alternative drives and fuels

In the future, alternative drives and fuels will play an ever-greater role in reducing carbon emissions. The availability of vehicles with alternative drives is increasing all the time. In ongoing projects, Bosch is already today evaluating further potential to curb CO_2 in delivery traffic. Attention is focused here on strategic cooperation with logistics service providers in a bid to achieve short- and medium-term CO_2 emissions reductions by using biofuels or alternative drive technologies.

The first applications worldwide were launched in 2023. For example, Bosch is already using trucks powered by fuel cell technology in China. Meanwhile, battery-electric powered trucks are used for shuttle traffic at sites in Anderson in the USA and Wernau in Germany. In addition, some of our parcel services have been using battery-electric powered vans and have provided us with evidence of the CO_2 savings compared with diesel vehicles.

Following an initial successful pilot project for introducing HVO100 (Hydrotreated Vegetable Oils) with two logistics service providers the previous year, in 2023 we managed to convince additional logistics service providers to use HVO100 and BioLNG (a mix of liquefied natural gas (LNG) and liquefied biomethane). As a result, we are now using alternative fuels on 20 routes in Europe and are thus saving around 1,500 metric tons of CO_2 annually compared with the use of diesel fuel. We are counting on the fact that HVO100 will also be available on the open market in Germany from 2024, so that we can also switch further routes here from diesel to HVO100.

Reducing air transport

Air cargo remains economically viable for parts such as electronic components or smaller and lightweight parts and is practically irreplaceable for reducing turnaround times in international production networks. As a general rule, however, we want to avoid air cargo and only use it in exceptional cases, since roughly 70 percent of all of Bosch's transport-related CO_2 emissions are attributable to this mode of transport. Whenever possible, we therefore switch shipments destined for Bosch from air to sea or rail freight. The corresponding potentials are reviewed continuously.

Improving packaging design

In a joint initiative with the divisions, work is also under way to increase packing density in a bid to use less packaging material, storage space, and transport capacity – in turn, reducing CO_2 emissions. Packaging design centers have been set up in Europe and North America to improve and standardize packaging. At the same time, we want to use packaging material with a higher recycling content.

In 2023, this led us to develop optimized packaging for around 350 components as well as the finished product for one of our future products, the mobile fuel cell. This was achieved as part of an interdisciplinary team under the leadership of one of the packaging design centers. Plastics with a 25 percent recycling content and steel with a 50 percent recycling content were chosen as materials for packaging the finished product. In addition, a comparative sustainability calculation was carried out to determine the lowest emission packaging concept for each mode of transport (road, sea, air).

Consistent use of the total cost of ownership (TCO) approach

The TCO approach considers all costs incurred when purchasing a component or a product. These costs include freight, customs, and packaging costs. In addition, risk and location factors are assessed, which likewise contribute to the decision to buy. An example of this is the proximity to our site. The corresponding potentials are reviewed continuously.

Reduction in transport-related CO_2 emissions

A team made up of representatives from purchasing, central logistics, the divisions, and plants is working on developing key measures for reducing CO_2 emissions. Moreover, the individual divisions and plants devise local measures that are implemented on site.

In 2023, the stabilization of supply chains led to a decline in the number of unplanned shipments, which in turn resulted in a significant reduction in CO_2 emissions. Together with other transport optimizations and individual measures, such as the use of alternative drives and fuels, initial calculations show a decrease in transport-related CO_2 emissions by 17 percent compared with 2022.[3]

Since 2020, we have also been offsetting the CO_2 emissions generated by the business air travel of all associates and are supporting climate action too with our worldwide principles on company car usage. In addition to reducing CO_2 emissions, for example, through a defined CO_2 cap or a bonus/penalty scheme linked to a vehicle's CO_2 emissions, the country-specific regulations also provide for a range of alternative forms of mobility to the classic company car.

[3] The final scope 3 figures for 2023 were not available before publication of this report, but will be published without delay in the key figures tool at sustainability.bosch.com.

Scope 3, downstream: Product use

Although energy efficiency in product development has a high priority for Bosch, around 90 percent of scope 3 emissions are generated during the product use phase. We currently see the greatest potential for lowering CO_2 emissions in those divisions in which products require a relevant amount of energy, that is above all mobility, thermotechnology, industrial drive and control technology, and household appliances. The focus is on three leverage points in each case:

- Boosting energy efficiency

The energy efficiency of products can increase from one product generation to the next. That said, we keep an eye on the average energy efficiency of a product portfolio.

For example, Bosch Rexroth leverages energy efficiency potential by improving design parameters (e.g. weight reduction) and through the type and quality of the materials used. By offering more energy-efficient electric motors as part of active portfolio management, Bosch Rexroth was able to increase the proportion of electric motors with the highest efficiency to roughly 50 percent of the total sales of electric motors in 2022.

- Market transformation and portfolio optimization

Far-reaching structural changes in markets or industries, for example as a result of technological innovations, changes in consumer patterns, regulations, or globalization, require fundamental adjustments to a company's strategies and business models. These transformation processes can be used to deliver improvements in climate action.

A current example of this is the transformation of heat supply to renewable energy sources. The Home Comfort division is driving this development through expansion of the electric portfolio and is investing in particular in development and production capacity for heat pumps. This strategy is beginning to bear fruit in the form of higher sales figures in recent years and the resulting reduction in emissions from product use (scope 3). In the area of Home Comfort, these scope 3 emissions were 21 percent lower in 2022 compared with the baseline year (2018), which is attributable largely to the shift in the portfolio from fossil fuel heating systems to electric solutions.

As one of the largest suppliers to the automotive industry, Bosch is pressing ahead with the transition to electromobility and utilizing the available opportunities. The company wants to generate sales of six billion euros in this area in 2026. Our customer numbers doubled in the period from 2019 to 2023. As early as 2022, Bosch was able to increase the production of components for electric cars by 50 percent year on year. By the end of 2023, Bosch had manufactured more than 4.5 million electric motors and more than four million inverters.

- Transformation of the energy sector through the use of green electricity, hydrogen, and biogas

Because many of Bosch's products, systems, and facilities operate on the basis of electricity, an increased proportion of green electricity in the power grids has a direct positive effect on our carbon footprint downstream, so during the product use phase. The corresponding transformation of the energy sector is therefore highly relevant for achieving our scope 3 target – even if it can only be influenced in a small way by Bosch.

To achieve the overarching SBTi target, the relevant divisions are pursuing specific CO_2 targets and targeted action plans. The plans are based on currently available findings and market development scenarios in the coming years. The progress toward goal achievement as well as the underlying scenarios and framework conditions are reviewed annually. If any changes occur, we make adjustments accordingly.

Reduction in CO_2 emissions in the product use phase

Up until 2022, we were able to significantly reduce scope 3 emissions resulting from the use of our products – from 421 million metric tons of CO_2 in the baseline year 2018 to 314 million metric tons of CO_2. The main drivers underlying this reduction include the shift initiated within the product portfolio toward higher energy efficiency classes, more energy-efficient motors and pumps, the supply of heat pumps and solar collectors, as well as the transformation toward e-mobility.

Circular economy

With our circular economy strategy, we want to enhance the sustainability of our products over their entire life cycle – from procurement and production to use, return, and remanufacturing, right through to recycling and reuse of materials. To this end, we endeavor to either create loops directly within Bosch or close them outside the company using established recycling processes. This way, we reduce the amount of materials used and our products' carbon footprint[1] and contribute toward achieving our scope 3 target.

[1] Unless otherwise stated, carbon footprint takes into account all greenhouse gas emissions ranging from raw material extraction to transport, production, sales, and use through to disposal of the product (cradle to grave) (see DIN EN ISO 14067).

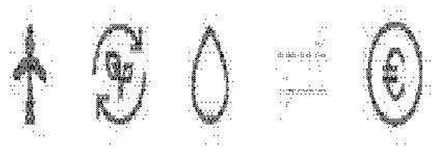
At the same time, we also avoid potential risks relating to compliance with environmental and social standards. Building a closed-loop system for materials has the particular advantage of eliminating parts of the value chain that are subject to risks, such as extraction of raw materials.

As with climate neutrality (scope 1 & 2), in our circular economy strategy we use a model comprising levers that can be applied across the entire value chain and that is based on the core levers of our higher-level sustainability methodology (see G 17). Depending on the markets in which our divisions operate, however, the levers differ in their degree of effectiveness, are not equally applicable across the board, and

G 17

Sustainability methodology, focus on circular economy

Measures for improving sustainability performance along the value chain



	Upstream	Own operations	Downstream
Increased efficiency	Materials efficiency: Efficient use of material, analysis of the associated environmental and social effects		
Resources from renewable sources		Second life: Reuse, repair, and remanufacturing of products and components	
Changes in technology	Recycled materials: Use of recycled materials and recovery of raw materials		
Range of topics	Scope 3, upstream: Purchased goods and services	Design for Environment and waste management	Adjustment of product portfolio

therefore offer different development potential. This was evident from an analysis we carried out in 2022 of around 80 product groups, which collectively account for roughly 80 percent of Bosch's sales revenue. It is therefore vital for Bosch to develop a market-specific circular economy strategy for each division and find the optimum mix of the three levers in each case.

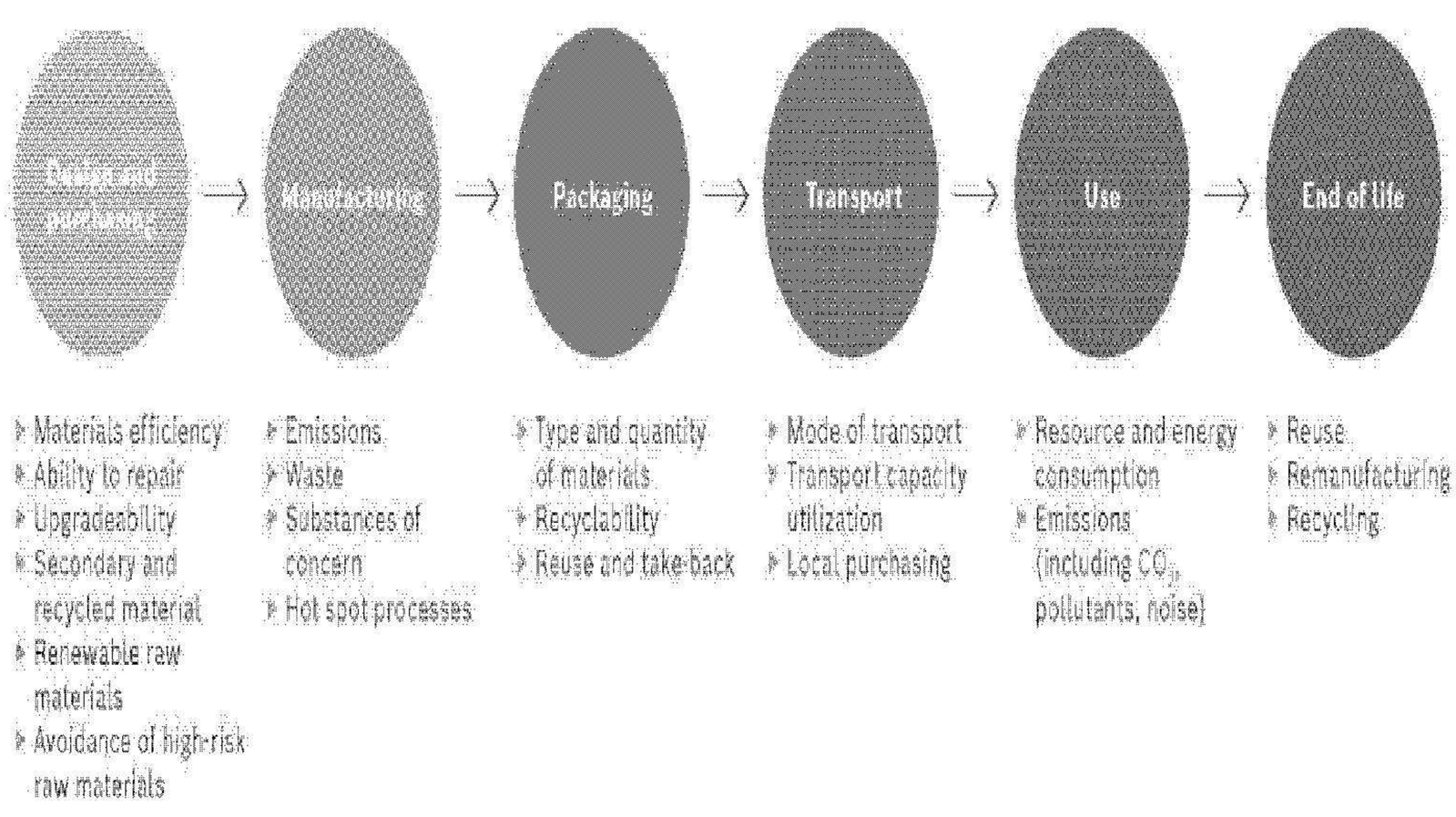
By organizing the material flows according to the concept of the circular economy, we also impact the corresponding CO_2 emissions directly. This relationship is also illustrated by our new sustainability methodology. This means that by using material more efficiently and taking advantage of recycled material, fewer resources are consumed in general and the related CO_2 emissions are also reduced. With remanufacturing of products and parts, the product is rebuilt and only defective parts are replaced. This extends the product life cycle.

Life cycle assessments

Based on the idea of a closed-loop or circular economy, we have been systematically conducting life cycle assessments (LCAs) for major product groups since 2017. This entails evaluating product-specific environmental aspects in each phase of the product life cycle – from purchasing to production and use right through to disposal. Depending on the use case, we distinguish between two assessment methods: the full-scale LCA, performed in compliance with ISO 14040 and 14044, and the streamlined LCA, allowing faster assessment of specific issues and drawing on standard database values.

G 18

Environmental aspects of Design for Environment



Lever 1: Materials efficiency

Improvements in materials utilization can reduce resource consumption and also cut the manufacturing cost of a product. Bosch can also directly influence the corresponding measures.

For years, improvements in materials efficiency in production processes and the materials efficiency of our products have therefore been an essential element of our product development process, where it is anchored in an internal standard via the Design for Environment (DfE) principle. Objectives such as the efficiency of powertrains are formulated here for the specific product and tracked using appropriate indicators if required. The environmental and social effects of using certain raw materials are also considered in order to keep the environmental impact of materials utilized as low as possible, while at the same time taking into account social aspects.

A comprehensive web-based training program was established in 2023 to increase awareness among developers, in particular, of aspects of the circular economy. Split into four modules, the program provides training on sustainable product development, materials efficiency, second life, and recycling-compliant development. In addition, a document was prepared as a guide with design tips, example solutions, and background knowledge, in order to provide developers with specific information for developing products with greater awareness for the circular economy. Also in 2023, a cross-divisional and interdisciplinary project was launched with the central sustainability and research departments. Based on the example of a product group, the objective of the project was to develop specific strategies and implementation options for developing products in line with the circular economy.

Bosch Green Collection fridge-freezer combination

The new Bosch Green Collection fridge-freezer combination not only has low energy consumption with energy efficiency class B but is also manufactured with more environmentally friendly materials. Low-CO_2 steel is used for the side panels and other metallic paneling of the appliance which, in terms of its production, delivers a 70 percent reduction in CO_2 emissions compared with the conventional steel used previously.[1] In addition, bio-based, carbon neutral insulating foam and plastic are used in part during manufacturing. These measures have made it possible to reduce the carbon footprint of the appliance's production materials by 33 percent to approximately 200 kilograms of CO_2.[2]

[1] Unlike conventional steel, low CO_2 steel is produced with low CO_2 raw materials and with the aid of biomethane.

[2] Comparison between the Bosch Green Collection fridge-freezer combination (KGN39OXB1) and a comparable fridge-freezer combination with conventional production material (KGN39VXB1). Calculation of the carbon footprint of the production material (without packaging) based on ISO 14040. During manufacturing, the more eco-friendly material is mixed to an extent with conventional material but allocated to the Bosch Green Collection fridge-freezer combination according to the mass balance approach (ISO 22095).

Lever 2: Second life

In the second lever, we have grouped together those measures that allow us to improve material flows or to close loops within the company. The concepts and activities of the divisions range from reusing products and their components to repairs and right through to remanufacturing – in each case with the objective of extending product and component life cycles. Bosch can reduce negative effects – which arise, for example, during the extraction of raw materials – by closing the materials and products loop. The effectiveness of the measures also depends on there being sufficient demand. This places strict requirements on product development.

The individual divisions of Bosch each have their own objectives in this regard, depending on market and product-specific framework conditions. Take, for example, the Mobility Aftermarket and Bosch Rexroth divisions, which each serve the Remanufacturing and Repair and Remanufacturing business lines. Both divisions are focused in this respect on successively extending their activities in these segments.

Bosch eXchange

For over 50 years, the Bosch eXchange program has been offering customers the option to have defective vehicle components replaced with remanufactured products at specialist workshops.[13] Many customers take advantage of this offer, making the program a significant factor in Bosch's automotive aftermarket product portfolio today. Around two million components are remanufactured here every year, thereby reducing the number of new products needed accordingly. This saves roughly 3,100 metric tons of material, which is the equivalent of around 8,600 metric tons of CO_2.[14] At the same time, the program helps to reduce Bosch's dependency on the international raw materials market.

[13] Bosch eXchange can be supplemented by new material, if necessary, in order to ensure a high degree of market coverage and delivery capability.

[14] Savings are calculated based on the avoided purchase of steel, aluminum, and copper using 2022 consumption values (source of CO_2 emissions factors: ecoinvent).

Lever 3: Recycled materials

The third lever of our circular economy strategy – recycled materials – covers all measures to close the loop by established recycling processes for materials such as steel, aluminum, and plastics. This way, we can reduce the use of primary materials and lessen our environmental impact – as well as mitigate human rights risks associated with the extraction of raw materials. Our use of recycled materials also means that we are supporting the achievement of our scope 3 target.

For this reason, two divisions have focused their activities on the use of recycled materials. For example, the Bosch Power Tools division has set quantitative targets for the use of recycled materials, which extend through 2025. By then, the division also wants to have life cycle assessments available for each product family. Specific targets have also been set for packaging materials. BSH Hausgeräte GmbH is aiming to increase the proportion of recycled material used in all products and at the same time improve the recyclability of the products.

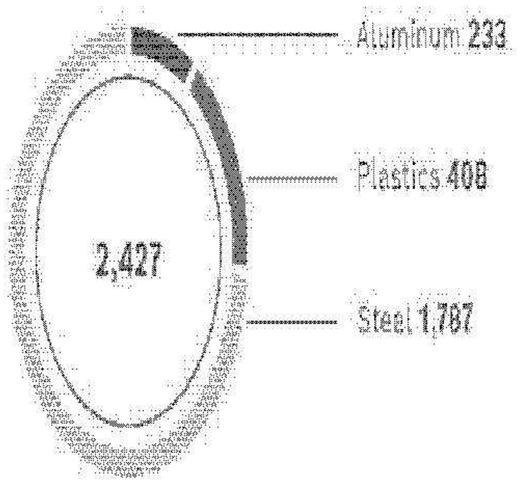
Key factors determining how effective the measures are include whether high-quality materials are available, as well as whether the percentage of recycled materials used can be verified, and whether they can be purchased cost-effectively (see also "Scope 3, upstream: Purchased goods and services").

Across all our products, the average percentage of recycled steel used is around 56 percent. At 35 percent, the proportion of recycled aluminum matches the average level in the industry. For plastics, the percentage of recycled material that we purchase as raw material is around 5 percent. We intend to increase this share further in the coming years.

G 19

Key materials used

Bosch Group 2023, in 1,000 metric tons



The ways of achieving material recycling targets are as varied as the markets addressed by our divisions. The following are some examples:

More sustainable design of measuring instruments in the DIY sector

The Bosch Power Tools division is systematically working toward increasing the sustainability of the product portfolio of measuring instruments in the DIY sector. Experience gained during the development of the Quigo Green cross-line laser shows how this might work. The carbon footprint was reduced in this case by 35 percent compared with the predecessor product across the board from the product to the accessories through to the packaging.[14]

In 2023, the division converted its portfolio of measuring instruments in the DIY sector to more eco-friendly packaging. This means, for example, that plastic bags are no longer used. At the same time, the instruction manuals are now made 100 percent from recycled paper.

Recovering platinum from fuel cells

Bosch's fuel cell powertrain system has been in series production since fall 2023. This date also heralded the start of the Power Solutions division's recycling plan. Platinum group metals[15] (PGM) are valuable raw materials processed in fuel cells. Circular economy models are particularly worthwhile for recovering these materials. For example, platinum can be recovered at a rate of at least 95 percent from fuel cell stacks, the central element of the fuel cell system. Bosch is therefore planning to buy back stacks at the end of their operational life. This makes the stacks more economical and carbon emissions generated during the mining of platinum can be effectively reduced. That's because more than 95 percent of carbon emissions caused by platinum mining can be eliminated by recycling platinum.

Fully automated system for discharging battery modules

As electromobility continues to gather pace, recycling of the raw materials contained in the batteries, such as lithium, cobalt, or nickel, is increasingly coming into focus. Bosch has developed special machinery, equipment, and software for this purpose. In 2023, Bosch Rexroth supplied Battery Lifecycle Company with one of the first fully automated systems for discharging battery modules in Europe, which is set to go into operation in 2024 – and is thus supporting the development of a European recycling infrastructure with projects like this. Experts predict that by 2030, Europe will require recycling capacity for up to 420,000 metric tons of battery material each year (source: Fraunhofer ISI, 2023).

[14] Comparison between Bosch Quigo Green cross-line laser (0.003 963 CO2) and a current reference appliance (0.003 663 CO2), calculated based on life cycle assessments (LCA) pursuant to ISO 14067:2018, cradle to gate (material, transport, production).

[15] The platinum group metals include platinum, palladium, rhodium, ruthenium, osmium, and iridium.

Waste

The previously discussed instruments are also relevant for our own activities. This is especially the case with waste management.

"Avoid, then reuse, then dispose" – that is the principle we apply at Bosch with respect to waste management. As part of its circular economy strategy, Bosch continues to work systematically on reducing waste generation and, in particular, on recycling. A guideline applicable group-wide ensures that the legal requirements for the transport and disposal of waste are complied with locally. All production locations have a clearly designated organizational unit responsible for sorting, classifying, and handing over waste to disposal companies. Ten incidents in which substances were released were reported via our incident management system in 2023. Only a small number caused effects on the environment, though these were categorized as low.

In 2023, Bosch generated 666,028 metric tons of waste (prior year: 678,260 metric tons), a decrease of 1.8 percent. Of the amount of waste, it was possible to recycle 86 percent. In relation to the development of sales revenue, the waste volume decreased by around 5 percent year on year (see also T 06).

An analysis of waste at a number of production locations, which together account for around 80 percent of our total amount of waste, has shown that roughly 45 percent of our waste consists of metals, 24 percent is packaging waste, and around 11 percent is hazardous waste. In addition, as the analysis also revealed, there is potential to lower the volume of hazardous waste and therefore not only reduce disposal costs, but make an important contribution to protecting people and the environment. In 2019, we decided to pursue two priorities in response to these findings: reducing hazardous waste and minimizing the amount of waste going to landfills.

At Bosch, hazardous waste occurs mainly in the form of cooling lubricants, washing water, oils, and fuels. In 2023, their volume increased by 0.8 percent to 76,436 metric tons compared with the previous year (75,807 metric tons). Specific measures are being implemented at sites with relatively large quantities of hazardous waste to reduce the amount of

T 06

Waste volume and disposal

Bosch Group 2021–2023, in 1,000 metric tons

	2021	2022	2023
Bosch Group	**689.5**	**678.3**	**666.0**
Recycled waste	602.0	584.4	569.9
Waste for disposal	87.4	93.9	96.1
thereof hazardous waste	70.1	75.8	76.4
Material-based recycling	30.9	35.4	36.7
Thermal recycling	8.2	7.0	7.6
Other recycling	7.9	7.7	7.9
Landfill disposal	3.5	3.0	3.3
Disposal through incineration	8.2	7.9	7.5
Other disposal	11.3	14.8	13.4

Waste intensity

in metric tons/million euros of sales revenue

	2021	2022	2023
Bosch Group	**8.8**	**7.7**	**7.3**

waste. Use of vacuum distillation and ultrafiltration is leading to a reduction in the quantity of cooling lubricants that need to be disposed of, while the volume of washing water is likewise decreasing. Centrifugal treatment leads to a decrease in the quantity of oil to be disposed of.

A positive step toward further reducing hazardous waste was made at the Bosch site in Wuxi in China in 2023. The volume of waste generated as a result of the electrochemical machining of injector enclosures was reduced by 30 percent year on year thanks to improvements in centrifugal treatment. At the same time, the consumption of raw materials was also reduced, without negatively impacting the product quality.

In order to reduce the amount of waste going to landfills, we want to increase the recycling ratio. With this in mind, we implemented the "Zero Waste to Landfill" campaign in 2019.

Use of substances of concern

At Bosch, substances of concern (SoC) are all substances in production aids or products that are prohibited by law, classified as prohibited under customer agreements or pursuant to in-house requirements, or are subject to declaration duties. We are continuously working to identify permissible SoC in our products and processes, adopt substitutes, and reduce or altogether avoid hazardous substances in the long term wherever possible. For example, where technically feasible, we intend to dispense with substances on the EU's REACH candidate list in new developments. Our mandatory internal Design for Environment standard N33-6 defines the requirements for handling SoC in the product development process. If permissible SoC are unavoidable in the production process for technical reasons, we conduct hazard assessments to ensure suitable protective measures are taken for safe handling of such substances.

Systematic management of materials data

At present, there are more than 15,000 statutory, industry-specific, and customer-specific regulations worldwide governing materials restrictions and declaration duties, which are continually changing and becoming more extensive. Around 1,800 of these regulations are currently relevant for Bosch worldwide, including the European Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) or the Toxic Substances Control Act (TSCA) in the United States. The resulting requirements are monitored centrally as well as at division level so that any adjustment measures needed in response to any changes can be initiated in a timely manner.

We have built a central IT system – MaCS (Material Data Management for Compliance and Sustainability) – to efficiently manage materials prohibitions and restrictions, in particular for products. The Sustainability and EHS corporate department is responsible for the technical coordination and continuous development of the IT system and processes. All substances of concern are rendered in the MaCS system using distinct identifiers such as Chemical Abstracts Service (CAS) numbers. This approach takes into account the intended use and the respective sales market as well as information on materials restrictions or defined limits. MaCS currently covers more than 30,000 identification attributes. Algorithms that map the relevant materials restrictions and

declaration regulations automate the process of matching bills of materials and associated supplier declarations against the pertinent requirements. To enable checks, MaCS maps the individual components of a product in the form of a bill of materials.

MaCS also includes information from the supplier declarations that is made available to us via systems such as the International Material Data System (IMDS), Compliance Data Exchange (CDX), and Bosch's declaration format.

This information indicates the substances contained in the individual components as well as their concentration levels. By linking bills of materials and supplier declarations, it is possible to make accurate statements about the substances contained in each component.

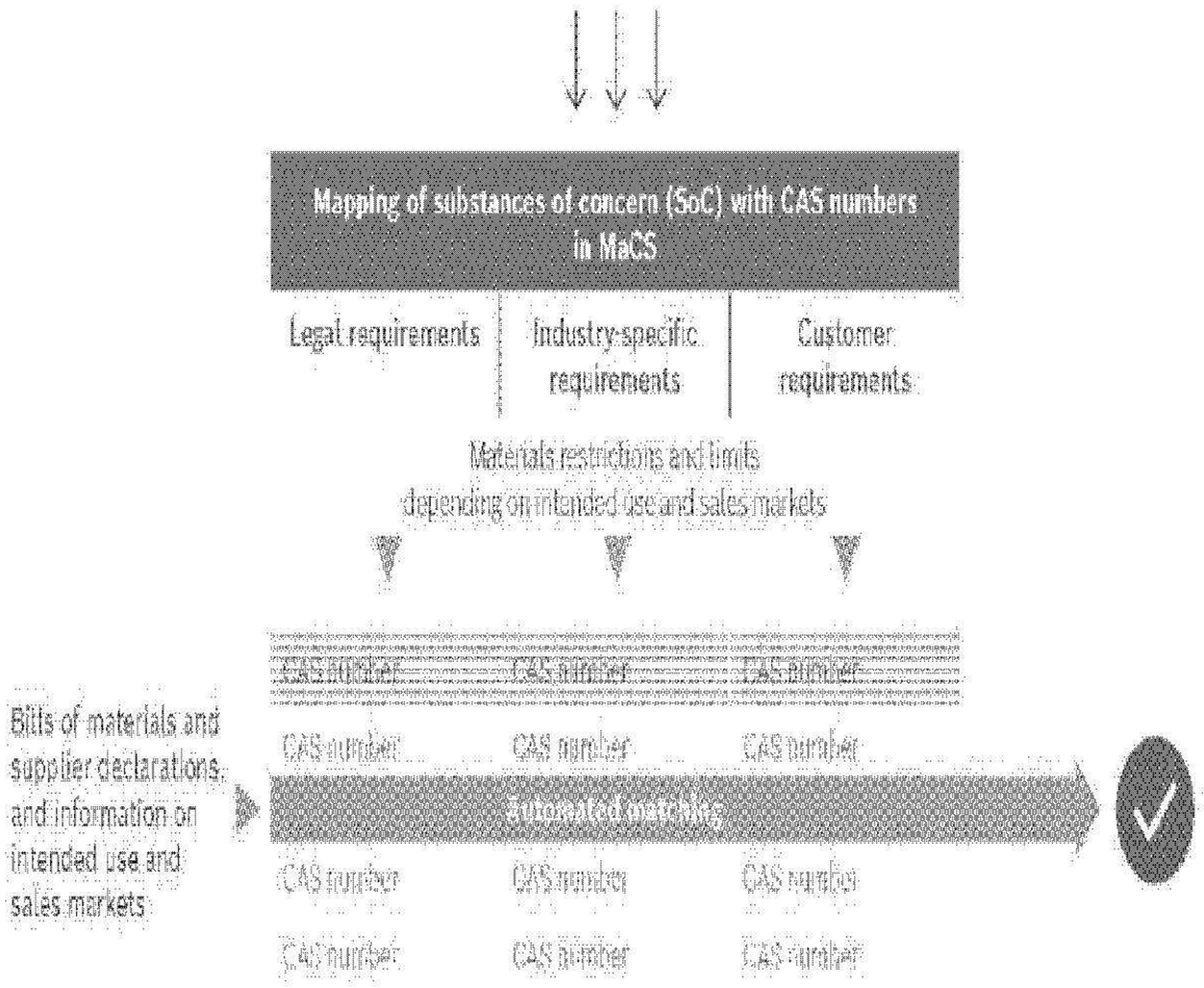
The nature and scope of declaration requirements Bosch has to fulfil with regard to SoC in materials are regulated uniformly and bindingly for all suppliers in Bosch's standard N 2580-1.

G 20

MaCS – Material Data Management for Compliance and Sustainability

Over 15,000 legal as well as industry- and customer-specific regulations on materials restrictions and declaration duties worldwide

Around 1,800 regulations are currently of relevance for Bosch worldwide



Water

Conscientious use of water is a major priority for Bosch. We especially focus on counteracting the increasing scarcity of water. Interdependencies arise in this case also with our activities in the areas of climate action and the circular economy. This became apparent when developing the sustainability methodology. Energy, material, and water consumption frequently exhibit similar patterns. For example, less water is required to produce green electricity than to produce electricity from fossil fuels (gray electricity), due to the associated high cooling water demand.[17] This means that water withdrawal can also be reduced in the supply chain by sourcing materials that have been produced with green electricity. When it comes to manufacturing steel, the water withdrawal can thus be reduced by just under 19 percent by using renewable energy in the supply chain.[18]

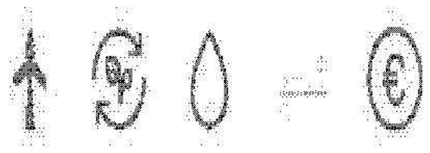
[17] Gruber Land Sanders (2018): Water Use in the United States Energy System: A National Assessment and Unit Process Inventory of Water Consumption and Withdrawals. Environ. Sci. Technol. 2018, 52, 11, 6655–6703.

[18] Internal calculation: Production of steel with green electricity compared with production of steel with gray electricity. Based on Gruber and Sanders (2018).

G 21

Sustainability methodology, focus on water

Measures for improving sustainability performance along the value chain



	Upstream	Own operations	Downstream
Increased efficiency		Water-efficient processes	Water-efficient products
Resources from renewable sources	Indirect effects of CO_2 and circular economy strategy	Rainwater usage	Water treatment
Changes in technology		Water-efficient processes	
Range of topics	**Scope 3, upstream: Purchased goods and services**	**Water management**	**Adjustment of product portfolio**

Water targets for company locations in regions with water scarcity

We analyzed our company locations using the Water Risk Filter provided by the World Wide Fund for Nature (WWF). According to this analysis, 72 of our sites are located in areas of severe or severest water scarcity (see G 22).

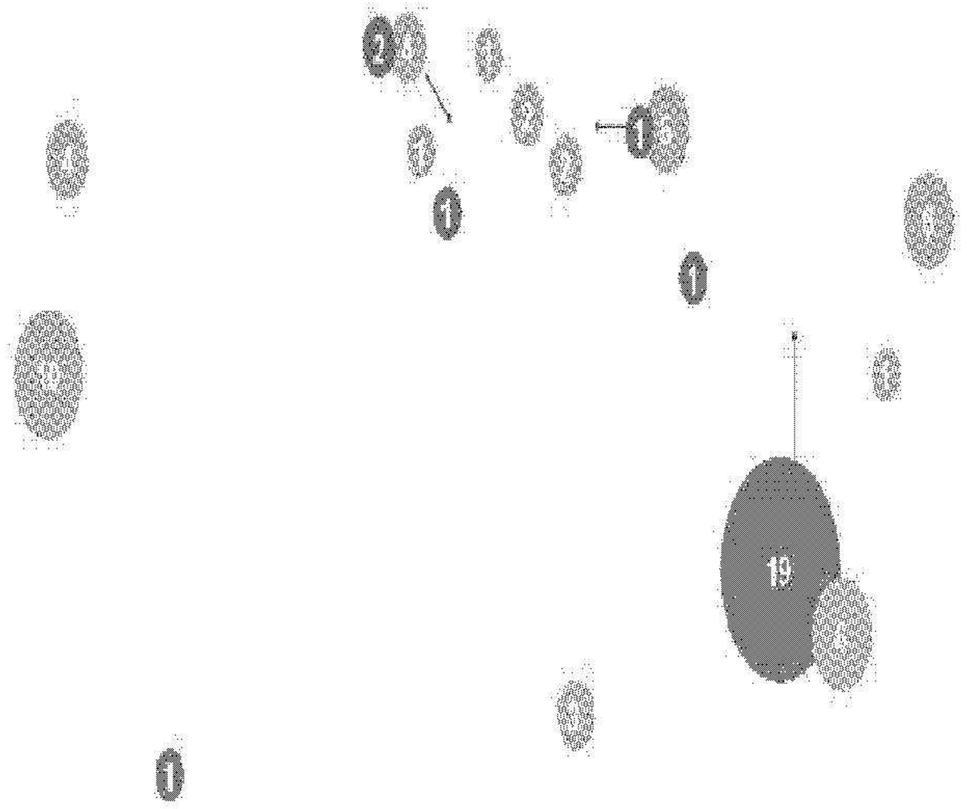
We have set ourselves a target of reducing absolute water withdrawal at the 72 sites identified by 25 percent by 2025 compared with our 2017 baseline year – and in 2023, we achieved this goal. Over the past few years, water withdrawal at the respective company locations has fallen by around 25.6 percent (prior year: 24.2 percent). In 2023, company locations in regions with water scarcity accounted for around 2.32 million m^3 of water (prior year: 2.37 million m^3) or 11.9 percent of Bosch's total annual water withdrawal.

Total water withdrawal by the Bosch Group increased to 19.5 million m^3 (prior year: 19.1 million m^3) in 2023. In relation to sales revenue, this constitutes a relative decrease of around 2 percent year on year (also see T 08 and G 23).

Fresh water is used in many processes at Bosch, in particular for cooling purposes. In regions with strained water supplies, recycled water or rainwater is already used wherever possible.

G 22

Company sites in regions with water scarcity



T 07

Water withdrawal in regions with water scarcity

	Number	Withdrawal in millions of m^3	Share of total water withdrawal	Affected regions
Sites with the severest water scarcity	25	0.4	2.0%	Chile, India, Morocco, Spain, Turkey, United Arab Emirates
Sites with severe water scarcity	47	1.9	9.9%	China, France, Greece, India, Italy, Mexico, Portugal, South Africa, Spain, Thailand, Turkey, USA

G 23

Water withdrawal in regions with water scarcity

Sites in regions of severe or severest water scarcity
2017–2023, in millions of cubic meters

2017	2018	2019	2020	2021	2022	2023	2025 target
3.1	3.0	2.8	2.4	2.5	2.4	2.3	2.3

Identifying and realizing water saving potential

To ensure that the funds for achieving water targets are used efficiently, water coordinators in the Bosch divisions identify local savings potential and implement suitable measures together with those responsible at the sites concerned. Since 2019, we have launched more than 260 projects that enable us to save up to 700,000 m^3 of water at our sites each year. Our efforts to systematically collect rainwater and therefore reduce the amount of groundwater we extract and the amount of water we withdraw from the public water supply contribute significantly to the responsible use of water as a resource. In 2023, we were able to nearly double the quantity of rainwater used company-wide year on year to 140,000 m^3 (prior year: 74,000 m^3).

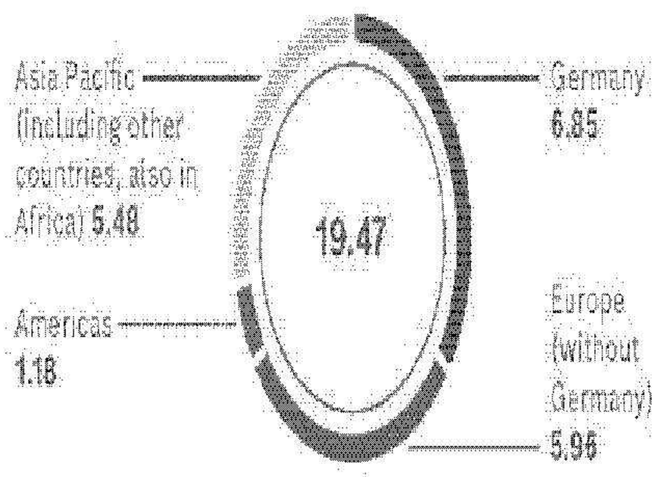
Collection systems for monsoon rains

A new rainwater collection system was put into operation in Bidadi in India in 2023, which has a storage capacity of 10,000 m^3. Rainwater collection and use began with the first monsoon rains in May 2023. Around 45,000 m^3 of rainwater had been collected and used at the site by the end of 2023. This covered roughly 50 percent of the total volume of water needed at the site in the period. Rainwater is also used at the site in Naganathapura in India. Around 6,500 m^3 of rainwater was treated and used at the plant in 2023, covering roughly 19 percent of the total water demand at the site in this period.

G 23

Water withdrawal

Bosch Group 2023 by region, in millions of cubic meters



T 08

Water withdrawal

Bosch Group 2021–2023, in millions of cubic meters

	2021	2022	2023
Bosch Group	**18.81**	**19.13**	**19.47**
Surface water	3.44	3.71	3.51
Groundwater	2.32	2.22	2.99
Public/private waterworks	13.00	13.16	12.94
Fresh water[19]	**18.75**	**19.09**	**19.44**
Public/private waterworks	0.05	0.04	0.03
Other sources[20]	**0.05**	**0.04**	**0.03**

[19] < 1,000 mg/l total dissolved solids
[20] > 1,000 mg/l total dissolved solids

Water intensity

in cubic meters/million euros of sales revenue

	2021	2022	2023
Bosch Group	**238.9**	**216.9**	**212.6**

Wastewater

Wastewater at Bosch is mainly produced in sanitary facilities and canteens (45 percent) and also in connection with cooling water (30 percent). Manufacturing accounts for 25 percent of the wastewater produced. Water is used here in electroplating as well as in washing systems and machining centers, among other areas. In 2023, Bosch's wastewater volume decreased to 15.46 million m^3 (prior year: 16.98 million m^3).

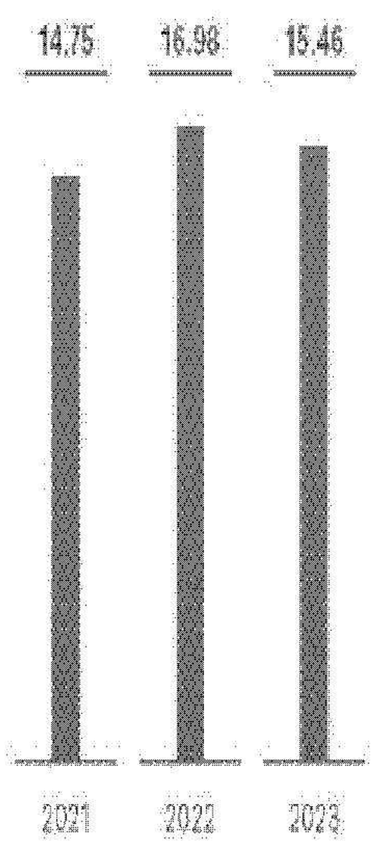
Negative impacts from wastewater are mainly caused by foreign substances or excessive temperatures. Within the strategic core topic of water, we are therefore working on further reducing wastewater flows and continuously improving quality. In 2019 we recorded centrally where which quantities are generated, how they are treated, and where they are discharged (see G 25). We have established standard processes in the company for monitoring local wastewater quality requirements and standards.

At some sites, we carry out wastewater treatment in-house, using processes such as ultrafiltration to separate solids and liquids or physical-chemical treatment methods such as precipitation or distillation, depending on local conditions.

G 24

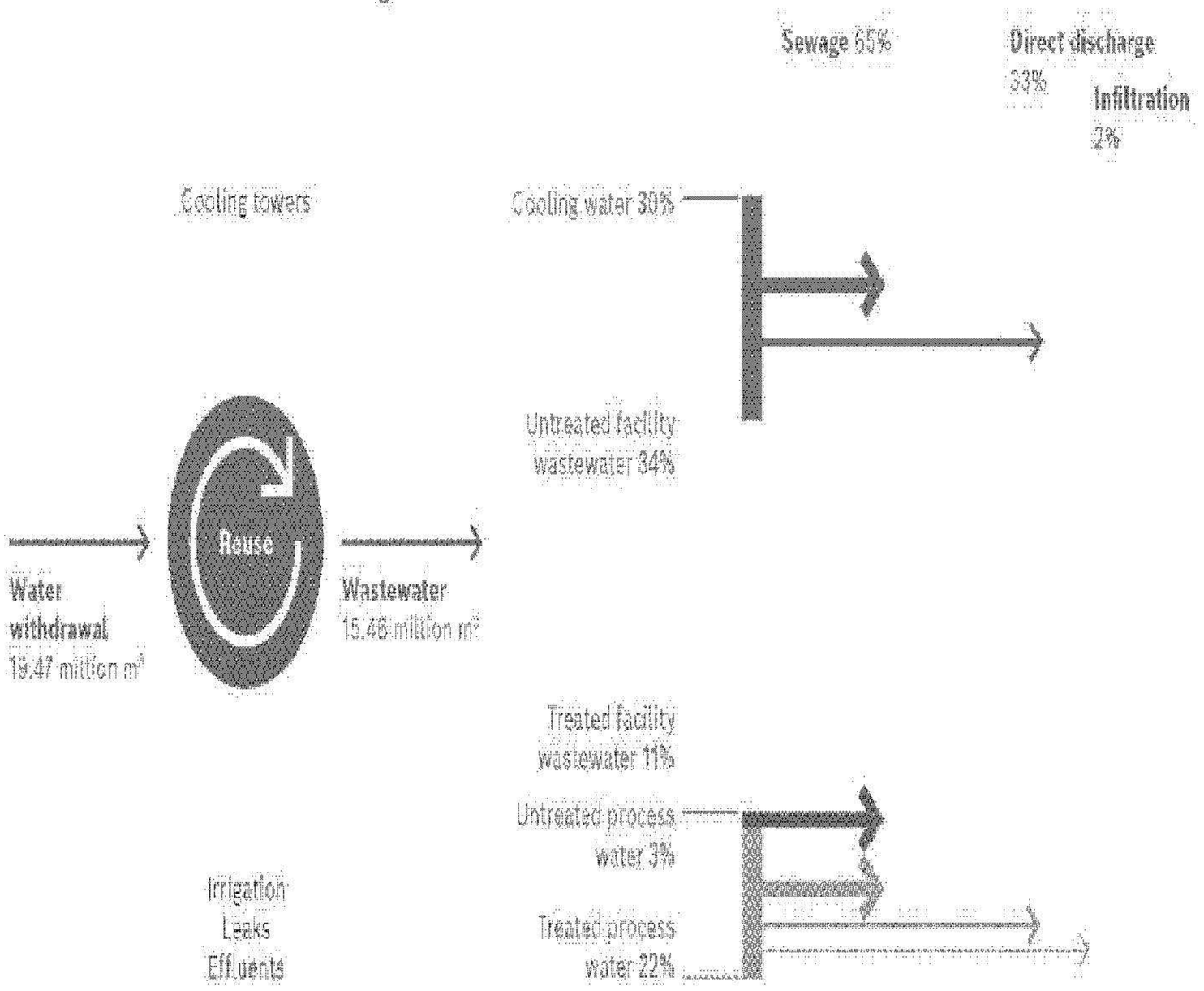
Wastewater

Bosch Group 2021–2023, in millions of cubic meters



G 25

Wastewater flows and discharge routes



In line with our principle "Invented for life," Bosch products contribute to using water responsibly – in private households as well as in industrial environments.

Automatic detergent dosing

Bosch technology helps households to use water sparingly. For example, Bosch washing machines with i-DOS can avoid unnecessary rinsing cycles due to manual over-dosing by automatically dosing detergent.[21] Bosch dishwashers likewise help to reduce water consumption. They allow a household to save up to 15,700 liters of water annually compared with washing dishes by hand.[22]

[21] Manual overdosing of liquid detergent is on average 20 percent in Germany (see A. Kruschwitz et al., Consumer Laundry Practices in Germany, International Journal of Consumer Studies 38 (2014), from page 265).

[22] Savings from use of a Bosch dishwasher with water consumption of 9.5 liters/rinsing cycle in the Eco 50°C program (e.g. SMD8ECS01E), compared with washing dishes manually. Water consumption for the corresponding amount of dishes in Germany when washed manually is estimated at 61.7 liters (see P. Diekholz, Laboratory Investigation of Manual Dishwashing Habits and its Resource Consumptions: A Study of Consumer Panels in Seven Regions, 2016, pages 5, 42). Calculation of annual saving based on an assumed number of 260 rinsing cycles per year.

Environmentally friendly water treatment

On an industrial scale also, Bosch products contribute to the sustainable use of water. A new business field will be established in 2024 to develop and market water treatment systems to provide electrolyzers all over the world with high-purity water for the production of hydrogen. Green hydrogen production can be found where the wind blows strongly or the sun mostly shines – for example in Africa, South America, or Northern Europe. The challenges are especially demanding offshore or in the desert, where water treatment is made more difficult owing to salty water, extreme water hardness, and significant distances to the technical facilities. In this harsh environment, the Bosch systems use thermal and electrochemical processes to extract minerals from the water in order to produce high-purity water. As a result, operators can dispense completely with the use of chemicals thanks to the absence of filter media used in the treatment process.

Social

Social

As a globally operating company, Bosch takes its social responsibility seriously. We respect human rights and actively demand this in our global supply chains as well. At the same time, we are focused on strengthening diversity, equity, and inclusion as well as on ensuring a safe working environment.

Bosch as an employer

Bosch is transitioning from a manufacturer of technology hardware to a provider of connected hardware, software, and services. To actively shape this transformation, we are purposefully developing our corporate culture on an ongoing basis and are empowering our associates to acquire new competencies. At the same time, we are creating the conditions to win new talent for innovative, high-growth areas.

Regulations and organization

In the Basic principles of social responsibility at Bosch, which have been made publicly available, the board of management of Robert Bosch GmbH and the employee representatives undertake, among other things, to comply with human rights, equal opportunities, fair working conditions, and global standards in occupational health and safety. The eleven principles are based on the core labor standards of the International Labour Organization (ILO). Our associates are familiar with the basic principles and are required to report violations. The same applies to violations of our Codes of Conduct, such as the Code of Business Conduct (see the "Governance | Compliance" section).

The HR corporate sector is responsible for defining the content-related parameters for HR management in the countries where Bosch operates, with the respective regional HR management reporting to central HR management.

Employment at Bosch

Bosch employs more than 429,400 people worldwide. To enable flexible staffing, around 9 percent of the workforce have time-limited employment contracts. As a rule, they have the same training opportunities as associates with permanent contracts.

In addition, the company employs roughly 12,500 subcontracted workers. Bosch uses subcontracted workers when there is a need for personnel that cannot otherwise be met. There is no restriction on the use of subcontracted workers, for instance, in direct functions such as manufacturing and logistics. Whenever the company draws on subcontracted workers, Bosch gives due regard to compliance with legal frameworks, such as the German Temporary Employment Act (*Arbeitnehmerüberlassungsgesetz*) and any collective bargaining agreements. When there are vacant positions to fill within the company, we give preference to candidates with time-limited employment contracts or subcontracted workers – in accordance with the applicable legal requirements and provided they are equally suited.

In an increasingly competitive labor market, it is vital that we attract the best talent and make sure they remain enthusiastic about Bosch in the long term. We offer career-entry opportunities at Bosch for high school graduates (internships, vocational training, and dual study programs) and students (internships, student traineeships, final theses, and talent programs). Bosch also offers graduates and experienced professionals access to diverse fields of work.

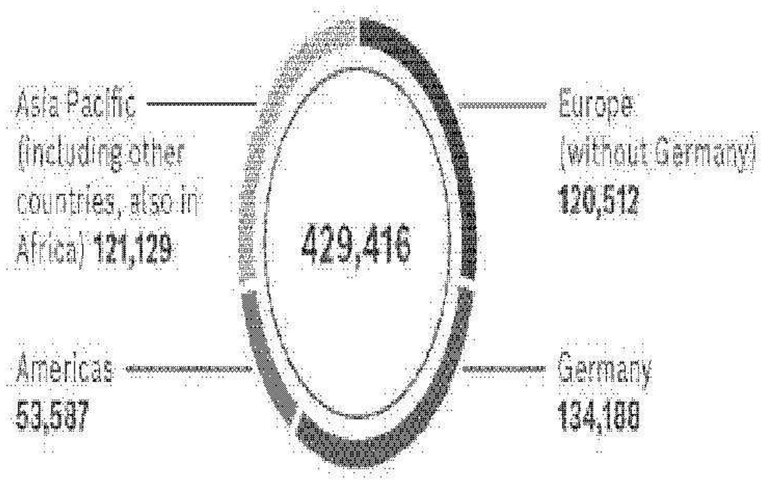
Our personnel recruitment activities are guided by Bosch's group strategy, the requirements of the specialist departments, and the expectations of the target groups. We use a variety of formats to reach out to potential applicants. Depending on the target group, these range from online career channels to national and international career fairs, through to social network events.

We benchmark our turnover rate against the respective market average as an indicator of how attractive we are as an employer. As a result, we are able to make any adjustments necessary at an early stage, for example in our employment conditions. Our objective is to always keep voluntary turnover at Bosch below the average for each respective country. The fact that our associates rarely terminate their employment relationship speaks for itself. However, there are regional differences (see G 27).

G 26

Associates

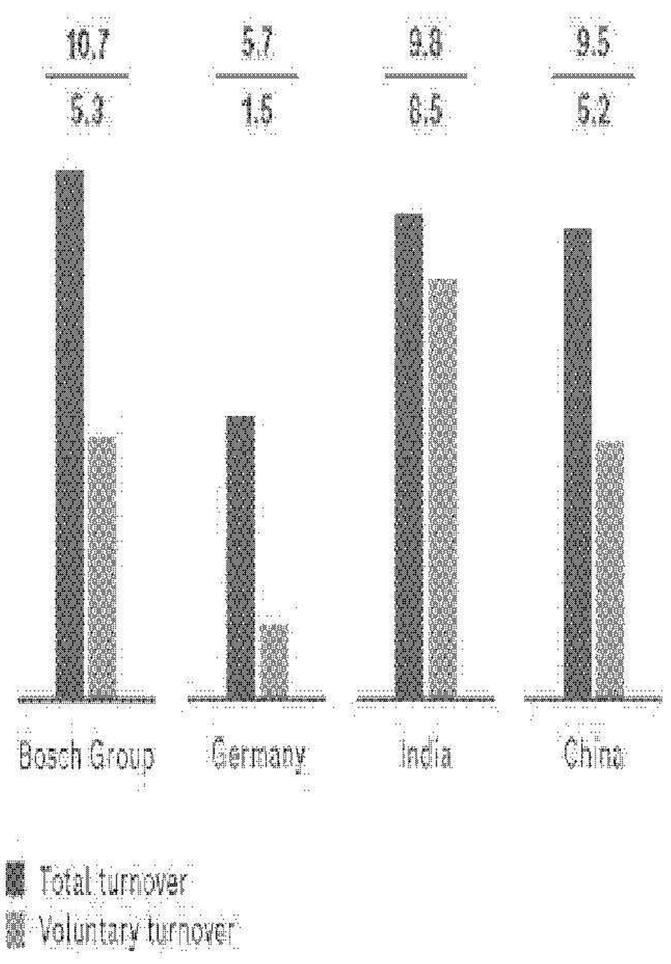
Bosch Group by region, as of December 31, 2023



G 27

Turnover

Bosch Group 2023, selected countries, in %



HR work in the transformation

The automotive industry is going through fundamental disruption that also presents considerable challenges for Bosch. The following comparison illustrates the implications of technological change in the context of more sustainable mobility: If it takes ten associates to manufacture a diesel injection system, only three are needed to manufacture a gasoline injection system, and only one for an electric drive. Economic trends also leave Bosch with no choice but to adjust its workforce.

Our objective is to make this transition in a manner that is as socially acceptable as possible. This commitment is enshrined in collective bargaining agreements with employee representatives, for example, and in a combined works agreement governing how crisis situations are dealt with. As a responsible employer, we want to cooperate with the employee representatives in the interest of our associates to find constructive solutions to save jobs.

As the various business units and locations are affected in different ways by current developments, we create targeted solutions. One example is the dedicated platforms that have been specifically set up for Bosch to refer associates internally (potentially after training) or externally to other employers. Beyond that, we prioritize adjustments based on natural turnover, early retirement, and voluntary redundancy on the basis of severance pay.

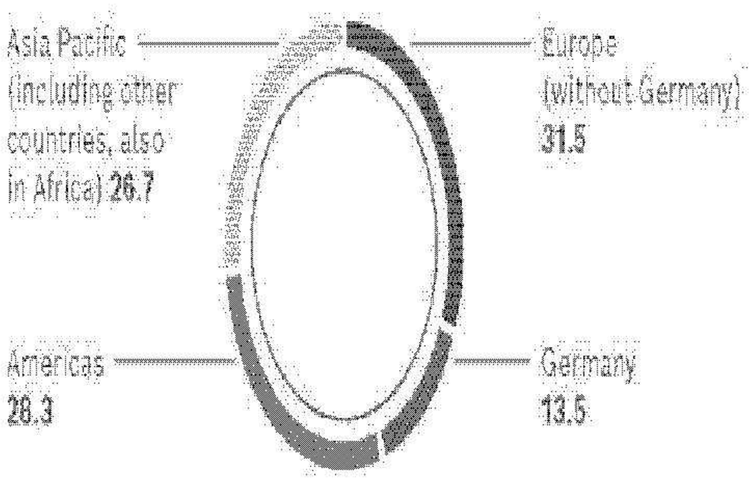
Aiming to keep as many people – and their skills and expertise – on board as possible, we also offer the opportunity to reduce weekly working hours. We also create the basis for offering our associates part-time work arrangements.

In 2023, several programs were initiated or continued with the aim of transforming company locations, both in direct and indirect units. For example, the agreements made in 2020 with works councils at the Bamberg, Feuerbach, Homburg, and Nuremberg sites remain in effect, with redundancies ruled out for the duration of the agreements. In all cases, participation by associates in these programs is voluntary.

G 28

New hires

Bosch Group by region, in %, as of December 31, 2023



In 2023, collaboration with the employee representatives in the Mobility business sector was placed on a new footing in Germany with the conclusion of a new works agreement for the future. In particular, this involved detailed agreements to give practical shape to participation by the employee representatives and individual committees in the transformation of the business sector. In addition, a supporting collective bargaining agreement provides for implementation of target vision processes at the Mobility locations in Germany that are bound by collective bargaining agreements. Social partnership at Bosch will be further intensified by the agreements made – after all, industrial transformation in the mobility sector can only succeed with the cooperation of all partners.

Collaboration with employee representatives

Bosch has a tradition of maintaining open and constructive dialogue with employee representatives. We are convinced that it is only with their cooperation that we can implement the change processes needed to secure our competitiveness. We therefore continuously seek to consult and involve the employee representatives in the process at the earliest possibility. As part of a transparent and open information and communication policy, briefings are provided in a timely manner and with due regard to the relevant facts and national regulations.

The framework for cooperation with employee representatives as well as the corresponding agreements are defined by internal company policies. Among other matters, they lay down regulations in accordance with ILO conventions 87 and 98, which guarantee workers' freedom of association and the right to collective bargaining. They also provide for the appointment by the company of a negotiating partner for existing employee representatives. The person appointed must have wide-ranging powers of representation for the unit concerned, is appointed through a formal process, and is responsible for collaborating with the relevant employee representative body.

Particularly the colleagues responsible in the regions engage locally with employee representatives and the relevant organizations. In this process, we relentlessly strive to improve conditions in the respective countries. Any restrictions on the rights of employee representatives are identified in particular in cooperation with the combined works council and the European and international employee representatives. If there are obstacles at local level to implementing our standards, the HR corporate department deals with the issue and works toward finding a solution that achieves the greatest possible consensus according to our principles.

An established process is in place for handling complaints by the international network of employee representatives. Individual cases are handed over, for example, by the chair of the European works council of the Bosch Group to the responsible corporate office, the board of management, or the supervisory board.

Collective bargaining agreements

Practically all Bosch sites in Germany have a works council and the associates are subject to works agreements. Only a few small units are the exception to the rule. Collective bargaining agreements are in effect for practically all units at Bosch in Germany, covering approximately 120,000 associates, or roughly 80 percent of the workforce.

On account of the general validity of original national or combined works agreements, even for locations without a works council, all associates of the Bosch Group in Germany are also covered by collective agreements. The only exception to this rule are senior executives.

Bosch has also concluded collective bargaining agreements in numerous countries outside Germany, both within the EU and elsewhere, including Turkey, Malaysia, Serbia, Japan, and India. European works councils provide institutionalized cross-border employee representation in Europe. In accordance with the respective national regulations, there are local employee representatives in many other countries, such as China and India, for example.

Regular surveys of associates

If Bosch's transformation process is to be mastered successfully, it is essential that the corporate culture also evolves. We are convinced that clear and purpose-driven feedback from associates is the key to lasting improvement. Our impact: feedback landscape gives associates the opportunity to express their opinions and initiate change (see G 29).

Bosch extended the feedback landscape in fall 2023 and put the spotlight on the well-being of its associates when it included the new "wellbeing" element in the survey and concluded a corresponding combined works agreement. The intention is to ensure the health and performance of associates and therefore secure the long-term success of the company.

Results of the Executive Pulse Check and Bosch Pulse Check

Once a year, Bosch surveys its executives on current strategic topics in the context of the Executive Pulse Check. The survey results are elaborated together with recommended actions for the board of management. They are also shared with all participating executives and are used as a basis for dialogue between executives and associates.

In the Executive Pulse Check in October 2023, the main topics included the current business situation, strategic issues shaping the future, as well as collaboration and corporate culture. The survey revealed high approval ratings once more, with a total of 97 percent of executives supporting Bosch's profitable growth strategy and 91 percent reporting that they felt well-informed about the business situation. In

G 29

Elements of the "impact:" feedback landscape



addition, 85 percent of participants are of the opinion that group-wide carbon neutrality and corresponding sustainability activities will prove a competitive advantage for Bosch.

The Bosch Pulse Check, which is also part of the impact:strategy element, is a representative survey of about a fifth of the workforce that was carried out in late 2022. Twelve questions relating to leadership, collaboration, prospects, and general well-being were formulated to capture the mood among associates – especially in light of the current global crises. The survey revealed encouragingly high approval ratings on the topics of satisfaction, meaningful work, collaboration, work-life balance, opportunities for learning, and management support. The picture concerning personal outlook was somewhat more bleak, reflecting the uncertainties in the economy as a whole.

The next Bosch Pulse Check is planned for April 2024 and will be a full survey that is focused more strongly on external benchmarks.

Remuneration and social benefits

Bosch sees itself as a hands-on social partner that actively helps shape agreements, sets attractive framework conditions, and offers its associates pay that reflects performance and market conditions.

Basic principles of the remuneration system

Bosch has established principles applicable worldwide governing fair pay in line with market conditions. The basic principles of the remuneration system are defined in internal company regulations. We want to ensure an attractive remuneration level in line with market conditions for all associates and strengthen our competitive position, while enabling the adjustment of remuneration systems to local conditions in response to the increasing volatility of markets. As a consequence, within the framework of the defined basic principles, differences can arise in the remuneration systems of individual operating units, regions, countries, and locations.

If the requirements and tasks are comparable, Bosch makes no distinction in the remuneration of male and female associates. Individual remuneration arrangements comprise fixed and variable components and typically reflect the requirements of the given job. Performance-related or market-specific aspects are additionally taken into account for some groups of associates. In the case of groups of associates subject to rules comparable with collective bargaining agreements, remuneration models are adapted to local and regional regulations. All statutory minimum wage regulations in individual countries are complied with in full.

Worldwide standards also apply to management remuneration at Bosch. Individual bonuses were replaced by a collective profit participation model for management back in 2016.

Basic principles for company pension promises and other social benefits

Bosch makes commitments to its associates worldwide in relation to occupational benefits, such as company pension schemes. The basic principles for granting, arranging, and financing these pension benefit promises are laid down in internal company regulations. Pension benefit promises are structured consistently for all income groups within a company or for all companies in a country. In addition, we offer our associates other social benefits, such as a company healthcare scheme (see also the "Occupational health and safety" section).

Work-life balance

Bosch supports its associates in striking a balance between their individual career goals, personal lifestyle, and private goals. With this in mind, we are working on further flexibilization of working hours and locations in compliance with legal requirements.

Our guidelines for a flexible and family-friendly working culture cover, among other aspects, a fast return to work after a period of leave, job sharing, or part-time leadership. These guidelines have meanwhile been introduced in many countries or adapted to country-specific requirements. Various working time models have also been introduced in this context (especially mobile working and part-time models), for example in China, India, Mexico, and the United States.

Flexible working conditions

Bosch wants to empower its associates to structure their working time individually while addressing business requirements in the best possible way. Accordingly, many different working time models are used in the Bosch Group across all hierarchy levels, including part-time work or job sharing.

Mobile working is now standard practice at Bosch. Associates in all countries can and should benefit from the increased flexibility, assuming their particular role permits this. Associates can decide where to do their work upon arrangement with their team and as long as the place of work is suitable for the task.

Other agreements and benefits

We help our associates strike a work-life balance by creating a work environment that is as flexible as possible. Furthermore, we offer childcare at specific locations as well as the option to take parental leave or leave of absence to care for family members. In addition, they can take sabbaticals, special leave, or paid leave in special circumstances. In principle, the aforementioned offers are also available to associates with time-limited employment contracts.

T 09

Part-time associates

Bosch Group, by region and by gender, as of December 31, 2023

	2023
Bosch Group	**25,875**
By region	
Europe (without Germany)	5,886
Germany	18,905
Americas	626
Asia-Pacific (incl. other countries, also in Africa)	458
By gender	
Female	14,842
Male	11,033

Diversity, equity, and inclusion

At Bosch we value the uniqueness of each individual and consider diversity to be critical for our business success. Each and every individual in the company should feel welcome, respected, and appreciated, regardless of factors such as gender, origin, age, personal background, or individual life path.

We are convinced that teams with a range of vantage points, educational and cultural backgrounds, as well as personal qualities, often produce better results and that mutual appreciation of each team member is beneficial for the work climate. That is why diversity, equity, and inclusion are firmly anchored in our mission statement "We are Bosch" as one of our values and fostered and encouraged as part of our corporate strategy under the motto "Diversity is our advantage."

Bosch became a signatory to the Diversity Charter as early as 2007. Our Code of Business Conduct, too, underscores that Bosch respects and protects the personal dignity of each individual, tolerates neither discrimination nor harassment, and promotes diversity, equity, and inclusion.

Dimensions of diversity

In order to do justice to the different dimensions of diversity, we are actively involved in various topic areas.

Gender

We want to further increase the proportion of women in our total workforce, which is currently 28.8 percent (prior year: 28.8 percent). We also want to further increase the proportion of women in leadership positions, which – across all management levels – is currently at 20.0 percent (prior year: 19.2 percent). The aim is that by 2030 at least one in four leadership positions at Bosch worldwide is held by a woman.

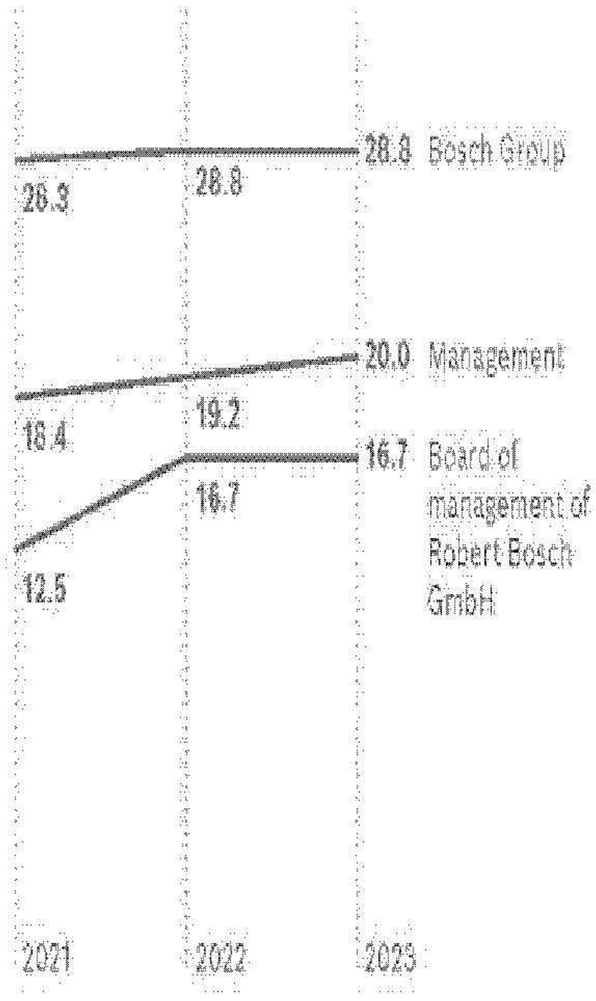
On account of legal requirements in Germany, targets apply for the proportion of women on the supervisory board, on the board of management, and in the first two management tiers below the board of management at Robert Bosch GmbH and the co-determined subsidiaries based in Germany. For further details, see the 2023 annual report (page 42 et seq.).

We offer comprehensive seminar and mentoring programs for women who hold or would like to hold specialist, project, and executive positions. They can also exchange views and ideas in networks like women@bosch and the heratec network of female engineers and gain inspiration for their everyday professional lives.

G 30

Proportion of women

Bosch Group 2021–2023, in %



Generations

We create a work environment that fosters successful, cross-generational collaboration adapted to the different life stages. In this way, we want to seize the opportunities that the combination of diverse experiences, competencies, and perspectives of the different age groups can provide. We create the conditions for this through our lifelong learning concepts, occupational health management system, and systematic sharing of experience and know-how through the BestAger@Bosch associate network.

Cultural diversity

People from around 150 nations work together for Bosch. This diversity allows us to successfully cooperate with our customers, partners, and suppliers worldwide. Intercultural competencies are demanded every day. We therefore reinforce international collaboration and use our cultural diversity to further advance Bosch as a company. Our associates show their commitment too through their involvement in numerous networks around the world, such as Afric@Bosch, Asians@Bosch, Hispanics@Bosch, For Bosch abroad, and the Turkish Forum.

People with restricted abilities

We increase our innovative strength by focusing on our associates' individual potential – not on their limitations. We therefore create an inclusive work environment that considers and appreciates individual needs and skills, in the realization that inclusion can only succeed if prejudices and reservations are overcome and the issue is addressed continually. We are actively committed to inclusion in internal (e.g. BeAdept@Bosch) and external networks and acknowledge our social responsibility in this area.

At 5.5 percent, the proportion of people with severe disabilities in the Bosch Group in Germany in 2023 remained at a level comparable to previous years (prior year: 5.6 percent).

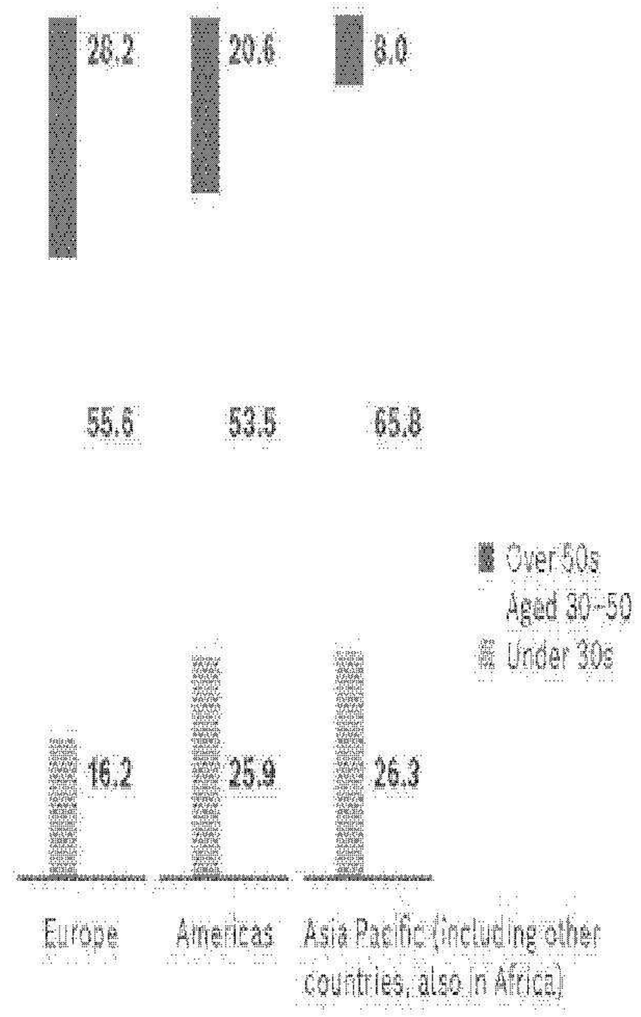
LGBT*IQ

At Bosch, all associates are valued – irrespective of their sexual orientation or gender identity. Our b:proud associate network helps create an open corporate culture. In 2017, it launched the LGBT*IQ Ally initiative. Allies are associates from all business sectors whose role is to openly address possible incidents of bias or discrimination to help shape the transition to an open work culture.

G 31

Total workforce by age group

Bosch Group by region, in %, as of December 31, 2023



Goal management and implementation

Back in 2011, Bosch established a central project team to promote diversity within the company and embed the related commitment within the organization. Project management reports directly to the member of the board of management with responsibility for human resources and social welfare.

The project team contributes to Bosch becoming more diverse, equitable, and inclusive. To achieve this, the team sets the framework by providing a global strategy and launches relevant initiatives. Throughout the group, the team members advise, support, and network people and initiatives and are also actively engaged outside of the company (see www.bosch.com/diversity).

The project team cooperates closely with the Booster Board, which includes colleagues representing different countries, organizations, and hierarchy levels. It serves as a sparring partner for the project team and as a multiplier. More than 140 coordinators worldwide as well as the numerous members of internal company networks also support the project team in embedding topics of diversity, equity, and inclusion within the organization and making them visible.

Bosch Diversity Days

Bosch organizes Diversity Days each year in order to raise awareness of diversity, equity, and inclusion throughout the company and to demonstrate the strength the company and its associates can derive from these topics. More than 190 online and in-person events took place worldwide in 2023 with the motto "Let's celebrate our uniqueness." Not only did this create a shared sense of belonging across all career stages and borders, it also raised awareness of the perceived realities of marginalized groups in the company, while also encouraging associates to actively promote cohesion within the company.

Qualification and training

New business models, new technologies, or the challenges of demographic change – all of this requires the systematic transformation of our company. Our associates are called upon in this regard to continually acquire new competencies and skills and to adapt their qualifications and training to current and future requirements.

As a "learning company," Bosch supports this ongoing process with forward-thinking, motivational, and easily accessible learning programs that allow associates to quickly and flexibly acquire the necessary knowledge. We strengthen the employability of our associates in this way, help shield Bosch from the shortage of available skilled labor, and secure the company's competitive position into the future.

Associate development

Competence management at Bosch is a systematic process for identifying professional and methodological competences and helping associates to develop. In this way, we want to ensure that the required competencies, in other words the attributes, skills, and behavior, which are key to successfully dealing with current and future tasks, are available in the right place at the right time. Our competence model sets the framework for recruitment, feedback talks, assessment of potential, and support programs. It comprises four competence areas: entrepreneurial competence, leadership competence, interpersonal competence, and professional competence.

The competence model is applied in different formats that support our associates in their personal development:

Goal and performance dialogue

As part of the annual goal and performance dialogue, executives and associates look back over what was achieved in the past year, and jointly discuss targets for the year ahead. Around 262,300 such dialogues were held in 2023.

Individual development dialogue

To better reflect the requirements of agile working, in 2021 the individual development dialogue was introduced in units that apply agile methods. In this format, associates talk to a person of their choice about their personal development. It can replace the goal and performance dialogue in these units.

Career and development dialogue

The career and development dialogue takes place between associates and their line manager, the next higher executive, and their HR business partner. It deals with the associate's medium- to long-term development goals and sets out the course for their achievement. Around 3,600 development talks were held in 2023.

Talent and associate review

Once a year, executives, experts, and HR business partners discuss the potential of their associates in order to identify and advance talent at an early stage.

Talent pool

Talent pool members take part in training programs to prepare for the requirements of the next-higher level and have the opportunity to network across sectors. In 2023, the talent pool included roughly 9,000 associates, the largest number yet since the platform was established.

Lifelong learning strategy

Based on the underlying principles of the "learning company," a project was initiated in 2023 to prepare our associates for the digital transformation and to establish a global learning, leadership, and collaboration culture that enables self-determined, lifelong learning. The project focuses on the following topics:

Digital learning

We invest in digital learning platforms and harness the possibilities of artificial intelligence to constantly offer our associates suitable learning opportunities. This allows them to acquire new knowledge faster than before at a time and place that suits them and at their own pace.

Online learning platforms (e-universities) meanwhile offer our associates access to a variety of learning content and the means to obtain knowledge from external science and business experts in a self-managed and flexible format. Since the corresponding licenses were introduced in 2019, around 52,800 have been used by associates.

Self-managed learning and mutual learning

There are a variety of learning formats, some informal or self-managed by associates, in which participants can share their knowledge in a network. The Bosch Club was established in this context in 2022 and provides an internal learning platform for informal learning that leverages the expert knowledge available at Bosch anywhere and anytime. Around 73,100 associates worldwide shared their knowledge in this way in 2023 in more than 1,800 online events. In addition, the Bosch Club also serves as a platform for the "Days of Learning" event that takes place each year in various business sectors, offering a wealth of additional learning opportunities.

In 2023, Bosch invested 277 million euros (prior year: 280 million euros) in training for its workforce. Our associates attended a total of 827,968 training days in 2023 in the form of seminars and webinars (prior year: 821,778 training days).

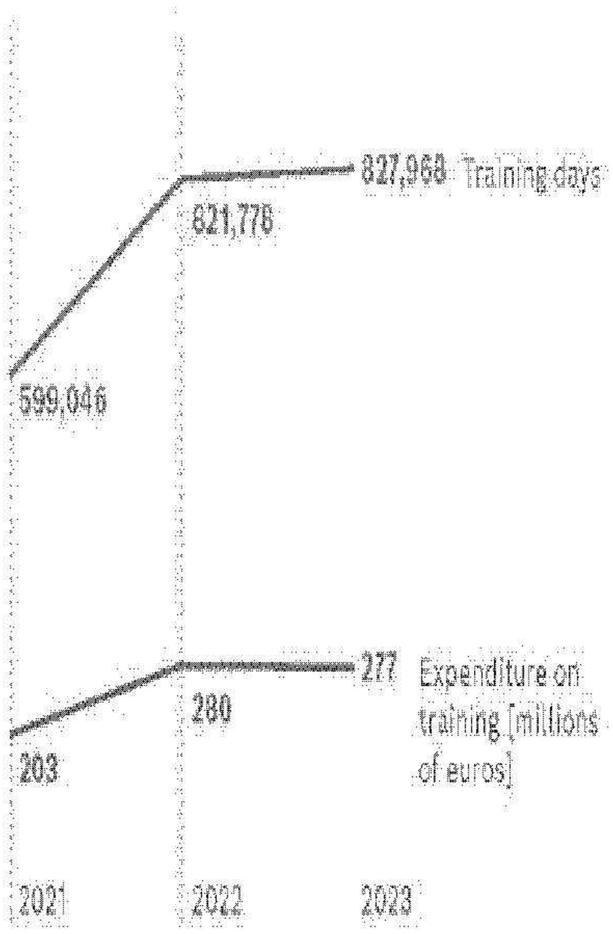
These training measures are based on target group-specific curricula set for associates with standardized profiles. At present, there are around 3,500 (prior year: 3,500) target group-specific curricula, while roughly 174,400 (prior year: 156,000) associates use at least one such learning curriculum for their training.

All training measures are systematically evaluated. The associate feedback is made available to the providers and taken into account in revisions. In addition, the Learning Management System permits effectiveness audits in accordance with ISO for all formal training measures. Target group-specific curricula aligned to the competencies required by specific groups of associates are revised each year by so-called subject owners and adapted accordingly as requirements change.

G 32

Training activities

Bosch Group 2021–2023



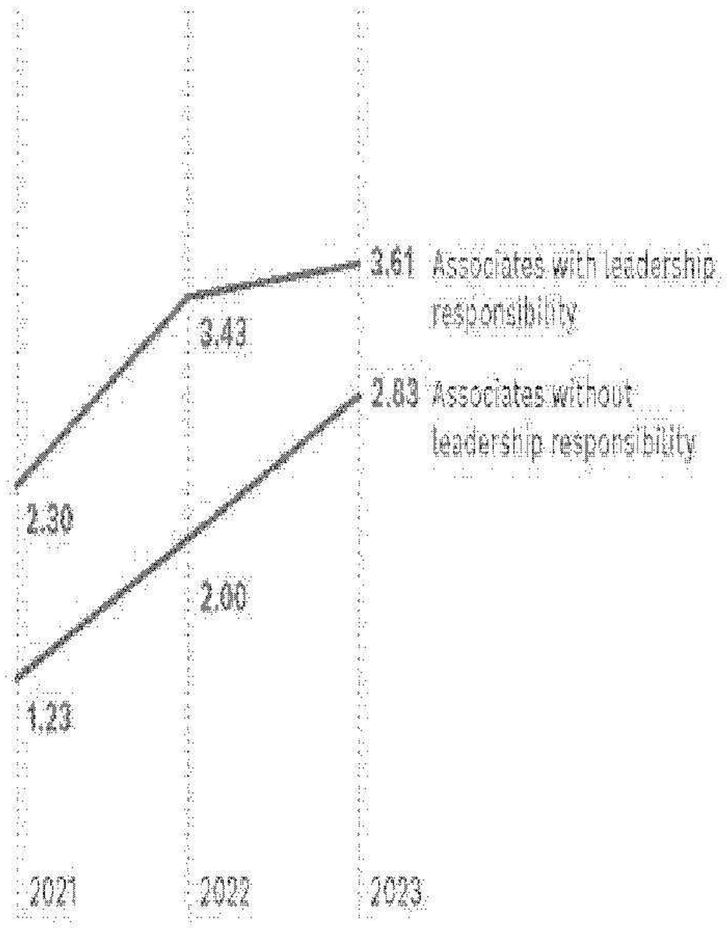
Adapting individual training

To keep pace with the transformation in the automotive industry, Bosch provides targeted training for associates through its "Mission to Move" program in preparation for new positions in the areas of electrification, software qualification, and big data. Since 2018, we have raised the qualification level of more than 1,760 associates with this program. We proactively support the digital transformation as well through various initiatives, such as "LernWerk," "Digital Talent Academy," and "Wissensfabrik," and enable various target groups in manufacturing and occupational training to acquire the corresponding skills.

G 33

Average training days

Bosch Group 2021–2023, without BSH Hausgeräte GmbH



Occupational health and safety

Measures to protect and promote associates' health and provide a safe working environment at all times are a top priority for Bosch.

Occupational safety

Company-wide regulations define the principles, organization, and responsibilities for occupational safety in the Bosch Group. Occupational safety and environmental protection policy is framed in the Guidelines of Work Safety and Environmental Protection.

The Sustainability and EHS corporate department manages occupational health and safety at Bosch using a group-wide process. The heads of the organizational units and company locations are responsible for compliance with the centrally defined requirements and goals. Designated EHS officers support them in this task. Current progress toward goal achievement is reported regularly to all executives as well as the board of management of Robert Bosch GmbH, also on an ad hoc basis in the event of particularly serious incidents.

As of the end of 2023, 237 out of the 247 relevant production and development locations[23] had already implemented an occupational health and safety management system according to ISO 45001, of which 95 percent had been certified (see T 10). As a result, 99 percent of the workforce currently work at production and development locations that have an implemented occupational health and safety management system. Our approach remains to use certified occupational health and safety management systems at all relevant locations.

By 2025, we aim to lower the number of work-related accidents at Bosch to 1.45 accidents per 1 million hours worked. In the year under review, the accident rate was 1.49 accidents per 1 million hours worked (prior year: 1.62). Regrettably, two fatal accidents occurred in 2023 in which associates of external companies lost their lives.

Every year, we identify and assess potential occupational safety risks and classify them by priority. For this purpose, we refer to accidents reported in the Incident Management System and use findings from internal audits under ISO 45001 or the audits of the internal audit department. On this basis, we develop specific risk mitigation programs and define the focal points for subsequent audits. We carry out an in-depth analysis of any occupational accidents causing at least one day of downtime, irrespective of whether Bosch associates or third-party staff are involved. In the event of serious accidents, special analysis methods are used to perform a detailed investigation of the root causes and to derive specific measures.

Based on internal regulations, workplace or activity-related hazard assessments are also carried out regularly. These are used as a basis for determining any preventive and protective measures needed, and our associates are instructed accordingly.

Clearly defined regulations governing responsibilities and processes apply to occupational safety also when we use external companies at our sites. These apply right from the outset when we select a service provider. In this regard, we have set down key EHS requirements for suppliers in our Terms and Conditions of Purchase. Our service providers also agree to name a person in charge of ensuring compliance with the supervision and control duty. As part of internal audits, we check whether the requirements and defined protective measures are being complied with. In the event of discrepancies, appropriate remedial action must be taken before proceeding with the work.

T 10

Occupational health and safety management systems (OHSMS)

Bosch Group 2023

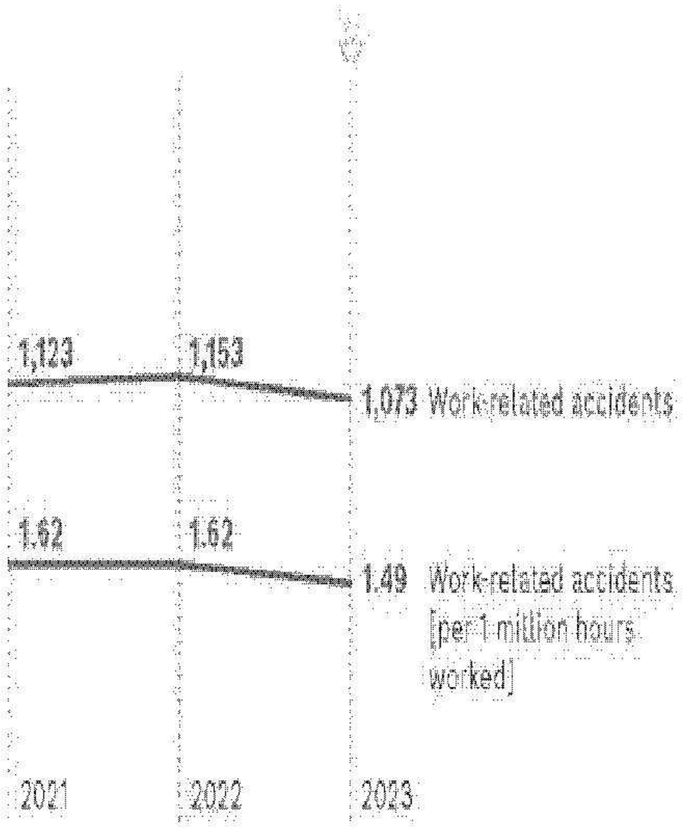
Production and development locations[2]	**247**
OHSMS implemented according to ISO 45001	237
OHSMS certified according to ISO 45001	225

[2] The following applies to information on the occupational health and safety management systems: production locations and development locations (with material responsibility) with more than 50 associates and that have been included in the scope of consolidation for more than three years.

G 34

Work-related accidents

Bosch Group 2021–2023



Training and awareness-raising

It is our conviction that occupational safety begins with each individual's awareness of deficits and their behavior. This is where we see the greatest potential for improvement, which is why we are focusing on measures to raise the awareness of associates for occupational health and safety matters. To do this, we organize campaigns with a different focus each year in addition to our EHS competence management and regular instructions and training. As in the past few years, in 2023 we again focused on the early detection of dangerous situations and hazards (hazard recognition).

We also established a working group in 2023 to focus on accidents involving associates in customer support. This group develops measures aimed at preventing accidents that occur during activities at the customer's premises. In the coming year, we intend to focus additionally on accident prevention at external companies.

Bosch in Hemaraj: six years accident-free

Production at the Bosch plant in Hemaraj in Thailand has maintained a perfect record for six years without a single work-related accident resulting in a day's absence. A variety of measures have contributed to this exemplary run of success. The weekly "Safety Walks" are one example of this. These involve cross-functional and interdisciplinary inspection rounds of the plant to identify accident risks such as tripping hazards. What is special about these "Safety Walks" is that a different department head is responsible for each one. Occupational safety is therefore not only a matter for EHS officers, but is the responsibility of a number of associates at the site.

In addition, campaigns are organized with a different focus each month to raise awareness of the different aspects of occupational safety among associates. The workforce gets involved in the activities through surveys or a quiz where there are small prizes to be won.

Prevention and health promotion

Each individual's health is of vital importance both for our associates' motivation and satisfaction and thus for Bosch as a responsible employer. As a person's health depends on many factors, associates and the company work together to ensure a comprehensive approach to occupational health. We have integrated occupational health additionally in our fundamental principles of work and made them a fixed element of our corporate culture.

Occupational health management at Bosch covers a broad range of topics under the title "befit." These range from preventive medical care and physical and mental fitness to mental health and right through to tips on a healthy diet and workplace layout. An important role is also played by our reintegration management, leadership, training, and competence development in relation to individuals' health, as well as the integration of people with reduced capacity to work and severe disabilities. In Germany and other countries, medical care is provided in the workplace by an internal network of occupational health services with the support of external providers. In addition, many company locations have specialists on workplace layout, in-house social services, and health management to answer health-related questions.

As part of our integrated approach to health management, strategic guidelines were published to better meet the needs and tackle the challenges in the individual regions and company locations. The goal is for all health experts to work together as part of a network and to establish a central point of contact for health issues at the company locations.

Occupational health measures and projects at the individual company locations are tailored to their size and respective needs. As the challenges differ from one country to the next, we manage the activities locally – for example in Brazil, China, India, Great Britain, or Romania. Regular online network meetings enable the leveraging of synergies between locations and also across borders in order to offer associates the broadest and most attractive range of services possible. In countries without full medical coverage, associates at many Bosch sites have the option of visiting clinics located directly on-site.

BSH Hausgeräte GmbH operates its own occupational health management globally with "Health@BSH," which is based very closely on "befit" in terms of its approach.

World Mental Health Week – focus on mental health

The first worldwide Mental Health Week took place at Bosch in October 2023, with the aim of counteracting prejudices associated with mental disorders and highlighting the importance of mental health. More than 80 online events were held, attracting in excess of 22,000 participants around the globe. A large number of associates also took advantage of the opportunity to participate in one of the many in-person events that took place at Bosch sites in more than 20 countries.

OncoCure – cancer support

Bosch works in collaboration with the Robert Bosch hospital in Stuttgart in the framework of the OncoCure program to offer associates diagnosed with cancer the possibility of getting a second, independent opinion from specialists at the Robert Bosch Center for Tumor Diseases (RBCT) and, if appropriate, a genetic diagnosis. Associates in Germany, Spain, Austria, and Switzerland can currently avail of the new offer.

Occupational health focal points

In order to reduce the number of absentees due to sickness, occupational health management at Bosch sets specific priorities based on the experience of the medical service and safety engineers as well as the health report issued by the Bosch company health insurance fund. Insights from occupational reintegration management and hazard assessments are also considered. As a result, medical conditions affecting the musculoskeletal and respiratory systems as well as mental illnesses were identified as focus areas. Findings from the impact:wellbeing surveys can also serve in the future as a further basis for health-related action planning. So-called health working groups are responsible for implementation at the individual company locations.

Complying with due diligence obligations relating to human rights and the environment

Because protecting the environment and the climate is inextricably linked with exercising human rights and ensuring sustainable living conditions, we at Bosch understand respect for human rights to mean compliance with our due diligence obligations to protect people and the environment in line with social and environmental standards. This is because as an industrial company with production locations and supply relationships in many countries and regions, we influence the situation of people and the environment in a variety of different ways.

Bosch has supply relationships in around 60 countries. From a total of around 35,500 suppliers worldwide, the Bosch Group procured materials and services worth 50.9 billion euros in 2023 (prior year: 50.4 billion euros). A large proportion of the resources used in our supply chain are purchased components – mostly semi-finished products or finished components. We only procure a small proportion directly as raw material.

As a globally operating company, we recognize our corporate responsibility to respect human rights. We contribute to improving human rights conditions worldwide by implementing due diligence obligations concerning human rights in our operational processes. At the same time, we actively demand respect for human rights in our global supply chains as well and take appropriate remedial action in the case of violations.

Our business activity is aligned to the United Nations Guiding Principles on Business and Human Rights and we comply with the requirements of the National Action Plan for Business and Human Rights applicable in Germany. We implement the requirements of the German Act on Corporate Due Diligence Obligations in Supply Chains (*Lieferkettensorgfaltspflichtengesetz, LkSG*).

We likewise expect our business partners to commit to respect human rights, to establish appropriate due diligence processes, and to oblige their own suppliers and other third parties to comply with corresponding principles to the best of their ability.

Risk management for implementing corporate due diligence obligations

The Bosch Group has established a risk management system for the implementation of corporate due diligence obligations in accordance with the German Act on Corporate Due Diligence Obligations in Supply Chains to ensure compliance with human rights and environment-related due diligence obligations. The system is directed both at the actions of the Bosch Group in its own operations and the activities of our suppliers, and is described clearly and bindingly in internal company regulations.

Responsibilities

The basic principles of the Bosch Group's risk management system are laid down in an overarching set of rules that was adopted by the board of management of Robert Bosch GmbH in 2022. Implementation of the requirements is audited regularly. With its own governance system, BSH Hausgeräte GmbH plays an independent role within the Bosch Group. It has accordingly drawn up its own set of rules for implementing corporate due diligence obligations. In terms of broad guidelines, however, the risk management system defined therein corresponds to the risk management system described below, which otherwise applies to the Bosch Group.

The internal implementation of corporate due diligence obligations is the responsibility of the competent corporate departments of Robert Bosch GmbH and the organizational units concerned in each case. The requirements for fulfilling the due diligence obligations are prescribed centrally and the organizational units concerned implement these requirements in their processes.

The responsible corporate departments enhance their own management systems, if necessary, within the scope of the obligations placed on them. This includes defining implementation and control requirements, monitoring the controls, performing annual or event-driven risk analyses, conducting training, and supporting the organizational units in developing preventive and remedial measures. If necessary, the corresponding regulations also have to be enhanced. The organizational units concerned implement the requirements of the corporate departments, develop preventive measures, and establish remedial measures in the event that a breach of human rights or environment-related obligations is sufficiently probable or has already occurred.

The human rights committee convenes twice a year under the chair of the human rights officer. It is made up of the heads of the responsible corporate departments and other corporate departments with an advisory role (compliance, risk management, legal affairs, communication). The committee evaluates the effectiveness of the risk management system and contributes to its further development.

The responsible corporate departments report proactively to the committee on the risk situation and the resulting measures in their respective functional area. In addition, they report on a regular and, if required, ad hoc basis to the human rights officer on the status of the management system, the risks identified, and the measures taken.

Overarching responsibility for the risk management system was transferred to the member of the board of management of Robert Bosch GmbH responsible for sustainability. The relevant information for exercising this role is made available to the board member, in particular, by the human rights committee as well as by the human rights officer, who reports directly to the board member. The board member attends the committee's meetings regularly. Moreover, the individual members of the human rights committee each have direct

reporting lines to the board of management. All compliance officers are furthermore obligated under the Bosch Group's compliance management systems to inform the board of management once a year concerning the implementation of the due diligence obligations in their own functional area.

Exchange with stakeholders and right holders

Bosch engages in regular exchanges with German and international employee representatives, takes part in joint initiatives with NGOs (e.g. Sector Dialogue Automotive Industry), and actively participates in public events. The company's views are taken into account in preventive and remedial measures through its dialogue with suppliers and direct exchanges with associates of suppliers within the scope of assessments. At the same time, we are continuously working to raise awareness of our reporting systems and complaints procedures both in our own operations and in the supply chain through targeted campaigns.

Complaints procedure

Our complaints procedure allows critical issues to be identified at an early stage and thus potential human rights or environment-related risks and violations to be uncovered, counteracted, or remediated. We therefore regard our complaints procedure as an important element of our human rights strategy, which helps us to continuously improve our processes for respecting human rights.

Our suppliers are made aware of our reporting system in the Code of Conduct for Business Partners[24], among other means. By acknowledging this Code of Conduct, they agree, in particular, to establish a reporting system or to participate in an industry-wide system. They also agree to inform their associates accordingly.

Further details on the complaints procedure, our reporting systems, and the number of reports received can be found in the "Governance | Compliance" section.

Responsible supply chain management

We regularly audit our suppliers both preventively and when the situation demands. Such an audit is generally carried out when we commence new supplier relationships, with the findings of our risk analyses then determining the type, scope, and frequency of the audits. Different methods are used depending on the prevailing framework conditions and the specific risk situation: verifications performed by Bosch itself (quick scans and drill-deep assessments), third-party audits, and self-declarations by suppliers.

Compliance with human rights and environment-related requirements already plays a crucial role when selecting new suppliers and is a prerequisite for subsequently entering into a contractual relationship. The corresponding timing and the audit methodology used are determined by the respective purchasing organizations according to the risk. As part of the sanctioned party list screening, a check is additionally carried out prior to the conclusion of a contract to determine whether potential business partners are included in sanction lists or affected by embargo regulations.

[24] BSH Hausgeräte GmbH has developed its own Code of Conduct for Suppliers and operates its own reporting system.

If there is reasonable suspicion or concrete evidence of a violation of human rights or environment-related obligations by a supplier, we systematically investigate the facts of the matter. If we discover breaches of duty, we work to ensure that these are rectified immediately. Should this not be possible in the foreseeable future, we expect the supplier to present a plan and a specific time schedule for ending the breach and minimizing its effects. We track and monitor implementation of the measures – also by consistently requesting documented proof or by performing reassessments on site. If a supplier does not appear willing to fulfil our requirements or introduce corresponding measures, Bosch reserves the right to terminate the contractual relationship in extreme cases. Active suppliers found to be engaged in unlawful conduct or whose sustainability performance is deemed inadequate, such as a lack of effort in dealing with human rights or environment-related requirements, may be excluded by Bosch from any further awarding of contracts.

If there is reasonable suspicion of misconduct on the part of an indirect supplier, we initiate targeted preventive measures within the scope of our possibilities, such as controls and, if necessary, appropriate remedial actions through our business partners.

Risk analyses

The responsible corporate departments perform annual and, if necessary, event-driven risk analyses in order to improve understanding of human rights and environmental implications, identify potential vulnerabilities, and develop suitable preventive measures. This is done using standard evaluation methods to ensure comparability between the different functional areas. The risk analysis comprises four steps:

- Risk identification

The responsible corporate departments identify areas where risks might occur (risk commodity). This could be a country, a plant, or a supplier.

- Risk assessment

Risks are assessed using a uniform model and presented according to a standardized scale at Bosch in order to ensure the comparability of the results. Assessment criteria include the potential severity and impact of a potential violation, the irreversibility of consequences, and the likelihood of a risk occurring. In addition, we also consider any indications of risks we receive from internal processes, such as the internal control system or internal audits, as well as from the public realm, from our partners in the supply chain, or through our reporting systems.

We adhere to clearly defined principles when assessing risks. The corporate departments assess the risks relating to their own business activities in a top-down or bottom-up approach (e.g. through questionnaires), depending on the

processes in question. We developed a grading system for risks in the supply chain and use international indexes such as the Global Slavery Index or the ITUC Global Rights Index to assess the respective supplier's potential risk. A supplier's sustainability performance – such as audit results, acceptance of the Code of Conduct for Business Partners, or external certifications – is likewise included in the assessment and used to substantiate the results.

Prioritization

Risks are prioritized in each functional area with the aim of targeting the use of preventive measures and enhancing existing processes. The results of the risk assessment determine the prioritization within Bosch's direct sphere of influence. Additional factors are considered in the supply chain such as the extent to which each supplier contributes to causing a risk and the possibilities Bosch has to exert influence.

Measures

Should deficiencies arise in the risk management system, adjustments must be made and relevant measures introduced in the corporate departments to counter these directly in the risk field concerned. In addition, risks that affect a number of functional areas or risk fields are managed by the human rights committee for the entire Bosch Group so that comprehensive measures can be developed.

We systematically review reports we receive through our reporting systems, for example, or that arise within the context of media monitoring and decide on the need for an event-driven risk analysis depending on the particular findings.

Potential risks for human rights

Potential risks for human rights in the company's own operations and at direct suppliers

Essential employee rights are derived from human rights, which is why we also pay special attention to people's situations at the workplace. First and foremost, we consider the risks associated with forced labor within our own operations and at direct suppliers (tier 1), in line with the definition of the International Labour Organization (ILO Convention 29, Article 2).

In 2023, we took a closer look at the topic of recruitment fees, that is payments by employees to their employer or to third parties during the course of the recruitment process (e.g. agents) to secure a position. This was done as part of our annual risk analysis and considered both in our own operations and those of direct suppliers. In our efforts to ensure a high level of protection for our associates, we identified the need for a group-wide, substantiating policy to express Bosch's rejection of such practices by third parties, which may be an indication of forced labor. The plan is to publish the policy in 2024. Future risk analyses should also focus on this topic.

Potential risks for human rights further down the supply chain

Raw materials extraction and its circumstances are often particularly risk-sensitive from an ecological and social point of view. While Bosch itself only sources very few raw materials directly, potentially high-risk raw materials are processed in primary products and materials.

In an analysis of raw materials, we identified 15 high-risk raw materials that Bosch uses and launched specific risk-mitigating programs (see G 35). These programs are managed by the Supply Chain Management and Sustainability and EHS corporate departments and implemented in the divisions. A standard process was established in 2023 for the identified raw materials, which is binding upon the purchasing divisions. Following analysis of the material-specific risks, specific target visions are defined accordingly for each high-risk raw material along its generic value chain. These visions reflect Bosch's expectations of its suppliers, such as a desired level of certification, and will be the focus of further corporate activities in the future.

G 35

15 High-risk raw materials

Cassiterite (tin)	Lead	Lithium
Coltan (tantalum)	Graphite	Manganese
Tungsten	Natural rubber	Nickel
Gold	Cobalt	Platinum
Aluminum	Copper	Rare earth elements

Preventing and mitigating risks

We develop reasonable measures and implement these consistently in order to counter identified risks and their impact on human rights or the environment. The effectiveness of preventive measures is checked regularly, for example through audits, and adjustments are made if necessary. In the event that human rights or environment-related obligations are violated within the company's own operations or at a supplier, we immediately seek an appropriate remedy.

Uniform principles are applied throughout the Bosch Group to prevent and mitigate risks. Individual elements of prevention are organized slightly differently in order to take account of the range of business models and supplier relationships within the Bosch Group.

Preventing and mitigating risks within the company's own operations and at direct suppliers

Bosch's Code of Business Conduct[25] applies to all associates and requires them to comply with the relevant laws and internal regulations. This is especially the case in relation to ensuring respect for human rights. We provide regular training for associates on the content of the Code of Conduct. Clearly defined requirements for our security personnel, training on human rights, and far-reaching supervision measures aim to prevent behavior that violates human rights vis-à-vis our associates and third parties.

Bosch's Code of Conduct for Business Partners[26] requires that our suppliers comply with social and environmental standards and is therefore critical for collaboration between our suppliers and Bosch. We also expect our suppliers to use their best efforts to require their own suppliers and other third parties to comply with the appropriate principles. Further information on the Bosch Group's Code of Conduct and the Bosch Code of Conduct for Business Partners can be found in the "Governance | Compliance" section.

[25] USH Hausgeräte GmbH has developed its own Code of Conduct for Associates and its own Code of Conduct for Suppliers.

Since the Bosch Group's updated Code of Conduct for Business Partners was published in 2022, current suppliers of direct materials are asked to actively confirm the Code of Conduct – by the end of 2023, around 71 percent of suppliers contacted had already acknowledged the Code of Conduct (prior year: 47 percent). We are seeking a further increase in 2024 as well.

Regarding indirect materials (materials and goods that are not directly related to products), we endeavor to have the Code of Conduct acknowledged each time a contract is awarded. The confirmation rate is currently 97 percent and remains unchanged since the previous year. Considering the number and diversity of our suppliers, should it happen that confirmation is outstanding in some cases, we address these cases in the context of our risk management.

In terms of environmental protection, we expect our suppliers to set up and continuously refine, within reason, an environmental management system certified to ISO 14001. In 2023, around 69 percent of our relevant direct materials suppliers (excluding BSH Hausgeräte GmbH) had such a certificate. Suppliers without manufacturing operations are not required to adopt an environmental management system of their own, but they do have to implement corresponding measures.

Supplier assessments

Four methods are used in the Bosch Group in our regular assessment of our suppliers' sustainability performance. Self-declarations by suppliers and third-party audits are used to complement the quick scans and drill-deep assessments that Bosch performs itself.

- **Quick scans** are based on a checklist of specific criteria relating to the environment, occupational health and safety, and human rights. Supplementary questionnaires are used, for example, for selected material groups and logistics services. Quick scans are carried out by qualified Bosch associates from purchasing or quality functions, frequently as part of regular on-site visits to suppliers. In 2023, we conducted around 3,200 quick scans (prior year: 3,300). From 2024, we intend to increasingly align the intensity and the focal areas of the quick scans to the results of the annual supplier risk analysis.

- **Drill-deep assessments** are used mainly in potentially high-risk regions or industries, or when there are any specific indications of non-compliance. Irrespective of any other visits to suppliers, drill-deep assessments are carried out by internally licensed assessors and take between one and two days. They are announced so as to ensure that the required experts – such as environmental or safety officers – are on-site. Besides an in-depth assessment of the three areas covered by the quick scan – the environment, occupational health and safety, and human rights – they also comprise an analysis of working conditions and compliance management. The assessment covers the practical implementation as well as system-based requirements, such as in the form of guidelines, which allow conclusions to be drawn about the maturity of the organization. Bosch conducted around 120 drill-deep assessments at suppliers in the 2023 reporting year (prior year: 100).

▸ **Self-declarations** are eligible as a means of checking suppliers where the risk is assumed to be low and there have been no issues in the past. The prerequisite is that the assessed risk of the group of suppliers or of the material group is queried and trustworthy documentation is provided to substantiate that the questions have been truthfully answered. To ensure uniform and high standards, new questionnaires must be approved by a group of experts before they are introduced.

▸ If there is a heightened risk for a supplier, **third-party audits** can be initiated for checking the supplier. Performed by external third parties, such audits must at a minimum satisfy the requirements of a drill-deep assessment in terms of content and process. Together with automotive manufacturers, suppliers, and other associations, an audit standard was developed in the "Responsible Supply Chain Initiative" (RSCI), which is to be used at plant level in the automotive industry. The roll-out phase commenced in 2023 following pilot audits with the nomination of suppliers based on the annual risk analysis.

On aggregate, we assessed around 76 percent of our relevant direct materials suppliers (excluding BSH Hausgeräte GmbH) using the various methods by the end of 2023. We also assessed 85 percent of indirect materials suppliers who are particularly relevant in terms of country risk and field of materials risk. Most of these were on-site assessments.

The insights we have obtained from the various assessments show that suppliers meet our requirements for the most part. Improvements were required in individual cases, and Bosch expects these to be implemented. Priority areas in 2023 also concerned aspects of environmental protection as well as occupational health and safety, such as preventing hazards in transport and high-bay warehousing processes.

G 36

Selected in-scope content of drill-deep assessments

Environmental protection	Occupational safety	Human rights	Working conditions	Compliance
Environmental management system Water treatment Waste management	Handling of hazardous substances Hygiene Fire safety	Employee representation Complaints procedure	Observance of work hours Equal pay	Violations of antitrust law Current legal disputes

Training

Our associates in the purchasing function receive web-based as well as classroom training. In 2022, a new training video was published that will become a mandatory part of the learning curriculum for all purchasing associates in 2023. It provides an overview of the current strategy in purchasing and the requirements for suppliers in terms of climate action and human rights. More than 4,000 associates took part in this training in 2023.

Another training module that has already been in place for several years provides associates who manage suppliers not only with a general overview of topics, but also with information on the requirements expected from suppliers and the procedure for the quick scans in particular.

We offer training courses for suppliers so that they can further consolidate their knowledge of our expectations in relation to compliance with human rights and environment-related standards. In 2023, the webinar on the topic of sustainability was accessed more than 2,600 times.

Stakeholder dialogue and involvement in associations

Bosch regularly presents awards to its best suppliers around the world in recognition of their performance. The Bosch Global Supplier Award is bestowed every two years. 46 suppliers from 11 countries were distinguished in 2023. The Supplier Award in the special "Sustainability" category was also awarded for the second time. Finalists in this category have at least an "A" rating from CDP and make an exemplary contribution to climate neutrality.

Bosch is involved both in the VDA Sustainability Committee, the Responsible Supply Chain Initiative RSCI, and the "Sector Dialogue Automotive Industry" of the German Federal Ministry of Labor and Social Affairs. We are also active at a cross-company level in "econsense – Forum Nachhaltige Entwicklung der Deutschen Wirtschaft e.V." (Forum for Sustainable Development of German Business). Within the forum's "Human rights and supply chain" cluster, we work together with other partners on how to responsibly design global supply chains.

Preventing and mitigating risks further down the supply chain

We want to mitigate risks related to human rights and the environment that are inherent in raw materials extraction through our involvement in various programs and measures. In the case of raw materials that can have adverse effects on people and the environment, we also regularly review the risk exposure and counteract potential risks, taking into account the corresponding OECD guidelines and the legal parameters.

We drew up a social study on human rights risks in the reporting year to complement the results of an environmental study conducted in 2022. The study creates transparency in relation to the generic supply chains of the 15 high-risk raw materials identified as well as the associated process-related and country-specific risks.

This resulted in the creation of a matrix of the identified raw materials and their weighted risks along their generic supply chains. Based on the resulting risk areas identified, the existing target visions for the materials 3TG[5], cobalt, and rare

[5] 3TG: Cassiterite (tin), Coltan (tantalum), Tungsten, Gold

earth elements were examined in 2023 and, where necessary, adapted or confirmed. We are therefore continuing to pursue the vision of establishing 100 percent certified smelters in our supply chains in the future and have also begun to communicate the associated ambition to our suppliers.

Material-specific target visions were likewise defined for aluminum, graphite, and lithium, which were the focus materials in 2023. In 2024, we will devote ourselves to the materials copper, manganese, nickel, and platinum. As scarcely any certification standards exist on the market as yet for many materials, we will continue to closely monitor the situation so that we can take emerging standards into account in our strategy in due course.

In the case of lead, virtually 100 percent of direct suppliers and one tier-n supplier for every supplier were audited in 2023 using a specific CSR quick scan.

Conflict minerals policy

As early as 2019, we issued the Bosch Group Policy for Conflict Raw Materials, which describes our approach to the conflict minerals cassiterite (tin), coltan (tantalum), tungsten, and gold. It is integrated in specific agreements for relevant suppliers.

Bosch participates in conflict minerals reporting and in cobalt reporting in accordance with the Responsible Minerals Initiative (RMI). In addition, we are working toward ensuring that suppliers of materials containing conflict minerals or cobalt have the smelters in their supply chains certified by the RMI.

In 2023, the certification rate among smelters was 91 percent for tantalum (prior year: 97 percent). At the same time, 67 percent (prior year: 87 percent) of tungsten smelters are certified, while the rate for tin smelters lies unchanged at 80 percent (prior year: 80 percent). The rate for gold was lower at 55 percent than in the previous year (60 percent). We want to reverse this negative trend in 2024. The reported certification rate for cobalt was increased to 81 percent from 69 percent the previous year.

With respect to BSH Hausgeräte GmbH's suppliers, the certification rate among smelters is 92 percent for tantalum (prior year: 80 percent), 83 percent for tungsten (prior year: 79 percent), and just under 84 percent for tin (prior year: 69 percent). A proportion of 80 percent of gold smelters (prior year: 64 percent) are certified, for cobalt the rate is 77 percent (prior year: 74 percent).

On request, Bosch provides customers with the RMI's Conflict Minerals Reporting Template, which is recognized by authorities such as the U.S. Securities and Exchange Commission. It can be obtained via established platforms, such as iPoint and HP CDX, or it can be sent to individual requesting parties.

Responsibility to customers

Bosch products aim to impress thanks to their safety, quality, and reliability – regardless of where they are produced or used. In developing and manufacturing these products and in rendering services, we stay true to our "Invented for life" mission statement beyond compliance with the law.

Our quality policy

Due to our wide-ranging product portfolio, we apply a large number of different laws and regulations worldwide governing quality assurance. Internal company policies create a binding framework for setting quality objectives and commit the organization to continuously work to improve the quality management system.

Quality management is coordinated and steered by the corporate department for quality. Officers in the operating units and at the company locations are responsible for operational implementation.

The majority of our development and production sites have a quality management system certified according to ISO 9001. All sites that manufacture vehicle components are certified according to the IATF 16949 standard, which is based on ISO 9001 and was developed by the International Automotive Task Force (IATF).

Product safety

The safety of our products is a key element of our quality policy. The corresponding responsibilities are clearly defined in internal company regulations. In addition, these regulations set out rules for the delivery of safe products. At every stage of the product development process, attention is paid to product safety. Starting with product development, we attach great importance to product safety and satisfy relevant standards, such as ISO 12100 for the safety of machinery, ISO 26262 for the functional safety of systems in passenger vehicles, or IEC 61508 for the functional safety of electrical and electronic systems. Products are not released for series production until all safety aspects have been fully clarified. In addition, compliance with pertinent specifications must be established and demonstrated by appropriate tests.

We perform analytics of safety-relevant products to the required extent covering the end-to-end product life cycle. Comprehensive training establishes the preconditions for ensuring that everyone in the company is committed to, and puts into practice, Bosch's quality standards – especially with regard to the provision of safe products. For associates whose activities directly influence product quality, we provide training on product safety and product liability. To deepen their knowledge, the product safety and product liability officers of the various divisions have access to more in-depth classroom and online training courses.

Information and documentation

In addition to the existing information and documentation obligations, we offer learning opportunities for users to help them to use the product correctly and operate it safely. For example, Bosch Mobility Aftermarket offers learning opportunities for workshop associates, while Power Tools provides appropriate opportunities for consumers.

Cybersecurity, information security, and data protection

Cybersecurity, information security, and data protection are elementary components of our quality policy at Bosch. We see trust in the security of products, systems, and data as well as their resilience to attacks involving manipulation as a crucial determinant of success in realizing our digitalization strategy. This also means managing user data in a responsible manner.

Bosch uses a combined information and data protection management system that is continuously maintained and updated. The system is aligned with international standards, such as ISO 27000, and also takes account of legal requirements such as those pursuant to the General Data Protection Regulation (GDPR).

Related policies and internal company regulations cover all relevant areas of cybersecurity, information security, and data protection at Bosch. They include binding instructions for developing products and services, the operation of servers and other IT systems, as well as basic principles relating to company information security and data protection.

A cross-functional steering committee, which includes the Data Protection Officer, the Chief Information Security Officer, and the Chief Cybersecurity Officer reports directly to the board of management twice a year. Furthermore, we have set up a separate corporate office that is responsible for the cybersecurity of our products.

A clearly documented process as well as a growing network of experts ensure that cybersecurity, information security, and data protection are widely integrated in the development of our products. The associates regularly take part in specialist training programs, workshops, and information events on current topics as part of their duties.

Digital trust

At Bosch, digital trust involves transferring our "traditional" quality and value proposition to the digital world. With this in mind, Bosch established the Digital Trust Forum in 2019. In 2022, it merged with the Charter of Trust founded by Siemens. The international initiative has set itself the objective of fundamentally increasing the trust placed in digital solutions. Above all, we are working with our partners to define trust-building guidelines and possible certification and conformity labels.

In an effort to ensure that AI is used responsibly in our products, we developed a code of our own back in 2019. This groundwork is now being drawn on in developing a European trust seal for AI products that also satisfies the requirements of the planned European AI Act.

Bosch Product Security Incident Response Team

Despite all precautionary measures, however, there is no such thing as a foolproof security system in information technology. That is why we have established the Bosch Product Security Incident Response Team (PSIRT). The team serves as a central point of contact for security researchers, partners, or customers should they detect any vulnerabilities in our products. Security gaps can also be notified through our reporting systems (see the "Governance | Compliance" section). When a solution has been found, we make it transparent for our customers.

Responsible advertising

The trust of our customers in our services and in the quality of our products is our highest priority. The diverse customer services offered by our divisions range from knowledge databases with interactive learning programs as well as repair and maintenance services through to a service portal for energy-related refurbishment and advice on subsidy rates and climate action programs relating to heating systems. At the same time, we make use of various opportunities to engage in direct and indirect dialogue with customers, for example through our service hotlines, by e-mail, or in direct talks. In fact, we view our customers' feedback as a reliable yardstick against which we can measure our actions.

Marketing and sponsorship

When we market our products, we refer to our Bosch values for guidance as well as four central principles: value cultural diversity, make reliable and credible statements, be fair, and respect national rules. In addition, we are committed to maintaining a quality level in all our marketing activities that matches our products' performance standards. In this respect, advertising can be humorous, creative, and competitive, but not unprofessional or untrue. To ensure that these principles are applied and messages are consistent across the complete media mix worldwide, overarching marketing communication is organized centrally and closely coordinated with the regional organizations and divisions. Sales-oriented product communication is mostly organized locally by the respective divisions, but it also follows the same principles.

Our sponsorship activities mainly serve promotional purposes, including strengthening our brand. They are governed by a central directive. This stipulates, among other things, that sponsorship measures must be integrated into an overall communications strategy or concept. The objective of measures also has to be clearly defined and focused on increasing brand recognition and reputation, promoting sales, or attracting qualified talent. Corporate headquarters must be consulted for sponsorship measures in excess of 30,000 euros.

Governance

Governance

Bosch has traditionally regarded compliance with the principle of legality as well as responsible and fair business practice as a top priority and firmly anchored this in our company's values.

Compliance

Compliance refers to the observance of legal requirements and internal corporate policies and rules. The global compliance management system (CMS) is an integral element of the measures for implementing corporate governance in the Bosch Group and comprises structures and processes for ensuring compliance at an organizational level. It is based on auditing standard IDW PS 980 and is described in an internal regulation.

In addition to rule-based compliance, we are continuing to develop the values-based approach. Our ambition is that our associates not only regard values-based conduct as an obligation, but that they act accordingly of their own volition. The CMS is preventive in nature and is designed to encourage all associates in the Bosch Group to identify compliance risks and violations at an early stage and to respond appropriately. This should also ensure a reduction in risks for the Bosch Group, its associates, and its corporate bodies. At the same time, we want to protect and cultivate the reputation of the Bosch Group, which is the basis of our business partners' trust.

BSH Hausgeräte GmbH operates an independent compliance management system, which is likewise based on the IDW PS 980 methodology and is supported by a global compliance organization.

Organization and regulations

Internal regulations set out the responsibilities for each area of compliance. Compliance specialists are responsible for implementing corporate governance in their respective areas.

The compliance committee supports the implementation of the Bosch Group's CMS and coordinates compliance issues. In addition, it contributes to the risk-based further development of the CMS. The compliance committee comprises the heads of the Compliance Management, Legal, Internal Auditing, HR, Risk Management, and Quality Management corporate departments. It is chaired by the chief compliance officer.

In 2022, the compliance committee set up a sanctions committee that decides on recommendations for disciplinary measures in the event of serious compliance incidents.

The chief compliance officer also heads the Compliance Management corporate department, which is responsible for the specialist area of anti-corruption as well as for information security and data protection, and for overarching key elements of the Bosch Group's CMS (e.g. compliance training, operating and further developing Bosch's reporting system, serving as a point of contact for reports of misconduct, and conducting internal investigations). The chief compliance officer sets the goals for the Compliance Management corporate department and reports directly to the member of the board of management of Robert Bosch GmbH responsible for compliance. If necessary, the chief compliance officer is also entitled to contact the chair of the supervisory board directly.

In the Bosch Group's regions, compliance offices have been set up as part of the Compliance Management corporate department. One of their tasks is to support the regions to which they are assigned in fulfilling their obligations under the CMS and in conducting internal investigations. For this purpose, they have unrestricted authority to demand information and perform audits, are independent in exercising their duties, and bound only by the instructions of the Compliance corporate department. In Germany, the divisions are supported directly by the Compliance Management corporate department. Internal investigations are carried out by an organizing body within the Compliance corporate department.

Implementation of corporate governance within the framework of the CMS is reviewed in the course of internal audits performed by the Internal Auditing corporate department. In addition, we review our CMS in the context of external audits and consulting engagements and take the results as an opportunity to further develop and optimize our CMS.

Risk-based compliance checks

According to our regular cycle, we repeated our global analysis of corruption risks in 2021, combining it with the analysis of risks relating to antitrust law. The analysis covered 253 legal entities that were selected based on certain criteria such as headcount, sales revenue, and specific risk indicators (e.g. the current Corruption Perception Index published by Transparency International). In addition, we performed further in-depth analyses in selected divisions, corporate sectors, and service units.

The findings were evaluated and appropriate measures were initiated in 2022. These include, for example, activities to raise awareness among associates regarding individual risks, supplementary training programs for specific target groups, or even random checks of compliance with rules and processes. To document and track the measures, we use a central database. We plan to repeat our global analysis of corruption and antitrust law risks in 2024 and to additionally include money laundering risks to take account of the fundamental restructuring in the Mobility division.

Our business partners are likewise regularly subject to a standardized and risk-based compliance check. This encompasses both customers and suppliers, potential acquisition and takeover targets, as well as possible partners in the establishment of joint ventures.

The depth and scope of the checks depend on various factors, such as the nature of the business relationship. Corporate and personnel structures can also play a role. Checks focus in particular on non-compliance with the law or official regulations such as applicable penal laws, environmental regulations, and human rights. We refer to information in the public domain for this purpose. The findings are assessed using a standard process and appropriate measures are defined and introduced to the extent necessary. These can range from a more in-depth assessment right through to withdrawal from the business relationship or project.

Codes of conduct

The Code of Business Conduct provides guidance for all Bosch associates on values-based, ethical, and legally irreproachable conduct. It defines basic rules of conduct in the company and provides guidance on issues such as accepting gratuities or avoiding conflicts of interest. The Code of Business Conduct also describes our social responsibility, including respecting human rights. BSH Hausgeräte GmbH has its own code of conduct, which was republished in September 2023 and includes additional guidelines and content.

The basic principles of the Code of Business Conduct are specified in further central policies and in local regulations. These also set out specific requirements with respect to gratuities. In Germany, for example, the acceptance and issue of gratuities exclusively constituting a personal benefit is permissible up to a limit of 35 euros, net, per year and recipient. So-called facilitation payments – payments made to officials to expedite an administrative service to which the payer is generally legally entitled – are explicitly not permitted.

The Code of Business Conduct is available to associates in more than 30 languages and upon publication was additionally communicated in a letter from the chairman of the board of management of Robert Bosch GmbH to all associates exempt from collectively bargained agreements worldwide. They have to confirm their acknowledgment of the document. An abbreviated version containing the key messages is also available.

We are in the process of revising our Code of Business Conduct to reflect new priorities and increase user-friendliness, for example by giving it a new structure, making it more practical, and presenting it in a more interactive form. Publication is planned for 2024 and will be accompanied by a worldwide communication campaign.

Additionally, we are in the process of preparing a new Anti-Corruption Policy as an umbrella regulation for further compliance rules on anti-corruption, focusing especially on gifts and invitations, sponsorship, donations, staff rotation, and conflicts of interest. This regulation is also set to come into force in 2024, accompanied by corresponding training programs.

We feel that responsible and lawful conduct is important beyond company boundaries and have clearly formulated our expectations in our Code of Conduct for Business Partners. In this way we require suppliers to the Bosch Group to comply with human rights and environment-related principles and to put in place appropriate due diligence processes. We likewise require them to pass on this expectation to their

own suppliers (see also the "Social | Complying with due diligence obligations relating to human rights and the environment" section). Referenced in the Terms and Conditions of Purchase, this Code is generally made an integral contractual element and is sent to all suppliers at the beginning of the business relationship. BSH Hausgeräte GmbH has its own Code of Conduct for Suppliers, which is comparable in content.

Compliance training

We use various training programs and communication measures to make our workforce sensitive to compliance issues. The compliance training program is available to our associates in the form of web-based training (WBT) or offered as in-person events or webinars (see T 11). Participation is mandatory for certain groups of associates, who are selected via a risk-based approach. For example, these include exempt associates due to their special responsibility as specialists or managers, but also numerous other associates in selected areas or in special functions. The training content must be repeated regularly, usually at two- to three-year intervals. Our training programs are regularly refined and updated to accommodate new content and developments, as well as feedback from participants.

The minimum compliance training currently held worldwide has been completed over one million times to date. Around 85 percent of associates in indirect functions have one or more minimum compliance training courses assigned to their learning curriculum. Compliance at Bosch is also an integral part of the annual goal and performance dialogue. Associates actively confirm in the related documentation that they have taken due note of the Code of Business Conduct and the internal regulations of relevance to them and will act accordingly.

Participation in the minimum compliance training courses is tracked using a dashboard, which also reflects participants' feedback as a basis for improving the quality of the training programs. Particular attention is paid to checking that training has been completed on time. In the event that training programs are overdue, reminders are automatically sent to the associates, executives, and HR business partners to complete the outstanding training.

T 11

Areas covered by the global minimum compliance training program

Area	Topic	Format
Business ethics	Code of Business Conduct	WBT, document
	Dealing with classified information	WBT
	Software license management	WBT
Anti-corruption	Anti-corruption	WBT, classroom training/live online training
Product compliance	Product compliance	WBT
	Product safety and product liability	WBT
Antitrust law	Antitrust law	WBT, classroom training/live online training
Export control	Export control	WBT

The Product Compliance web-based training module was published in 2023. It involves further development of the content of existing training measures relating to the product development code.

An optional course entitled "General compliance awareness" was integrated in all curricula for the first time in 2023 in order to raise awareness among non-exempt associates and other associates who, by definition, do not belong to the target group for mandatory minimum compliance training. This course explains the basics of compliance at Bosch using concise and easy-to-understand information (e.g. videos).

Reporting systems

Where potential misconduct is suspected within the Bosch Group or at suppliers, associates and business partners as well as other third parties can make a disclosure via the Bosch Group's reporting system. NGOs can also contact us with their concerns at any time. Reports can be submitted – also anonymously – using the appropriate IT tool, by e-mail, or phone.

Bosch's reporting system and its reporting points support a number of languages. Associates and suppliers are actively made aware of the possibility of submitting a report. The objective is to make it as easy as possible for whistleblowers to submit reports and to ensure the widest possible accessibility. All reports are processed independently, impartially, autonomously, carefully, and confidentially. The principle of objectivity and the protection of whistleblowers are our top priority. Our rules of procedure set out the details of the different channels and principles, as well as the processing procedure.

We rolled out a group-wide campaign in 2022 to raise awareness and increase use of the reporting system, as well as strengthen trust and confidence in the internal investigation process. This campaign was continued in 2023. BSH Hausgeräte GmbH operates its own, broadly similar reporting system.

In 2023, 1,528 reports (prior year: 1,283) were recorded via Bosch's reporting systems. We have seen a steady increase in the number of reports over the last few years, a development we primarily attribute to the comprehensive measures in the field of compliance and the resulting increased awareness of compliance issues. Reports have increased significantly especially since the summer of 2022, in tandem with the launch of our global awareness campaign.

Political lobbying

As a supplier of technology with global operations, we believe it is our responsibility to put our technology expertise to work for the common good and to demonstrate specific solutions to current challenges in society. With this in mind, we help shape opinions at a government policy level, for example in associations and in various social forums. This commitment is driven by our "Invented for life" ambition.

Organization and regulations

Responsibility for political lobbying at Bosch is set out in an internal company policy. The Bosch Group's government relations are assigned to a corresponding corporate department, together with group-wide corporate communication. Activities include representing the company's interests at policymaker, association, and organization level; they are designed to make our technology know-how available in regulatory processes, strengthen the company's reputation, build trust and relationships, and support the company's profitability.

Headquartered in Berlin, our Corporate Governmental and Stakeholder Affairs department has offices around the world. A total of 49 associates represent the political interests of the Bosch Group worldwide vis-à-vis institutions, ministries, governments, parliaments, and society.

Transparency as a matter of principle

Transparency is a central principle for the political lobbying of Bosch's interests. Consistent with this understanding, the company is registered in the relevant transparency registers worldwide, including in the United States, in Germany, or at European Union level. Depending on the respective legislation, the entries represent the scope and content of political advocacy.

At a glance

Bosch is registered in the relevant transparency registers under the following identification numbers:

German Lobby Registry:

- Robert Bosch GmbH: R000999
- Bosch Thermotechnik GmbH: R003224
- Bosch Healthcare Solutions GmbH: R004462

EU Transparency Register:

- Robert Bosch GmbH: 8999533555-91
- Bosch Thermotechnology GmbH: 269619148071-01
- BSH Hausgeräte GmbH: 41645612012902

USA Lobbying Disclosure:

- Robert Bosch LLC: Senate ID# 40008054-12; House ID# 401320000

Clear policy in the political arena

Internal company regulations at Bosch define the framework for engaging with politicians. These regulations define proper conduct, for example, in the run-up to elections, during visits to Bosch locations, or when Bosch associates come into contact with representatives and members of the political bodies of the EU. They also set out how to comply with the requirements of the EU Transparency Register and in what form Bosch participates in EU consultations.

Gratuities in dealings with third parties are likewise regulated internally within the company. It is only permitted to offer, grant, or accept gratuities in strict compliance with numerous prerequisites. Our rules relating to office holders are especially restrictive. Here, it must be ensured that any appearance of influence being exercised is ruled out and that the internal regulations of public authorities are adhered to. Should local law in some regions prescribe stricter or more specific requirements, these must be adopted and complied with.

As of 2021, we no longer make donations to political parties in Germany, but instead participate in the economic dialogue forums of the parties CDU, CSU, SPD, FDP, and Bündnis 90/Die Grünen. Through these memberships, we strive to provide stable financial support and engage in a productive exchange of ideas from which all participants benefit. While the regional organizations are responsible for donations made outside Germany, the guidelines require donations to political parties to be submitted to the chairman of Robert Bosch GmbH's board of management for decision. No such matters were presented in 2023.

Priority topics and activities

Owing to its expertise in technologies of the future, such as artificial intelligence, electrification, hydrogen, and connected, automated driving, Bosch is a sought-after partner and thought leader in the policymaking process. We are in favor of standards that are both ambitious and as consistent as possible. For instance, we believe supranational legislation at EU level is preferable to having a large number of national requirements – also in view of its potential to serve as a global benchmark.

Our political lobbying activities aim to identify discussions and developments on political regulations and initiatives early on, which can affect our products, our company locations, or our business operations in general. As a rule, the Bosch Group supports policy frameworks that are conducive to innovation, and endeavors to find possible solutions for the challenges facing society.

Our aim is to contribute to the relevant topics by taking a stand on issues such as technical feasibility and impact on society. We also want to do justice in this regard to the complete spectrum of requirements of our stakeholders. We are committed to remaining politically neutral.

Aligned policy papers define the Bosch Group's position on relevant topics and provide a summary of facts and arguments. Released by Robert Bosch GmbH's board of management, these global policy compass papers are valid worldwide. They form the basis for political lobbying and are supplemented by specific regional position papers to take account of respective regional or national legislation. The facts and arguments are also publicly available in the context of EU consultations. Further information is available online.

Due to our highly diversified product portfolio, we are affected by a large number of legislative projects, including in climate, energy, and environmental conservation policy as well as transport, research, and trade policy, data and digitalization laws, cybersecurity, or labor and social policy. At UN level, we advocate for the harmonization of technical standards, for example, for automated driving.

The priorities of our political lobbying activities are set each year by Robert Bosch GmbH's board of management. Our activities centered on the following topics in 2023:

Climate action

The European Green Deal, which aims to achieve EU climate neutrality by 2050, is of particular importance for Bosch both today and in the coming years. In this context, we advocate for regulation that is open to different technological solutions and takes account of environmental, social, and economic factors in the interest of sustainability. To reach the EU climate goals, all technologies that reduce CO_2 emissions have to be leveraged. These include all forms of electromobility from e-bikes to trucks as well as the cross-sectoral deployment of hydrogen. At a national as well as EU level, we are committed to the further development of the hydrogen economy. In 2023, this position was put forward by Bosch in legislative processes on mobility of the future and incorporated especially in discussions on carbon standards for road traffic.

Air quality

The topic of air quality was the focus of particular attention at EU level in 2023, with the European Commission presenting a legislative proposal to revise the Air Quality Directive and to introduce a Euro 7 standard. Bosch provided technical expertise to support the work on this new emissions standard and committed to a Euro 7 regulation, which makes a noticeable contribution to improving air quality and at the same time is both technically feasible and affordable.

Circular economy

Another important part of the European Green Deal is how to finance the transformation toward a resource-efficient economy. In this context, attention centers above all on the EU taxonomy for classifying products and services according to their sustainability and expanding the sustainability reporting requirements. Bosch is in favor of the EU's general efforts to achieve more transparent and comparable corporate sustainability information. In implementing these requirements, the task is now to eliminate legal uncertainty, ensure a harmonized approach, and guarantee uniform and industry-wide application. The announced European regulations are to be developed in close cooperation with existing, internationally recognized standards so that they are available promptly and redundant reporting in different publications is avoided. In 2023, Bosch held political talks in this regard at EU level and with German government ministries.

Moreover, Bosch pursued the legislative process for deforestation-free products. Limiting the bureaucratic effort involved was important to us in this context as well as ensuring that it would be affordable for companies to implement. Also in relation to the circular economy, Bosch is pursuing the ongoing legislative procedure for the Ecodesign for Sustainable Products Regulation, the End-of-Life Regulation, and the implementation work for the Battery Regulation.

Geopolitical situation and international trade

As a globally operating company, Bosch monitors geopolitical developments very closely. The global trading environment has changed dramatically in recent years. Protectionist tendencies are on the rise and trade measures are being used increasingly to protect geo-economic and national security interests. This means that companies are increasingly being confronted by additional costs, fragmentation of markets, and potential disruptions in their supply chains. For Bosch, open markets, rule-based international trade, and ongoing trade liberalization are key aspects of economic success and innovation. This is why we put forward our position in talks with policymakers and associations, and in the context of public relations activities.

Human rights

At EU level, the proposal for the Directive on Corporate Sustainability Due Diligence (CSDDD) was presented in 2022 to ensure human rights protection and compliance with environmental obligations in corporate supply chains. The negotiations on this proposed legislation continued in 2023. Bosch supports the objective of the planned directive – as it did with the corresponding legislation enacted in Germany. Legal certainty is essential for companies to implement due diligence in the supply chain. This is best ensured by setting clear requirements that can be easily implemented in practice.

Also in 2022, the EU Commission presented a new legislative proposal (Forced Labour Act) to ban products made with forced labor. Negotiations in this regard also continued in 2023. As a company with global operations that takes its social responsibility very seriously, Bosch supports the proposal and has set out its position in bilateral talks with policymakers. At the same time, we advocate for a risk-based approach to implementing the law to enable targeted and effective implementation.

Digitalization

Digitalization remains an important component for innovative and sustainable development of the economy. Applications, in particular in connection with the use of artificial intelligence, must serve humans and must be safe, robust, and explainable – and thus trustworthy. We therefore support the corresponding legislative processes and put forward our position through dialogue with decision makers.

2023 saw a large number of regulations in the area of digitalization, which also had a significant impact on our work. Particularly the presentation of the first EU-wide regulation for access to data is of great significance for our business activities. Bosch's position is that the interests of consumers should always be the focus of regulation. We therefore also welcome the plan to adopt an AI Act since the legal regulations will help to create trust in artificial intelligence and its application.

Autonomous driving

In 2021, Germany became the first country in the world to enact a law permitting level 4 automated driving in normal operation. This was followed in 2022 by a regulation with the technical details for licensing and operating corresponding vehicles on German roads. These include so-called dual-mode vehicles, in other words vehicles with an autonomous driving function that can be activated temporarily, such as to park automatically. As a result, major regulatory hurdles for the successful implementation of automated driving were overcome. Bosch can therefore gather important experience under real road conditions and rapidly advance the development of automated vehicles in Germany and Europe. At the same time, Bosch is involved at UN level in defining the technological requirements of automated vehicles in the interest of ensuring an internationally harmonized development of the technology.

Research and innovation

As a matter of principle, Bosch only engages in business operations that are viable without support from subsidies. We consider temporary government support a suitable instrument only in efforts to assist breakthroughs in new technologies or for the purpose of implementing industrial policy strategies. In the reporting period, Bosch received funding of around 210 million euros for R&D projects and as part of the two IPCEI (Important Project of Common European Interest) funding programs "Microelectronics and communication technologies" and "Hydrogen." A further 1.4 million euros was raised for the promotion of training and further education measures. The measures aim to open up new prospects for the associates concerned against the backdrop of the company's transformation.

In addition to direct exchanges with policymakers, Bosch is involved in numerous associations and participates actively in formulating positions. In Germany, at EU level, and in a number of other countries, we are members of the relevant industry associations.

In Germany, for example, we are members of the German Electro and Digital Industry Association (ZVEI), the German Association of the Automotive Industry (VDA), the German Federal Association for Information Technology, Telecommunications, and New Media (BITKOM), and the German Mechanical Engineering Industry Association (VDMA). In addition, we are active on the executive board and steering committee of econsense – Forum Nachhaltige Entwicklung der Deutschen Wirtschaft e.V. (Forum for Sustainable Development of German Business).

In Brussels, we are members of the European Association of Automotive Suppliers (CLEPA), DIGITALEUROPE, and Hydrogen Europe, and Bosch is represented in the International Chamber of Commerce. In the United States, for example, we are also members of the National Association of Manufacturers (NAM) and the Alliance for Automotive Innovation, and we are members of various national automotive industry associations in other countries, including Brazil (Sindipecas), Mexico (INA), and India (ACMA). BSH Hausgeräte GmbH is also a member of APPLiA Home Appliance Europe, the European association of household appliance manufacturers.

Organization of public stakeholder dialogues

Bosch strategically engages in and helps to actively shape social discourse. We enter into dialogue with policymakers, scientists, and society in the context of specific events on socially relevant topics and also seek new and innovative formats.

In February 2023, we organized an event together with one of our media partners and a consulting firm at Bosch's representative office in the German capital Berlin under the banner "Climate think-tank: The climate-neutral city – living and doing business sustainably." The event was also attended by the Federal Ministry for Housing, Urban Development, and Building. Together with representatives from politics, society, and science as well as interested citizens, the chairman of the board of management of Bosch discussed the importance of creating climate neutral cities – and the associated challenges.

In October 2023, we organized an event on the topic of "What about the 'S' in ESG? Stakeholder management and social accountability" together with the European School of Management and Technology in Berlin. Students and the general public together with representatives from politics, business, and civil society discussed the level of social responsibility companies should assume, how they can fulfil this responsibility, and what benefits this will bring them.

The societal divide as perceived at present by many people underscores the need for continual and open social dialogue and for the opportunity to conduct and embrace controversial debates. Bosch supports this aspiration with its morning "Green Tea Meetings," an already successfully established series of events, which was continued in 2023 with the following topic: "Does political lobbying have an image problem?". The events involve a keynote speech by an expert on a polarizing topic, which is then discussed confidentially in a small group on site.

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*The references indicate the pages on which the respective GRI content is mentioned within this report. References marked "AR" refer to our annual report 2023.

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[1] The references indicate the pages on which the respective GRI content is mentioned within this report. References marked "AR" refer to our annual report 2023.

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[1] The references indicate the pages on which the respective GRI content is mentioned within this report. References marked "AR" refer to our annual report 2023.

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*The references indicate the pages on which the respective GRI content is mentioned within this report. References marked "AR" refer to our annual report 2023.

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[1] The references indicate the pages on which the respective GRI content is mentioned within this report. References marked "AR" refer to our annual report 2023.

GRI indicators		Comment	Reference[1]
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[1] The references indicate the pages on which the respective GRI content is mentioned within this report. References marked "AR" refer to our annual report 2023.

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*The references indicate the pages on which the respective GRI content is mentioned within this report. References marked "AR" refer to our annual report 2023.

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*The references indicate the pages on which the respective GRI content is mentioned within this report. References marked "AR" refer to our annual report 2023.

GRI indicators		Comment	Reference[1]
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[1] The references indicate the pages on which the respective GRI content is mentioned within this report. References marked "AR" refer to our annual report 2023.

Independent auditor's report

on a reasonable assurance engagement*

To Robert Bosch Gesellschaft mit beschränkter Haftung, Gerlingen-Schillerhöhe

We have performed a reasonable assurance engagement on selected Key Performance Indicators and statements within the sustainability report of Robert Bosch Gesellschaft mit beschränkter Haftung, Gerlingen-Schillerhöhe (hereinafter the "Company"), which are marked with the "✓" symbol in the sustainability report, for the period from 1 January to 31 December 2023 (hereinafter "selected disclosures").

Our engagement exclusively refers to the selected disclosures marked with the "✓" symbol in the German pdf version of the sustainability report. Not subject to our assurance engagement are other references to disclosures made outside the selected disclosures as well as prior-year disclosures.

Responsibilities of the executive directors

The executive directors of the Company are responsible for the preparation of the sustainability report, which comprises the selected disclosures, with reference to the "GRI Sustainability Reporting Standards" (hereafter "reporting criteria").

These responsibilities of the Company's executive directors include the selection and application of appropriate methods for the preparation of the non-financial reporting and making assumptions and estimates about individual non-financial disclosures that are reasonable in the circumstances. Furthermore, the executive directors are responsible for such internal control as the executive directors consider necessary to enable the preparation of selected disclosures that are free from material misstatement, whether due to fraud (manipulation of the selected disclosures) or error.

Independence and quality assurance of the auditor's firm

We have complied with the German professional requirements on independence as well as other professional conduct requirements.

Our audit firm applies the national legal requirements and professional pronouncements – in particular the BS WP/vBP [*Berufssatzung für Wirtschaftsprüfer/vereidigte Buchprüfer*: Professional Charter for German Public Accountants/German Sworn Auditors] in the exercise of their profession and the IDW Standard on Quality Management issued by the Institute of Public Auditors in Germany (IDW): Requirements for Quality Management in the Audit Firm (IDW QS 1) and accordingly maintains a comprehensive quality management system that includes documented policies and procedures

* The assurance engagement performed by EY relates exclusively to the German version of the "CROSSROADS Sustainability report 2023" of Robert Bosch Gesellschaft mit beschränkter Haftung. The following text is a translation of the original German independent assurance report.

with regard to compliance with professional ethical requirements, professional standards as well as relevant statutory and other legal requirements.

Responsibilities of the auditor

Our responsibility is to express a reasonable assurance opinion on the selected disclosures based on our assurance engagement.

We conducted our assurance engagement in accordance with International Standard on Assurance Engagements (ISAE) 3000 (Revised): "Assurance Engagements other than Audits or Reviews of Historical Financial Information" issued by the IAASB. This standard requires that we plan and perform the assurance engagement to obtain reasonable assurance about whether the Company's selected disclosures are prepared, in all material respects, in accordance with the reporting criteria. Not subject to our assurance engagement are other references to disclosures made outside the selected disclosures and prior-year disclosures.

The assurance engagement on the selected disclosures includes performing procedures and obtaining evidence for the quantitative and qualitative disclosures in the selected disclosures that are sufficient and appropriate to provide a basis for our opinion.

We exercise professional judgment and maintain professional skepticism throughout the assurance engagement. Our procedures also include:

- Obtaining an understanding of the CO_2 neutrality program and the concepts related to work-related accidents within the Group.
- Identifying and assessing the risks of material misstatement in the selected disclosures, whether due to fraud or error, designing and performing procedures responsive to those risks, and obtaining evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtaining an understanding of internal control relevant to the assurance engagement on the selected disclosures in order to design procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.
- Obtaining sufficient appropriate evidence e.g. during site visits for the selected disclosures to express our opinion.
- Evaluating the appropriateness of methods used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
- Evaluating the presentation of the selected disclosures.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Opinion

In our opinion, on the basis of the knowledge obtained in the assurance engagement, the selected disclosures of the Robert Bosch Gesellschaft mit beschränkter Haftung for the period from 1 January to 31 December 2023 are prepared, in all material respects, in accordance with the reporting criteria.

Restriction of use

We draw attention to the fact that the assurance engagement was conducted for the Company's purposes and that the report is intended solely to inform the Company about the result of the assurance engagement. As a result, it may not be suitable for another purpose than the aforementioned. Accordingly, the report is not intended to be used by third parties for making (financial) decisions based on it. Our responsibility is to the Company alone. We do not accept any responsibility to third parties. Our assurance opinion is not modified in this respect.

General engagement terms and liability

The enclosed "General Engagement Terms for Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften [German Public Auditors and Public Audit Firms]" dated 1 January 2017 are applicable to this engagement and also govern our relations with third parties in the context of this engagement (www.de.ey.com/general-engagement-terms). In addition, please refer to the liability provisions contained there in no. 9 and to the exclusion of liability towards third parties. We accept no responsibility, liability or other obligations towards third parties unless we have concluded a written agreement to the contrary with the respective third party or liability cannot effectively be precluded.

We make express reference to the fact that we will not update the report to reflect events or circumstances arising after it was issued, unless required to do so by law. It is the sole responsibility of anyone taking note of the summarized result of our work contained in this report to decide whether and in what way this information is useful or suitable for their purposes and to supplement, verify, or update it by means of their own review procedures.

Stuttgart, 6 March 2024

EY GmbH & Co. KG
Wirtschaftsprüfungsgesellschaft

Storz
Wirtschaftsprüfer
[German Public Auditor]

Fischer
Wirtschaftsprüferin
[German Public Auditor]

About this report

The Bosch Group's sustainability report has been published annually since 2011. The present report describes the progress made in terms of sustainable business practices in the 2023 financial year (January 1, 2023 to December 31, 2023).

As in previous years, the report follows the guidelines of the Global Reporting Initiative (GRI). The Bosch Group has reported with reference to the GRI Standards for the 2023 financial year. Selected key indicators and statements on climate action and occupational health and safety were audited by EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft to obtain reasonable assurance. Audited content in this sustainability report is marked "✓." Tables and graphics as well as highlighted boxes are part of the audited content, provided that the information contained is marked "✓."

Unless otherwise stated, all information in this report refers to the full consolidated group. Besides Robert Bosch GmbH, the consolidated group comprises a further 468 (prior year: 468) fully consolidated entities. Details of the scope of consolidation and the developments in the financial year relating to it can be found in the annual report (see annual report 2023, page 126 et seq.). Unless otherwise stated, key environmental and occupational health and safety indicators cover 451 (prior year: 427) reportable locations. Reportable locations are all production locations and development locations (with material responsibility) with more than 50 associates as well as other sites with more than 100 associates.

The information was requested electronically and the data was mainly compiled using software specific to each division. As a rule, we aim to present three-year trends to enable better comparability. In individual cases, information relating to previous periods was restated as a result of changes in the methods used to collect and calculate data. Such changes are marked accordingly in the text. Discrepancies in the totals are possible due to rounding differences.

All forward-looking statements in this report are based on the assumptions valid as of the copy deadline and made after careful examination and consideration. Due to known and unknown risks, uncertainties, and other factors, the actual results, developments, or performance of the company may differ from our forecasts, assessments, and announcements. German and English pdf versions of the sustainability report 2023 are available online. Further information can be found at sustainability.bosch.com and in the annual report 2023. The next sustainability report is scheduled to be published in spring 2025.

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