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STRATEGY ADVISORS

THE TOP 100 SUPPLIERS.

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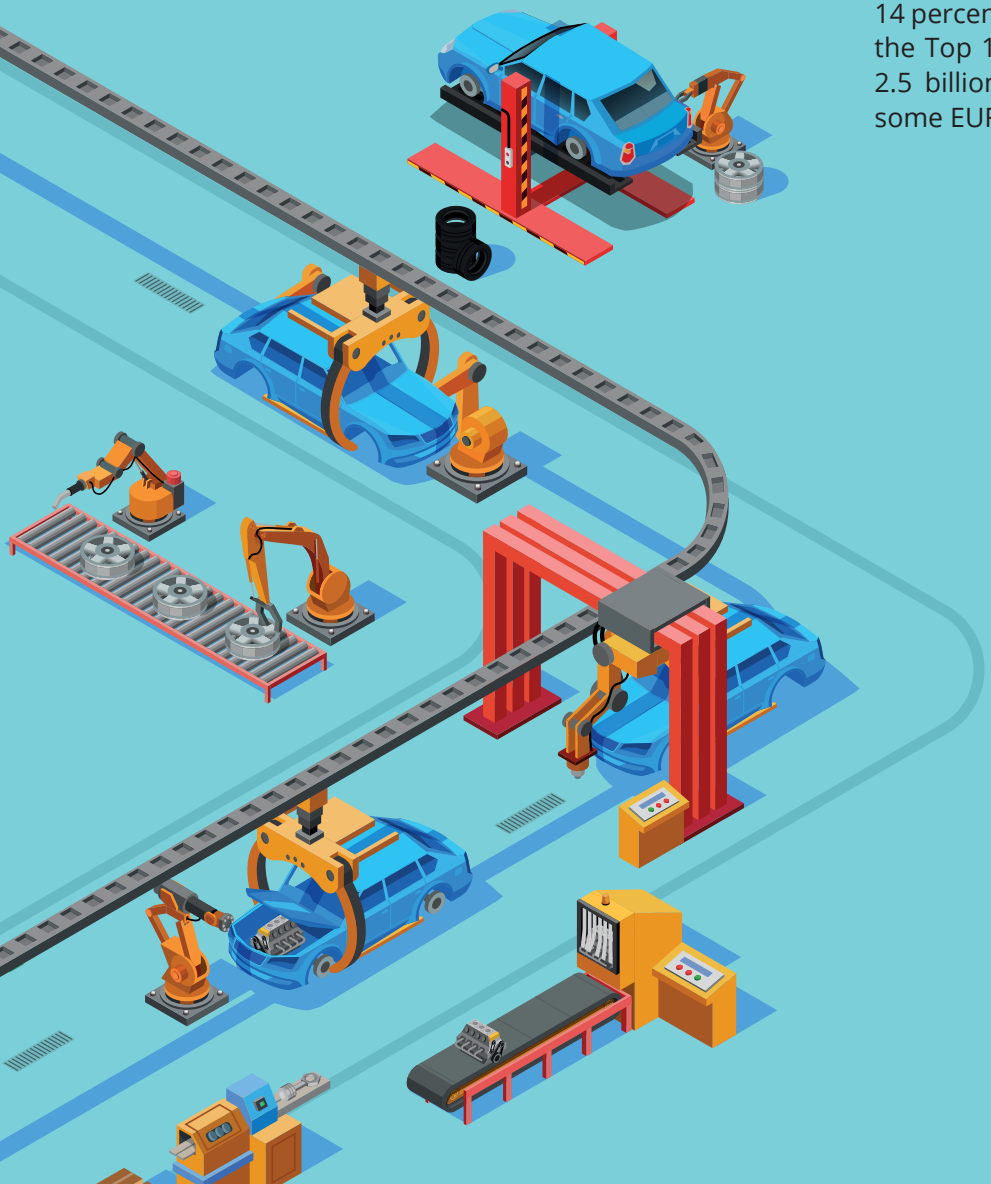
Berylls's study of the world's 100 biggest automotive suppliers

THE GENERAL TREND.

For the sixth time, Berylls Strategy Advisors has analyzed the Top 100 automotive suppliers and provided information about the ranking, revenues and operating income (EBIT) for 2015 and 2016. 2016 was another record year for the entire automotive supplier industry. And a glance at the figures by the 100 biggest suppliers paints a picture of extensive continuity.

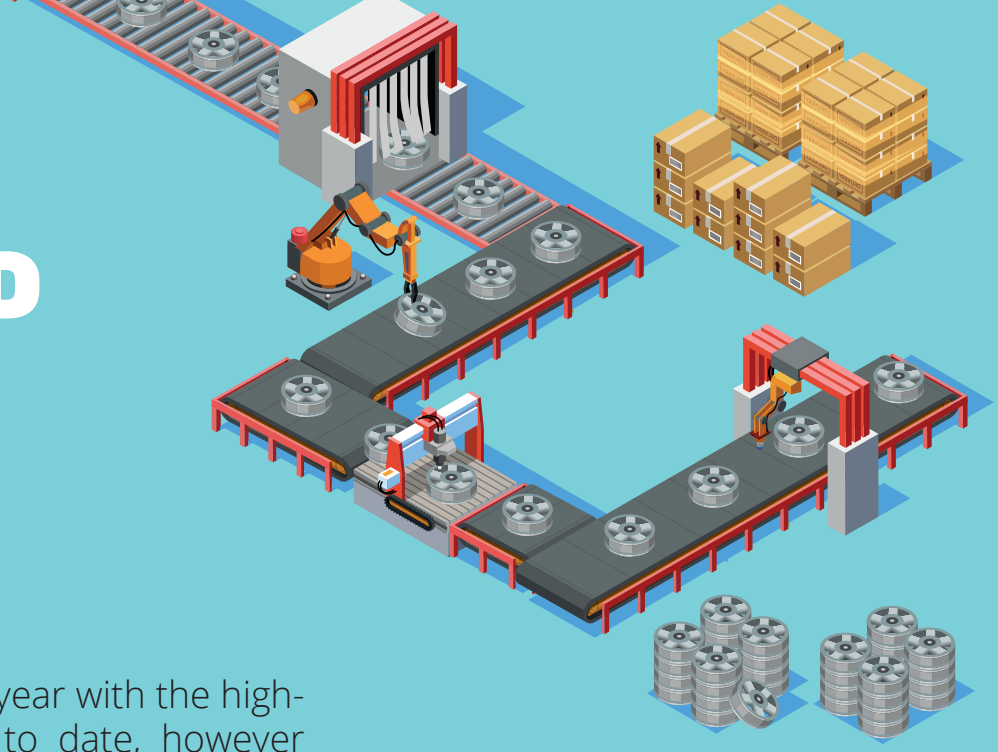
THE BIG GERMAN PLAYERS CONTINUE THEIR RECORD OF SUCCESS IN 2016 .

The upward economic trend continues in 2016 with revenue growth of six percent and a return of eight percent. German and other European suppliers can welcome the fact that the trend is that they are yet again outpacing the competition in Japan and the USA.



In general, however at six percent it could not match the record revenue growth in 2015, of plus 14 percent. On the other hand, to buy a ticket into the Top 100 club last year required at least EUR 2.5 billion revenue. In 2015, the threshold was some EUR 200 million lower.

GROWTH WITH SKID MARKS.



1. 2016 was the year with the highest revenues to date, however the growth left clear skid marks. In 2015, revenue was still growing by a record 14 percent. In 2016, it only grew by six percent.

2. With Bosch, Continental and ZF, three German companies are represented in the Top Ten.

3. In total, the 17 biggest German suppiers in 2016 achieved revenues of about EUR 186 billion, +7.4 percent more than in 2015.

4. In 2016, entry into the Top 100 club required at least EUR 2.5 billion revenue. In 2015, the threshold was some EUR 200 million lower.

THE TOP 100 AUTOMOTIVE SUPPLIERS.

		RANK			REVENUE				PROFITABILITY						
COMPANY	LAND	2016	2015	Δ	2016	2015	Δ ABSOLUTE	Δ RELATIVE	TYP	2016 €	2016 %	2015 €	2015%	Δ	REMARKS
Bosch	D	**1**	1	0	43.936	41.657	2.279	5,5%	EBIT	2.047	4,7%	3.216	7,7%	-3,1%	A, 1, GU
Continental	D	**2**	2	0	40.550	39.232	1.318	3,4%	EBIT	4.096	10,1%	4.116	10,5%	-0,4%	B, 2, GU
Denso	JP	**3**	3	0	36.301	34.299	2.002	5,8%	OI	2.602	7,2%	2.556	7,5%	-0,3%	B, 2, GU
Magna	CA	**4**	4	0	34.587	29.408	5.179	17,6%	OI	2.638	7,6%	2.426	8,2%	-0,6%	B, 2, AU
ZF Friedrichshafen	D	**5**	6	1	32.353	27.113	5.240	19,3%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Hyundai Mobis	KR	**6**	5	-1	30.227	28.096	2.131	7,6%	OI	2.295	7,6%	2.289	8,1%	-0,6%	C, 1, GU
Aisin	JP	**7**	7	0	27.977	24.133	3.844	15,9%	OI	1.623	5,8%	1.436	5,9%	-0,1%	B, 1, GU
Bridgestone - Firestone	JP	**8**	8	0	22.485	24.094	-1.609	-6,7%	OI	3.372	15,0%	3.588	14,9%	0,1%	B, 1, AU
Michelin	F	**9**	10	1	20.907	21.199	-292	-1,4%	OI	2.692	12,9%	2.577	12,2%	0,7%	B, 1, GU
Faurecia	F	**10**	11	1	18.711	18.770	-59	-0,3%	OI	970	5,2%	830	4,4%	0,8%	B, 1, AU
Lear	USA	**11**	12	1	17.611	16.666	945	5,7%	EBIT	1.457	8,3%	1.199	7,2%	1,1%	B, 1, AU
Valeo	F	**12**	14	2	16.519	14.544	1.975	13,6%	OI	1.301	7,9%	999	6,9%	1,0%	E, 1, GU
Delphi	USA	**13**	16	3	15.811	13.878	1.933	13,9%	EBIT	1.352	8,6%	1.380	9,9%	-1,4%	B, 2, GU
Adient	IR	**14**	-/-	-/-	15.793	0	15.793	-/-	EBIT	834	5,3%	-/-	-/-	-/-	B, 1, GU
Goodyear	USA	**15**	13	-2	14.385	15.048	-663	-4,4%	OI	1.884	13,1%	1.849	12,3%	0,8%	B, 1, GU
Cummins	USA	**16**	15	-1	13.027	13.970	-943	-6,7%	EBIT	1.210	9,3%	1.451	10,4%	-1,1%	B, 1, GU
Weichai Power	CN	**17**	20	3	12.725	10.457	2.268	21,7%	OI	562	4,4%	370	3,5%	0,9%	B, 1, AU
Yazaki	JP	**18**	18	0	12.253	10.687	1.566	14,7%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, GU
Sumitomo Electric	JP	**19**	17	-2	12.125	11.774	351	3,0%	OI	790	6,5%	696	5,9%	0,6%	B, 1, GU
Toyota Boshoku	JP	**20**	19	-1	11.084	10.675	409	3,8%	OI	579	5,2%	389	3,6%	1,6%	B, 2, GU
MAHLE	D	**21**	22	1	10.440	9.811	629	6,4%	K.A.	-/-	-/-	-/-	-/-	-/-	E, 1, AU
Schaeffler	D	**22**	21	-1	10.333	9.977	356	3,6%	EBIT	1.383	13,4%	1.135	11,4%	2,0%	B, 1, AU
Panasonic	JP	**23**	23	0	9.944	9.076	867	9,6%	OI	190	1,9%	477	5,3%	-3,3%	C, 1, GU
Autoliv	S	**24**	24	0	9.560	8.392	1.168	13,9%	OI	804	8,4%	666	7,9%	0,5%	B, 1, GU
Borg Warner	USA	**25**	29	4	8.608	7.342	1.266	17,2%	OI	214	2,5%	860	11,7%	-9,2%	B, 1, GU
Yanfeng Automotive Interiors	CN	**26**	26	0	8.551	7.779	772	9,9%	K.A.	-/-	-/-	-/-	-/-	-/-	D, 1, GU
Calsonic	JP	**27**	25	-2	8.264	7.872	391	5,0%	OI	337	4,1%	288	3,7%	0,4%	D, 1, GU
Tenneco	USA	**28**	28	0	8.161	7.513	648	8,6%	EBIT	501	6,1%	475	6,3%	-0,2%	B, 1, AU
Hitachi	JP	**29**	27	-2	7.990	7.553	437	5,8%	EBIT	406	5,1%	375	5,0%	0,1%	B, 2, AU
Magneti Marelli	I	**30**	30	0	7.900	7.262	638	8,8%	K.A.	-/-	-/-	321	4,4%	-/-	B, 1, GU
Gestamp	ES	**31**	31	0	7.549	7.035	514	7,3%	EBIT	463	6,1%	400	5,7%	0,4%	B, 1, AU
Federal Mogul	USA	**32**	34	2	7.055	6.790	265	3,9%	OI	219	3,1%	1	0,0%	3,1%	B, 1, GU
ThyssenKrupp Automotive (CT)	D	**33**	33	0	6.900	6.806	94	1,4%	EBIT	322	4,7%	298	4,4%	0,3%	B, 1, GU
JTEKT	JP	**34**	32	-2	6.767	6.925	-158	-2,3%	OI	378	5,6%	399	5,8%	-0,2%	B, 1, GU
Koito Manufacturing	JP	**35**	36	1	6.672	6.075	597	9,8%	OI	733	11,0%	587	9,7%	1,3%	B, 1, GU
Johnson Controls	USA	**36**	9	-27	6.314	23.866	-17.552	-73,5%	EBIT	1.259	19,9%	2.110	8,8%	11,1%	B, 2, AU
TE Connectivity	CH	**37**	39	2	6.171	5.812	359	6,2%	OI	1.130	18,3%	1.092	18,8%	-0,5%	B, 2, AU
Brose	D	**38**	37	-1	6.110	6.053	57	0,9%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 2, AU
Pirelli	I	**39**	35	-4	6.056	6.250	-194	-3,1%	OI	724	12,0%	850	13,6%	-1,6%	B, 1, AU
Hella KG Hueck	D	**40**	40	0	6.047	5.809	238	4,1%	EBIT	497	8,2%	405	7,0%	1,3%	D, 1, AU
Toyoda Gosei	JP	**41**	42	1	5.922	5.634	288	5,1%	OI	364	6,1%	320	5,7%	0,5%	A, 1, GU
Flex-N-Gate Corp	USA	**42**	45	3	5.922	5.491	431	7,8%	K.A.	-/-	-/-	-/-	-/-	-/-	D, 1, AU
GKN	GB	**43**	38	-5	5.885	5.952	-67	-1,1%	OI	487	8,3%	522	8,8%	-0,5%	E, 1, GU
Benteler	AT	**44**	41	-3	5.880	5.782	98	1,7%	K.A.	-/-	-/-	-/-	-/-	-/-	A, 1, AU
IAC	LU	**45**	47	2	5.694	5.399	295	5,5%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 2, AU
Sumitomo Rubber Industries	JP	**46**	43	-3	5.661	5.557	104	1,9%	OI	552	9,8%	555	10,0%	-0,2%	B, 3, AU
Samvardhana Motherson	IN	**47**	51	4	5.583	4.808	775	16,1%	OI	379	6,8%	305	6,3%	0,4%	B, 1, AU
Plastic Omnium	F	**48**	53	5	5.564	4.709	855	18,2%	OI	530	9,5%	442	9,4%	0,1%	B, 2, GU
Dana	USA	**49**	44	-5	5.529	5.546	-17	-0,3%	EBIT	315	5,7%	361	6,5%	-0,8%	B, 2, GU
NSK Group	JP	**50**	48	-2	5.472	5.361	111	2,1%	OI	470	8,6%	520	9,7%	-1,1%	A, 1, GU

THE TOP 100 AUTOMOTIVE SUPPLIERS.

		RANK			REVENUE				PROFITABILITY						
COMPANY	LAND	2016	2015	Δ	2016	2015	Δ ABSOLUTE	Δ RELATIVE	TYP	2016 €	2016 %	2015 €	2015%	Δ	REMARKS
Takata	JP	**51**	46	-5	5.416	5.437	-21	-0,4%	OI	347	6,4%	316	5,8%	0,6%	C, 1, AU
Grupo Antolin	ES	**52**	65	13	5.247	3.506	1.741	49,7%	EBIT	339	6,5%	266	7,6%	-1,1%	B, 1, AU
Hankook Tires	KR	**53**	50	-3	5.231	5.014	217	4,3%	OI	872	16,7%	690	13,8%	2,9%	B, 1, GU
Hyundai WIA Corp	KR	**54**	49	-5	5.082	5.222	-140	-2,7%	OI	204	4,0%	343	6,6%	-2,6%	E, 1, GU
Mitsubishi Electric	JP	**55**	52	-3	4.768	4.802	-34	-0,7%	OI	447	9,4%	601	12,5%	-3,1%	C, 1, AU
NTN	JP	**56**	54	-2	4.723	4.696	27	0,6%	OI	280	5,9%	333	7,1%	-1,2%	A, 2, GU
Mando Corp	KR	**57**	58	1	4.635	4.133	501	12,1%	OI	240	5,2%	207	5,0%	0,2%	D, 1, AU
Harman International	USA	**58**	57	-1	4.598	4.193	404	9,6%	OI	568	12,3%	318	7,6%	4,8%	B, 1, GU
Hanon Systems	KR	**59**	56	-3	4.506	4.335	171	3,9%	OI	334	7,4%	280	6,5%	0,9%	B, 1, GU
Eberspächer	D	**60**	55	-5	4.320	4.371	-51	-1,2%	K.A.	K.A.	-/-	126	2,9%	-/-	B, 1, GU
Nemak	MX	**61**	59	-2	4.040	4.102	-62	-1,5%	OI	445	11,0%	429	10,5%	0,6%	B, 2, GU
Alps Electric	JP	**62**	60	-2	4.029	3.998	31	0,8%	EBIT	185	4,6%	131	3,3%	1,3%	B, 2, AU
AAM	USA	**63**	64	1	3.747	3.572	175	4,9%	OI	361	9,6%	328	9,2%	0,5%	B, 1, GU
Dräxlmaier	D	**64**	62	-2	3.700	3.700	0	0,0%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, GU
Tokai Rika	JP	**65**	63	-2	3.699	3.608	91	2,5%	OI	250	6,8%	263	7,3%	-0,5%	B, 2, AU
Yokohama Rubber	JP	**66**	61	-5	3.663	3.800	-137	-3,6%	OI	295	8,1%	327	8,6%	-0,5%	B, 2, AU
Nexteer Automotive	USA	**67**	72	5	3.646	3.075	571	18,6%	OI	394	10,8%	286	9,3%	1,5%	B, 2, AU
Linamar	CA	**68**	78	10	3.621	2.845	776	27,3%	EBIT	389	10,7%	291	10,2%	0,5%	B, 2, AU
Leoni	D	**69**	66	-3	3.500	3.467	33	1,0%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
TS Tech	JP	**70**	67	-3	3.472	3.377	95	2,8%	OI	283	8,2%	291	8,6%	-0,5%	B, 2, AU
NHK Spring	JP	**71**	71	0	3.297	3.142	155	4,9%	OI	197	6,0%	151	4,8%	1,2%	B, 2, AU
Cooper Standard	USA	**72**	73	1	3.296	3.059	236	7,7%	OI	232	7,0%	161	5,3%	1,8%	A, 1, GU
Futaba Industrial	JP	**73**	69	-4	3.272	3.205	67	2,1%	OI	57	1,7%	17	0,5%	1,2%	B, 1, AU
Freudenberg	D	**74**	110	36	3.264	1.969	1.295	65,8%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 2, AU
NXP	NL	**75**	76	1	3.207	2.893	314	10,9%	K.A.	-/-	-/-	-/-	-/-	-/-	A, 1, GU
Webasto	D	**76**	75	-1	3.186	2.942	244	8,3%	K.A.	K.A.	-/-	167	5,7%	-/-	B, 1, AU
Mann + Hummel	D	**77**	84	7	3.147	2.736	412	15,1%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 2, AU
Saint-Gobain	F	**78**	81	3	3.127	2.774	354	12,8%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Hutchinson	F	**79**	79	0	3.055	2.804	251	8,9%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 2, AU
Sungwoo Hitech	KR	**80**	83	3	3.029	2.747	282	10,3%	OI	111	3,7%	113	4,1%	-0,5%	B, 2, AU
Visteon	USA	**81**	74	-7	3.000	2.970	30	1,0%	OI	153	5,1%	63	2,1%	3,0%	B, 2, AU
Eaton	USA	**82**	68	-14	2.992	3.370	-377	-11,2%	OI	450	15,0%	590	17,5%	-2,5%	B, 1, AU
TI Automotive	GB	**83**	77	-6	2.972	2.885	87	3,0%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, AU
Meritor	USA	**84**	70	-14	2.931	3.144	-212	-6,7%	OI	180	6,2%	116	3,7%	2,5%	A, 2, GU
Asahi Glass	JP	**85**	88	3	2.928	2.699	229	8,5%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 3, AU
Sumitomo Riko	JP	**86**	80	-6	2.915	2.784	131	4,7%	OI	114	3,9%	96	3,4%	0,5%	B, 1, GU
Honeywell	USA	**87**	87	0	2.899	2.710	189	7,0%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 2, AU
Stanley Electric	JP	**88**	85	-3	2.796	2.730	66	2,4%	OI	238	8,5%	210	7,7%	0,8%	D, 1, GU
Martinrea International Inc	CA	**89**	92	3	2.796	2.552	244	9,5%	OI	112	4,0%	107	4,2%	-0,2%	B, 2, GU
Cooper Tire & Rubber Co.	USA	**90**	86	-4	2.776	2.721	55	2,0%	OI	364	13,1%	324	11,9%	1,2%	B, 2, AU
Infineon	D	**91**	96	5	2.742	2.446	296	12,1%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 2, AU
Illinois Tool Works	USA	**92**	102	10	2.718	2.314	404	17,4%	OI	655	24,1%	561	24,2%	-0,1%	B, 2, GU
Wabco	USA	**93**	98	5	2.667	2.405	262	10,9%	OI	338	12,7%	248	10,3%	2,4%	B, 2, GU
Rheinmetall Automotive	D	**94**	90	-4	2.656	2.592	64	2,5%	EBIT	223	8,4%	216	8,3%	0,1%	B, 1, GU
Mitsuba Corp	JP	**95**	94	-1	2.644	2.486	158	6,3%	OI	192	7,3%	174	7,0%	0,3%	A, 1, GU
Keihin	JP	**96**	91	-5	2.642	2.585	58	2,2%	OI	141	5,3%	160	6,2%	-0,9%	B, 1, GU
Toyo Tire & Rubber	JP	**97**	89	-8	2.628	2.627	2	0,1%	OI	377	14,3%	448	17,0%	-2,7%	E, 1, GU
Aunde	D	**98**	101	3	2.600	2.350	250	10,6%	K.A.	-/-	-/-	-/-	-/-	-/-	B, 1, GU
Pioneer	JP	**99**	82	-17	2.564	2.764	-199	-7,2%	OI	52	2,0%	62	2,3%	-0,2%	E, 1, AU
NGK Spark Plug	JP	**100**	99	-1	2.550	2.403	148	6,1%	OI	485	19,0%	543	22,6%	-3,6%	A, 1, AU

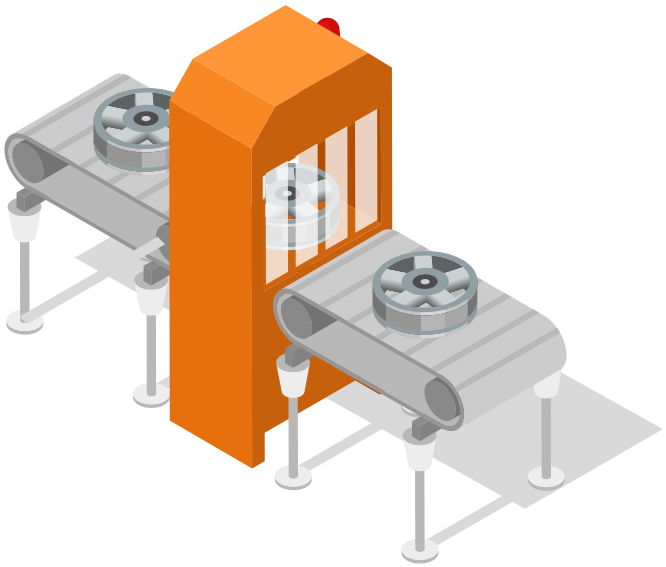
STRONG AS USUAL: EVERY 3RD SUPPLIER FROM JAPAN.

PERFORMANCE

As in past years, the biggest supplier group in the Top 100 comes from Japan. Japanese suppliers, with 31 companies and focuses such as Denso, Aisin and Bridgestone, form the biggest group on the list, with total sales of EUR 237 billion.

The growth of +4.4 percent proved less impressive, especially since it is mainly due to currency exchange rate effects. The Japanese domestic market remains unchanged; as in the previous year, the companies actually profit from the favorable trend of the yen (+7 percent in 2016 compared to the euro).

However, there are exceptions: the growth of Panasonic is not solely based on this effect, since Panasonic (place 23) manufactures many of the batteries that are required by OEMs worldwide for their e-cars. Revenue thus grew by almost ten percent. However, that is hardly due to the German market for electric vehicles.



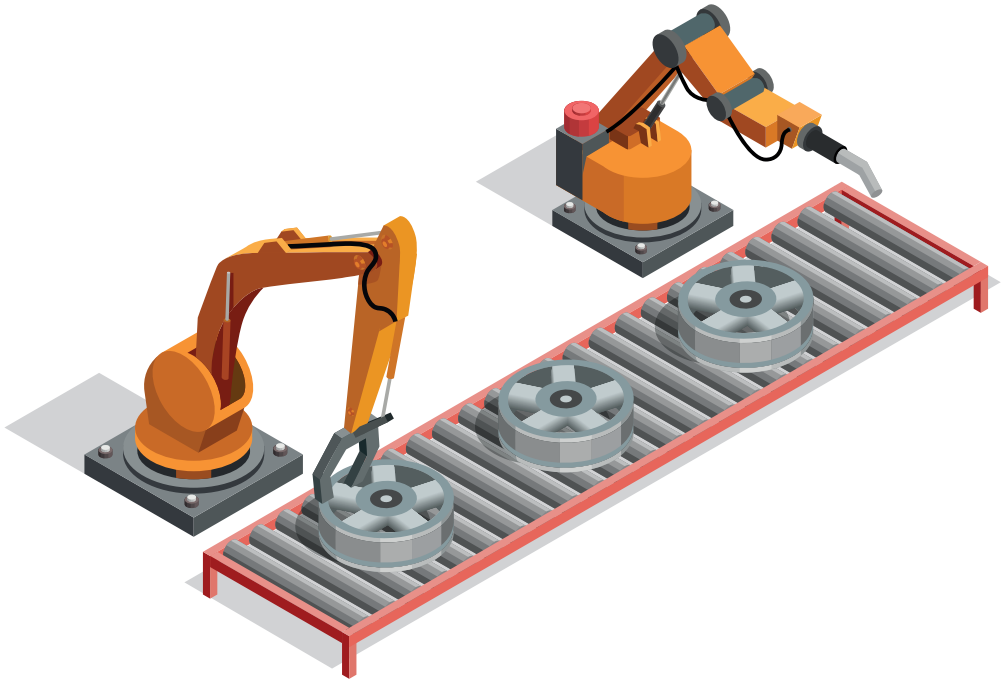
GROWTH: GERMANY INCREASES ITS LEAD.

PERFORMANCE

As in the previous year, the German automotive suppliers continued to pull ahead. With cumulative revenues of EUR 186 billion (+7.4 percent compared to the previous year), the 17 biggest German automotive suppliers in the global Top 100 achieved a record result once again. The strongest German automotive suppliers thus worked their way to the top year on year compared to their foreign competitors.

With a reduction of 8.0 percent (compared to 2015) and a total revenue at a level of EUR 138 billion (21 companies) the US companies take third place in the Top 100. The growth of the 18 European automotive suppliers from Spain, Italy, Ireland, France, Luxembourg, Austria, Netherlands, Sweden and Switzerland (without Germany), at 18.9 percent, lies clearly above the world average: they achieve EUR 150 billion sales in 2016. The main reason is the first-time consolidation of the Johnson Controls spin-off Adient, which is legally domiciled in Ireland.

Without this special effect, the growth would be 6.4 percent. For the third year in succession, none of the Top 100 has slipped into red. Compared to the previous year, the profitability declined slightly from 8.3 percent to 8.0 percent. The differences among the country groups are higher this year than in previous years. With a profit margin of 7.8 percent of revenue, Germany is lower by a good percentage point than in the previous year. Europe (without Germany) reaches 8.2 percent; The US takes the lead with 9.4, while the Japanese manage 7.4 percent and the Koreans 7.7 percent.



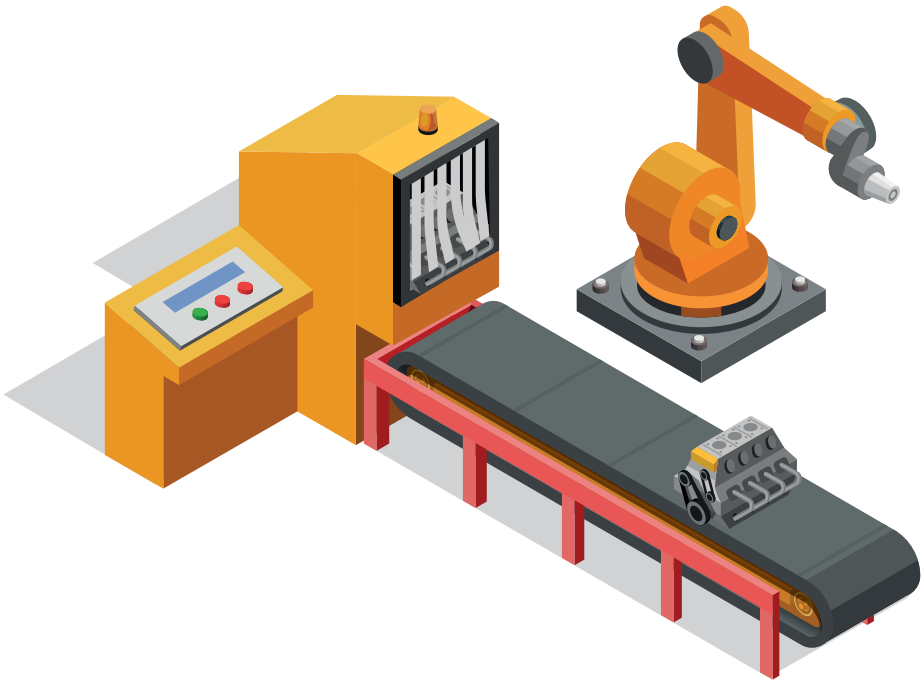
TOP: BOSCH AND CONTINENTAL ARE LEAD ONCE.

PERFORMANCE

BOSCH AND CONTINENTAL

Bosch (first place) and Continental (second place) strengthened their position at the top unchallenged. Whether with the cheap Indian Tata Nano car or the Chinese electric pioneer BYD: Bosch and Conti are on board, too, in most cases. Their innovative strength remains impressive. A glance at worldwide patent applications in the field of autonomous driving from 2010 to 2016 (source: Statista) makes this clear: Here, it is not the widely heralded digital titans from Silicon Valley who are ahead, but Bosch with 545 patents, followed by Audi with 292 and Conti with 277 patent applications.

In 2016, both Bosch and Conti were able to further increase their revenue, however EBIT shifted into reverse gear at first because of their high overheads for R&D. Bosch loses 3.1 percentage points in its EBIT compared to the previous year, Continental only a moderate 0.4 percent. The sales of the starter motor-generator division by Bosch to a Chinese consortium (comprising the supplier ZMJ and the investment company China Renaissance Capital Investment) for EUR 545 million in 2017 will impact Bosch's revenue this year. However, it does not have any effect on the ranking in 2017, since, the transaction amount of about a billion euros' revenue is too small to cause Bosch to slip to a lower place.

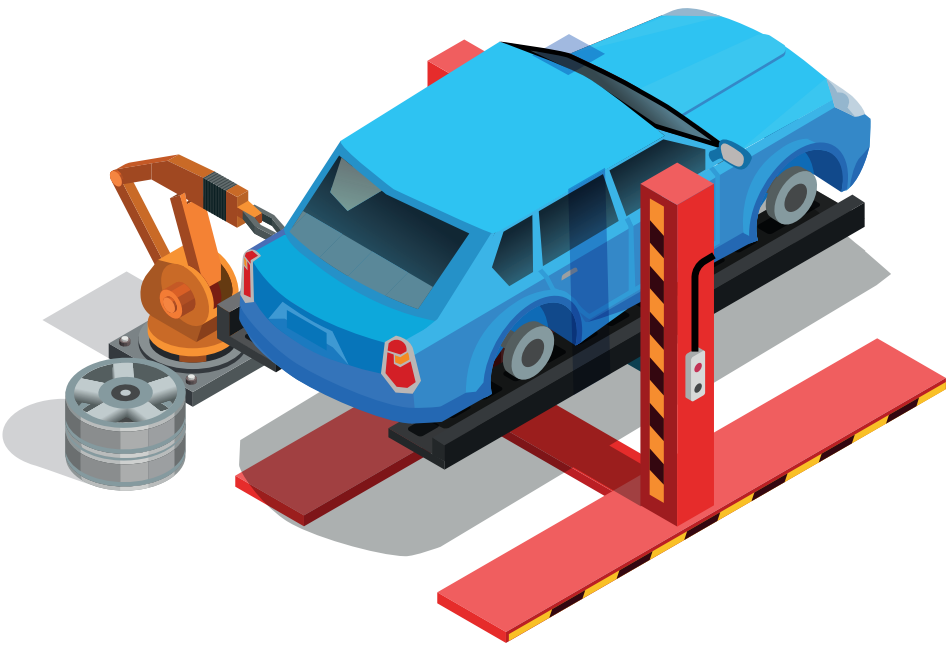


TIRE MANUFACTURERS: A DIFFICULT YEAR.

PERFORMANCE

Michelin, Goodyear and the other tire manufacturers actually experienced favorable conditions in 2016. With 95 million vehicles, global production reached a new all-time high. However, this positive volume effect was countered by the trend in raw materials prices - chiefly the relevant declines in crude oil prices, which are relevant for tire manufacturers - which had led to a decline in revenues among tire manufacturers in 2016. There were some very significant revenue declines year on year, for example, for Bridgestone-Firestone at -6.7% or Michelin at -1.4%.

The reason for this is the direct transfer of the raw material price effects to the tire manufacturers' customers, which was overcompensated by the positive volume effects in 2016.



SELECTION: LOOK AT THE INDIVIDUAL COMPANIES.

PERFORMANCE

1

FREUDENBERG

Freudenberg managed a huge leap into the Top 100: This year, the family business from Weinheim ranked 74th. In the previous year, it wasn't even listed, coming 110th. Compared to the previous year, revenue increased by EUR 1.3 billion, partly because of the complete consolidation of Vibracoustic (takeover of the 50 percent that had been held by Trelleborg). The company thus has a strong lead over the list of growth champions in 2016 (plus 68 percent).

2

ZF FRIEDRICHSHAFEN

The takeover of TRW by ZF, on the other hand, had surprisingly little effect on the overall ranking, even though it increased revenue by 19.3 percent. Nevertheless, ZF improved by one place to fifth ranking, however the sale of the Body Control Systems, formerly of TRW, prevented an even better performance.

3

FAURECIA

For the coming year, there will be another shake-up since ZF and Faurecia (10th place) recently announced a reinforcement of their collaboration in one of the key future fields. Faurecia will contribute a good deal of expertise in interiors to this joint venture, while ZF with bring along its competence in passenger safety (via TRW) as well as in autonomous driving. Now, technologies are to be developed for optimum protection of passengers of self-driving cars.

4

DENSO, MAGNA, GRUPO ANTOLIN

The established competitors at places three and four have shown strong growth. Denso, number three in this ranking, as in the previous year, was able to increase revenue due to currency exchange effects - adjusted for currency, the revenue declined slightly year on year. Magna's revenue even increased by more than 19 percent as a result of the takeover of Getrag, putting the Canadian company at place four again. Its competence in manufacturing transmissions for hybrid vehicles is especially valuable here, promising Magna further growth in the coming years.

However, Magna was not only active at the purchaser side, but at the same time also passed on the interiors division to Grupo Antolin, which allowed the Spanish company to jump 13 places to 52nd place in 2016.

RANKING GROWTH & PROFITABILITY TOP 5.

PERFORMANCE

GROWTH CHAMPIONS 2016 – TOP 5

COMPANY	2016 RANK	COUNTRY	PRODUCTS (SELECTED)	GROWTH IN 2016 comp. to 2015 sales	REMARKS
Freudenberg	74		Seals, vibration control technology	65,8%	Acquisition of Trelleborg's (TB) 50-percent interest in JV Vibracoustic
Grupo Antolin	52		Interior components	49,7%	Acquisition of Magna's Interior division
Linamar	68		Metal components for the drive train	27,3%	Aquisition of Montupet S.A. (France)
Weichai Power	17		Engines, transmissions, axles	21,7%	
ZF Friedrichshafen	5		Drive and suspension systems and passive safety systems	19,3%	100% consolidation of TRW for the first time

PROFITABILITY CHAMPIONS 2016 – TOP 5

COMPANY	2016 RANK	COUNTRY	PRODUKTE (AUSWAHL)	GROWTH IN 2016 in % of sales	REMARKS
Illinois Tool Works	92		Inner, outer and sliding door actuators	24,1% (operating income)	
Johnson Controls	36		Battery technology	19,9% (EBIT)	Includes the "Power Solutions" division ("Automotive Experience" division has since completely split off)
NGK Spark Plug	100		Spark plugs, glow plugs, ignition coils and lambda probes	19,0% (operating income)	High aftermarket share
TE Connectivity	37		Plug connectors and sensors	18,3% (operating income)	
Hankook Tires	53		Tires	16,7% (operating income)	High aftermarket share

TREND OR MEGATREND?

ANALYSIS

We can't ignore the sluggish growth in 2016. Though how should we view it? As an "isolated" event? Or as a first signal of a fundamental trend reversal? Has the point already arrived when manufacturers of traditional components are losing their importance? The fact is that almost all the suppliers have long responded to the current megatrends of the automotive industry and are developing away from their own roots, for example as piston smiths or gasket manufacturers. The megatrend is well underway

For example Bosch already employs almost 10,000 software developers, ZF and Schaeffler (place 22) are advancing the electrification of the vehicle and presenting independent studies on the vehicles of tomorrow or the day after.

ElringKlinger, for decades a leader in the manufacture of cylinder head gaskets, has invested extensively in the future field of electromobility. Not in order to manufacture a battery pack one day, but in order to master the entire electric drive system and - with this knowledge - to be able to supply battery cell connectors and other relevant components to OEMs.

CYBER SECURITY INSTEAD OF IGNITION PLUGS!

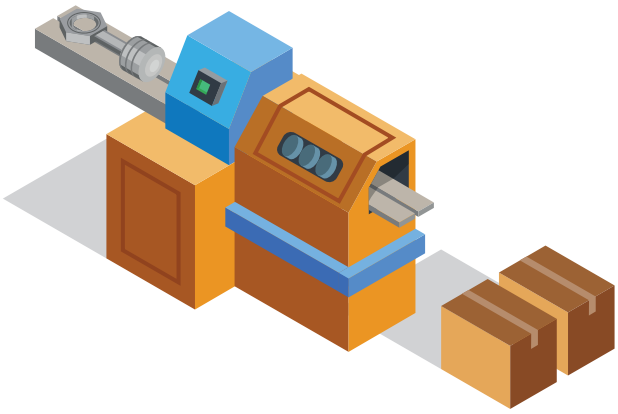
ANALYSIS

“In 2022, 2024, or not until much later?” There are very different answers to the question about the tipping point for conventional combustion engines, i.e. the time at which no more growth in quantities is to be expected.

A glance at the statistics of the German Transport Authority (KBA) now shows huge relative growth rates in electric vehicle registrations, but also that, at the beginning of 2017, the share of newly registered electric vehicles has stagnated at only 0.6 percent of the overall market, while hybrid vehicles still manage two percent. That means no less than that over 97 percent of customers still prefer a car with a combustion engine – despite all the tax and purchase price incentives in many regions of the world.

Whether the aforementioned time comes in five years, or not for another decade, one thing is certain: for many traditional vehicle models, the cake to be shared among the automotive suppliers will become smaller as the penetration of electromobility increases.

This includes almost all the assemblies relating to combustion engines. For example, the exhaust system of the engine block, with all the associated components, such as pistons, cylinders, ignition plugs and the engine peripherals, including the fuel system, cooling water system, filters, etc. Many of the Top 100 German automotive suppliers represented have already responded to this megatrend and repositioned themselves strategically through external purchases or by splitting off traditional parts of the company.



CONNECTIVITY AS THE CRUX.

ANALYSIS

However, the transformation of the automotive industry does not stop with the electrification of the powertrain. Other future fields will be opened up by new digitalization possibilities: These include autopilot driving, mobility services, vehicle connectivity and big-data applications.

The interdependencies in these future fields can be illustrated with a simple but intuitive framework: the “digitalization toolbox” from Berylls Strategy Advisors.

The crux of digitalization is vehicle connectivity, which serves as the key prerequisite for neighboring future fields. Without vehicle connectivity, semi- or highly automated driving functions are inconceivable, as are mobility services, such as car sharing. In addition, connectivity is an essential prerequisite for the use of alternative drives, since, for example, it would otherwise not be possible to call up an optimum route plan based on real-time information (including the availability of charging stations along a route) .

These relationships of connectivity, automated driving, alternative drive systems and mobility services are currently largely subsumed under the term CASE (“connected, autonomous, shared, electric”).

The digital toolbox from Berylls Strategy Advisors now goes one step beyond the established CASE logic, extending it with the future field of big data, which is the connecting element for the four above-mentioned future fields.

Without evaluating large data volumes as part of the digitalization activities, optimum allocation of carsharing fleets within urban areas would not be possible. It would also be impossible to take early preventive measures if repeating patterns in error codes could not be identified in the field.

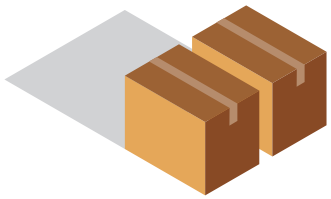
A GERMAN-MADE TRANSFORMATION.

ANALYSIS

Most of the German automotive suppliers represented in the Top 100 have already positioned themselves in at least one of these future fields. First and foremost this includes the market leaders Bosch and Conti, which dominate several future fields. Bosch (first place) has sold its starter motor and generator business lines to take a further step towards becoming a “leading supplier of pioneering mobility solutions” (to quote Bosch).

In 2016, ZF (place 5), too, took a share of 40% in the Hamburg-based company Ibeo Automotive Systems, a specialist in LIDAR technology and in software for environment recognition - both key technologies for automated driving.

Other suppliers of very traditional vehicle modules, such as Webast (place 76) or ElringKlinger have now founded their own divisions in order to position themselves in the new future fields of the automotive industry. For example, Webasto, with charging, has built up a completely new business line, and offers thermal management and the complete charging infrastructure for electric vehicles. With the production of wall boxes and the related installation and service activities at the end consumer, Webasto is positioning itself loud and clear in the field of electromobility. ElringKlinger is deeply engaged with electromobility, and has initiated the manufacture of components that are needed for energy storage systems and fuel cells.



And Mann+Hummel (place 77) has reduced its dependency on old systems with extensive acquisitions outside the automotive industry, since filtration will play a smaller role in electric vehicles, and the content per vehicle will be lower. Lesson learned.

US COMPANIES: LEADING IN TRANSFORMATION.

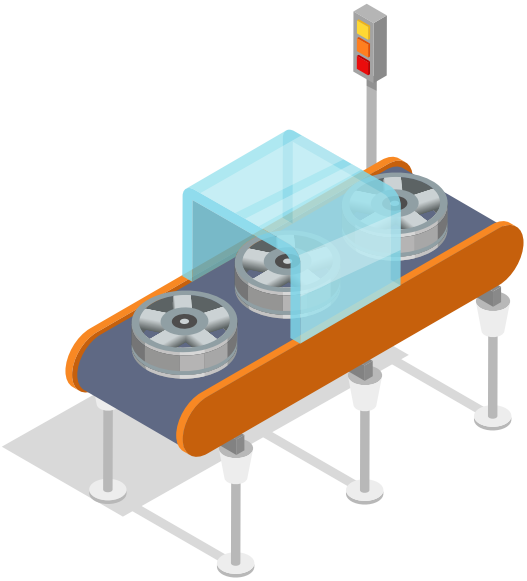
ANALYSIS

US suppliers, such as Delphi or Johnson Controls, can be described as leaders in the transformation of the automotive supplier industry. For years, they have rigorously scoured their product portfolios for non-future-viable areas, and radically divested them if the signals for these areas show red for reasons of growth or profitability.

There is little sign of the splitting off of entire component areas as part of a healthy streamlining on this scale by European automotive suppliers. In many cases, they tend to cling to the traditional core business rather than let go of it. In addition, in the recent past, European companies were to be found more in the role of purchasers for split-off divisions than as sellers.

A first tentative sign of whether this strategy by the Americans really leads to success can be confirmed by a national comparison with the Europeans: On average, the US suppliers actually did achieve higher profitability than the Europeans in 2016.

For example, the US giant Delphi (place 13) has long been at the center of the transformation and has even announced that it will split off its business in traditional drive components completely by 2018. Delphi thus announced it will be disposing of its Powertrain Systems division, in order to concentrate completely on electromobility and autonomous driving in the future.



FOCUS ON TOMORROW TAKES COURAGE TODAY.

ANALYSIS

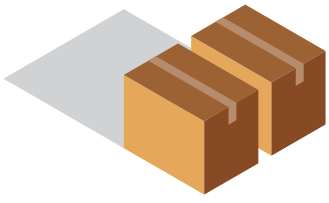
With the future focus on electromobility and autonomous driving, the Delphi managers promise themselves higher growth rates and margins in the long term than in traditional areas with strong price competition. But these restructuring measures of course have consequences for current operating income: In the ranking, Delphi was still able to move up by three further places and, after Lear (place 11), remains the American supplier with the second strongest revenue. After the planned split-off of the Powertrain division, however, significant changes in the ranking can be expected in the coming years.

Borg Warner, another manufacturer of many traditional combustion engine components, shows a similar trend, and moves up the revenue ranking by four places, though its operating income (OI) falls by 9.2 percent to 2.5 percent.

The American companies thus lie well below the average value, which settled at 8.0 percent (operating income or EBIT) in 2016. However, no general trend can be derived from this for the US suppliers.

Highly profitable suppliers such as Harman International (connected car components, taken over by Samsung Electronics in 2016) with an OI of 12.3 percent and an increase of 4.8 over the previous year, or Illlinois Tool Works (fastening elements), whose OI has even reached a record 24.1 percent.

The strategic reorientation of many suppliers was rigorously continued in 2016, and was already expressed in very comprehensive transactions in 2015. The best example of this was Johnson Controls, which has now almost completely withdrawn from the former core areas of interior and seating, which led to a decline in ranking of 27 places to place 36 for Johnson Controls. The former core business went to Adient (newly at place 14) and Yanfeng Automotive Interiors (place 26).



TOP 100 SUPPLIERS READY FOR THE FUTURE.

OUTLOOK

So what will come after ignition plugs, pistons, connecting rods and clutch disks? The Berylls study “Top 100 of the global suppliers” shows which companies are already stable and have occupied sustainable future fields - both technologically and with new digital services. And which are making the move with mergers and acquisitions. The market is in tumult. The list will be the same, including large swings upward and downward. The trend shows that the automotive industry, with its diversity of technologies, services and with its huge social relevance has a unique opportunity to be at the cutting edge of the transformation and of digital change.

From the dial telephone to the smartphone, from the calculating machine to the tablet, from the TV to streaming: countless products, and with them many lifestyles, have been “recreated” and revitalized by digitalization. The automotive industry, too, has been taking this step for years - with much greater consequences and impact on all areas of society.

From the motorized vehicle to the digital mobility product. The future is emission and accident-free, electrical, autonomous and fully networked. The automotive suppliers are ideally positioned for this.

BERYLLS STRATEGY ADVISORS.

Berylls Strategy Advisors is a top management consulting firm with offices in Munich, Berlin, Baar / Switzerland, Detroit / USA, Leamington Spa / Great Britain, Seoul / South Korea and Shanghai / China. Together with automotive manufacturers, automotive suppliers, engineering and mobility service providers, equipment suppliers and investors, its strategy advisors and associated network of experts work to deliver answers to the central challenges of the automotive industry.

The focus is on highly innovative and high growth strategies, assisting in mergers & acquisitions, organization development and transformation, and measures to improve performance along the entire value chain.

In addition, the experts at Berylls Digital Ventures work with clients on solutions for digitizing and transforming the business models of OEMS, suppliers and automotive service providers.

Berylls' consulting teams are known for their extensive and relevant experience, solid knowledge, innovative creativity and entrepreneurial outlook.

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Berylls's study of the world's 100 biggest automotive suppliers