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Takata: International configuration and coordination of a Japanese automotive supplier

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No. 70 – November 2019

Takata

International Configuration and Coordination of a Japanese Automotive Supplier

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ABSTRACT: In less than 30 years, Takata ascended from a local Japanese manufacturer of seat belts to the world's second-largest supplier of safety systems within the automotive industry. Rapid international expansion was a main driver of the firm's growth. Takata had to develop adequate strategies to keep up with this development. The result was a broad array of configuration and coordination strategies, which are at the heart of this case study. To get to the bottom of Takata's internationalization approaches, we begin by examining general characteristics of the automotive safety industry. We then introduce Takata and highlight the specific features of its international growth. Building on these cornerstones, the case study outlines Takata's configuration and coordination strategies, citing examples from its international production and its international R&D activities. We also show how the company found itself sliding into a product recall crisis on an unforeseen scale, and we hypothesize how far Takata's strategies may have expedited its subsequent downfall.

KEYWORDS: Airbag, Automotive Industry, Automotive Supplier Industry, Configuration, Coordination, Family Business, Internationalization, Japan, Production, R&D (Research & Development), Recall, Regionalization, Takata

NOTE: One of the authors worked at the regional HQs of Takata EMEA from 2014 to 2017. Hence, some parts of this case study are subject to personal recollections, impressions and interpretations. This case study was primarily developed for classroom teaching.

J.E.L. CLASSIFICATION CODES: A20, A23, L11, L21, L23, L62, M10, M11, M16

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Takata

International Configuration and Coordination of a Japanese Automotive Supplier

1. The automotive safety system industry

With the exception of some very large companies, such as Bosch from Germany, Lear from the USA or Denso from Japan, the majority of automotive suppliers remain quite unknown to the general public. What pertains to automotive suppliers in general also holds true for the subgroup of safety system suppliers, to which the Japanese firm Takata (which will be at the centre of this case study) belonged.¹

During the early days of mass-motorization in the 1950s, safety was not a primary concern to manufacturers, customers or governments.² However, awareness rose when the fast-growing number of vehicles led to a surge in fatal accidents. For example, in Germany, traffic-related deaths increased from 6,428 in 1950 to an all-time peak of 19,193 in 1970.³ Regardless of this development, it was not before 1976 that the German government passed a law requiring passengers to wear seat belts.⁴ Although seat belts had been widely available in automobiles sold prior to 1976, it took some time for drivers and passengers to become used to them, even after the law was passed. Many people believed they would restrict individual freedom or, in the case of an accident, not allow for the swift exiting of the crashed vehicle.⁵ Eventually, this measure, along with technological innovations and the introduction of speed and alcohol limits, helped to reduce drastically the number of fatal accidents in Germany in the following

¹ In this case study, the terms “automotive”, “automobile”, “car”, and “vehicle” are used synonymously. For an introduction to the topic and terminology, see Gregersen (2012).

² See Janik (2017), Kneuper/Yandle (1996), p. 147, Kohlenberg (2016).

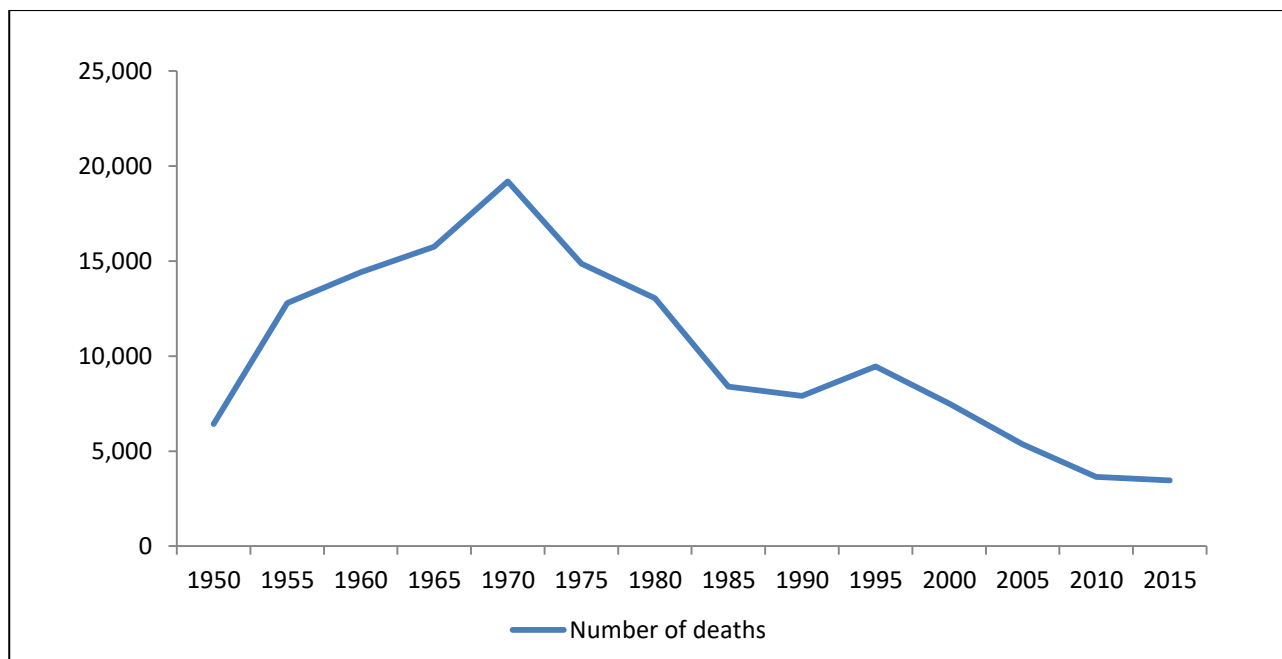
³ See Destatis (2018).

⁴ See Kohlenberg (2016).

⁵ See Posmik (2010).

decades. As shown in Exhibit 1, in the mid-2000s, traffic-related deaths for the first time fell below 5,000, and they continue to drop.⁶ Other developed countries, such as Takata's country of origin Japan, experienced similar trends. Here, the number of deaths decreased following a tragic peak of 16,765 fatal injuries in 1970 to 3,904 deaths in 2016.⁷ The rapid spread of seat belts around the globe was only the first step in fostering the emergence of an entirely new industry which, catalyzed by the subsequent introduction of airbags, had grown into a global industry worth approximately 83bn USD⁸ in sales by 2017.⁹

Exhibit 1: Number of traffic-related deaths in Germany 1950-2015.



Source: Destatis (2018).

On a global scale, the safety system supplier industry has been steadily growing in volume at levels of above 5%, and it is estimated to grow further at an annual rate of 6-9% until 2025, much faster than the car industry itself, which is expected to grow at only 2-5% during this period.¹⁰

Although production volumes, the number of competing firms and products on offer have been increasing, today's safety systems market is still divided into two large segments: passive safety and active safety.¹¹ On the one hand, the passive safety segment comprises traditional restraint systems, such as seat belts, airbags and steering wheels. All of these systems have in common that they serve the purpose of protecting passengers from injuries in a crash, i.e. after the time of impact.¹² On the other hand, active safety devices serve to prevent accidents from happening. These include brake assists, traction control systems as well as collision warning and avoidance systems, which monitor the vehicle's surrounding traffic.¹³ Whereas most large safety systems companies have expertise in both passive and active safety, and there are certain overlaps (for example, steering wheels with an integrated lane departure warning function), the industry

⁶ See Destatis (2018).

⁷ See MLIT (2018).

⁸ In this case study, USDs are used as the primary currency. For reasons of simplification, and due to the relative stability of the USD/Yen exchange rate, amounts in JPY for the year 2014 onwards have been converted according to a standardized exchange rate in this case study (1 USD : 110 JPY). Amounts dating from periods before 2014 have been converted at the respective annual average exchange rate.

⁹ See Reportlinker (2018).

¹⁰ See Consultancy.uk (2017), Euromonitor (2018), Reportlinker (2018).

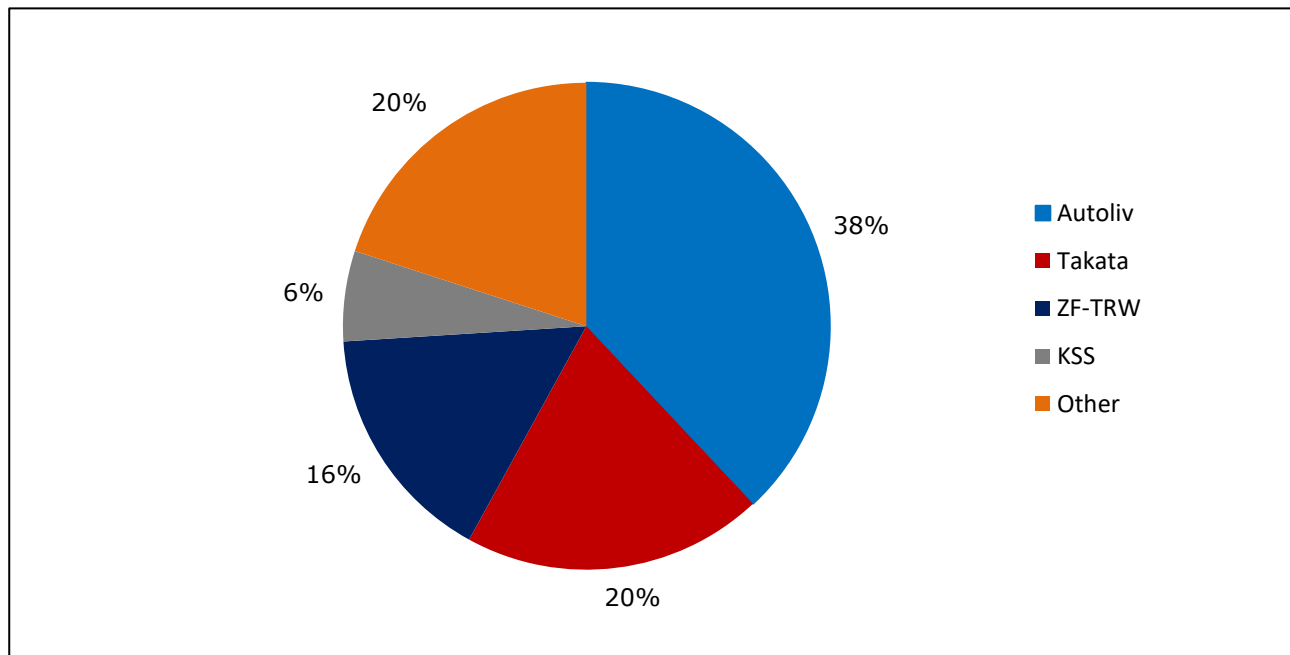
¹¹ See Kumar (2017), see also Seiffert/Wech (2007) for a general introduction to the topic.

¹² See Technavio (2017).

¹³ See Kumar (2017).

comprises firms whose profiles are more aligned to catering to one of the two segments. Those with traditional strengths in the passive safety sector include Autoliv (Sweden), ZF-TRW (Germany) and Takata (originally Japan; now Joyson Safety Systems from China). In 2017, these three companies had around 75% of the global market share for passive safety systems.¹⁴ KSS (China), the fourth largest player lags considerably behind the third-largest player. Exhibit 2 illustrates that the structure of this segment of the industry is oligopolistic in nature.

Exhibit 2: Global market share for passive safety systems in 2017.



Source: Marketlines (2018).

The active safety sector consists of a higher number of firms, since the range of products and applications is greater than for passive safety, and an in-depth expertise in both mechanical and electronic engineering is required.¹⁵ Some of the world's largest automotive suppliers, such as Bosch and Denso, dominate the active safety market.¹⁶

Despite the divide between active and passive safety, all suppliers within the safety industry have in common that they overwhelmingly function as tier-one suppliers. For these suppliers, it is compulsory to adhere to the quality standard IATF 16949 and Just In Time (JIT) production systems. Furthermore, tier-one suppliers deliver full modules, which in turn are integrated directly into the vehicle during the production process.¹⁷ A vivid example is the steering wheel, which is delivered and equipped with comfort, safety and control functions, ready for installation on the steering column. The customer range includes all original equipment manufacturers (OEMs)¹⁸ within the automotive industry. As all types of OEMs rely on supplier expertise to equip their vehicles with safety systems, the product prices and volumes vary heavily. The range is from only a few hundred parts with custom shop-like features for luxury sports car manufacturers, such as Aston Martin and Ferrari, up to several million parts for automobile mass producers, such as Toyota and Volkswagen. OEMs usually choose to bundle entire car-lines or platforms with a run-time of several years and award these as packages to suppliers.¹⁹

¹⁴ See Marketlines (2018).

¹⁵ See Leen/Heffernan (2002), pp. 91-92.

¹⁶ See Market Research Future (2018).

¹⁷ See Johnsen/Ford (2005), p. 188, Liker/Choi (2004), pp. 106-107.

¹⁸ In this case study, OEM refers to manufacturers of complete vehicles, such as GM, Toyota or VW.

¹⁹ See Donavan (1999), Thun/Hoenig (2014), p. 244.

Leaders in the passive safety field, such as Takata or Autoliv, generally prefer bidding on tenders for high-volume packages, which involve at least 100,000 parts annually.²⁰ Vice versa, high-volume bundles are also the preferred way for most OEMs to source their components.²¹ The reasons for this established sourcing and bidding practice are manifold. First, an average new product in the safety industry requires a lead-time of at least one year, and customers need to pay for the supplier's development costs, including respective tooling and production lines.²² In many cases, they are also directly involved in the development process;²³ hence, it is reasonable to source high-volume packages in order to keep non-recurring costs at bay. Second, as OEMs also have additional costs on their accounts, such as for project and supplier management, it is usually more cost-effective to handle a small set of suppliers instead of a large number.²⁴ Third, higher volumes typically allow suppliers to achieve economies of scale.²⁵ The resulting savings per unit are expected to be passed on to the OEM, at least to a certain degree.²⁶

Whereas a single sourcing approach generally leads to the lowest non-recurring costs and costs for supplier management, it comes at the risk of hold-up problems and immediate production stops at the OEM in case of delivery or quality problems caused by the supplier.²⁷ To contain these risks, dual-sourcing strategies have become common, especially among car manufacturers with production volumes of several million vehicles per year.²⁸ This means that, for example, supplier one would deliver three million parts for car types A to C, while supplier two would deliver three million parts for car types D to F. While this practice also helps OEMs maintain the low competition among safety systems suppliers,²⁹ a drawback is that it can be an invitation for price rigging between competitors. Only very few of these scandals have ever been exposed. However, the cartel uncovered by the EU in 2017 (between Autoliv, Takata and three smaller suppliers for fixing seat belt, airbag and steering wheel prices) suggests the gravity of the problem.³⁰

2. Takata – a Japanese family business

Just like many other famous Japanese companies, Takata started as a small business relying on the entrepreneurial spirit of a single founder during the time of the nation's rapid industrial expansion in the early 20th century. In 1933, Takezo Takada established Takata³¹ in Shiga prefecture as a textile company, which specialized in the fabrication of parachute lifelines for the military.³² After the war and the end of Japan's imperialist ambitions in 1945, Takada had to look for new sources of income. Inspired by a visit to the USA in the early 1950s, and the already widespread use of private automobiles he encountered there,³³ he identified seat belts as a promising future endeavor. After his return, he began research in 1952 and Takata was the first to commercialize two-point seat belts³⁴ in Japan in 1960.³⁵ By then, the country had entered its high economic growth period, with annual GDP increases hovering around 10%.³⁶ The favorable

²⁰ Recollection of one of the authors.

²¹ See Von Corswant/Fredriksson (2002), pp. 748-749.

²² See Kuehne (2008), p. 181.

²³ See Collins et al. (1997), pp. 498-499, Takeishi (2001), pp. 403-404.

²⁴ See Gadde/Snehota (2000), p. 311.

²⁵ See Sturgeon/Biesebroeck/Gereffi (2008), p. 317.

²⁶ See Roland Berger (2017).

²⁷ See Trkman/McCormack (2009), p. 253, Yu/Zeng/Zhao (2009), pp. 790-792.

²⁸ See Burke et al. (2007), pp. 96-97.

²⁹ See Li (2013), p. 1391.

³⁰ See Blenkinsop (2017), Jaeger (2019).

³¹ The company was founded as Takada, but later the name was changed to Takata for a more appealing appearance in the Japanese Katakana writing system. The company name of Toyota, founded by the Toyoda family, underwent a similar transition.

³² See Takata (2016a).

³³ See Berri (2009), p. 25.

³⁴ A two-point seat belt is attached to only two ends, as opposed to the more common three-point seat belts found in most contemporary cars.

³⁵ See Takata (2016b), p. 2.

³⁶ See Boltho (1996), pp. 415-416.

domestic environment during the 1960s helped Takata's own growth. Japanese production of automobiles almost increased six-fold, from one million in 1961 to 5.8 million units, ten years later,³⁷ and Takada was eager to equip as many cars as possible with his seat belts. However, Mr. Takada did not want to rely on seat belts alone and was on a constant lookout for new product opportunities. The research on new restraint systems continued in Shiga, and the company was the first to commercialize child seats in Japan in 1977.³⁸

Despite these successes at home, it was clear that Takata was missing out on a lot of potential customers and volumes in other places. In the 1970s, the country which had inspired Takada to enter the automotive industry was still the 'gold standard' of the motorized world, and Detroit was its capital.³⁹ The USA was by far the largest market at the time, and local annual automobile production surpassed 10 million units in 1971.⁴⁰ Takata was not the only Japanese firm wanting a piece of the cake: exports by Japanese OEMs to the USA doubled in the 1970s and had reached almost 2 million units by the end of the decade.⁴¹ A result of this development was trade friction between Japan and the USA, which led to export quotas and increased tariffs imposed on Japanese automobiles in the early 1980s.⁴² For many Japanese firms, this made foreign direct investments appear as a more attractive alternative to exports. For example, Honda and Nissan opened major US production facilities in 1982 and 1983, respectively, and 120 Japanese suppliers followed with their own production plants in the subsequent years, from 1984 to 1988.⁴³ Hence, although Takata did not respond to the call of a specific customer, it was in good company when it started investigating possibilities to expand to the USA in the early 1980s. With no prior international experience, the company opted for the establishment of a joint venture with the American firm General Safety, in the Detroit metropolitan area, in 1984.⁴⁴ General Safety helped the Japanese partner to gain a foothold in the USA and engage with American customers, while vice versa Takata used its existing Japanese customer relationships to make the joint venture a supplier of seat belts to the newly established Japanese OEM plants.⁴⁵ With rising confidence, Takata continued its international expansion in the form of two different strategies: acquisitions and greenfield investments. Greenfield investments were carried out in all countries targeted by Takata after 1984. Acquisitions, however, only took place in important, developed automotive nations, namely the USA and Germany. Exhibit 3 summarizes the market entries and follow-up investments since 1984.

³⁷ See Bureau of Transportation (2019).

³⁸ See Takata (2016b). p. 2.

³⁹ See Link (2015).

⁴⁰ See Bureau of Transportation (2019).

⁴¹ See Collyns/Dunaway (1987), p. 152, Reid (1990), p. 50.


⁴² See Collyns/Dunaway (1987), pp. 150-151.

⁴³ See Reid (1990), pp. 49-52.

⁴⁴ See Rubenstein (2002), p. 179.

⁴⁵ See Rubenstein (2002), p. 179.

Exhibit 3: Takata's major market entries and follow-up investments by country and type.

Time 															
Year	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Country/ies	USA	-	-	USA	UK/ USA	USA	-	GER/ USA	SIN	-	MEX/ THA	GER	CZE	BRA/ PHL	-
Type	JV	-	-	GI	GI/ GI	ACQ	-	GI/ GI	GI	-	GI/ GI	GI	GI	GI/ GI	
Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Country/ies	SIN	GER	-	CHN/ ROU	-	-	CHN	-	-	CHN/ GER	IND	MAR/ RUS	IDN URY	CHN/ GER	HUN
Type	GI	ACQ	-	GI/ GI	-	-	GI	-	-	GI/ GI	GI	GI/ GI	GI	GI/ ACQ	GI

BRA = Brazil; CHN = China; CZE = Czech Republic; GER = Germany; HUN = Hungary; IDN = Indonesia; IND = India; MAR = Morocco; MEX = Mexico; PHL = Philippines; ROU = Romania; RSA = South Africa; RUS = Russia; SIN = Singapore; THA = Thailand; UK = United Kingdom; URY = Uruguay; USA = United States of America; ACQ = Acquisition; GI = Greenfield Investment; JV = Joint Venture

Source: Based on Takata (2018).

Along this internationalization path, the year 2000 acquisition of the German-based Petri AG stood out in terms of size and scale. Petri at the time was already a large, 10,000-employee-strong, well-established supplier with several subsidiaries in Europe, South Africa and Brazil, aligned with a strong German OEM customer base. Petri possessed expertise in steering wheels and airbags and seemed like a valuable addition to Takata, which had around 18,000 employees at the time.⁴⁶ After the Petri takeover and the subsequent opening of several new plants, the firm by 2016 had more than 50 subsidiaries in 21 countries on four different continents.⁴⁷

This geographical spread went hand in hand with Takata's overall growth, which, for example, expressed itself in an increase from 28,000 employees at the time of the Petri AG acquisition, to more than 50,000 employees in 2016.⁴⁸ Over the same timeframe, sales doubled from around 3.0bn USD, to more than 6.5bn USD in fiscal year⁴⁹ (FY) 2016.⁵⁰ Along with the firm's growth in business volume, Takata also expanded its product portfolio. While seat belts were still a cornerstone of the company's business, they only constituted 36% of Takata's total sales in FY 2017. The second pillar of Takata, namely airbags, generated an even greater share of 36.6% of sales.⁵¹ The lineup in this segment expanded massively following the first commercial use of an airbag in the Mercedes S-Class in 1981, a co-development between Daimler and Petri AG.⁵² Takata started mass-producing driver airbags in 1987 and subsequently added passenger, side, knee and pedestrian airbags to its portfolio.⁵³ The third major product group, steering wheels, made up 18.1% of sales in FY 2017.⁵⁴ A wide array of other applications, including child seats, electronics, and sensors, completed the product range.⁵⁵ Exhibit 4 illustrates the diversity of Takata's applications in a single vehicle.

⁴⁶ See Main Post (2000).

⁴⁷ See Takata (2016c), pp. 6-7.

⁴⁸ See Takata (2016c), pp. 6-7.

⁴⁹ The Japanese fiscal year is from 1 April to 31 March of the following year.

⁵⁰ See Automobil Industrie (2000), Takata (2017).

⁵¹ See Takata (2017).

⁵² See Heise Autos (2017).

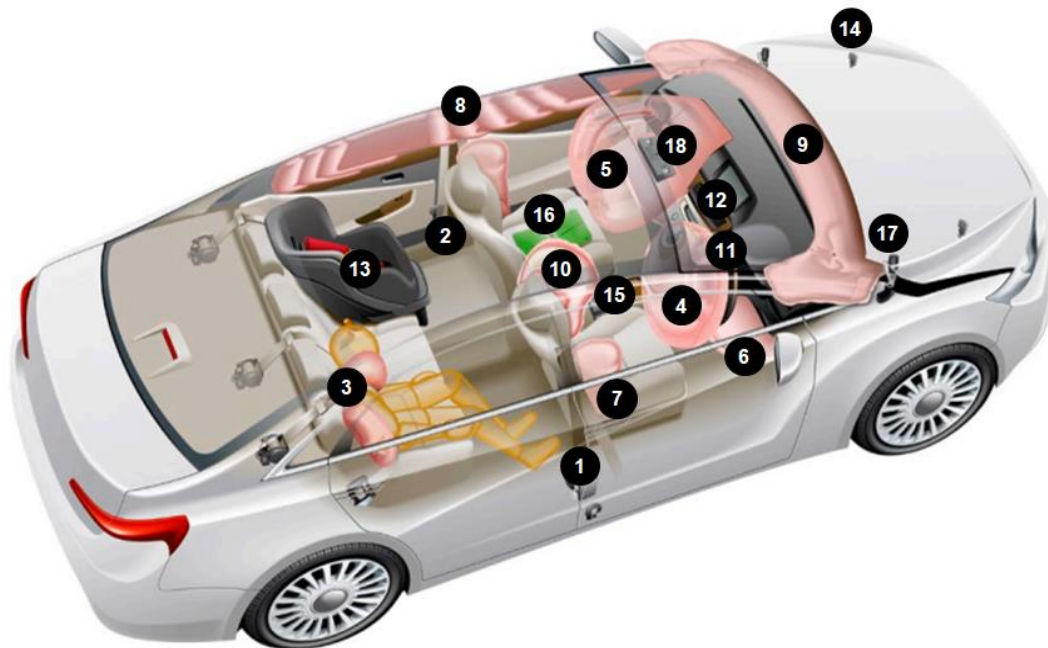
⁵³ See Takata (2016b).

⁵⁴ See Takata (2017).

⁵⁵ See Takata (2016b).

Exhibit 5 shows Takata's overall sales and income development, as well as the company's sales by product group for FY 2017.

Exhibit 4: Takata products in a passenger vehicle.



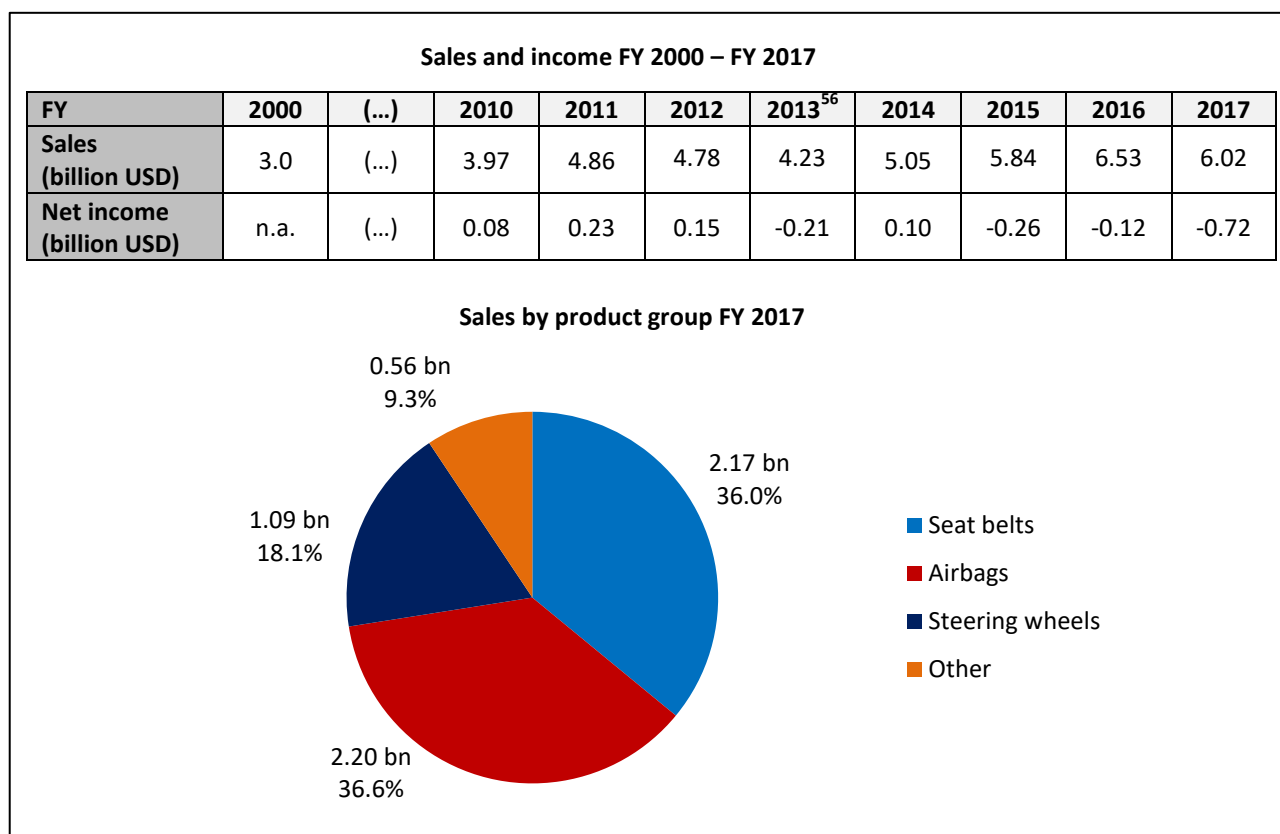
Seat belts: 1. Driver seat belts 2. Passenger seat belts 3. Rear seat belts

Airbags: 4. Driver airbags 5. Passenger airbags 6. Knee airbags 7. Side airbags 8. Curtain airbags
9. Pedestrian head protection airbags 10. Front center airbags

Steering wheels and other products: 11. Steering wheel 12. Interior trim 13. Child seats 14. Satellite sensors
15. Electronic control units 16. Occupant classification sensors 17. Pop-up hood devices 18. Vision sensors

Source: Takata (2016c), pp. 4-5.

Exhibit 5: Takata's sales and income development and sales by product group in FY 2017.



Source: Automobil Industrie (2000); Takata (2012), p. 3; Takata (2013), p. 2; Takata (2015a), p. 3; Takata (2017), pp. 3-8.

Child seats were the only product sold to end-users, but they gave the company a certain degree of public exposure⁵⁷ in contrast to its other products, which were predominantly sold to OEM customers. Generally, Takata delivered to all major players in the field. While Japanese OEMs had considerable weight by contributing 40% to the company's net sales,⁵⁸ the share across countries and OEMs was much more balanced compared with other, particularly Japanese, tier-one suppliers. Unlike, for example, Toyoda Gosei, Takata's most notable Japanese competitor, which heavily depends on its primary customer (and at 42.84% largest shareholder), Toyota,⁵⁹ Takata was not affiliated with a particular OEM. Instead, Takata had OEMs from three continents among its top five customers, and over 50% of the firm's sales in FY 2017 originated from non-Japanese OEMs, as depicted in Exhibit 6.⁶⁰

⁵⁶ The decline in sales and net income in the early 2010s can be attributed to the sluggish automotive market and overall economy following the global financial crisis, which started in 2008. In addition, Takata's first major airbag recall actions began in 2013 and led to a net loss in that year as the result of a product warranty reserve. See Chapter 4 for more information on the airbag recall crisis.

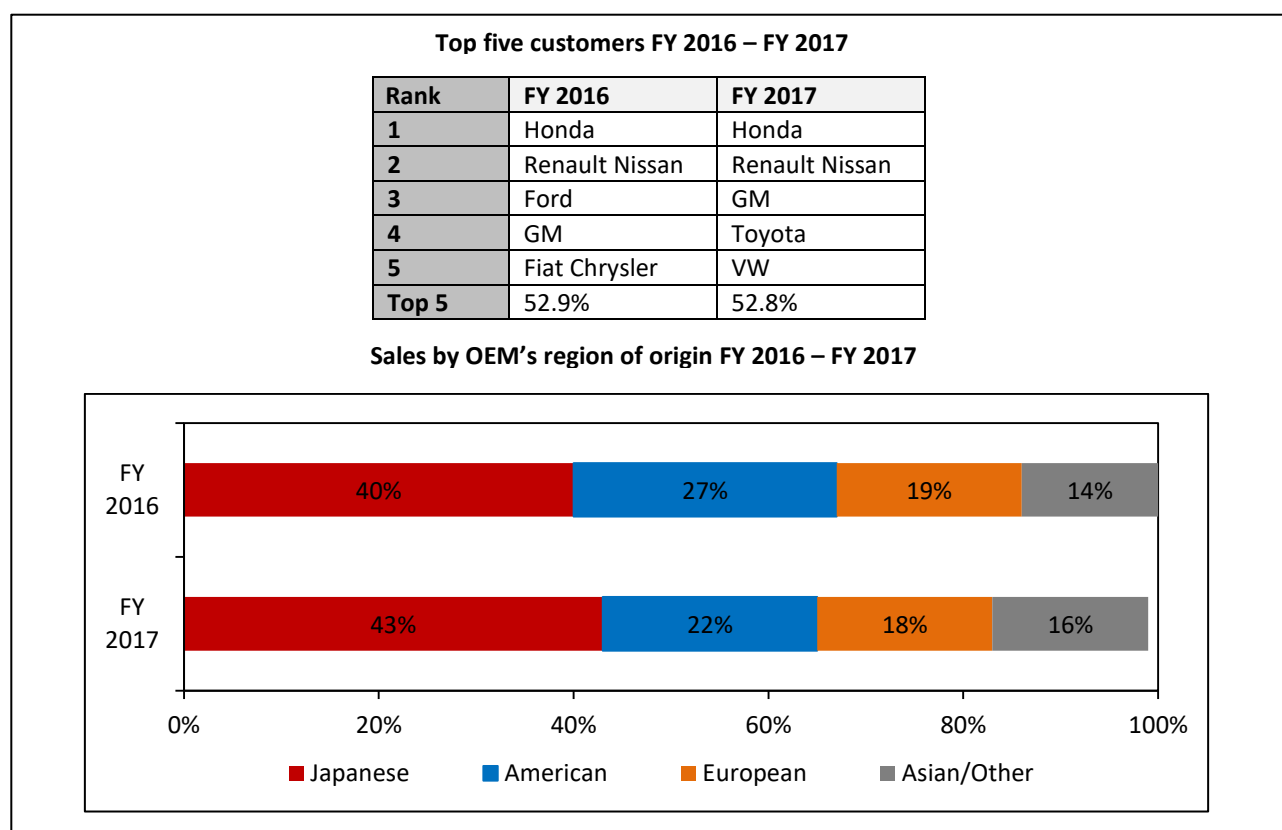
⁵⁷ See ADAC (2018).

⁵⁸ See Takata (2017).

⁵⁹ See Toyoda Gosei (2018).

⁶⁰ See Takata (2017).

Exhibit 6: Takata's top five customers and sales by OEM's region of origin FY 2016 – FY 2017.



Source: Takata (2017), p. 9.

Takata also aimed to keep outside influences at bay by implementing a family-based line of succession at the company's helm. When founder Takezo Takada passed away in 1988, he handed the company on to his son, Juichiro Takada. It was Juichiro, "Jim" Takada, who aggressively pushed the company's growth and global expansion, and decided to go public in 2006.⁶¹ Like his father, Jim had no intention in relinquishing control and thus made sure that more than 50% of shares remained within the Takada family.⁶² Upon Jim's death in 2011, his son, Shigehisa Takada, stepped in to become the new CEO.⁶³ Keeping the majority stake in Takata paid off well for the family, and it put Jim Takada 29th on the Forbes "Japan's Richest" list in 2010, with a net worth of 820m USD.⁶⁴ As the inheritance was divided after Jim's death, no single Takada family member is on the list anymore, although the total family fortune was estimated at well above 2bn USD in 2016.⁶⁵

3. Takata's configuration and coordination strategies

To a large extent, Takata's configuration and coordination strategies were influenced by the company's internationalization path. More precisely, the firm's strategies need to be considered against the backdrop of its wide international presence and range of activities outside of Japan, which were the outcome of its

⁶¹ See Spitzer (2014).

⁶² See Takata (2016c), p. 47.

⁶³ See Fortune (2016).

⁶⁴ See Forbes (2010).

⁶⁵ See Ma/Nobuhiro/Horie (2017).

rapid internationalization from 1984. The result of this internationalization path were strong regions and customized configuration and coordination approaches that catered to the needs of the regions.⁶⁶

3.1 Takata around the world

For Takata, activities outside of Japan have become increasingly important. Exhibit 7 shows the dispersion of sales, operating income, employees and plants across the world for FY 2016, using the company's definition of regions.⁶⁷

Exhibit 7: Takata's regional presence and foreign to total ratios in FY 2016.

Region	Japan	Americas	EMEA	Asia (without Japan)	Foreign to total (%)
Sales (million USD)	700	2,905	1,551	1,370	89.3%
Operating income (million USD)	47	158	7	175	87.9%
Employees	1,300	32,000	13,400	3,700	97.4%
Plants	7	20	17	13	87.7%

Source: Takata (2016c), pp. 6-9.

Out of the approximately 50,000 employees in FY 2016, a mere 1,300, or 2.6%, were working in Japan.⁶⁸ Furthermore, the sales proportion of less than 11% that Japan contributed was small compared to the share of the three other regions.⁶⁹ A large degree of granted freedom in decision-making authority accompanied the importance of the regions for Takata's overall business in terms of locations, employees and sales. The subsidiaries in Aschaffenburg (Germany) in Europe (known as Takata EMEA, which also included Takata Morocco and Takata South Africa) and Auburn Hills (USA) for the Americas (known as Takata Holdings, TKH) were the strategic hubs of their respective regions. The official labelling of these subsidiaries as regional headquarters (RHQs) manifested this role.⁷⁰ Exhibit 8 shows Takata's RHQs⁷¹ along with the countries hosting production and research and development (R&D) sites.

⁶⁶ The configuration and coordination strategies outlined in Chapter 3 reflect the situation around 2016, unless indicated otherwise.

⁶⁷ See Takata (2016c), pp. 6-7.

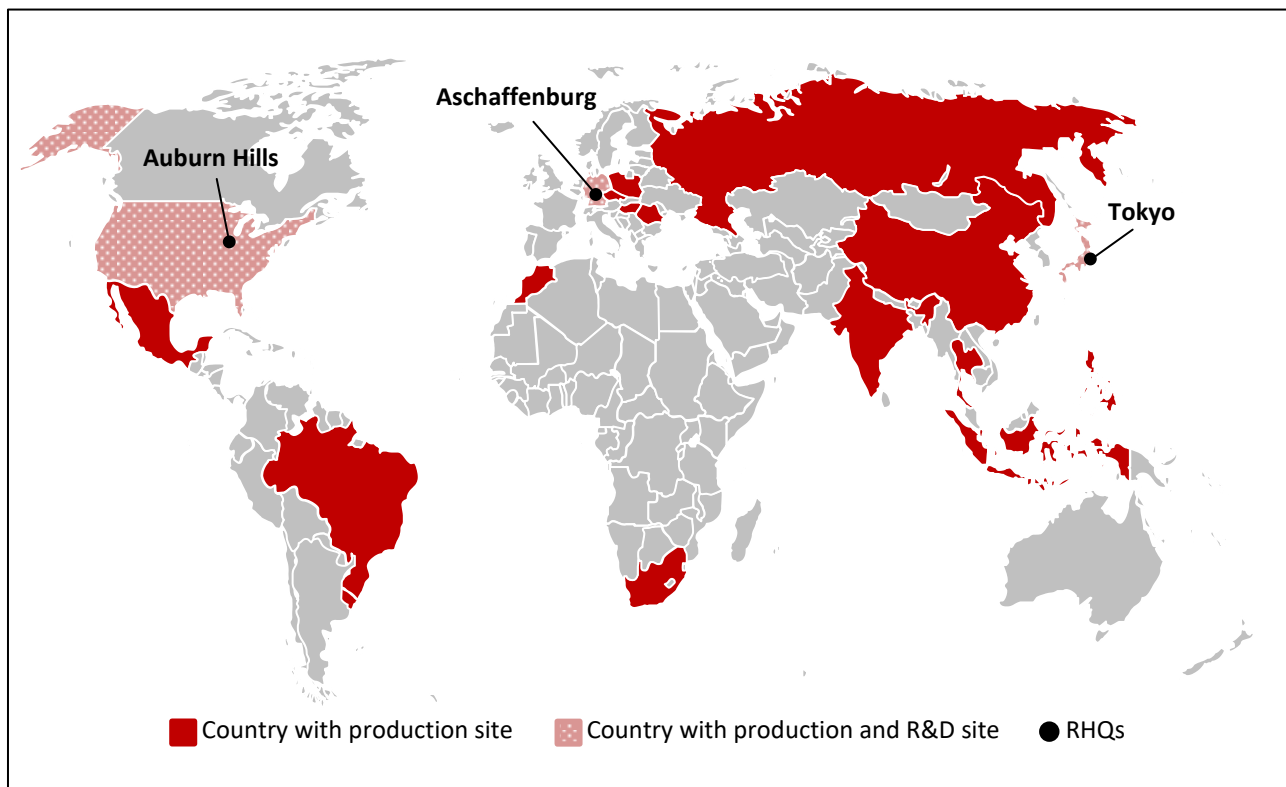
⁶⁸ See Takata (2016b), p. 6.

⁶⁹ Although only one country, Takata generally regarded Japan as a region on the same level as whole continents or groups of countries, e.g. EMEA.

⁷⁰ See Takata (2016c), pp. 6-7.

⁷¹ Tokyo served as the global HQs of Takata and regional HQs of Takata Asia.

Exhibit 8: Takata's regional HQs and worldwide presence of production and R&D sites.



Source: Based on Takata (2016a).

Except for these tangible traits of Takata's regional dispersion in terms of HQs and sites, many other characteristics were less visible to outsiders. For instance, managerial authority over human resource matters, such as recruiting, staffing, personnel development and compensation, lay with regional management located at the RHQs. Consistently, almost all higher management positions were staffed by people from within the respective region. Furthermore, the RHQs also set their own performance targets and conducted their own evaluations.⁷² Not surprisingly, the general interdependence between the subsidiaries within a region was also much higher than between subsidiaries located in different regions. Directives and communications from Tokyo were limited to a few occasional announcements, which rarely affected the actual work life of employees in other regions. As a result, the identification of people with their respective region and RHQs was also much higher than with Takata Japan (TKJ) and the global HQs, which, at best, only played a marginal role in the lives of most employees working outside of Takata's country of origin. In essence, this led to many employees, e.g. in the European subsidiaries, asking themselves, "*Who needs Japan?*"⁷³

The high degree of dispersion of activities and managerial freedom afforded to the regional HQs did not mean that they enjoyed full independence from Tokyo; instead, TKJ, aside from being the 100% legal owner of all foreign subsidiaries, and despite its reluctance to intervene directly on a frequent basis, affected its foreign operations in areas of strategy and corporate culture. In terms of strategy, for example, major decisions, such as the location choice of a new plant, were still in the hands of TKJ.⁷⁴ Furthermore, the Takata Asia region, due to its closer proximity and shorter history, was kept on a short leash by TKJ compared to EMEA and the Americas.⁷⁵ For example, most of Takata Asia's HR strategies were dictated by Tokyo. Coherently, Shanghai, where most of Takata's operations in Asia concentrated, was also not labelled

⁷² Recollection of one of the authors.

⁷³ Recollection of one of the authors.

⁷⁴ Recollection of one of the authors.

⁷⁵ Recollection of one of the authors.

as RHQs, unlike Aschaffenburg and Auburn Hills.⁷⁶ As for culture, TKJ also used its direct influence to enforce a minimum of common ground. For example, the frequent internal citing and application of the ‘Takata Way’ was commonplace in all regions.⁷⁷ The Takata Way was heavily inspired by Toyota and included the ‘Sangen Shugi’, the ‘three realities’,⁷⁸ which had implications of a practical kind and also deeply affected the attitudes of employees. Part of the Sangen Shugi was ‘Genba’ (lit. the ‘real place’), the idea behind which suggested always looking directly at real circumstances on the shop floor. This practice was widely in action all across Takata and meant that people from various departments could be found near assembly lines at all times. Whereas Genba-inspired actions have become common in the automotive industry,⁷⁹ their use at Takata was extensive, and Genba was encouraged and frequently conducted, even by non-technical, non-production white-collar staff. Consequently, Genba became deeply embedded in the mindset of employees, who always approached problems with a practical, assembly-oriented attitude. More visible to outsiders was the use of the same company name and logo in all regions. Additionally, Takata’s uniform bomber jackets were widely worn by employees of all ranks, even outside of Japan. Likewise, slogans, such as the omnipresent ‘Our mission – your safety’, were found on company documents in all regions.⁸⁰ Lastly, similarities also existed with regard to a strong customer orientation at Takata. Phrases such as, *“If the customer wants it, we’ll do it”*,⁸¹ summed up the belief that customer demands must be fulfilled by all means, as unreasonable as they might appear sometimes.⁸²

3.2 Regionalized production vs hybrid R&D

Whereas all of Takata’s international activities were organized in a non-uniform way, Takata EMEA’s production, and R&D activities in EMEA and other regions, around 2016 represents examples of the variety of approaches used.⁸³ These ranged from almost complete regional seclusion, as in the case of production, and some tendencies to organize activities on a more global scale, as in the case of R&D. Exhibit 9 shows how the EMEA production sites in eight countries were situated along with one designated R&D center⁸⁴ in Germany. Production was designed to only serve customers of the EMEA region with parts sourced almost exclusively from sites within the region itself. In a similar fashion, development activities catered only to the needs of Takata EMEA and its customers. However, research conducted in EMEA benefited other regions as well, whilst, conversely, other regions’ research was also important for EMEA.

⁷⁶ See Takata (2016c).

⁷⁷ See Takata (2015b), p. 1.

⁷⁸ See Takata (2015b), p. 1.

⁷⁹ See Handyside (1997), p. 4.

⁸⁰ See Takata (2016b).

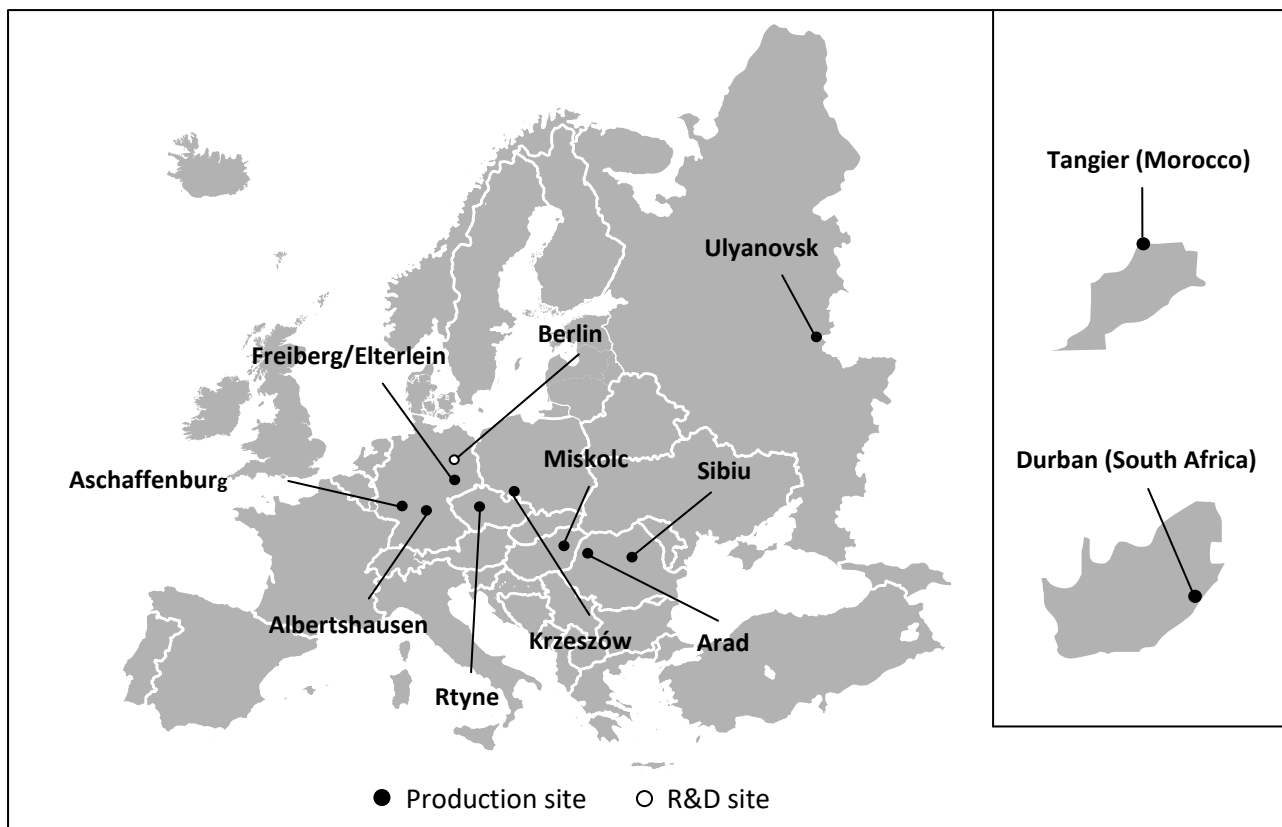
⁸¹ Recollection of one of the authors.

⁸² Recollection of one of the authors. Takata placed great emphasis on fulfilling and exceeding customer wishes, sometimes even beyond technological and economic reason. For example, in some cases additional fail-safe processes were implemented in production which went beyond the scope of common automotive practices, and which were not compensated for by the customer.

⁸³ The focus of the chapter on configuration falls on the EMEA region, where one of the authors was previously employed.

⁸⁴ Takata also labelled some other sites as R&D facilities. However, only minor testing and application-engineering functions took place in these facilities. Usually, they served as simple on-site support for production activities (e.g. test labs for quick analysis).

Exhibit 9: Takata production and R&D sites in the EMEA region.



Source: Based on Takata (2016a).

3.2.1 Takata EMEA's production configuration

In 2016, Takata maintained 17 plants (some locations had more than one plant) in eight different countries in the EMEA region, constituting an almost entirely closed production network.⁸⁵ This network operated mostly independently from the production networks of other Takata regions. The insularity of the European production resembled Takata's heritage dating back to the Petri AG acquisition in 2000. At the time of the acquisition, Petri had a fully operational European production network, and former Petri plants accounted for a large part of Takata's total EMEA production output. Since attempts to change existing production arrangements and locations would have involved high costs, Takata had no incentive to alter the existing setup. Over the years, new sites were added to the existing EMEA production network, and Aschaffenburg promoted the specialization of plants in certain activities and products which only served the region. By 2016, the differences between individual plants in terms of numbers of employees, production output and capabilities within EMEA had become significant. For example, the Eastern German plants of Freiberg and Elterlein only employed a few hundred people and specialized in sub-components used for building airbags. In contrast, almost 5,000 people were working in two plants in Arad, close to the Hungarian border in Romania, which conducted the final assemblies of seat belts and steering wheels.⁸⁶ Given the pronounced specialization of individual plants in certain sub-components and assembly steps, the manufacturing of one finished product usually also required input from more than one site. For example, Arad focused on labor-intensive activities, such as non-automated assemblies and the leathering of steering wheels. However,

⁸⁵ Production networks are widely discussed in research, with a multitude of different approaches, definitions and interpretations. Here, the term production network is only used to demarcate the sum of Takata plants, which were primarily involved in the manufacturing of products for the EMEA region, from the production networks of Takata's other regions. See also Ferdows (2014) for a general introduction to the terminology.

⁸⁶ See Takata (2016c), p. 12.

Arad depended on input from other plants, such as those specializing in electronics, namely Rytne in Czech Republic. Furthermore, the final production configuration, to some extent, was also determined by the customer. The example of steering wheels for a German premium OEM famous for sports vehicles illustrates this strong customer influence. In this case, three different plants were engaged in the production of sub-components, before the final assembly took place in Aschaffenburg. Exhibit 10 shows this configuration, indicating the specific functions of the individual plants within Takata EMEA's production network for steering wheels.

Exhibit 10: Configuration of steering wheel production at Takata EMEA.

Plant	Rytne (CZ)	Albertshausen (GER)	Arad (ROU)	Aschaffenburg (GER)
Expertise	Electronics	Plastics	Metal, leather	Assembly, Disposition
Parts	Wire harness	Bezel, back-cover	Frame, leather cuts	-
Activities	Assembly of wire harnesses for electronic functions of steering wheels	Injection molding and coating of décor parts	Die casting, leathering and pre-assembly of the steering wheel	Assembly of sub-components, disposition and customer shipment
Production step	Sub-component production	Sub-component production	Sub-component production, final assembly	Final assembly

Whereas the place of production for sub-components was rarely altered, the final assembly location varied frequently and depended on the respective customer. From a production capability point of view, Arad would have been equally qualified to conduct the final assembly in the given example. However, the German premium OEM demanded Just in Sequence (JIS) deliveries from Takata. JIS builds on JIT as a production system. Like JIT, JIS aims to keep inventories low but extends the idea by accounting for the high variation of today's automotive products in terms of design and technical features.⁸⁷ Steering wheel variations typically come in the form of different colors, materials and electronic specifications. In fact, there were 300 different steering wheels variants, all of which had to be produced and delivered to the German customer in the exact order that they were to be integrated into the respective vehicle on the OEM's production line. Hence, in accordance with the customer's requirements, the decision was made to allocate the final steps of assembly in Aschaffenburg, situated less than 200 kilometers away from the customer, as opposed to the 1,200 kilometers from Arad. This close proximity made the fine-tuning of JIS easier and allowed Takata to respond to its customer's short lead times. This arrangement was common for other German OEMs as well, since the relatively high prices of their steering wheels compensated for the much higher costs of operations in Germany as opposed to Romania. However, in cases where the prices customers were willing to pay were lower, and product and delivery requirements less complex, Arad was usually the preferred choice for final assembly. In general, Takata EMEA pursued the goal of producing as much as possible in its Eastern European plants. Whereas the majority of the added value of products still came from German plants in the early 2000s, by 2016, this had changed in favor of Eastern Europe, and Romania in particular.⁸⁸ Aschaffenburg had essentially been downgraded from EMEA's leadplant to – at best – a place for final assemblies in cases where customer proximity permitted it. The reason for this shift

⁸⁷ See Bautista/Fortuny-Santos (2016), p. 289.

⁸⁸ Recollection of one of the authors.

was simple. In Arad, labor costs were around one-sixth of those in Aschaffenburg. Since the costs for labor typically constituted 10-20% of a product's total cost, this was a crucial factor for the firm's competitiveness.⁸⁹

On some rare occasions, EMEA's production configuration also involved plants from other regions. In these cases, large customer awards were usually the driving force behind such arrangements. For example, if an important customer like GM sourced a large-volume package, comprising several car brands, to Takata, this was split between regions. TKH received the main GM brand share while Takata EMEA was responsible for the share of the German-based Opel brand.⁹⁰ Even though the final products sold by Takata to GM and Opel could vary slightly, many of the product and design specifications (e.g. materials, colors and coatings) were standardized. For example, the same cover could be used for GM and Opel airbags, even if other product elements, such as the emblem, were still aligned to cater to only one of the two brands. Although the final assembly was conducted within the respective region, such arrangements meant that sub-components could be exchanged across regions, in order to reduce overall production costs, by using synergy effects and achieving economies of scale.⁹¹ The Albertshausen plant, for instance, could deliver the décor cover for the final assembly of an airbag module to both Arad and a plant in North America. On other occasions, complete modules, such as fully assembled steering wheels, were directly shipped from one region to an OEM's manufacturing site located in another region. However, this arrangement only came into action when the OEM's demand outside of the respective region where Takata manufactured the products was low.⁹²

Lastly, not only customers, but also local legal requirements had an impact on the production configuration. In Europe, Russia increased the required local content ratio for car manufacturers and suppliers.⁹³ Hence, even though the demand from Russia was low at the time and could have been easily met by the Arad and Aschaffenburg plants, Takata opened a plant in Ulyanovsk in 2010 to fulfill the quotas. The configuration of production changed accordingly, and Ulyanovsk took over production responsibilities of the other plants in instances where Russian OEMs' or foreign OEMs' Russian plants were the destinations for Takata's deliveries.⁹⁴

3.2.2 Takata's R&D configuration

To understand Takata's R&D configuration, the general distinction between research on the one hand and development on the other is important. Research involves basic and applied research and focuses on new technology.⁹⁵ Development can be divided into basic and applied activities, the former aimed at bringing new products to the market, whereas the latter focusses on adapting existing products.⁹⁶ At Takata, research involved seeking new technology and products, such as work on a steering wheel generation that would be ready for a future of self-driving cars.⁹⁷ Development activities were usually application-oriented, such as the adaptation of an existing standardized seat belt to the specifications of a certain customer.

With respect to research, responsibilities within Takata were divided between the three regions, namely Japan, EMEA and the Americas.⁹⁸ The division was based on the firm's main product groups, i.e. airbags,

⁸⁹ Recollection of one of the authors.

⁹⁰ Opel was sold by GM to the French automaker PSA in 2017.

⁹¹ Recollection of one of the authors.

⁹² Recollection of one of the authors.

⁹³ See Volgina (2011), pp. 131-133.

⁹⁴ See Takata (2016c), p. 17.

⁹⁵ See Serapio (1993), pp. 216-217.

⁹⁶ See Schmid/Grosche (2008), p. 40.

⁹⁷ Recollection of one of the authors.

⁹⁸ As noted earlier, Takata Asia deviated from Takata's other regions in some aspects. Hence, there was also no designated research center in Takata Asia.

seat belts and steering wheels. In practice, each region hosted one research center, which took the global lead for one of these specific product groups. Similar to production, history played a large role in determining Takata's research setup. For example, TKJ started its operations with seat belts, while Takata EMEA, apart from the small seat belt production plant in Belfast, which was shut down in 2004,⁹⁹ was heavily influenced by Petri AG's legacy as a manufacturer of steering wheels. For TKH, also thanks to early initial legislation in 1998 that made airbags compulsory in the USA,¹⁰⁰ airbags were more the center of attention.

The historic dominance of each region in one of the product groups led to the emergence of superior technological know-how in their respective area, on which new research was based. Since it seemed unreasonable to strip the regions of their expertise in favor of more centralization, Takata instead enforced this structure by officially upgrading the existing research facilities to designated R&D centers, each with the globally highest competence in their respective field. In this regard, TKJ's Echigawa facility took the lead position for seat belts, Auburn Hills of TKH was the center of airbag research and Berlin (along with some subdivisions in Aschaffenburg) became the official center of steering wheel technology. Following this configuration based on specialization, each center focused on research projects specific to one of the product groups. TKJ, for example, took the lead on "Motorized Seat Belt" (MSB) technology, seat belts which automatically adjust the strap's tautness in relation to the vehicle's speed. In Europe, Berlin was entrusted with the work on an all-new steering wheel generation in 2008: years of preliminary research were necessary before the development stage of the "Active Steering Wheel" (AStW), a joint project with Ford,¹⁰¹ was reached. By introducing a new electro-mechanical concept, the driver's strength required to turn the AStW is matched to the car's speed, making elaborate turning maneuvers, such as parking with big vehicles, significantly easier.¹⁰²

In contrast to the product-specific dispersion of research activities, developmental work for all products took place in every region. Similar to production, geographic customer proximity played a key role in development, since comprehending OEM demands and specifications was a major source of input during the pre-production phase. Frequent collaboration between suppliers and customers during the development phase is considered essential in the automotive industry for forging strong relationships,¹⁰³ and good cooperation between both parties is mutually beneficial, as it can reduce overall development time and costs.¹⁰⁴ Thus, Takata chose to allocate development competencies for all product groups geographically close to the respective customers. In practice, this was done by integrating development activities into Takata's so-called customer business units (CBUs). The CBUs combined Takata's sales and developmental functions and were organized on a one-CBU-per-OEM basis. In this manner, the allocation of CBUs followed the simple logic that they were placed at the regional Takata HQs closest to the HQs of the respective customer. However, some CBUs had extensions in other regions. Such CBU 'outposts' were located in regions where particular OEMs had a strong presence outside of their home region (e.g. Ford in Europe). The outposts generally followed the lead of the main CBU, but they could specifically cater to OEMs which, similar to Takata, had a strong regional footprint and demanded nearby contact persons. Exhibit 11 shows the configuration of Takata's CBUs.

⁹⁹ See BBC News (2004).

¹⁰⁰ See NHTSA (2018a).

¹⁰¹ See Woodyard (2014).

¹⁰² See Grimm (2014).

¹⁰³ See Lettice/Wyatt/Evan (2010), p. 312, Takeishi (2001), pp. 404-406.

¹⁰⁴ See Sanchez/Pérez (2003), p. 65.

Exhibit 11: Takata's customer business units (CBUs).

Location/HQ	Tokyo (JPN) + Asia	Aschaffenburg (GER)	Auburn Hills (USA)
Main CBUs	Honda, Nissan, Toyota	BMW, Daimler, VW, Russian OEMs	Chrysler, Ford, GM
Notable CBU outposts	VW	Ford, GM	Honda, Toyota

With this setup, frequent customer visits were no problem, and communication could easily be conducted in the customer's native language. The combination of sales and development activities in one unit also had the advantage that Takata could quickly respond in cases where commercial and technological issues intertwined.¹⁰⁵ For example, design alterations opposed to the specifications at the time of the awarded business – a common phenomenon in the automotive industry¹⁰⁶ – usually led to increased development costs.

Naturally, the differences in configuration between research on the one hand and development on the other resulted in occasional quarrels over competency. For instance, since there was no clear organizational link between the two functions, it was not always clear which region and which CBU was supposed to develop the results derived from the research activities. Frequently, the geographical location of a research facility alone determined the course of action, right from the research phase to the sale of a final product. Naturally, communication between research staff was usually strongest with colleagues from CBUs and the other product-related departments that were nearest by. The aforementioned AStW is such an example, where only basic research had started in Berlin when European CBUs picked up the idea and began reaching out to customers who may be interested in the new technology. When Ford was won as project partner by Takata's European outpost of the Ford CBU, development in Aschaffenburg soon began. The main Ford CBU in Auburn Hills was largely left out of the game, as the AStW project required the involvement of other departments, such as quality, purchasing and production, at a very early stage. As these departments were all configured with a regional focus, the AStW became more and more exclusive to Takata EMEA. *"We're not giving that one away!"*¹⁰⁷ summarized the attitude of many European employees with regards to this prestigious project. Mass-production was launched in Aschaffenburg in 2015, despite the fact that 100% of customer shipments were bound for overseas. This example, whereby office grapevine determined the course of a multi-million USD project, shows how Takata's configuration was interdependent with its coordination.¹⁰⁸

3.3 Keeping it all together

Takata had to coordinate across two main spheres. The first sphere was intra-regional coordination, i.e. within a specific region. This was of particular importance for those value added activities which were regionally configured, such as production and development. The second sphere was inter-regional coordination, i.e. between different regions. This was particularly important for activities such as research. While Takata used various mechanisms to coordinate intra-regionally, coordination between regions was

¹⁰⁵ Recollection of one of the authors.

¹⁰⁶ See Henke/Zhang (2010), p. 42.

¹⁰⁷ Recollection of one of the authors.

¹⁰⁸ Recollection of one of the authors.

mainly in the hands of a single man – Mr. Takada. It was therefore usually at the intersections between regions that Takata’s coordination capability also reached its limits.¹⁰⁹

Most of the RHQs’ attention was devoted to coordinating those activities which took place within the respective region, or as Mr. Takada himself clearly stated in March 2015, “*regional management will have direct responsibility of all regional functions [...]*.”¹¹⁰ In essence, a region’s top management team (TMT) was responsible for all regional functions, which were sub-divided into departments. These were headed by managers, usually a (Senior) Vice President (VP), who were responsible for their department’s tasks. For example, Takata EMEA had its own VP for production, who directly reported to the executives at the RHQs. Under the VP, responsibilities were further refined to cater to one of the major product groups. In this case, the level comprised three directors whose members served the steering wheel, airbag and seat belt functions of Takata EMEA.¹¹¹ Next in line, local managers were responsible for specific products, usually at the plant level. They delegated tasks to team leads and foremen who were directly involved in the organization of the day-to-day routine on the shop floor.¹¹²

The large degree of discretion in the hands of the regional TMT, just like aspects of Takata’s configuration, was a legacy of the firm’s past. When Takata took over Petri AG, the majority of old structures, coordination tools and management personnel were transferred into Takata EMEA – and without implementing any form of global coordination. TKH too, although not affected by the heritage of a large acquisition, was free to develop its own structures over the years, and thanks also to the weight of the North American market, it was kept on a long leash. Regardless of their importance, TKJ remained the full owner of the regional entities. In addition, Tokyo still had one essential tool to delegate responsibilities across the globe: Shigehisa Takada, the global Chairman and CEO. Generally, Mr. Takada had the last word on decisions of major strategic importance, and all regional TMTs were linked through a direct reporting line with him. Exhibit 12 illustrates Takata’s organizational structure all the way from Mr. Takada to the plant level, by picking up the example of Takata EMEA’s production.¹¹³

¹⁰⁹ Recollection of one of the authors.

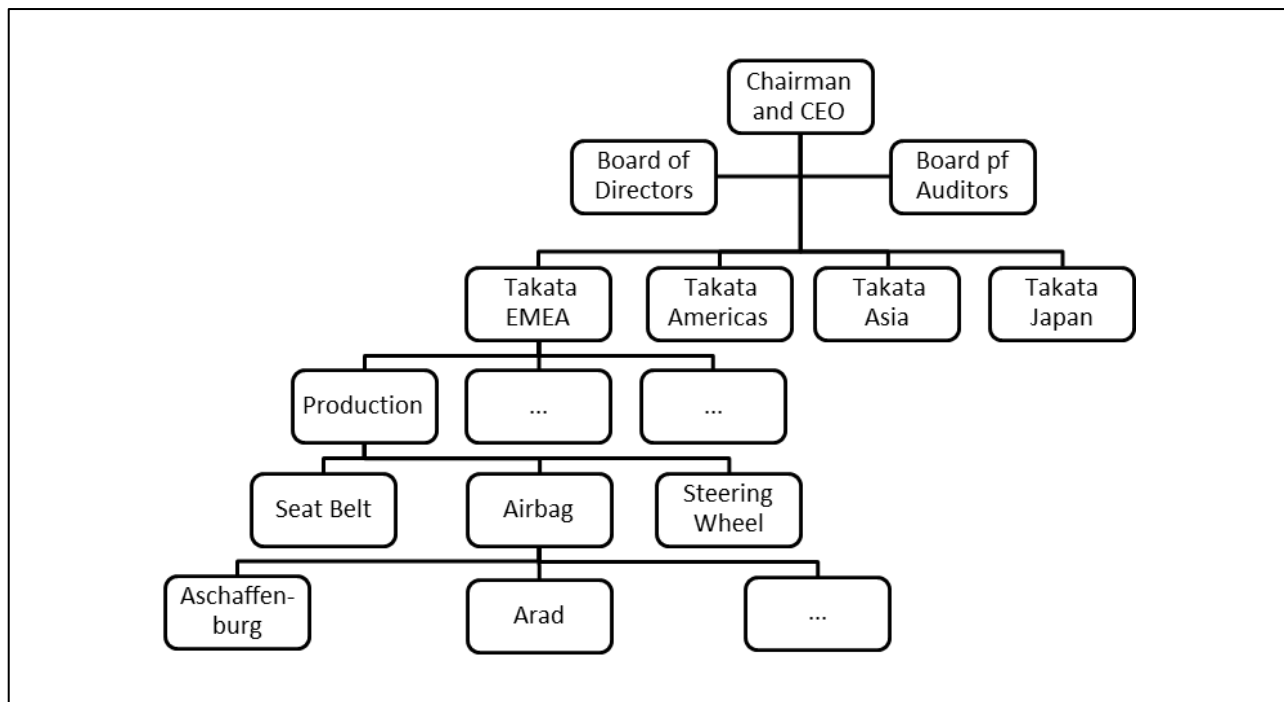
¹¹⁰ See Takata (2015c).

¹¹¹ Note that the ‘Other’ product group did not have its own director. The products in this group were spread across the seat belt, airbag and steering wheel production departments.

¹¹² Recollection of one of the authors.

¹¹³ Recollection of one of the authors.

Exhibit 12: Takata's organizational structure.



As Chairman and CEO, and with his family as the majority shareholder, Mr. Takada was formally endowed with supreme power. Jim Takada, Shigehisa's father and predecessor, had used this influence to rule the company *"like an emperor."*¹¹⁴ However, unlike Jim, Shigehisa usually was not involved in the daily business of the regions. Hence, most of the time, when people in Europe referred to *"our CEO"*,¹¹⁵ they actually meant the head of Takata EMEA, not Shigehisa Takada, who remained invisible to most employees outside of Japan. The following excerpt from an announcement regarding the appointment of a new regional head for Takata EMEA in March 2015 elucidates how personnel changes at the regional level were openly communicated. However, to people outside of the respective region, such changes went unnoticed most of the time.

*"As previously communicated, Yoshihiko Tanaka has been appointed as Chief Executive Officer (CEO) for Takata AG, Managing Director of Takata (Europe) GmbH, and Regional Head for EMEA. In addition to his role as CEO with overall responsibility for all activities in EMEA, Yoshihiko Tanaka will be directly responsible for Application Engineering, Core Engineering and R&D, Program Management, Administration functions, and the Japan/Asia Customer Business Units."*¹¹⁶

As Takata's global coordination was confined to the sporadic direct intervention of Mr. Takada, the coordination of non-regionalized activities proved difficult. For instance, since there was no designated global executive to coordinate research activities, research facilities existed independently from one another and other divisions. The aforementioned example of the AStW technology proves how location and word of mouth filled the coordination voids in determining the course of research results. In essence, this was due to the absence of other mechanisms to share and exchange research effectively, an arrangement that also led to an occasional duplication of work efforts.¹¹⁷

Despite the challenges deriving from Takata's regional dispersion, the use of some global standards helped to maintain a certain degree of technocratic coordination ability across regions. However, these standards

¹¹⁴ See Business Journal (2015).

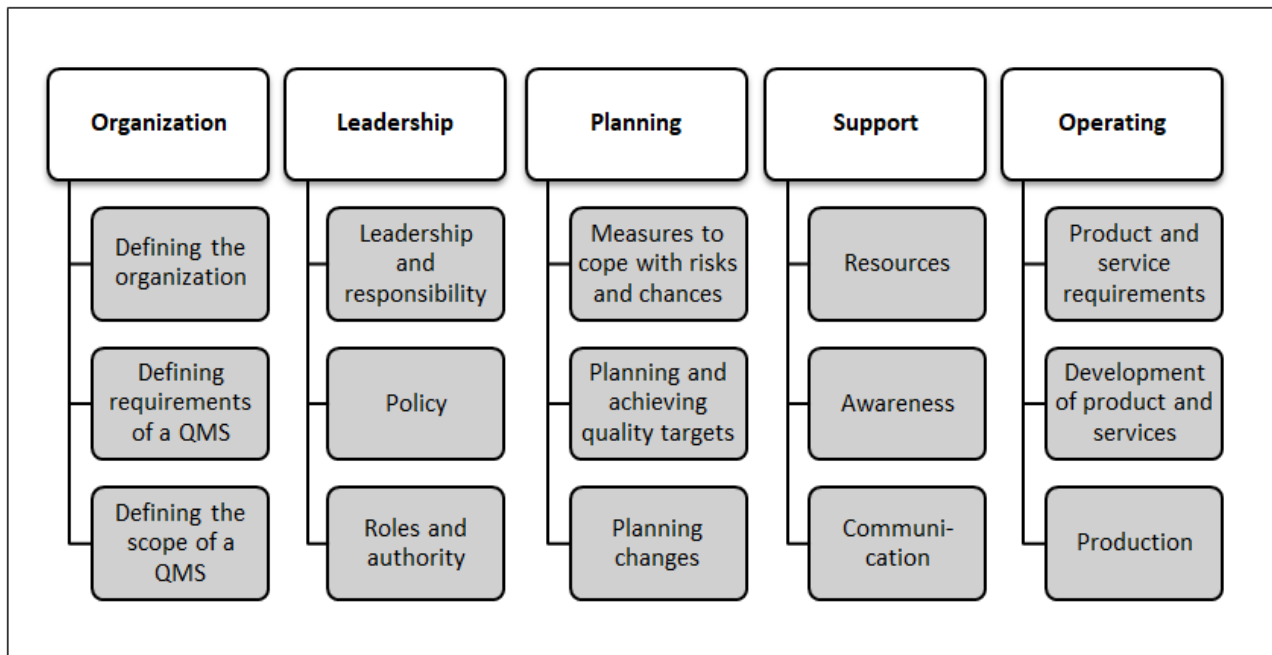
¹¹⁵ Recollection of one of the authors.

¹¹⁶ See Takata (2015c).

¹¹⁷ Recollection of one of the authors.

were not of Takata's own making, but common requirements and predefined processes of the automotive industry. They were spearheaded by the overarching quality standard IATF 16949, which is the result of a long history of quality management systems. It was first created in 1999 by the International Automotive Task Force (IATF), whose members include OEMs and major suppliers.¹¹⁸ Although 16949 certification is voluntary, it is often regarded as an entry ticket to the automotive industry.¹¹⁹ It defines quality as the result of all organizational activities and their interplay. Exhibit 13 shows an excerpt, encompassing only a small fraction of the topics the 16949 standard covers. While production and quality were the areas most affected, the requirements even concerned those departments that were only remotely involved in development and manufacturing processes.

Exhibit 13: Examples of topics that are part of the IATF 16949.



Source: Based on TÜV SÜD (2016).

The IATF 16949 defined quality measures all the way from the procurement of raw materials, product development, FMEA (failure mode and effects analysis) and PPAP (production part approval process) procedures, to after-sales. When sub-components were developed and produced at one Takata plant and delivered to another region for final assembly, they had to adhere to the IATF 16949 standard. Not surprisingly, *“Does this comply with the 16949?”*¹²⁰ was one of the most frequent questions heard in meeting rooms all across Takata, especially when inter-regional coordination was required.

The upside of the 16949 was that, as a common denominator, it meant parts could be exchanged freely around Takata, without the fear that they would not live up to local or regional standards. The downside was that even though the 16949 determined much of the everyday coordination, it did not lead to the establishment of global Takata-specific standards or inter-regional coordination mechanisms. After all, the RHQs were free to employ their own interpretations of the standard, as long as these remained within the often only loosely defined boundaries of the 16949. Hence, even coordination tools which served the same purpose differed across the regions. The multiple ERP (enterprise resource planning) systems used at Takata were a vivid example of these differences. Although attempts to set up a global ERP did exist, efforts in this regard vanished in 2015, due to high costs and the difficulty involved in capturing the distinct

¹¹⁸ See IATF (2018).

¹¹⁹ See TÜV Rheinland (2018).

¹²⁰ Recollection of one of the authors.

regionally configured supply chains.¹²¹ Instead, all regions relied on their own system. Once again, history played a deciding role: Takata EMEA in 2016 was still using the same geriatric 1980s IBM iSeries system, which had already been introduced by Petri AG. Regardless of its age, the iSeries served many important functions: *“It’s old and ugly, but it works”*¹²² summarized the attitude of most of its frequent users. Indeed, complex production- and product-related activities, all the way from incoming resources, to the sale of final products, could be handled adequately by iSeries. However, the reach of iSeries was strictly confined to Takata EMEA, since other regions used other ERPs. Hence, with no standardized systems in place, much improvisation was needed to mediate between regions.

The absence of structural and technocratic mechanisms underlined the importance of person-oriented approaches at Takata, especially in times when inter-regional coordination was required. However, since Mr. Takada was the only person with official power to make cross-regional decisions, all other personal coordination was of a less formal nature. In essence, personal connections between employees were key. The long average tenures and the widespread use of job rotation within the company fostered the development of relationships that reached across borders and helped to keep things together. *“I’ve known him since he was an apprentice at our tool shop”*¹²³ was not an unusual thing to hear at Takata EMEA.

Even across regions, long-lasting relationships evolved over years, and Takata’s generous travel policy helped to establish new and maintain old connections around the world. Frequent visits to other plants underpinned the company’s Genba culture and the widespread belief that many things could be better solved and discussed in person. The resulting personal ties played an important role in filling the void created by the absence of more formal coordination mechanisms. When problems occurred, which frequently happened when parts were exchanged across regions, it was helpful if the head of US steering wheel production maintained a close relationship with the European head of logistics. Thus, when the US plant ran out of an urgently required sub-component, one call to his colleague in Germany was sometimes enough to get an emergency delivery on the way. Such personal troubleshooting was widespread. Indeed, when asked how to solve a problem involving another region, frequent answers across Takata were, *“Oh, I know someone from over there we can ask”*¹²⁴ or *“I will be over there next week and can look into it.”*¹²⁵ In daily business and alongside personal visits, communication via phone, telefax, email and telecommunications software helped maintain connections across borders.

In non-production-related areas, the need for collaboration with colleagues in other regions was less frequent, and as a result personal connections were not always as strong. In these cases, infrequent long-term transfers of personnel were sometimes used as a tool to ensure some basic inter-regional coordination. Although the overall number of expatriates at Takata was negligible, it was notable that when employee transfers occurred, they usually involved lower- to middle-ranked staff instead of upper management.¹²⁶ Despite its simplicity, the person-oriented approach employed by Takata helped maintain the business for a long period of time, or, as a member from middle management commented on the coordination between regions, *“Given that we don’t really know what we are doing, we are still pretty good at it.”*¹²⁷

¹²¹ Recollection of one of the authors.

¹²² Recollection of one of the authors.

¹²³ Recollection of one of the authors.

¹²⁴ Recollection of one of the authors.

¹²⁵ Recollection of one of the authors.

¹²⁶ Recollection of one of the authors.

¹²⁷ Recollection of one of the authors.

4. The end of an era

Ultimately, Takata's downfall was not caused by deficiencies in its configuration or coordination strategies but by a product recall of unseen scale. However, the absence in particular of more effective technocratic coordination mechanisms amplified problems for the company, which was unable to find appropriate answers to the recall crisis.

4.1 The airbag recall

It seems ironic that airbags, the very product second-generation Jim Takada was so hesitant to introduce, eventually led to the company's downfall. Mr. Takada was aware that the production of airbags involved great risks, due to the utilization of explosive materials. According to the autobiography of Saburo Kobayashi, who was the leader of Honda's airbag development program in the 1980s, Jim Takada voiced concerns that *"We cannot cross a bridge that is so dangerous"*¹²⁸ when Kobayashi urged him to enter the airbag market at a New Year's party in 1985. In the end, though, Jim did not follow his gut feeling.

When Takata eventually entered the market in 1987, airbags were still a new technology with vast potential in terms of market growth and technological improvements. It was commonly believed that the key component for enhancements was the inflator, the gas generator that, in case of a crash, inflates the airbag. Airbags have to open within one-twentieth of a second, less than the blink of an eye, something that is only achieved through a propellant-triggered gas explosion.¹²⁹ After experimenting with many different propellants, Takata opted for ammonium nitrate as the substance of choice. Although the company was later accused of lower costs being the driving factor behind this decision, this was only a positive side-effect of the engineering-led development, which concluded that ammonium-nitrate helped to inflate the airbag faster and with lower emissions.¹³⁰ When Takata brought the new airbag system to the mass production stage at its Moses Lake (USA) plant in 2001, customers were thrilled to buy the innovative product, available at a 30% lower price than the prices its competitors were offering.¹³¹ Some voices stating that ammonium nitrate lacked the stability of other substances were present but not overwhelming at the time.¹³²

Almost ten years and countless OEM-awarded and PPAP-approved products¹³³ later, the first dark clouds started to appear on Takata's horizon when reports of accidents attributed to the uncontrollable explosion of its inflators increased. Honda was the first OEM in 2011 to recall several hundred thousand vehicles equipped with Takata airbags in the USA. In 2013, other OEMs in the USA joined the recall measures and withdrew three million airbags from the market.¹³⁴ Naturally, the increasing turmoil also caught the attention of public authorities, spearheaded by the National Highway Traffic Safety Administration (NHTSA). Root-cause investigations and containment actions were already in full progress when the case reached a new – and devastating – dimension. From 2014 onward, news spread which confirmed fatal incidents involving hurl shrapnel, resulting from uncontrolled inflator explosions, as the direct cause of death.¹³⁵ By 2018, at least 22 deaths had been associated with faulty Takata airbags.¹³⁶ Public outrage and increased political activism followed, which led to several US Senate hearings. Takata's senior executive for quality, Hiroshi Shimizu, had to take over the invidious task of answering the Senators' questions at a first hearing

¹²⁸ See Klayman/Kubota (2014).

¹²⁹ See NHTSA (2018a).

¹³⁰ See Tabuchi (2014).

¹³¹ See Tabuchi (2016).

¹³² See Tabuchi (2014).

¹³³ OEMs have to approve supplier parts before the start of mass production.

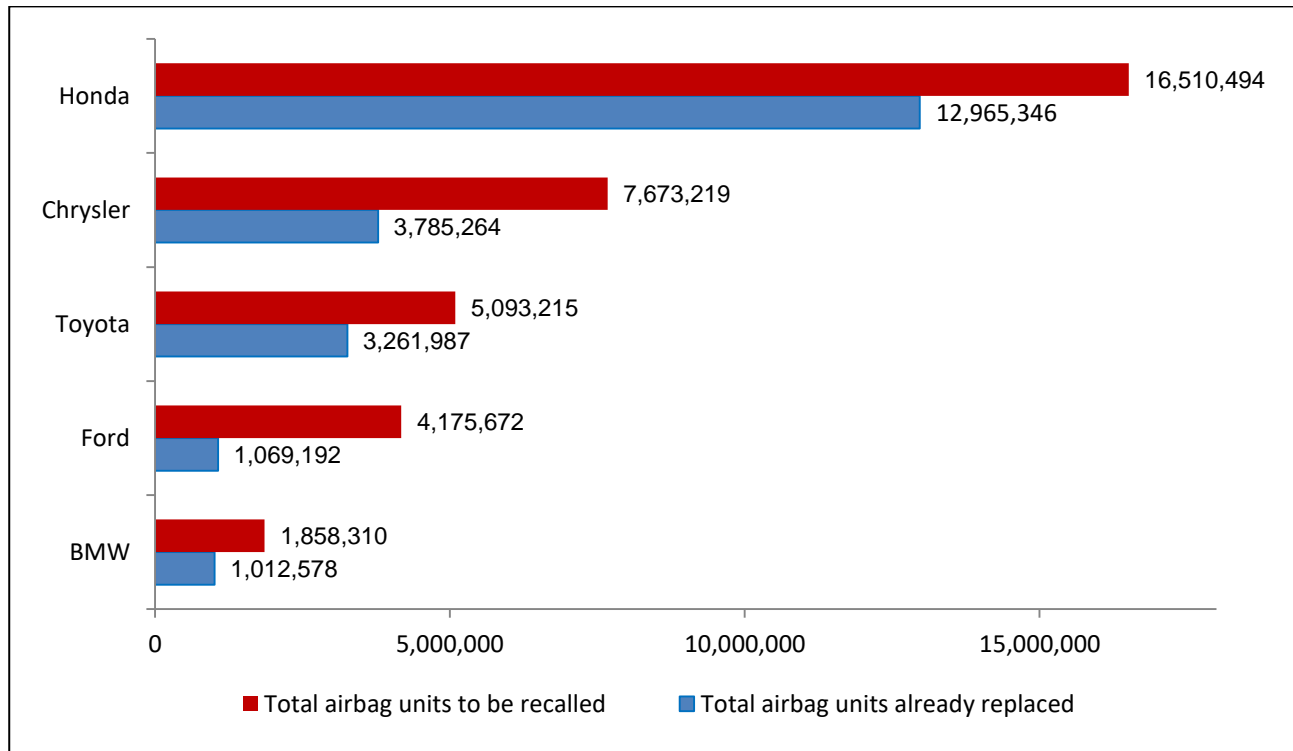
¹³⁴ See Klayman/Geoghegan (2015).

¹³⁵ See CBS (2017).

¹³⁶ See Shepardson (2018).

in November 2014, while Shigehisa Takada remained absent, thus fueling the lack of understanding and anger of the public.¹³⁷ Even if Mr. Takada had actually shown more involvement, he could probably not have prevented the crisis from worsening in May 2015, when NHTSA ruled the so-far voluntary replacement measures to become mandatory, involving 30 million vehicles in the USA equipped with more than 50 million airbags.¹³⁸ Numbers further exploded when traffic administrations from other countries joined the NHTSA's decision, making the estimated affected total of 100 million airbags by far the largest recall in the automobile history.¹³⁹ In July 2018,¹⁴⁰ about 40% of airbags were still waiting for replacement. Exhibit 14 shows the recall volumes of the top five affected customers as of July 2018.

Exhibit 14: The top five OEMs affected by the recall as of July 2018.



Source: NHTSA (2018b).

Along with the sheer replacement volumes Takata had to handle, the inability to identify the root cause of the problem did not help boost public opinion, and Mr. Takada had to admit that *"The analysis isn't progressing very well"* at a press conference held in Tokyo on 25 June 2015.¹⁴¹

Arguably, challenges of this scale would call for a company's joint mobilization of efforts and resources, but instead, Takata stuck to its pattern of regional configuration and coordination. Consequently, the lack of options to coordinate effectively between regions amplified problems. In the early days of the recall, no one in Europe even believed that the rising issue was of any concern: *"That doesn't affect us!"*¹⁴² was a widespread catchphrase of the time, since recall actions were limited to the USA. Eventually, however, reality caught up with everyone. First, OEMs were relying on input from the Takata region deemed responsible. This meant that companies like Daimler and BMW turned to Aschaffenburg, not Auburn Hills, to replace the airbags in their vehicles sold in the USA, since this was where the respective Takata CBUs

¹³⁷ See Kessler/Tabuchi (2014).

¹³⁸ See NHTSA (2018b).

¹³⁹ See Cook (2018).

¹⁴⁰ As the main parts of this case were written in 2018, this case study only refers to the time period until mid-2018.

¹⁴¹ See Kim/Shiraki (2015).

¹⁴² Recollection of one of the authors.

were located. Second, even though the faulty inflators mainly originated from TKH plants, the change of inflators used for the replacement airbags had implications for production across all Takata regions. Third, depending on the OEM's design, in many cases simply replacing the inflator was not possible. Usually, it was necessary to replace complete airbag modules, as shown in Exhibit 15.

Exhibit 15: A complete driver airbag module.



Source: Authors' collection.

In some cases, sub-components for airbag modules were provided from other Takata regions than the one in which they were assembled. This occurred in instances such as in the aforementioned case of the GM and Opel modules, whereby sub-components were exchanged between regions. Hence, the rising challenges with respect to coordination were enormous. However, with no global ERP system in place, Takata had no available mechanisms to handle them accordingly. While a phone call might have been enough to overcome many daily problems, it soon became clear that this was not an effective way to address a recall of this scale. All the recall teams, task forces and action and research units that sprang up, despite their best efforts, could not even answer the simplest question in cases where multi-region collaboration was required – who, or rather which region, is in charge?

Ironically, Takata's dispersion was not helpful in cases where the lack of close ties to hard-hit TKH could have been beneficial to other regions. Takata's regional structure was not obvious to all outsiders. After all, the company used the same name and logo across the globe, which created the impression of 'one Takata' to external parties. Thus, gradually, customers and suppliers grew more concerned about the reputation, product quality and financial solvency of Takata in all regions, even if these had no close links with TKH. Lost customer awards and shorter payment terms were the results, pulling all regions further into the recall whirlwind, regardless of whether they were directly affected or not. Eventually, the mood, even outside of TKH, worsened. Asked about the future prospects of Takata, a shrug of shoulders, along with a "*We're running at short sight*"¹⁴³ statement, became commonplace. By the time the root cause for the faulty inflators was found (a complex bundle of influencers led by the unintentional penetration of outside moisture, which destabilized the propellant), Takata's overall situation had drastically deteriorated.¹⁴⁴ The

¹⁴³ Recollection of one of the authors.

¹⁴⁴ See Lippert/Plungis (2016).

company was already posting massive losses when things became even worse in the form of legal charges pressed against the company. Eventually, the allegations led to a landmark verdict and a 1bn USD penalty in early 2017, after Takata pleaded guilty to having whitewashed evidence that revealed the danger of its ammonium nitrate airbags.¹⁴⁵ Shigehisa Takada, seemingly overwhelmed by his role as global coordinator, and unable to find another way out of the company's misery, decided it was time to sell the company.

4.2 Takeover by KSS and outlook

As bad as things seemed for Takata, no one had a genuine interest in destroying the company, for NHTSA and customers needed it to supply millions of replacement parts for the recall. Furthermore, customers were depending on Takata to continue deliveries for ongoing projects. Lastly, OEMs also had an interest in maintaining the already low level of competition in the market for automotive safety systems. As an executive of a Japanese automaker stated in April 2017, "[Takata] is still regarded an indispensable player in the auto industry."¹⁴⁶ Hence, when Takata announced it would create a steering committee for an organized bidding and acquisition process under the guidance of investment bank Lazard Ltd, customers viewed the move favorably and were actively involved in the search for potential investors.¹⁴⁷ The bidding process involved up to 20 interested investors, ranging from direct competitor Autoliv to corporate raider KKR, and it was accompanied by lengthy rounds of negotiations between Takata, customers and potential investors.¹⁴⁸ Eventually, US competitor Key Safety Systems (KSS), backed by Ningbo Joyson Electronic Corp (China), emerged as the preferred buyer for Takata.¹⁴⁹

The potential takeover posed a real challenge for KSS, given that Takata was four times its size and that the recall was still ongoing. Therefore, aside from a thorough due diligence investigation, KSS pushed Takata for a clear cut. After more than a year of negotiations and uncertainty had passed, Takata, on 26 July 2017, filed for insolvency for its Japanese and US subsidiaries. In the same breath, KSS's intent to acquire the company for a bargain price of 1.6bn USD was officially announced.¹⁵⁰ Takata's regional structure remained visible even on its deathbed, as the European entity was not pushed to file for bankruptcy protection despite being part of the takeover deal.¹⁵¹ Sparing Takata EMEA from this act was done for two reasons. First, German OEMs, compared with their American and Japanese counterparts, had the weakest presence in the mostly affected US market, which is why Takata's European CBUs and plants were also the least involved with recall actions. Second, German insolvency law, which would have applied due to the EMEA HQs being in Aschaffenburg, included more constraints than, for example, American law and would have restricted KSS's flexibility in any restructuring process.¹⁵²

By April 2018, the takeover was completed and the company was renamed Joyson Safety Systems. In a final step, Shigehisa Takada fulfilled the promise he had given at the time of insolvency to step down as CEO and play no role in the new company.¹⁵³ During his time of service, he had guided the company's miraculous rise from becoming one of the world's 50 largest suppliers all the way down to the world's largest automotive recall – and the largest ever insolvency of a Japanese manufacturer.¹⁵⁴ Upon completion of the acquisition, Joyson Safety Systems Executive Chairman Jeffrey Wang declared, that "*We [Joyson Safety Systems] are committed to providing safety solutions of the highest quality and reliability to drive the next*

¹⁴⁵ See CNBC (2017).

¹⁴⁶ See Nikkei Asian Review (2017).

¹⁴⁷ See Tajitsu (2016).

¹⁴⁸ See Fujita (2016).

¹⁴⁹ See Pham (2017).

¹⁵⁰ See Tajitsu (2017).

¹⁵¹ See Zeit Online (2017).

¹⁵² See Trips-Herbert (2009), pp. 13-17, recollection of one of the authors.

¹⁵³ See Kiley (2018).

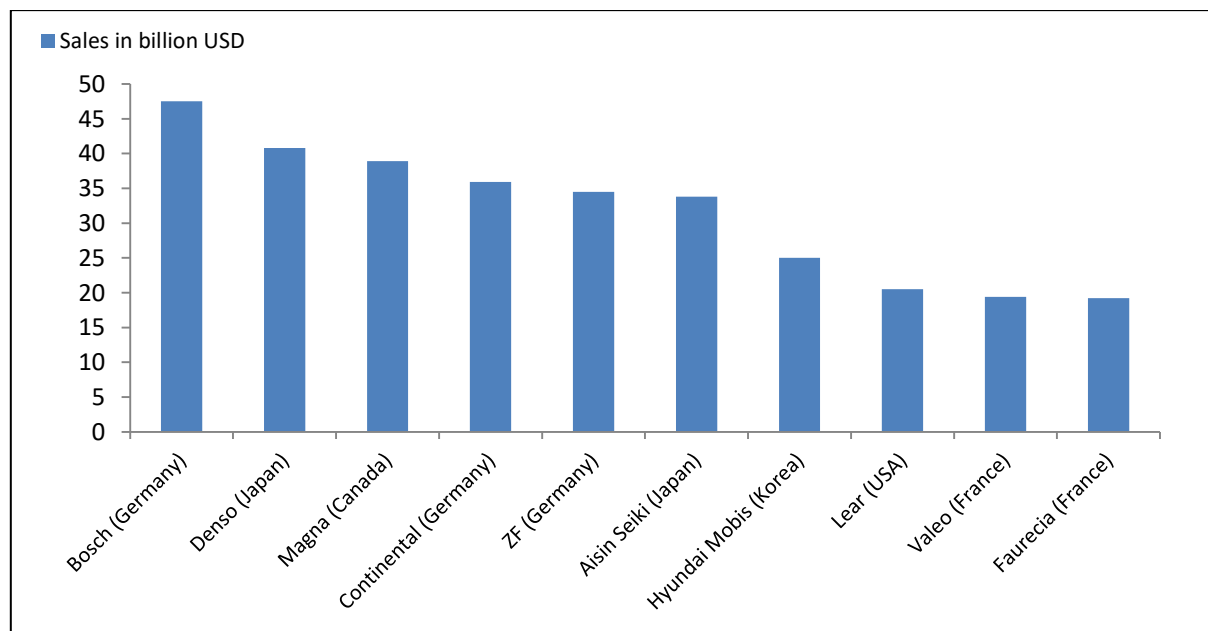
¹⁵⁴ See Automotive News (2017, Tajitsu (2017)).

*generations of mobility.*¹⁵⁵ Going forward, Joyson Safety Systems will have to develop its own strategy in order to take the company to new heights; however, with the recall still ongoing, and four out of five employees being ‘Takata men and women’, it is likely that the legacy of the Takadas will live on.

¹⁵⁵ See The Japan Times (2018).

Questions

1. Murat Aksel, head of BMW Americas' Purchasing and Supplier Network, noted that *"Without the supplier we will not be successful. The supply chain is the heart of the business."*¹⁵⁶ Today, over 80% of an automobile's added value originates from suppliers. They are a major source of innovation and vital for the success of their customers.
 - a) From the perspective of a car manufacturer, what advantages arise from purchasing almost all parts of a vehicle from suppliers? What are the potential disadvantages?
 - b) From the perspective of a supplier, how can customer relationships influence the internationalization in terms of target market and timing strategies?
2. Takata is part of the automotive safety systems industry. The safety systems industry is dominated by a few big players.
 - a) From the perspective of a car manufacturer, what problems can arise from the oligopolistic market structure in the automotive safety systems industry?
 - b) Please imagine that you are the purchasing manager of a large car manufacturer. You have a new project comprising different car lines with a total volume of 8 million vehicles over a time span of six years. All vehicles need to be equipped with airbags. Please decide on a sourcing strategy for the required airbags, and give reasons for your choices.
3. Suppliers other than those from the safety systems industry have grown into large companies, with substantial power in both business and technology. The following exhibit displays the world's 10 largest suppliers in terms of sales in 2018.



Source: Automotive News (2018).

¹⁵⁶ Murat Aksel cited in Karkaria (2018).

- a) Please choose any two of the above firms and conduct additional research on their main products, customers and competitors.
 - b) What are the major differences between the two firms when compared with Takata (now Joyson Safety Systems)?
4. The automotive industry is experiencing a major transformation, triggered by innovations, e.g. in the fields of alternative drive technologies, autonomous driving and mobile connectivity. This concerns car manufacturers and their suppliers alike.
- a) What are some of the current major challenges established car manufacturers, such as GM, Toyota or VW, are facing?
 - b) What major challenges for automotive suppliers are caused by technological innovations? Can you think of any challenges for safety systems suppliers, such as Takata (now Joyson Safety Systems), in particular?
 - c) In how far can the changes in the automotive industry influence the relationship between car manufacturers and their suppliers?
5. A company's culture is a complex construct, consisting of the concepta (e.g. values, norms) and percepta (e.g. symbols, behaviors) levels. Please read the classic article by Osgood (1951), in case you are not familiar with these terms.
- a) What elements of culture at Takata can you find in the text? Please refer to whether these belong to the concepta or the percepta level.
 - b) What role do you think culture might have played in Takata's relationship with customers?
 - c) Do you think Takata's culture was 'typical' for a Japanese company? Please justify your answer with the help of additional research on corporate culture in Japanese firms.
6. Perlmutter's EPRG concept has spurred a great deal of interest in International Business and International Management literature.
- a) Briefly describe the EPRG concept by Perlmutter and discuss its merits and limitations.
 - b) Please conduct additional research on what Perlmutter understands by the regiocentric firm. In how far can Takata be classified as a regiocentric firm?
 - c) Are there any other firms which you would describe as regiocentric? Please elaborate.
 - d) Imagine you are the CEO of a company. When would you opt for a regiocentric philosophy (rather than for an ethnocentric, polycentric or geocentric philosophy)? Please justify your answer.
 - e) If you reflect again on your answer to question d), do you see reasons why regiocentric philosophies may be appropriate for automotive supplier firms?
7. Please read the text below of a short interview with Jim Takada conducted shortly after the acquisition of German-based Petri AG in 2000. In what regard can you find evidence for Takata's regiocentric orientation when reading Jim Takada's statements regarding the Petri acquisition?

Mr. Takada, can you give us an idea of the strategic considerations behind the takeover of Petri?
Our customers want to deal with global suppliers. And both of our companies add up well to form such a global supplier. Petri holds a strong position in Europe, South America and South Africa, and we are strong on the Asian markets.

How will the management tasks be distributed between Tokyo and Takata Europe?
Europe is a kind of independent business, and therefore Europe can be dealt with and managed in its entirety. Our involvement in Petri is an important investment to this end.

In the meantime your competitors are circulating their ideas on expanded system integration. What are your ideas on these issues?

Each company has its own strategy. The traditional occupant safety business consists of seat belts, air bags and steering wheels. As far as these products are concerned there is quite a bit of work cut out for us in future. And we will continue to concentrate on this area.

Do you see differences in safety relevant developments in Asia and Europe?

Not really, after all, the concerns for occupant safety are the same everywhere, apart from considerations of different physical size and weight. The other differences arise only in terms of vehicle size and whether speed limits exist or not.

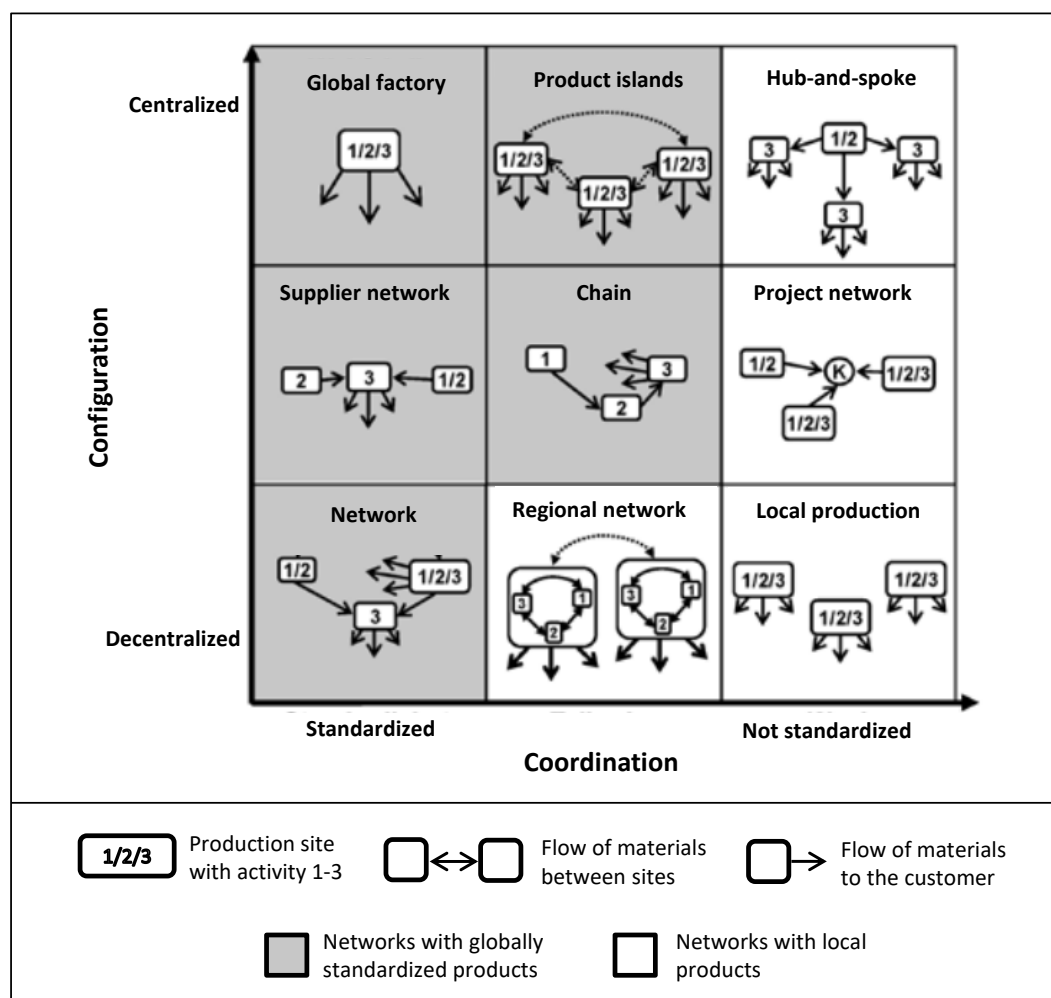
What can you offer customers who are asking for system integration?

Every safety system we offer can be readily integrated into other systems. Take the latest BMW 328, for example, a car that was recently praised by a renowned US insurers institute as a particularly safe vehicle. The air bags were supplied by Takada.

Source: Automobil Produktion (2000), p. 59.

8. Different regions and RHQs played an important role for Takata. The RHQs and regional managers were endowed with much freedom and managerial discretion. Takata was not alone in this respect. Some scholars claim that RHQs, 'regional solutions' or 'regional management mandates' are well-suited international strategies for firms. Please consult some of the literature on the subject (e.g. Alfoldi/Clegg/McGaughey (2012), Kähäri/Piekkari (2015), Rugman/Verbeke (2008) to help answer the following questions:
- What influences might encourage firms to opt for strategies and structures with a strong focus on regions? Influences can be of both an external and an internal nature.
 - What are the benefits of installing and using RHQs? What are the risks?
 - Are regional structures and the implementation of RHQs obvious choices for a company operating in the automotive industry in general and the safety systems industry in particular? Give reasons for your answer.
 - Takata heavily relied on RHQs and copious regional freedom. What were the advantages and disadvantages of such an approach?

9. Long before the acquisition of Petri AG, Takata's international expansion began in 1984 with a joint venture with the American firm General Safety.
- Why do you think Takata chose a joint venture for its first foreign market entry? Please conduct additional research about the general advantages and disadvantages of joint ventures.
 - Please take a look at the so-called 'establishment chain', a pattern describing firms' gradual internationalization, prominently reflected on by representatives of the Uppsala School (e.g. Johanson/Vahne (1977), Johanson/Vahne (2009)). How much does the idea of an establishment chain resemble Takata's internationalization process? In what way does it differ?
10. Please conduct additional research about Japanese foreign direct investment into the USA in the 1980s, particularly by companies from the automotive industry. What were the main drivers of these investments?
11. There are different ways for firms to organize their international production activities. This results in various types of production arrangements with implications for both configuration and coordination strategies. Whereas simplified models cannot fully reflect the complexity of reality, the following exhibit shows simplified types of production arrangements.



Source: Haas/Obst (2012).

- a) In how far can a firm's product affect the choice of production arrangement? What are the implications for a firm's coordination and configuration strategies? Give reasons for your answers.
 - b) Aside from the product, what impact do customers have on the choice of a production arrangement? What other factors influence the choice of a production arrangement?
 - c) Which of the above arrangements resembles Takata's production the most? Give reasons for your answers.
12. Takata's research was dispersed around the globe, with one designated research center in each of the regions (except Asia). Development activities were embedded in customer business units.
- a) In general, why is the differentiation between research and development often necessary in terms of analyzing a firm's configuration approach?
 - b) Specifically, in the case of Takata, what were the reasons behind the de facto separation of research and development?
 - c) Some authors speak of 'centers of excellence' when they refer to research and/or development sites with outstanding capabilities and high importance for the overall firm. Please read articles on centers of excellence (e.g. Andersson/Forsgren (2000), Frost/Birkinshaw/Ensign (2002), Gammelgaard/McDonald/Stephan/Tüselmann/Dörrenbächer (2012)) and comment on whether or not Takata's research centers match the concept or not. Give reasons for your answers.
 - d) Takata had some highly innovative products, such as the Active Steering Wheel, but mostly it acted as a market follower when it came to new products. Takata's R&D ratio before the recall crisis was around 5%, similar to that of industry and innovation leader Autoliv. What could Takata have done with regards to its R&D configuration to potentially boost its innovativeness?
13. Whether 'structure follows strategy' or 'strategy follows structure' is an ongoing debate in management theory. Clearly, however, some interdependencies exist. Please elaborate, in the case of Takata, how much the firm's international structure and the strategy for production reinforced each other.
14. Compared with the Americas and EMEA regions, Asia was still a relatively small market for Takata (see Exhibit 7). The case study also indicated that Takata Asia did not enjoy some of the privileges of the other regions.
- a) Why do you think Takata Asia was treated differently compared to the other regions? Please also consider the political situation and relationships between countries within Asia.
 - b) Please choose two countries in Asia and conduct an automotive market analysis using appropriate tools. You may focus on the situation for OEMs and large suppliers.
 - c) Please develop internationalization strategies for Takata (now Joyson Safety Systems) to benefit from the automotive markets in the two countries chosen under b). Please consider market entry, target market, timing and allocation and coordination strategies, and elaborate on your answers.

15. Firms can rely on various mechanisms to coordinate their international activities, and these are broadly characterized as 'formal' or 'informal'. Furthermore, they can be grouped into structural, technocratic and person-oriented coordination mechanisms. Please consult the relevant literature in this field (e.g. Harzing (2001), Martinez/Jarillo (1989), Martinez/Jarillo (1991), Welge (1981)), and answer the following questions:
 - a) Based on the literature, what different coordination mechanisms can firms use? Please highlight whether these mechanisms are of a formal or an informal nature. Please also indicate whether they are structural, technocratic or person-oriented.
 - b) Are there any additional coordination mechanisms you can think of? For example, has technological progress enabled firms to use new coordination mechanisms?
16. Takata used various different mechanisms to address different spheres of coordination. For example, one particular coordination mechanism was the use of expatriates.
 - a) Please reflect on the advantages and disadvantages of using expatriates for coordination.
 - b) In general, in what way did Takata's coordination mechanisms at the intra-regional level differ from those at the inter-regional level?
 - c) If Takata had attempted to introduce additional or alternate coordination mechanisms at the inter-regional level, what potential problems could have arisen? Give reasons for your answer.
17. Imagine you are consulting Takata's CEO before the start of the recall crisis in 2011. You are asked to provide suggestions on how to improve the company's coordination mechanisms for the future. Please provide specific recommendations, and give reasons for your choice.
18. The recall crisis gained momentum in 2013 following the first exchange of several million airbags. At this time, you are called to help and are endowed with far-reaching competencies. Your reputation as a proven specialist in saving troubled companies precedes you. Please develop a five-point plan highlighting main measures you recommend for solving the crisis and saving Takata from insolvency. Please elaborate on all of your points. You may conduct research on other firms that have faced (and mastered) staggering challenges throughout their history.
19. Quality management systems are one of the key pillars of the automotive industry. Please choose one alternative industry and conduct some research on existing quality management systems. How much, and in what way, do the requirements differ from those of the automotive industry?
20. Until the takeover in 2018, the majority of Takata's shares were still owned by the Takada family, and the firm was led by a direct descendant of the founder.
 - a) Please provide some examples of international firms that are still owned/led by members of the founding family.
 - b) Large family-owned and -led businesses are not uncommon in Japan and other parts of the world. Please discuss the general advantages and disadvantages of family firms.
 - c) In what situations was it beneficial for Takata to be family-owned and managed? Please also reflect on possible situations not specifically mentioned in the text.

21. Please read the following extract taken from The Economist with regard to Takata's recall and insolvency.

Takata's bankruptcy is a result of familiar failings – The slow reform of corporate Japan.

Airbags are meant to make driving safer. But for years, some made by Takata, a Japanese firm, inflated with such vigour that shards of metal and plastic were launched at occupants of vehicles in even minor collisions, causing serious injury and in some cases death. The costs of the biggest-ever recall of vehicles, hauled back to correct the problem, and the associated lawsuits claimed another victim on June 26th. Takata itself filed for bankruptcy in America and Japan, and sold its surviving operations to a competitor, Key Safety Systems (KSS).

It is the latest in a series of self-inflicted wounds by Japanese corporate giants. Takata's travails come on the heels of other disasters, including insolvency at Sharp, a formerly dominant consumer-electronics firm, and massive losses at Toshiba, a nuclear power and consumer-electronics empire. All suggest a recurring pattern of lack of transparency and leadership.

Takata's bankruptcy is due to its airbags' use of chemicals propellants which became unstable after long-term exposure to heat and humidity. But the crisis is also partly due to a lengthy concealment of a problem during which faulty bags caused at least 17 deaths and ten times as many injuries globally. The danger from exploding airbags was clear to Takata long before it came to wider attention, but instead of coming clean managers altered test results to hide it from customers. In a settlement in January of related criminal charges in America the firm agreed to pay \$1bn in fines and compensation to carmakers and consumers, and admitted to a cover-up of the airbag failures from the early 2000s. American prosecutors have charged three long-serving managers at the firm with faking data to conceal the defect.

[...]

Angry shareholders, at a final meeting on June 27th, singled out Shigehisa Takada, the firm's chief executive, for blame. Masami Doi, a consultant and a former manager at Toyota, agrees that Takata has been badly led. The mindset of ignoring problems is not shared by all Japanese companies. Toyota reacted rapidly to a huge recall of cars in 2009 because of "unintended accelerations" by going on the offensive. Its openness and transparency included the sight of Akio Toyoda, president of Toyota, testifying before Congress. Mr Takada has been invisible. He swerved a showdown with America's authorities. His press conference to announce the bankruptcy was his first since November 2015."

Source: The Economist (2017).

Please reflect on this excerpt and the case you have read. In your opinion, do you think that Takata's structure and strategies amplified the recall crisis? As Chairman and CEO at the time, do you think Shigehisa Takada could have done anything to improve the situation?

22. Imagine you could travel back in time to the New Year's party in 1985 to take the place of Jim Takada. Takata's global expansion and entry into the airbag market are yet to happen. You get into

a conversation with a Honda executive who asks you about your future plans for Takata. Please explain your internationalization strategies for the company's next 20 years.

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