



# Managing the International Value Chain in the Automotive Industry

## Strategy, Structure, and Culture

Stefan Schmid, Philipp Grosche





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## The need for leadership in international value creation

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The ever-changing global network of economic ties calls for a new approach to leadership – one that requires both management and personnel to show greater ability to cooperate. If companies hope to meet the challenges of international competition, they need to recognize and seize the opportunities offered by the global economic system. However, the competitive position of an internationally active company is not determined solely by such factors as cost-saving production, lean process design or innovative capacity. In order to profit from the global market, a company must be able to create and manage an international value network and delegate value functions to the proper sites. This applies to sales and procurement as well as to labor and capital markets.

Despite predictions that globalization would lead to a homogeneous world market with barely differentiated products, it has become clear that cultural differences still play a major role in customers' purchasing decisions and in the commitment of a company's employees. Moreover, there are substantial differences in the production and quality-related processes needed in the emerging markets relative to the industrialized countries, and this affects everything from product use, pricing and development potential to distribution and communications channels.

The changes that have taken place in operations, production, communications and decision making are particularly evident in the automotive industry. There is no such thing as a "world car"; particularly in the mass market, manufacturers need to adapt their products to suit each individual country. This is not a new insight. But so far companies have had little success in finding the right balance between centralization and decentralization, between cutting costs through standardization and taking advantage of greater market potential by adapting their products to local needs.

The competitive position of automobile manufacturers is of enormous consequence for the economy. In Germany, one job in seven is dependent on the automotive industry; in the United States it is one in ten, and this industry is becoming increasingly crucial in the emerging economies as well. India and China are well on their way to becoming leading centers of production and technology. Their companies are entering the global arena as serious competitors just as American manufacturers are showing alarming weakness, having rested for too long on the laurels of their earlier successes and failing to recognize changes that were taking place in the market.

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Today, the challenge for a company competing on the international stage is to adjust quickly to local circumstances while simultaneously integrating its divisions and sites worldwide, based on identical principles and a shared understanding of the company's purpose and objectives. Integrating the various sites into corporate strategy, across national and divisional boundaries, requires allowing and empowering each site to play an important role in the organization. A company that views itself as a value network is better able to achieve this goal than one that maintains the pyramid structure of a traditional hierarchy.

The strength of a company lies in its network of internal and external cooperation, and thus also in mutual trust. Only when management respects its employees and allows them the leeway to act and grow will it be able to place its confidence in them, as well as in its various divisions and sites. In many cases, a fear of losing power and control leads management to choose a strongly hierarchical structure and a centralized organization, and this in itself creates obstacles to international success.

The study "Managing the International Value Chain in the Automotive Industry" looks at selected automobile manufacturers to demonstrate how companies can compete internationally through the proper organization and management of their value structures. It shows how these companies can develop the special strengths of individual sites for the benefit of the entire company, and how they can integrate emerging economies into their activities in order to accommodate local needs and develop new market opportunities. It looks from a new perspective at the question of how best to achieve a balance between centralization and decentralization, focusing on determining which value functions require a differentiated approach in their organization and management.

Every company's management can take advantage of such opportunities. The groundwork is laid by establishing a corporate culture based on shared values and convictions at every level of the organization, showing confidence in the company's employees and offering them the necessary room to maneuver. ■

This study originated as part of the project "Corporate Cultures in Global Interaction – People, Strategies, and Success," which seeks to promote international and intercultural cooperation within and among companies. In addition to international value creation, its focus areas include cooperation competence, cultural diversity within companies, German-Chinese cooperation, mergers and acquisitions and corporate culture, as well as virtual cooperation. An overview of the project's publications can be found at the end of this brochure.

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# International value chains

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## Current trends and future needs, as exemplified by the automotive industry

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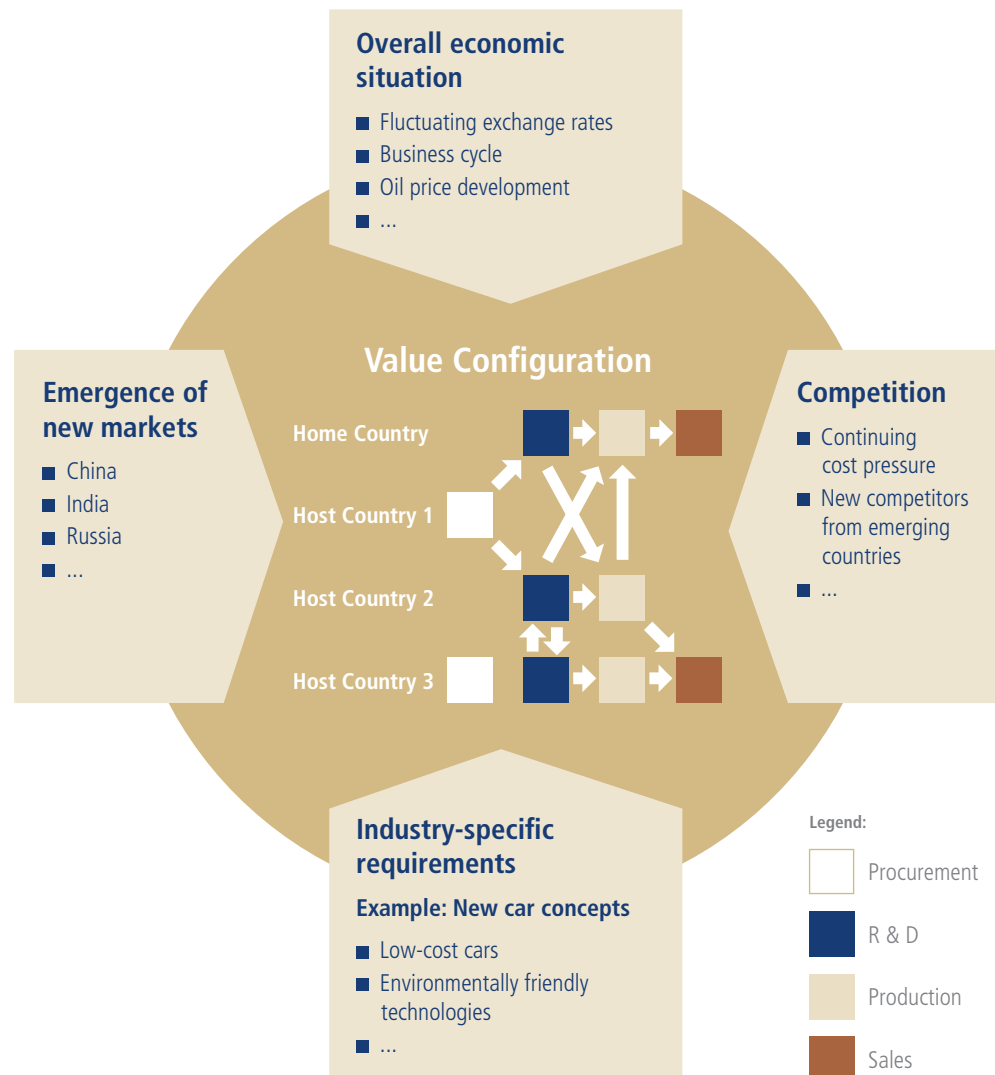
## 1. Internationalization of the value chain in the automotive industry

The expansion of companies into foreign markets continues, and this is particularly true in the automotive industry. Long ago, however, automobile manufacturers stopped focusing exclusively on → exports. Instead of merely exporting vehicles and selling them in foreign markets, companies began carrying out a wide range of → value activities abroad. These activities are located in or near promising target markets. Sometimes, for example, companies begin producing an already popular model on site. The result is the development of international → value chains, which pose further challenges, for example, for intercultural issues.



What factors contribute to the internationalization of value creation? Positive economic developments in → emerging markets, such as the so-called → BRIC countries (Brazil, Russia, India and China), have recently led automobile manufacturers to implement an extensive array of value activities in these countries. Similarly, macroeconomic factors play a role in where companies decide to locate, since factors such as exchange rates affect the sales prices and profitability of vehicle exports, and higher oil prices raise the cost of transport. Other factors that intensify competition in the automotive industry, and that affect the international value chain, include new competitors from emerging markets and increasing cost pressures. For example, companies may tend to avoid markets with a particularly high level of competition. In shaping the value chain, it is important to take into account the specific needs of the industry. For instance, companies need access to innovative research clusters if they are to develop new concepts such as cars with environmentally friendly engines. Figure 1 shows a number of external factors that are currently exerting a strong influence on companies' international value chains.

**Figure 1: Selected external factors that affect the configuration of international value chains**



Source: The authors, based on VDA (2008: 34-42).

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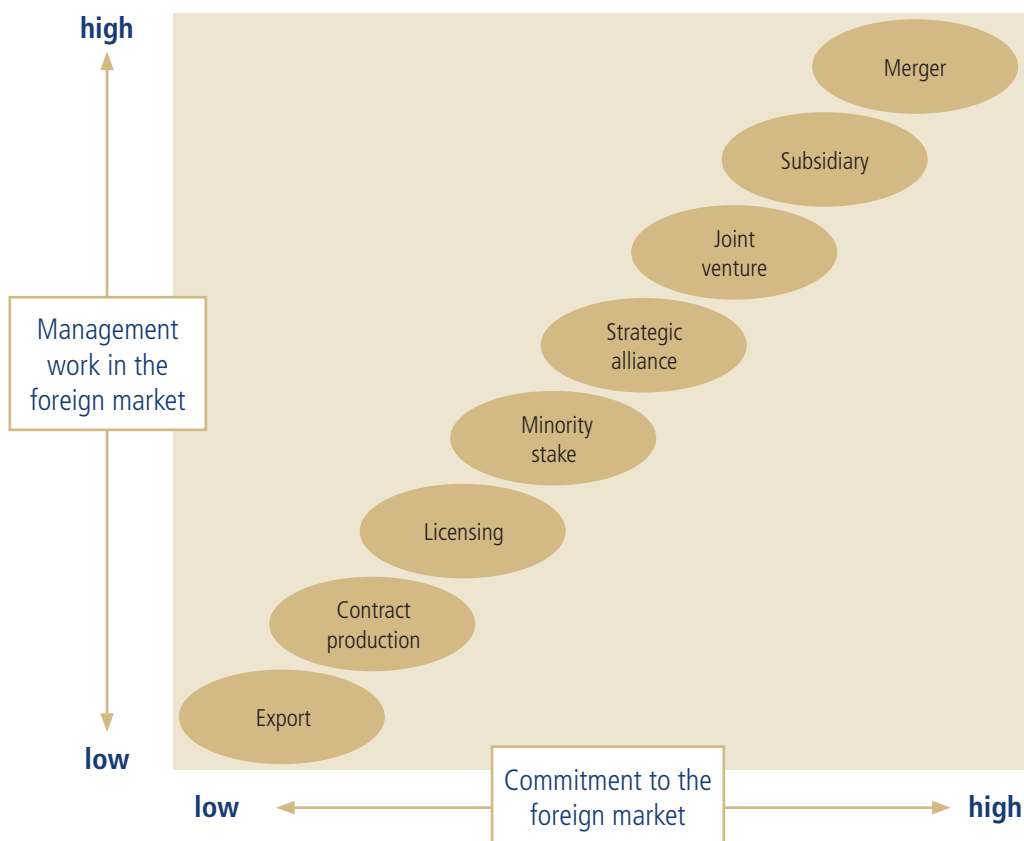
The complicated interactions between these external factors and the shaping of international value chains are evident when looking at exchange rates. Between early 2006 and mid-2008, the strength of the euro relative to the dollar compelled a number of non-American automobile manufacturers to consider establishing production sites in the United States. As Kutschker/Schmid show (2008: 28), the high exchange rate forced these companies to struggle with declining sales or take losses on their vehicle exports to the United States. One response of the Volkswagen Group was to set up

a VW production site in Chattanooga, Tennessee, in 2008, and reports indicate that Volkswagen's → subsidiary Audi is also reviewing the possibility of producing vehicles in the United States. Trends in exchange rates also influence more than just production. Although BMW established a production site in Spartanburg, South Carolina, in 1992, many of its components continue to be manufactured in Europe. Seeking to further reduce its vulnerability to currency fluctuations, BMW is planning to increase procurement from suppliers that invoice in dollars (Oesterle et al. 2008: 252).

A number of internal factors also play an important role in the geographical distribution of value activities. As companies internationalize, their → market entry strategies are of particular significance for locating certain value activities on site. For example, the export strategy of many companies, as they begin the process of internationalization, is to keep (nearly) all value activities within the home country. However, the establishment or → acquisition of a foreign

subsidiary creates a need for internationalization in areas such as sales, production, or research and development. Today companies employ a wide variety of market entry strategies (Schmid 2002, Schmid 2007: 16f.). As shown in Figure 2, these strategic options are typically distinguished by the company's level of commitment (i.e., the ties that it establishes) in the foreign market as well as by the management work that takes place there.<sup>1</sup>

Figure 2: Strategic options for market entry



Source: The authors, adapted from Schmid (2007: 16), Meissner/Gerber (1980: 224).

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<sup>1</sup> Figure 2 shows the relative significance of various market entry strategies, based on particularly common real-world cases. However, as a strategy's position is largely determined by how it is implemented by the individual company, this figure can only provide a rough estimate. Note that an influential → minority stake of 49% may result in more management activities taking place in the given foreign country, as well as a greater commitment to the foreign market, than a loose strategic alliance. This would change the order shown above. There are a number of possible ways to systematize market-entry strategies, but all of them are problematic in some way (Kutschker/Schmid 2008: 848-853).

Numerous cases illustrate the market entry strategies employed in the automotive industry, along with the export of goods. A prominent feature of the → strategy chosen by the sports car manufacturer Porsche is → contract production. Since 1997 and 2005, respectively, the majority of its Boxster and Cayman models have been manufactured by the Finnish company Valmet. Beginning in 2012, Austrian contract manufacturer Magna Steyr will take on this role. Large portions of Porsche's Cayenne model are manufactured by Volkswagen in Bratislava, Slovakia, and then sent to the Porsche plant in Leipzig for final assembly. International → licensing is a common industry strategy for producing individual vehicle components. For example, the Asian Suzuki company is licensed to manufacture diesel engines developed by the Italian manufacturer Fiat.

International → minority stakes are common in the automotive industry. Premium manufacturer Daimler controls nearly seven percent of shares in India's Tata Motors, which has recently attracted attention with its → ultra low-cost Nano car. Renault and Nissan are linked by cross ownership: Renault holds 44.3 percent of Nissan, and Nissan owns 15 percent of Renault shares. This allows the two competing companies to strengthen their cooperation on operational issues and strategy within the framework of the → strategic alliance that they formed in 1999 (cf. also Schmid/Hartmann 2007). BMW, Daimler and General Motors – competitors in other aspects of the market – have an international strategic alliance to develop a hybrid car, among other things, as a way of sharing the high costs of development associated with such a project. Competitors Peugeot-Citroën and Toyota are also working closely together. They jointly developed the nearly identical compact cars Citroën C1, Peugeot 107 and Toyota Aygo, and have been manufacturing them since 2005 in the Czech city of Kolin, within the framework of the international → joint venture Toyota Peugeot Citroën Automobile (TPCA). In addition, all



of the major automobile manufacturers have established joint ventures with Chinese

companies so that they are allowed, under Chinese law, to produce vehicles in China for that country's rapidly growing market.

In many cases, automobile manufacturers create foreign subsidiaries as a way of establishing production and sales units in local markets. Though foreign distribution companies as alternatives to exclusive importers have long been a normal part of the market and have rarely attracted much media attention, there has been a great deal of public interest in new foreign production companies. Daimler, for example, decided in the summer of 2008 to establish a subsidiary in Hungary, which will produce A and B class vehicles in the city of Kecskemét. Acquisitions also can be found. With the purchase of the renowned English companies Jaguar and Land Rover from its competitor Ford in the spring of 2008, Tata Motors is now in possession of extensive value resources outside of India. Such acquisitions are not always successful, however.



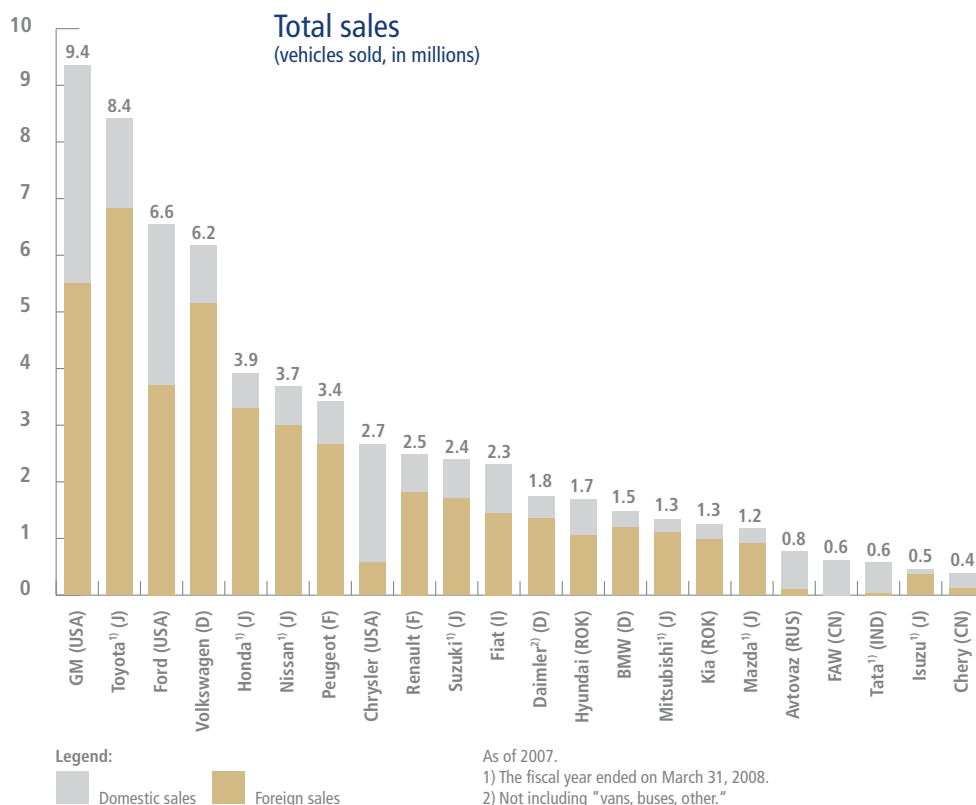
After its purchase of Rover in 1994, BMW found itself unable to handle

several problems that the British manufacturer was experiencing, including quality issues, and it severed its ties with that company six years later (Kutschker/Schmid 2008: 920). → Mergers are less common than acquisitions. Manufacturers most often take a cautious approach, and this was true even before the 1998 merger of Daimler and Chrysler proved unsuccessful and was dismantled in 2007 with the sale of the relevant company holdings.

The choice of an → internationalization strategy is directly related to the → configuration of the international value chain. The chosen strategy and the value activities involved produce different value structures, as shown by the examples cited above. Differences in value structures are also reflected in domestic and foreign sales, or in the → foreign share of total sales (Figures 3 and 4). Manufacturers differ in their proportion of domestic relative to foreign sales, which reflects different levels of internationalization in value creation, in this case primarily in sales. It is particularly striking that American

manufacturers continue to sell a relatively large share of their vehicles in their domestic market. In 2007, up-and-coming manufacturers from emerging markets, such as AvtoVaz in Russia, First Automobile Works (FAW) in China and Tata in India, sold their vehicles almost exclusively at home. This is not true of most European and Japanese manufacturers.

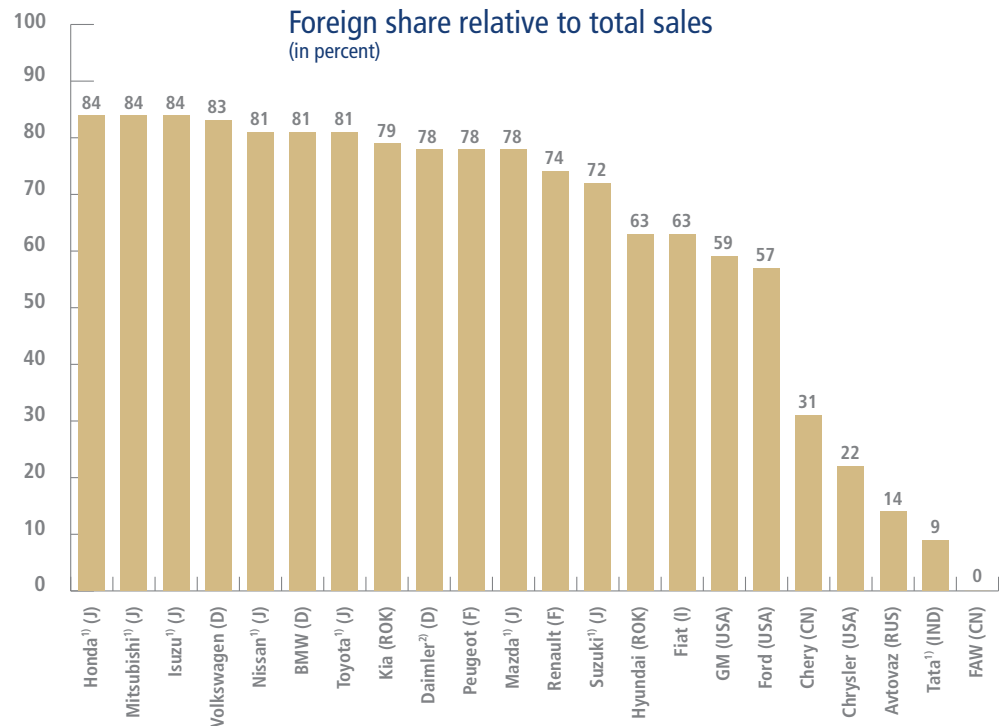
**Figure 3: Domestic and foreign sales of the 22 largest automobile manufacturers in 2007**



Source: The authors, based on annual reports for fiscal years 2007 and 2007/2008.

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**Figure 4: Foreign share relative to total sales for the 22 largest automobile manufacturers in 2007**



As of 2007.

1) The fiscal year ended on March 31, 2008.

2) Not including "vans, buses, other."

Source: The authors, based on annual reports for fiscal years 2007 and 2007/2008.

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### The design of the international value chain is an important competitive factor.

In the global automobile market, the competitive position of an individual manufacturer no longer depends solely on such traditional factors as productivity or innovative capacity. Instead, the competitive position is also a function of the design of the international value chain. A central question, therefore, is how value activities should be distributed geographically to enable a

company to compete with its rivals. At the same time, the international nature of value activities means that they need to be coordinated and integrated into the corporate network as a whole. As the level of globalization increases, automobile manufacturers are therefore faced with the challenge of configuring and coordinating their international value chains to their best advantage. The following chapter focuses on these two crucial dimensions of the management of the international value chain.



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## 2. Configuration and coordination as crucial dimensions in shaping international value chains

A company's value chain encompasses value activities in the order of their operational implementation. The value chain shown in Figure 5 is taken from Michael Porter, a professor at Harvard Business School and an expert on business strategy. Porter distinguishes between → primary and → secondary activities. Primary activities include inbound logistics, operations, outbound logistics, marketing and sales, and service. Secondary activities are procurement, research and development, human resource management and infrastructure (Porter 1986a: 29-32).<sup>2</sup> This detailed description of the value chain is useful for analyzing → competitive advantages. Breaking down a company into its individual value activities makes it possible to identify the current and potential contribution of each activity to the company's competitive position (Porter 1986a: 19).

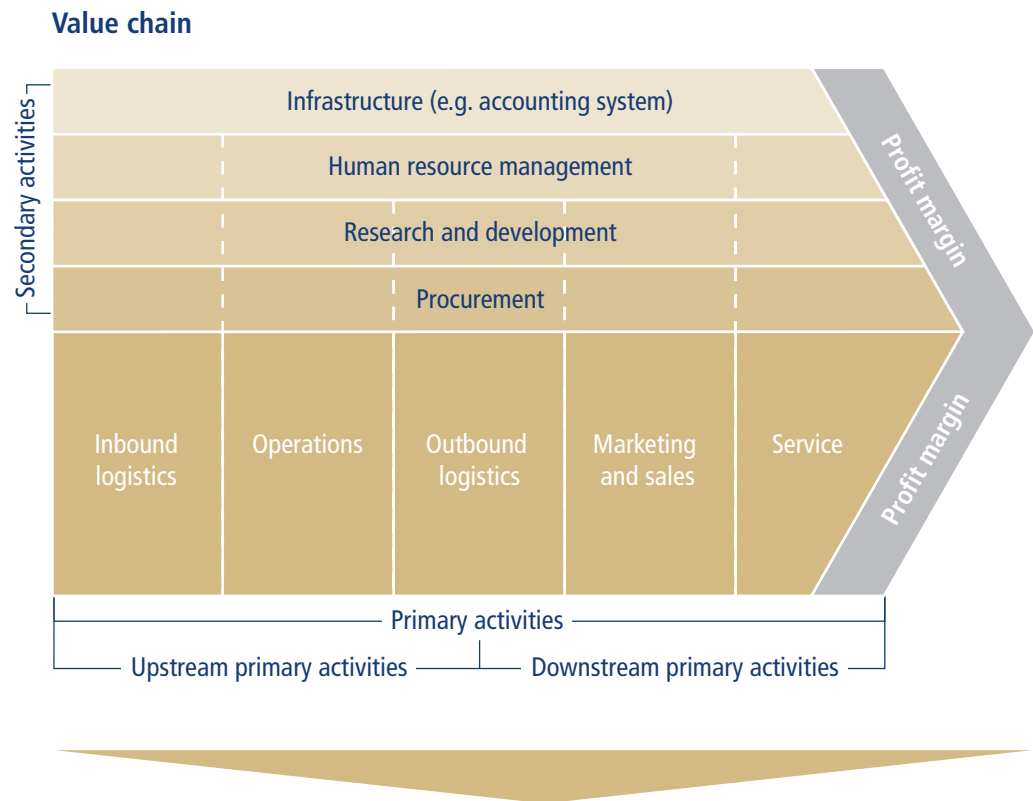
**Value configuration is the distribution of value activities among different countries.**

The value activities of a company, whether they are primary or secondary, can be distributed among different countries. The geographical distribution of such activities is called → value configuration. It characterizes the degree of their geographical dispersion (decentralization) or concentration (centralization). Centralization exists if comparable activities are carried out only at a certain central location; decentralization means that comparable activities are geographically dispersed and take place parallel to one another at a variety of corporate units (Porter 1986a: 25, Kutschker/Schmid 2008: 996). Figure 5 shows the value configuration of a hypothetical company headquartered in Germany.

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<sup>2</sup> This allocation of value-adding activities represents one of many recommendations; the precise designation of the activities in various branches may therefore vary (Porter 1986a: 20) and arguments may also be found in favor of classifying research and development as well as procurement as primary activities rather than as secondary activities (Bäurle/Schmid 1994: 4-5).

Figure 5: Value chain and value configuration according to Porter



### Value configuration

Activities	D	F	UK	USA	J
<b>Inbound logistics</b>	•		•		•
<b>Operations</b>					
Production	•		•	•	•
Assembly	•				•
Testing	•			•	
<b>Outbound logistics</b>					
Order processing	•	•	•	•	•
Distribution	•	•	•	•	•
<b>Marketing and sales</b>					
Advertising	•	•	•	•	•
Sales organization	•	•	•	•	•
<b>Service</b>	•	•	•	•	•
<b>Procurement</b>	•				
<b>Research and development</b>	•				•
<b>Human resource management</b>	•	•	•	•	•
<b>Infrastructure</b>	•				

Source: Based on Porter (1986a: 21, 24f.) and Kutschker/Schmid (2008: 997).

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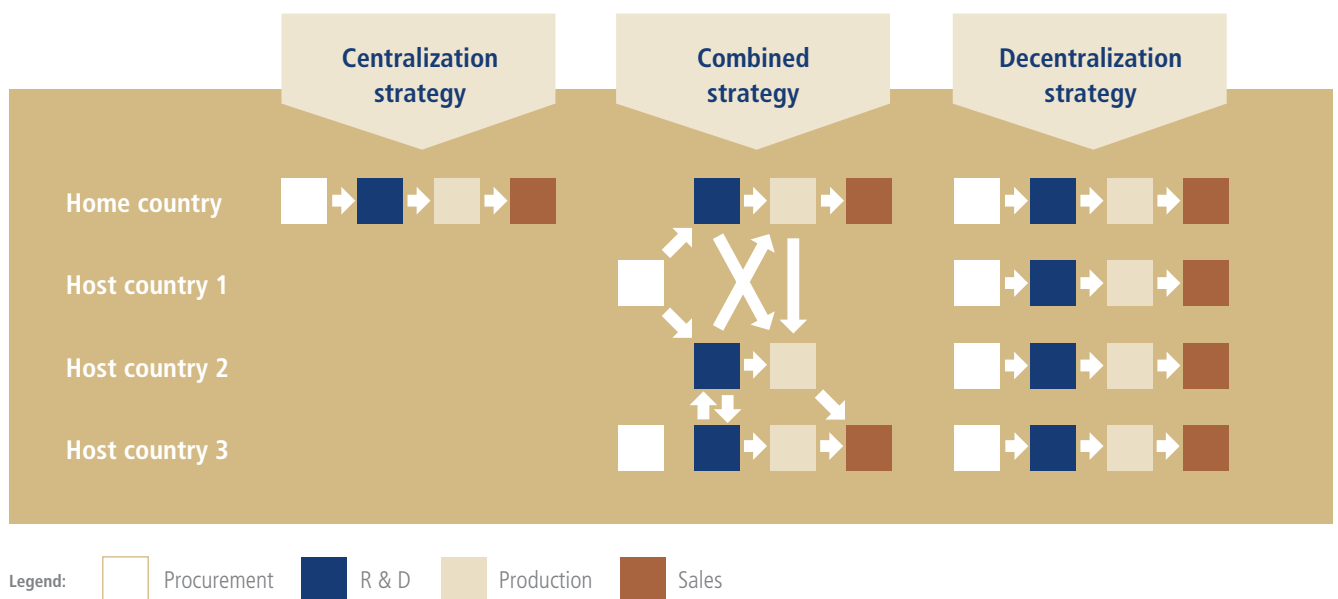
When he published his conception of the value chain, Porter pointed out that so-called downstream primary activities such as marketing and service, which presume a certain proximity to the customer, tend to be carried out in a decentralized fashion in the respective markets. Upstream primary and secondary activities, with the exception of human resource management, are frequently centralized at one site or restricted to only a few locations (Porter 1986a: 23, Kutschker/Schmid 2008: 998, 1003f.). In this sense, the hypothetical German company shown in Figure 5 represents a typical example.

In principle, there are three basic types of → configuration strategies, as shown in Figure 6. Under a strategy of centralization – which, strictly speaking, would only be possible by exporting indirectly and using domestic trade intermediaries – all of the company's value activities remain in the home country. A combined strategy means that some activities are

carried out centrally while others are dispersed. Finally, a company that follows a strategy of strict decentralization implements all activities that are part of the value chain in every country, which may produce → miniature replicas in the host countries.

It is clear from a closer examination of companies' value configurations that, in many cases, → value functions are not carried out in their entirety at foreign sites. Instead, such sites handle only certain sub-processes. One example is the value function of production in the automotive industry, which can be broken down into the stamping of sheet metal components, body construction, painting of the vehicle body, production of components and final vehicle assembly, as shown in Figure 7. These production stages do not necessarily need to be confined to one plant but can be performed in various different countries.

Figure 6: Basic types of configuration strategies



Source: Kutschker/Schmid (2008: 999).

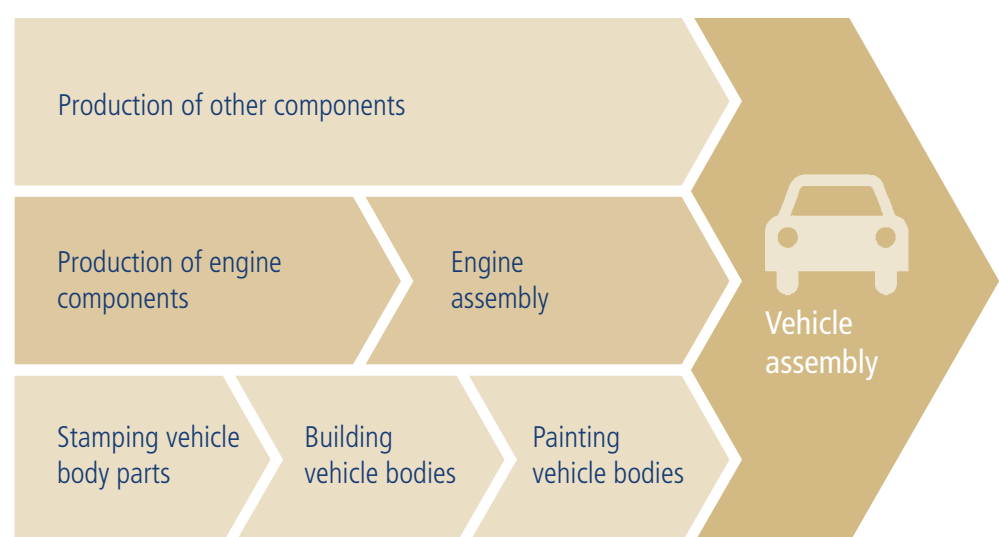
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Particularly in the automotive industry, numerous assembly plants are devoted exclusively to the assembly of vehicle kits produced at other sites. A distinction is made between → semi knocked down (SKD) production, when the vehicle kit contains elements that already have been assembled, such as the auto body, and → completely knocked down (CKD) production, when none of the parts have been assembled (Meyer 2008: 81f.). Daimler has four plants in Southeast Asia (Thailand, Vietnam, Malaysia and Indonesia) that assemble CKD kits manufactured in Germany. This allows the company to avoid paying import duties. In Vietnam, for example, these import duties amount to 50 percent of the value of the imported goods (Huster 2006). Thus, the fact that production plants exist in a variety of geographical locations does not automatically

mean that all production stages are decentralized. A manufacturer that uses its foreign sites merely to assemble SKD or CKD sets that have been prefabricated in its home country has a lower level of foreign value added than one that carries out all of its production stages at foreign plants.

There are a number of advantages to decentralizing value activities, but centralization offers other benefits. Figure 8 provides an overview of the most important reasons why companies might choose to either centralize or decentralize these activities.<sup>3</sup> Note that the arguments for centralization or decentralization are not the same for each activity. Companies determine on a case-by-case basis whether concentration or dispersal is preferable, as shown by the studies included in this publication.

**Figure 7: An automobile manufacturer's typical production stages**



Source: The authors, based on VDA (2004a, pp. 45-50), and company data.

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<sup>3</sup> Cf. Porter (1986a: 25-27), Porter (1986b: 17-19), Schlüchtermann (1999: 54), Zentes et al. (2004: 229), Kutschker/Schmid (2008: 1003).

**Figure 8: Selected motives for centralizing or decentralizing value activities**

<p><b>Motives for centralization</b></p> <ul style="list-style-type: none"> <li>_ To achieve a critical mass</li> <li>_ To take advantage of → economies of scale and → learning effects</li> <li>_ To take advantage of → economies of scope</li> <li>_ Simplified organization, no processes involving more than one country</li> <li>_ Simplified management, face-to-face contact is possible</li> <li>_ To facilitate → coordination of value activities, as little or no distance exists</li> <li>_ Easier access to information and communication, among other things, because cultural and language barriers are not a factor</li> <li>_ Projects can be completed more quickly; for example, there is less need for coordination</li> </ul>	<ul style="list-style-type: none"> <li>_ Prevents duplication of effort, as, in most cases, more relevant information is available on site than in other corporate units</li> <li>_ Easier to maintain confidentiality because information remains within one site</li> <li>_ Transfer of information within the company is easier because it does not involve crossing borders</li> <li>_ Possible to establish a largely uniform → culture</li> <li>_ To avoid conflicts between employees at different sites</li> </ul>
<p><b>Motives for decentralization</b></p> <ul style="list-style-type: none"> <li>_ Access to scarce production factors, e.g., qualified personnel</li> <li>_ To take advantage of comparative cost advantages with respect to production factors</li> <li>_ To distribute risk and increase flexibility and innovative capacity, for example by consciously duplicating or multiplying activities</li> <li>_ To make use of complementary resources, competencies and skills</li> <li>_ Better coordination with value activities that have already been carried out on site</li> <li>_ To avoid legal restrictions, for example, regulatory requirements or import restrictions</li> <li>_ To ensure market access and comply with government regulations, for example → local-content requirements</li> <li>_ To take advantage of direct or indirect support provided by the government of a host country</li> </ul>	<ul style="list-style-type: none"> <li>_ Greater acceptance of the company within the host country, for example by establishing itself as a local manufacturer</li> <li>_ To open up markets that offer little competition</li> <li>_ To overcome logistic barriers, e.g., to reduce transport costs</li> <li>_ Better adaptation of products or services to the needs of local customers</li> <li>_ To take advantage of cultural proximity, e.g., to supply or sales markets</li> <li>_ To set up outposts in strategically relevant markets, particularly in innovative clusters or in the home markets of important competitors</li> <li>_ To tap into local information and communication networks</li> <li>_ Proximity to scientific facilities, which facilitates access to knowledge and expertise</li> <li>_ Acquisition of international experience by going abroad</li> </ul>

Source: The authors, adapted from Porter (1986a: 29), Schmid (2000: 2-7), Zentes et al. (2004: 229-240), Kutschker/Schmid (2008: 1000-1003).

## A decentralized configuration of value activities implies the need for specific approaches to coordination.

A decentralized configuration of value activities requires a high level of integrative skills from those in corporate management. Such activities need to be integrated into the corporate network and coordinated. A functioning value network can only be achieved by properly coordinating centrally or decentrally configured activities (Martinez/Jarillo 1991: 431). Accordingly, in dealing with value activities that are more or less geographically dispersed, companies use various tools to integrate them to a greater or lesser degree into the corporate group. For the most part, the available → coordination tools are structural, technocratic or person-oriented, as outlined in Figure 9. Structural → coordination tools are based on organizational features and represent an essential part of the formal organizational → structure. Technocratic tools include all of the arrangements and provisions that are

not specifically linked to individuals. Person-oriented tools directly involve the employees of a company who are engaged in coordination efforts (Kutschker/Schmid 2008: 1031).

The configuration of value activities, such as their geographical distribution, and the coordination of these activities constitute the two factors that companies can use to shape their international value chains. If configuration and coordination are viewed as dimensions of a matrix, this produces the so-called configuration matrix (Porter 1986a: 27), which provides insight into a company's approach to international value creation and shows its options with respect to the geographical distribution of value activities as well as their → integration. Porter demonstrated this matrix, as shown in Figure 10, using the American automobile manufacturers General Motors and Ford, along with their Japanese competitor Toyota. The matrix shows the positions of the three companies during the 1970s and the direction in which they were moving in the 1980s, as observed by Porter (Porter 1986a: 27).

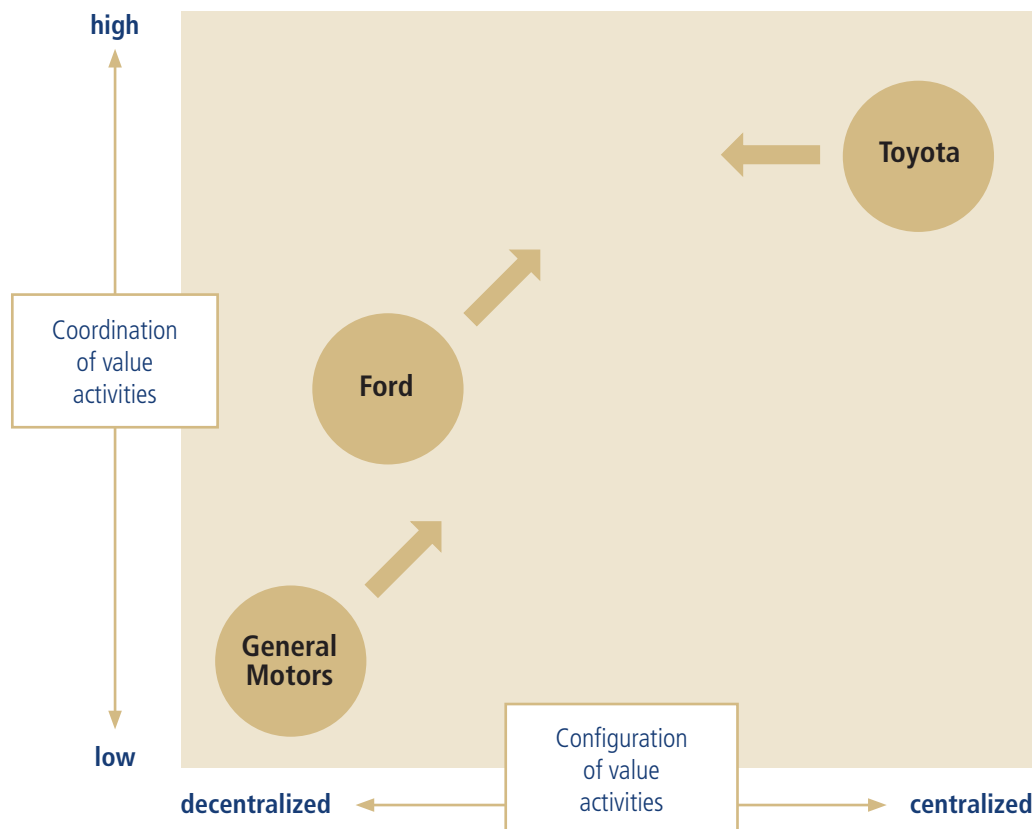
**Figure 9: Overview of selected approaches to coordination**

Structural coordination	Technocratic coordination	Person-oriented coordination	Other
<ul style="list-style-type: none"> <li>_ Forms of organizational structure</li> <li>_ Departments</li> <li>_ Staffs, corporate departments, corporate divisions, types of project organization</li> <li>_ Centralization or decentralization of decision making</li> </ul>	<ul style="list-style-type: none"> <li>_ Guidelines</li> <li>_ Programs</li> <li>_ Plans</li> <li>_ Budgets</li> <li>_ Reporting systems</li> <li>_ Formalization</li> </ul>	<ul style="list-style-type: none"> <li>_ Personal directives</li> <li>_ Mutual adjustment</li> <li>_ Personal visits</li> <li>_ Transfer of management personnel</li> <li>_ Standardizing roles</li> <li>_ Culture-oriented coordination</li> </ul>	<ul style="list-style-type: none"> <li>_ Transfer prices</li> <li>_ Transfer of information</li> <li>_ Self-organization</li> <li>_ ...</li> </ul>

Source: Adapted from Kutschker/Schmid (2008: 1033).

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Figure 10: Configuration-coordination matrix according to Porter



Source: Based on Porter (1986a: 27f.).

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At that time, Toyota, like other Japanese automobile manufacturers, was centralizing its value activities in order to lower costs, so that it could sell its vehicles at an attractive price. Today, many of Toyota's value activities are decentralized, but the company is still recognized for its highly coordinated network. Largely because of its acquisition-based approach, General Motors pursued a country-specific strategy with a number of different subsidiaries (brands) and widely dispersed value activities. However, its subsidiaries, such as Opel in Germany and Vauxhall in Great Britain, were still relatively autonomous until the end of the 1970s, since coordination was minimal. In the 1970s, Ford was divided into several regional units that were coordinated at mid-level. Since then, both companies have centralized a number of selected activities and

enhanced coordination across national boundaries. However, no one since Porter has updated the position of these companies on the configuration-coordination matrix, so only limited conclusions can be drawn about the changes that have taken place.

Furthermore, Porter's configuration-coordination matrix (1986a) has undergone little critical scrutiny.<sup>4</sup> It is clear that this matrix has one striking weakness: Although it provides a clear picture of a company's value structures, it is imprecise. Porter himself has conceded that it is crucial to determine the configuration and coordination of each individual value function separately (Porter 1986a: 25-27, Porter 1986b: 17-19). The examples that he shows on the matrix, though, are entire companies, which means that Porter assumes

<sup>4</sup> Some other writers have pointed out the weaknesses of the configuration-coordination matrix and attempted to expand (cf. Moon 1994) or revise it by taking into account various value activities (cf. Roth 1992). These efforts have provided valuable insights for a possible expansion of the matrix, but they have not led to a revision of Porter's concept that has gained equal support from theoreticians and practitioners.

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that an overall configuration-coordination profile exists for each company. In principle, however, each value function in itself can be configured centrally or decentrally and may manifest a high or low level of coordination, within the same company. Thus, a number of automobile manufacturers have decentralized their production and sales, while their research and development are often carried out centrally at the company's

main location. Consequently, there are limits to the conclusions that can be drawn about the degree of an automobile manufacturer's overall centralization or decentralization. For these reasons – and because of findings from the case studies of VW, Renault and Audi – the configuration-coordination matrix is only of limited value in making management decisions.

### 3. Best practices and options for managing the international value chain

In recent years, numerous studies – many of them conducted by trade associations or management consulting firms – have focused on structural change in the automotive industry and the subsequent reconfiguration of value chains.<sup>5</sup> The focus has often been on cooperation between manufacturers and suppliers and, particularly, on the scope of the value activities carried out by each side (e.g., Sonnenborn 2009). The configuration and coordination of such activities have been largely ignored. Most notably, there has been little examination of the role of the configuration and coordination of value activities in generating competitive advantages. For the most part, the academic literature on this topic (e.g., Roth 1992, Holtbrügge 2005) has failed to consider the decision-making approach

of strategic management. There is virtually no literature for practitioners that addresses the issue of the configuration and coordination of value activities. This study is intended to fill this gap.

The objective of the study is as follows:

- \_ to determine the status quo of international value creation among companies in the automotive industry;
- \_ to identify best practices in the configuration and coordination of value creation;
- \_ to identify needs and options for developing sustainable international value chains; and
- \_ to critically review and expand Porter's configuration-coordination matrix (1986a).

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<sup>5</sup> Cf. VDA (2004a, VDA 2004b), Wildemann (2004), Accenture (2005), Dannenberg/Kleinhans (2005), Dietl et al (2007), BDI et al. (2008), Roland Berger (2008).



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## The configuration and coordination of value activities have been given too little attention.

All of the examples and conclusions outlined here have been chosen not only for their relevance to companies in the automotive industry but also because they can provide insights that may be useful to other industries. One of our concerns is to show how competitive advantages can be generated, consolidated and expanded by means of an appropriate configuration and coordination of value activities, and what this requires of management. As we intend to demonstrate, companies within the same industry often choose entirely different approaches to configuration and coordination in order to ensure competitive positions.

We focus on the automotive industry because it is of particular importance to Germany and many other countries. With about 744,500 people employed by manufacturers and suppliers, the automotive industry is one of Germany's largest employers. If we also include those who work in upstream and downstream industries, such as the electrical industry and vehicle sales, roughly 5.3 million jobs in Germany depend on the automotive industry. This accounts for approximately 13 percent of all employed individuals in Germany (Destatis 2007). The automotive industry was also responsible for a foreign trade surplus of 105 billion euros in 2007, which underscores its enormous importance in the area of foreign trade (VDA 2008: 5). Clearly, then, structural changes in the international value chains of automobile manufacturers can have a substantial impact on the employment and economic situation in Germany. It is important to note, however, that moving value activities abroad does not necessarily mean a decline in the number of jobs in Germany. By internationalizing value creation, German automobile manufacturers also have an opportunity to generate domestic growth.

The three companies considered in this study, Volkswagen, Renault and Audi, were selected partly to include various external influences in our analysis (cf. also Figure 1, p. 12). The

development of new markets plays a central role in the case study of the **Volkswagen Group**.

The Volkswagen Group is engaged in one of the most ambitious growth initiatives in the industry in seeking to overtake Toyota, the world's current market leader in terms of sales and profitability, by the year 2018. These strategic goals cannot be achieved without opening up new sales markets and permeating the company's existing markets. It is important to remember that certain crucial requirements must also be met with respect to the configuration and coordination of value activities if companies are to be internationally successful. We therefore particularly focus on the question of how companies can market their products worldwide while adapting to different customer demands at a local level. We analyze the value configuration of the Volkswagen group and compare it with that of Volkswagen's competitor Toyota. This case study outlines ways in which companies can resolve the tension between standardization and differentiation by decentralizing their development activities, to adapt their products to local markets, while also decentralizing the relevant decision-making competencies. If they succeed in doing so, they can become true global players.

## How is it possible to balance the need for worldwide supply and adaptation to the local market?

Using the case study of the French automobile manufacturer **Renault**, we examine the new → low-cost car concept. We focus on determining the aspects of value configuration that are necessary to succeed in meeting the needs of market segments that are under a great deal of cost pressure. Accordingly, we conducted a thorough analysis of Renault's value configuration for its Logan model, sold in Europe under the name of Renault's Rumanian subsidiary, Dacia. We also identify implications for the coordination and management of value activities. The case study clearly demonstrates that a concept aimed at achieving a low-cost car requires much more than merely economical vehicle construction or production in a low-wage country. Indeed, the overall value structure needs to be adjusted. Production activities need to be centralized, but it is also important to achieve a high level of localization in the field of procurement. Moreover, the configuration strategy for development activities needs to be adapted over time. Although a centralized approach is advantageous when initially developing a low-cost car, it makes sense to decentralize development activities over the long term. At the macroeconomic level, low-cost cars and other products aimed at the low-price segment of the market mean that emerging markets are becoming centers of value creation that can offer companies competitive advantages worldwide.

### How do value activities need to be configured in order to be successful in serving market segments that are under considerable cost pressure?

The case study of the Hungarian subsidiary of **Audi AG** focuses on the issue of shifting production capacities abroad, a much-discussed phenomenon in the → industrialized countries that is generally defended by pointing to the need to improve a company's competitive position. In this case, the primary question is how to undertake such a shift of value activities to another country in order to generate positive effects for the company's domestic sites. In order to answer this question, we analyzed the development of Audi's Hungarian subsidiary from the

time of its establishment in 1993 up to the present day. Our analysis has shown that upgrading foreign subsidiaries to centers of excellence by assigning them additional value activities and developing specific skills produces crucial benefits for the company as a whole, and thus for its domestic sites. This happens, for example, by increasing the number of domestic jobs. However, success in establishing → centers of excellence is only possible with the help of a flexible style of management that takes into account the specific activities, roles and areas of competence of the respective subsidiaries.

### How should one go about moving value activities abroad in order to generate positive effects for domestic sites?

In our concluding section, we summarize the main results derived from the case studies and outline their implications for managing international value creation. It is clear that changes in value creation not only have strategic and structural consequences for companies but also have important implications for → corporate culture. ■



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# Glocal value creation in the Volkswagen Group

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## Moving toward greater decentralization of production and development

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## 1. The Volkswagen Group's new global strategy

### 1.1 Strategy 2018: Competitor Toyota as the standard

The Volkswagen Group introduced a comprehensive new strategy in December 2007, aimed at achieving global market leadership in the automotive industry by the year 2018. The Strategy 2018 plan, drawn up under the leadership of Volkswagen CEO Martin Winterkorn, represents the most ambitious growth initiative in the history of the Wolfsburg manufacturer. Within the next ten years, Volkswagen intends to become not only as large, but also as profitable as its Japanese competitor Toyota Motor Corporation. By 2018 its goal is to increase annual vehicle sales from 6 to 11 million, which means nearly doubling today's sales. The company seeks to raise its annual pre-tax profit margin from the current level of 5.6 percent to 10 percent by 2018. Toyota nearly achieved this level in fiscal year 2006/2007, when it recorded a profit margin of 9.3 percent, and despite lagging sales it is currently closer to reaching that goal than the Volkswagen Group.

Strategy 2018 represents a clear challenge to the Japanese automobile manufacturer Toyota, which has been acknowledged for many years as the industry leader. Winterkorn underscores his company's ambitions: "The Volkswagen Group is on the attack. And we are not aiming to come in second or third. We are in this to win!" (Ritter 2008). By using Toyota as a standard, Winterkorn is adopting a method that proved successful during his time at Audi, where he was chairman of the Board of Management from 2002 to 2006. For years, Audi's employees were motivated by the slogan "Beyond BMW" to overtake their Bavarian competitor. Given Toyota's preeminence, is this current goal even more ambitious?

Figure 1: The main features of Strategy 2018

<p>The goals of Strategy 2018</p> <ul style="list-style-type: none"><li>– <b>Sales growth:</b> Increasing vehicle sales from 6.2 million in 2007 to 11 million in 2018</li><li>– <b>Optimizing rate of return:</b> Increasing the pre-tax profit margin from 5.6 percent in 2007 to 10 percent in 2018</li></ul>	<ul style="list-style-type: none"><li>– <b>Greater customer satisfaction:</b> Gaining recognition by 2018 as one of the automobile manufacturers with the highest level of customer satisfaction worldwide</li><li>– <b>Improving quality:</b> Achieving the highest levels of quality in the world by 2018</li><li>– <b>Promoting sustainability:</b> Implementing environmental protection measures in its products, materials, technologies and processes by 2018</li></ul>
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Source: The authors' summary of Hillebrand (2007: 23f.), "Volkswagen schafft 8500 Jobs" (2008), Volkswagen (2008a, 2008b). | BertelsmannStiftung

Achieving these challenging goals requires taking steps to increase efficiency. These include outsourcing certain aspects of the value creation process to suppliers, increasing production efficiency and using standardized → platforms to produce several different vehicles. In the future, for example, all of the models produced by the Group will be based on only three platforms to which different but mutually compatible modules are added. Volkswagen also needs to compete on the market side, which means achieving growth in a variety of markets, particularly outside Europe. “Volkswagen's market share in Europe can't get any better. The company has to look outside the EU for growth,” explains Adam Jones, analyst for investment bank Morgan Stanley (Edmondson 2007).

In order to achieve its growth targets, Volkswagen needs to concentrate on two things: First, it needs to establish itself in the emerging economies (such as Russia, India and Southeast Asia). It is currently lagging behind its competitors in these markets. Second, Volkswagen needs

to make gains in the American market, the world's largest with annual total sales of some 17 million vehicles. Toyota sells over 2.5 million vehicles each year in the United States, putting it ahead of Volkswagen by nearly 2.2 million units; this difference amounts to 20 percent of Winterkorn's target for 2018 of total Group sales of 11 million vehicles. To be sure, Volkswagen has a larger market share than Toyota in certain markets, for example in South America, where Volkswagen accounts for 17.8 percent of the market as compared with 4 percent for its competitor. However, the volume of sales in the South American countries is not large enough even to begin to close the overall gap. And Volkswagen's dominance in Europe is offset by Toyota's preeminence in its home markets of Japan and Asia in general. Toyota's sizeable advantage in total sales is therefore largely due to its strong market position in the United States. “The United States is our most serious Achilles' heel,” says Winterkorn in discussing the growth needed to achieve the company's goals (Hillebrand 2007: 30).

## 1.2 Benchmarking with Toyota

Volkswagen has set itself a high bar. Over the years it has become clear that Japan's Toyota company represents the industry standard in numerous areas. Whether we look at integrated supplier networks, lean production methods, high quality standards, the development of new technologies or financial performance figures, Toyota outperforms most of its competitors in nearly every respect. Even premium manufacturers like Daimler and Porsche frequently view high-volume manufacturer Toyota as a so-called → benchmark for identifying potential improvements in their own companies. Figure 2 compares the most important performance figures for Volkswagen and Toyota and the sales trends for both companies in the past few years.

Toyota is particularly well known for the Toyota Production System (TPS), which has revolutionized automotive production. Today its production and management methods are used not only by nearly every automobile manufacturer, but also by other industries and organizations, including

the American aluminum producer Alcoa and the University of Pittsburgh Medical Center. TPS is based on the just-in-time approach (JIT) and the Jidoka principle of ongoing quality assurance during every stage of production. As explained by Taiichi Ohne, one of the system's creators, the main goals in developing TPS were to increase productivity and reduce costs.

This production system is particularly notable in that it not only achieves lean → structures and processes, but it focuses on individual employees and challenges them to be constantly striving to improve work processes and product quality (Japanese: Kaizen). Many aspects of the system, such as its recognition of employees as a company's most important resources and its Kaizen principle, are also firmly rooted in Toyota's → corporate culture. Thus, TPS is an integral part of the company. “Toyota employees always talk as if the company would declare bankruptcy the next day. They are never satisfied with what they have done the day before,” explained

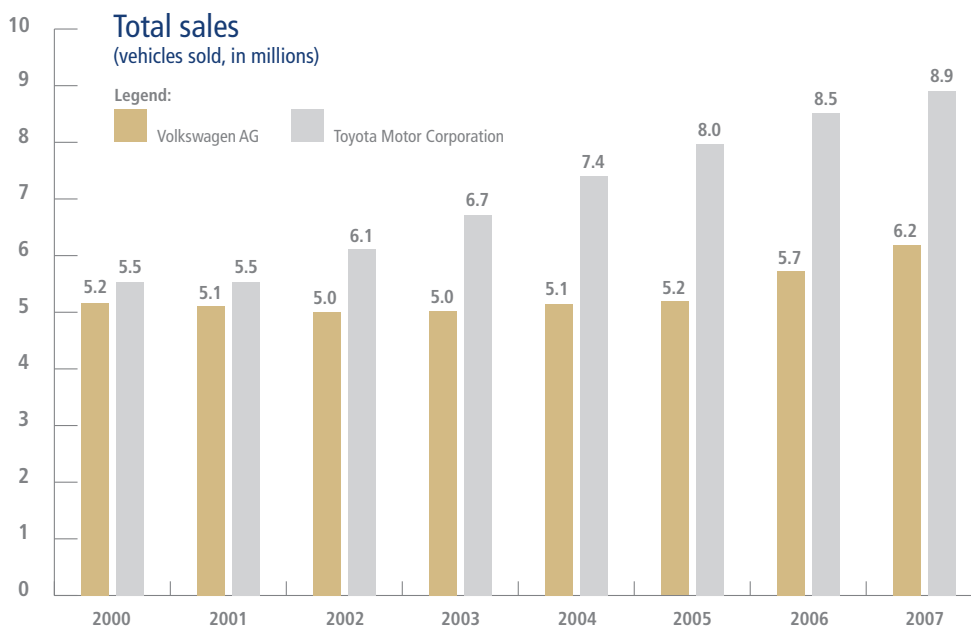


**Figure 2: Comparison of the most important performance figures and sales trends for Volkswagen and Toyota**

Volkswagen AG		Toyota Motor Corporation	
<b>Sales</b>	€ 108.9 billion	<b>Sales</b>	€ 153.7 billion
Foreign share	75.3 %	Foreign share	53.0 %
Pre-tax earnings	€ 6,543 million	Pre-tax earnings	€ 15,289 million
Pre-tax profit margin	5.6 %	Pre-tax profit margin	9.3 %
<b>Employees</b>	328,594	<b>Employees</b>	299,394
Foreign share	46.7 %	Foreign share	66.2 %
<b>Production (thousands of vehicles)</b>	6,213	<b>Production (thousands of vehicles)</b>	8,180
Foreign share	66.4 %	Foreign share	48.2 %
<b>Sales by brand (thousands of vehicles)</b>		<b>Sales by brand (thousands of vehicles)</b>	
VW	3,662.6	Toyota (incl. Scion)	7,005.1
Audi	964.2	Daihatsu	928.7
Škoda	630.0	Lexus	490.0
VW commercial vehicles	488.7	Hino	100.2
SEAT	431.0		
Bentley	10.0		
Lamborghini	2.4		
Bugati	0.1		
<b>Total sales (thousands of vehicles)</b>	6,189	<b>Total sales (thousands of vehicles)</b>	8,524
<b>Selected equity holdings (capital interest)</b>		<b>Selected equity holdings (capital interest)</b>	
_ MAN AG	(28.7 %)	_ Fuji Heavy Industries Ltd. (Subaru)	(16.5 %)
_ Scania AB	(37.7 %)	_ Isuzu Motors Ltd.	(5.7 %)

As of fiscal year 2007 or December 31, 2007.

As of fiscal year 2006/2007 or March 31, 2007.  
Exchange rate as of March 31, 2007.



Note: Toyota's fiscal year ends on March 31. In the interest of comparability, sales figures for one fiscal year were included with the preceding calendar year. Example: Data from fiscal year 2006/2007 are listed under 2006.

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Ron Harbour, founder of the productivity study The Harbour Report and partner in the Oliver Wyman consulting firm, as he discussed Toyota's corporate culture at the Capital Automobile Summit held in Berlin in September 2008.

Toyota's success is usually attributed to its efficiency in development and production, as well as to the high quality of its vehicles. Volkswagen often looks to its Japanese competitor as a model in terms of the time required for developing a new vehicle, the productivity of individual plants, sales figures, profit margins and customer satisfaction. There is no question that Volkswagen needs to improve if it is to catch up with Toyota in these areas. In focusing on these aspects, however, the fact is often overlooked that Toyota also represents a unique global value network that was created by distributing various → value activities throughout the world. Many of the → competitive advantages that the Japanese company enjoys today are the result not only of its leadership in production and management methods, which are often the subject of discussion among both theoreticians and practitioners, but also of the decentralized → configuration of its value activities.

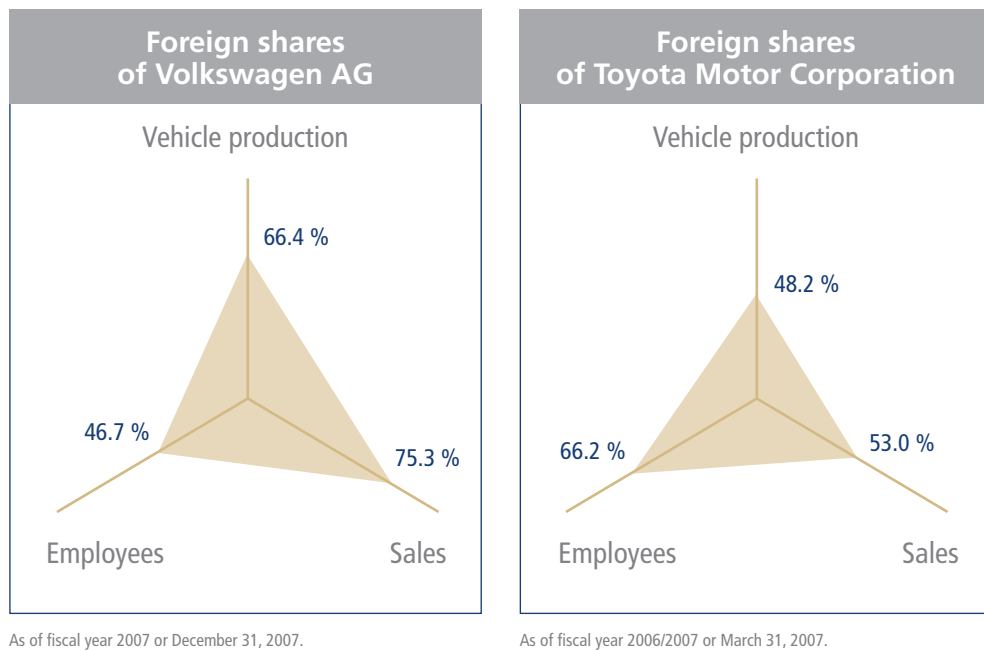
### Toyota's competitive advantages are also a result of the decentralized configuration of the company's global value chain.

Figure 3 shows a comparison of Volkswagen and Toyota with respect to the two companies' → foreign share of employees, sales and vehicles produced, which highlights differences in these companies' → value configurations. At Volkswagen, 46.7 percent of employees are foreign, as compared with 66.2 percent at Toyota. In contrast to Toyota, at Volkswagen most employees still work in the home country. This is particularly notable because Volkswagen acquired two foreign companies – Spain's SEAT in 1968 and the Škoda company from the former Czech and Slovak Federative Republic in 1991 – that still maintain a large portion of their value activities in their countries of origin. Toyota, on the other hand, acquired only Japanese companies, Daihatsu and Hino. The difference, then, is the

result of an organic expansion of the Japanese company into foreign countries, which was accompanied by a comparatively larger increase in its workforce outside Japan. As for sales, Volkswagen's foreign share is considerably higher than Toyota's: 75.3 percent relative to 53 percent. The situation is similar for the number of vehicles produced; Volkswagen's foreign production makes up 66.4 percent of the total, substantially higher than the corresponding figure for Toyota, which is only 48.2 percent.

While the major automobile manufacturers now regard the decentralization of their marketing and sales as self-evident and maintain sales subsidiaries (including associated sales offices) and dealer networks in all of their important international markets, it has not yet become common practice to decentralize the organization of the → value functions of production and R&D. In the battle for worldwide market shares, however, the decentralization of these value activities represents a key to success. With this in mind, we focus our further analysis on production (Chapter 2) and R&D (Chapter 3).

**Figure 3: Comparison of foreign share of employees, sales and production of Volkswagen and Toyota**



Source: The authors, based on Toyota (2007a), Volkswagen (2008a).

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## 2. The configuration of production activities within the Volkswagen Group

### 2.1 Highly decentralized production activities

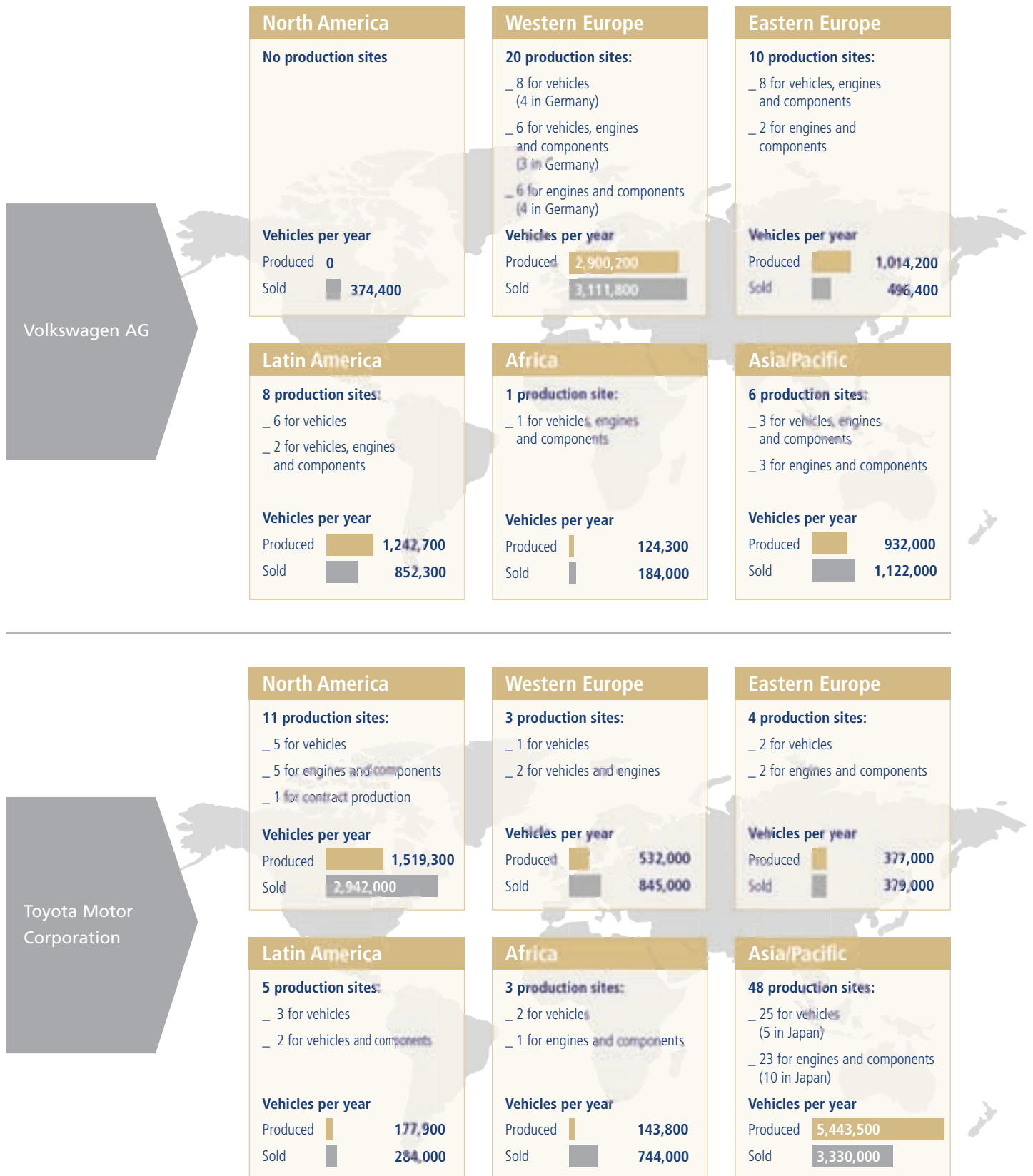
The Volkswagen Group has long been active in the international arena. The company's internationalization began in 1952 with the establishment of a sales company in Canada. The next year marked the beginning of vehicle sales in South America, as the company's subsidiary Volkswagen do Brasil was founded. Today Volkswagen distributes its vehicles in more than 150 countries and maintains 48 production facilities in 19 different countries. Not long after Volkswagen, Toyota Motor Corporation ventured abroad as well and founded its American subsidiary Toyota Motor Sales USA in 1957. A Brazilian sales company, Toyota do Brasil, followed in 1958. Today Toyota sells its vehicles in over 170 countries, and it has an even larger and more decentralized production network than Volkswagen, with 74 production sites in 27 countries. Figure 4 provides an international overview

of the current production of Volkswagen and Toyota relative to their international sales.

It is clear from comparing these two companies that their regional focuses are different because of differences in their respective home countries. Both Volkswagen and Toyota produce and sell most of their vehicles in their home regions. Unlike Toyota, Volkswagen does not maintain a plant in every region; it has no production facilities in the North American market (the United States and Canada). Furthermore, the number of Volkswagens sold in North America is relatively small. For Toyota, on the other hand, North America is a focus of its business efforts, along with the company's home region.

The decision to locate production abroad may be motivated by a variety of business

**Figure 4: The international production of Volkswagen and Toyota relative to international sales**



As of fiscal year 2006/2007 or March 31, 2007. Note: Eastern Europe includes all of the European nations from the former Eastern Bloc; Western Europe includes all of the remaining European countries. Mexico is included as part of Latin America.

Source: The authors, based on Toyota (2007a), Volkswagen (2008a, 2008c).

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considerations and location factors. In choosing their sites in Bratislava (Slovakia) and Kolin (Czech Republic), respectively, Volkswagen and Toyota have been able to take advantage of cost differences. These sites, in what can still be considered low-wage countries, produce vehicles for the entire European market. Decentralized sites can also be a way of getting around import restrictions. Both companies have Russian sites, for example, allowing them to avoid paying the 25 percent import duty levied in Russia on imports of finished vehicles. In Kaluga, Volkswagen assembles → SKD (semi knocked down) kits produced in Zwickau (VW Passat) and in the Czech city of Mladá Boleslav (Škoda Octavia); since December 2007 Toyota has been operating an assembly plant in St. Petersburg, where the Toyota Camry is assembled for the Russian market.

An analysis of the production configurations of Volkswagen and Toyota shows that there may be several different motivating factors for a → direct investment.<sup>1</sup> Plants in Russia, for example, also provide an opportunity to open up and supply the Russian market, since “Russia is likely to become the second largest sales market in Europe,” according to Frank Schwöpe, analyst for Nord LB (Schneider 2007c). This is why Volkswagen is planning to expand its SKD assembly plant in Kaluga into a facility for all aspects of the manufacturing process (including auto body construction) that can handle 115,000 units by 2009. For similar reasons, Volkswagen – like its Japanese competitor – has already established production sites in other growth markets such as Brazil, India and China. This has allowed Volkswagen to achieve a relatively high level of decentralization in its production activities.

## 2.2 Competitive disadvantages arising from a lack of production sites

For years Volkswagen has had difficulty in the American market. After a period of success in the 1970s, it has never really been able to regain a foothold in the United States. In 1978 Volkswagen opened an assembly plant in Westmoreland, Pennsylvania, which produced the Rabbit, the American version of the VW Golf, but only ten years later the company’s Board of Management decided to shut down that site. Its capacity was not being adequately utilized, which had led to financial losses. From then on the VW plant in Puebla, Mexico, supplied most of the VW Golfs and Jettas for the North American market; these were Volkswagen’s best-selling models in the region. Today the VW brand is still unable to attract a satisfactory number of customers in the United States, which has had an effect on the company’s overall earnings. According to expert estimates, the Group is posting annual losses in the hundreds of millions for all of its brands combined. And these numbers add up: “Since 2002, Volkswagen’s losses in the largest automobile market in the world have gone into the billions,” says Engelbert Wimmer, automotive expert for the PA Consulting Group (Schneider 2008a).

### Local production as a sales argument: Patriotic American customers often regard Toyota’s vehicles as American products.

In contrast, the American market has played a critical role in Toyota’s success. The Japanese company has achieved impressive sales results in the United States largely because of its production sites there. Toyota vehicles have been built in the US since the 1980s, when import restrictions were imposed on Japanese automobile manufacturers, and patriotic customers are often favorably disposed to these cars because they consider them to be American products. While Toyota is recognized as a Japanese brand, it is associated with local production, which is a strong sales argument in the United States. This is where Toyota laid the groundwork for its competitive edge in the world market: In fiscal year 2006/2007, the Japanese manufacturer sold more than 2.9 million vehicles in the United States and Canada – nearly 35 percent of its total sales – outperforming the Volkswagen Group by over 2.5 million vehicles sold.

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<sup>1</sup> An extensive discussion of motives for direct investment can be found in the case study of Audi on p. 104 of this publication.

Fluctuations in exchange rates are currently making it even more difficult for Volkswagen to → export vehicles to the United States. Because of the weak dollar, Volkswagen either has to charge higher prices for its vehicles, which are manufactured in Europe, than its American and Japanese competitors charge for the vehicles they produce in the United States, or the price of its vehicles is inadequate to cover manufacturing and transport costs. Because of the exchange rate, the company ends up taking a loss even on

the sale of such popular and high-status models as the VW Tiguan SUV. “Toyota is much more successful in the American market than we are,” says Detlef Wittig, head of marketing and sales for Volkswagen AG, in describing the current situation (Schneider 2008a). By establishing a plant in the United States, Volkswagen would earn points with American buyers, reduce the company’s vulnerability to fluctuating exchange rates and avoid transport costs, which would help close the gap to Toyota.

### 2.3 Opening up markets by establishing local production sites

In the year 2018, the Volkswagen Group hopes to sell 1.2 million vehicles (800,000 of them under the VW brand) in the United States, Canada and Mexico; in 2007 it sold only about 530,000 (230,000 VW vehicles). The idea was rejected that the company’s Mexican plant in the city of Puebla, which is located in the North American Free Trade region, might be used to achieve this growth. The Puebla plant was designed for a maximum of 500,000 vehicles, and in 2007 it was already producing roughly 410,000, including the VW New Beetle for the European market. Moreover, unless Volkswagen has a plant in the US it will not be able to produce enough vehicles for the American market without being affected by currency fluctuations. This would make it impossible to achieve the company’s goals for this market – and its global goals as well. If the Volkswagen Group is to reach its growth targets, it will have to have a production site in the United States.

Establishing an American plant would make vehicle sales in the US less vulnerable to changes in the exchange rate. At least the company’s American-made vehicles could be sold at competitive prices while also covering costs. Borrowing a term from investment banking, the industry refers to “natural hedging” when plants are established to prevent losses resulting from exchange rate fluctuations. However, this requires that as many production stages as possible are carried out at that plant, including such things as vehicle body construction and painting, producing a higher level of → local content. A plant that was devoted exclusively to

the assembly of SKD or → CKD kits produced outside of the United States would only slightly reduce the company’s dependence on the value of the dollar and decrease its foreign exchange losses only minimally. Ideally, even engines and gearbox components should be produced in the United States, according to Engelbert Wimmer, an automotive expert with the PA Consulting Group: “It is very difficult to launch a campaign in the United States while spending valuable euros on importing engines and parts” (Herz/Schneider 2008a).

In addition, it is crucial to increase localization in the area of procurement, by purchasing the systems, modules and components used at Volkswagen’s American plant from suppliers in the United States or at least paying for them in dollars. In the automotive industry, unlike the aircraft industry, it is not customary for international transactions to be carried out in American dollars. This means that the Volkswagen Group needs to establish contacts with suppliers in the United States or persuade companies from other countries to establish sites in the US as well. This is an area where VW can learn from the mistakes of its competitors: Although BMW has an American production site in Spartanburg, South Carolina, it is still very much affected by negative currency effects because its procurement has a localization rate of only 30 percent.

## Summary

If the Volkswagen Group is to achieve its ambitious growth targets, it is essential to establish a plant in the United States. Additional measures are necessary for that growth to be efficient and profitable:

- The plant needs to attain a high level of local content in its production; in other words, as many value-added steps as possible should be carried out on site.
- The plant's procurement needs to be highly localized, focusing on suppliers with production in the United States.

In the spring of 2008, Volkswagen's Board of Management officially decided to open a plant in the United States, with production scheduled to begin in 2010. The Supervisory Board approved the proposal in July 2008. Shortly thereafter, Volkswagen chose Chattanooga, Tennessee, as the location for the new plant. According to sources within the company, the selection process focused on cities in Michigan, Alabama and Tennessee, all of which offered the advantage of existing supplier networks. The Detroit, Michigan, region, for example, is the center of the American automotive industry and home to the headquarters of the "Big Three" American manufacturers: General Motors, Ford and Chrysler. Daimler's American plant is located in Tuscaloosa, Alabama. Nissan has its North American headquarters and two production sites in Tennessee. Factors favoring the southern states of Alabama and Tennessee, from Volkswagen's perspective, were relatively low wages and the comparatively insignificant role of the unions. The Volkswagen Group is planning to invest about 620 million euros in the new plant, which is expected to produce 150,000 vehicles per year in its initial phase.

Despite the economic downturn in the United States, the time seems right for a market offensive by the Volkswagen Group, since higher oil prices have made fuel efficiency an increasingly important consideration for American customers. This is a good opportunity for the Wolfsburg company to position its vehicles, which are

smaller and more fuel-efficient than those of its competitors, in the American market. Larger cars, particularly those produced by American companies, are becoming less and less attractive. Volkswagen will have an especially good chance of winning market shares currently held by American manufacturers, which are lagging behind in developing fuel-saving cars. But Toyota, too, is still selling large, gas-guzzling vehicles in the United States, such as the Sequoia and FJ Cruiser SUVs and its Tundra pickup truck. Along with a commitment to production in the US, this offers Volkswagen a good opportunity to make inroads into the American market. Accordingly, the expansion plans outlined by the Board of Management have gained the support of Bernd Osterloh, head of the Volkswagen Works Council and member of the Supervisory Board: "I firmly believe that VW can succeed in the US. [...] The problems in the American market [*Authors' note: Financial crisis, high oil prices, threat of recession*] can even be viewed as an opportunity for the VW Group and its fuel-efficient engines" (Schneider 2008b).

However, the advantages of decentralized production in the United States can only partially solve the problems Volkswagen is facing. All over the world, it still finds itself unable to meet the needs of its customers to their full satisfaction, and this has kept it from achieving higher sales in foreign markets. A solution to this problem will have to include, among other things, a change in the company's R&D configuration.



### 3. The configuration of R&D activities within the Volkswagen Group

#### 3.1 A concentration of R&D activities in the company's home region of Europe

A detailed analysis of the R&D configuration of the Volkswagen Group requires a differentiated look at its various activities. The literature distinguishes between research, which focuses on gaining new insights, and development, which puts those insights into practice in new products or processes. Research activities include basic and applied research; development activities can be divided into basic development, which involves new products or processes, and adaptive development, in which existing products or processes are modified. In practice, market observation activities are often integrated into the R&D organization; information about current market trends and technological developments is gathered and passed on to the research and development departments to aid in the decision-making process. Market observation units are also referred to as outposts. They are generally found in strategically important locations, such

as markets with sophisticated customers or the home markets of strong competitors.

The research carried out by the Volkswagen Group has always been largely centralized, with the corporate research division at the company's Wolfsburg headquarters providing support for all of the Volkswagen brands. The individual brands also maintain smaller research departments which together form a research network, with headquarters in Wolfsburg as its hub. In addition, the Electronic Research Lab (ERL) in Palo Alto, California, carries out research in the field of electronic systems and makes the results available to all of the corporate brands.

The R&D activities of the various brands concentrate mainly on development efforts. Each brand has its own development departments – VW in Wolfsburg, with a design branch in Potsdam;

Figure 5: Configuration of the Volkswagen Group's R&D activities



Source: The authors, based on "Volkswagen kämpft um chinesische Kunden" (2006), Volkswagen (2008f).

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Audi in Ingolstadt (the electronics center) and Neckarsulm (the lightweight vehicle construction center); Škoda in Mladá Boleslav, Czech Republic; and SEAT in Martorell, near Barcelona, Spain. The SVW Technical & Design Center in Shanghai, China, has been developing models for the Chinese market for several years. The Shanghai site, the technological center in Tokyo (VTT), Japan, and the Electronic Research Lab (ERL) in Palo Alto also serve as outposts and pass on information to the corporate research division in Wolfsburg.

Figure 5 shows the elements that make up the international R&D network of the Volkswagen Group. While Volkswagen has several international R&D sites, most of its activities in the core areas of research and development continue to take place in Germany or Europe. The bottom line, then, is that Volkswagen does not have a global R&D organization that is active in all of the world's important markets.

Toyota's research activities are even more centralized than those of the Volkswagen Group. The Japanese company's corporate research

division, at the Toyota Central Research & Development Laboratories, is located in Nagakute, Japan, near headquarters in Toyota City. Research is conducted in Nagakute for the entire Toyota Group, which is active not only in the automotive industry, but for example in the construction industry and in biotechnology as well. Also located in Japan are the Tokyo Technical Center, which conducts research on electronic systems, and the Higashi-Fuji Technical Center in Susono, which focuses on research and development in the areas of innovative vehicle concepts and drive technologies.

The Head Office Technical Center in Toyota City is the headquarters for vehicle development and design, and it joins together with five other international development units to form a worldwide development network. Toyota Motor Europe has two development divisions, located in Zaventem, Belgium, and Burnaston, Great Britain. American subsidiary Toyota Engineering & Manufacturing North America carries out development work at its headquarters in Ann Arbor, Michigan, and at three affiliated sites. Also active in development are Toyota's subsidiaries

**Figure 6: Configuration of Toyota's R&D activities**



Source: The authors, based on Toyota (2007a, 2007b, 2008d, 2008f).

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Asia Pacific Engineering & Manufacturing in Samutprakarn, Thailand, and the Toyota Technical Center Asia Pacific in Melbourne, Australia. Completing this global network are two development centers that specialize in vehicle design: The Toyota Europe Design Development Center (ED<sup>2</sup>) in Nice, France, and the subsidiary Caltex Design Research in Newport Beach, California, handle internal, external and color design. Most of these sites also serve as outposts. Figure 6 shows how R&D activities are configured at Toyota.

### A centralized configuration is preferable for research, in contrast to development.

A comparative analysis shows that both companies have largely centralized their research activities within their home regions – Volkswagen in Europe and Toyota in Japan. Centralization tends to be beneficial for research, since it makes it easier to discover new insights, a process that is not always smooth or certain. Advantages include achieving a critical mass and → size-related effects. Centralization also promotes → economies of scope, for example by permitting direct communication between employees. It is also helpful to have personal, face-to-face contacts when organizing and monitoring research activities. This speeds up research projects and makes it easier to secure knowledge and maintain confidentiality. Furthermore, the goal of group-wide research – which, by definition, encompasses all components of the company and all of the relevant subjects – can only be achieved by bringing together all of the various research activities under one umbrella. The logical conclusion is to carry out research at one location, often at or near the company's headquarters.

Affiliated decentralized sites, such as Volkswagen's Electronics Research Laboratory (ERL) in Silicon Valley, which is one of the world's most innovative research clusters, are a very useful supplement to the company's centralized research activities. Overall, therefore, there is no urgent need for a change in the Volkswagen Group's research configuration. It would only be

necessary to make changes if, for example, new innovation clusters were established elsewhere or problems arose that made it difficult to carry out research in Germany. However, that would only be the case if legal restrictions were placed on certain research activities or innovation were impossible because of a lack of sufficiently qualified personnel.

Toyota and Volkswagen have also chosen similar → configuration strategies in their market observation units, which are, of course, widely scattered geographically. Outposts must be decentralized in order to fulfill their mission of monitoring international markets. Both companies have outposts in the same regions, but Toyota's network is somewhat denser, which can be advantageous in identifying the needs of specific customer groups within a heterogeneous regional market.

In terms of development activities, however, there are marked differences between the two companies. With the exception of its relatively new development laboratory in China, Volkswagen's efforts are concentrated in Europe. Its Japanese competitor takes a quite different approach: Toyota has decentralized its development organization and established a number of sites around the world. For development, unlike research and market observation, neither centralization nor decentralization is clearly superior. Arguments can be made for centralizing development, similar to the reasons given for centralizing research, but decentralization has its advantages as well. The following section examines in detail the configuration of Volkswagen's development activities and the effects of that configuration on the company's competitive position.

It is clear from this comparison of value configurations that research, development and market observation, often lumped together under the heading of R&D, are configured in different ways. These activities therefore have to be treated separately in terms of value configuration.

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### 3.2 Inadequate decentralization of development as an impediment to growth

At its decentralized development sites, Toyota generally focuses on modifying its vehicles for local markets, an effort that is referred to as adaptive development. Its development sites around the world are generally responsible for a specific region. In addition, however, they may develop a new model from the ground up and thereby assume an international mandate.<sup>2</sup> When the Toyota Corolla was developed, for example, the European design center in Nice was in charge of the entire development process, and not only the European version.

Volkswagen's concentration of its development activities in Europe deprives it of certain potential advantages for its international competitive position. Decentralized development means having access to local information networks. It is also a way of counteracting → not-invented-here syndrome and producing a → country-of-origin effect.<sup>3</sup> Finally, it facilitates coordination with other value functions, and particularly with production sites in different locations.

Most important, however, is this: Because its development divisions are limited to a certain geographic area, Volkswagen is less able to produce region-specific vehicles to accommodate the preferences and needs of its customers in different countries. Local developers are better able to design cars for local customers, since they are more familiar with the → culture and living conditions in that region. Decentralized development departments and local developers increase a company's → responsiveness to a given market, leading in turn to higher sales. Particularly in the top tier of the high-volume segment of the VW and Toyota brands, a lack of sensitivity to local customer preferences is a serious disadvantage. Their vehicles compete for customers based not only on price, but also on vehicle features and design. This segment of the market has begun to combine Porter's traditional → cost leadership strategy with a →

differentiation strategy, which results in a so-called → outpacing strategy.

**Too often, Volkswagen – whose corporate culture is still strongly tied to the home country – applies German standards when developing its vehicles.**

Volkswagen's difficulties in foreign markets are due in part to the company's failure to decentralize its development activities. Its corporate culture is strongly tied to Germany, and too often it applies German standards when developing its vehicles. This, along with a lack of local production sites, is another reason why it has not been more successful in the United States. Volkswagen has not paid enough attention to the fact that the United States has a different kind of car culture: "There is no question that VW has failed to understand what American customers want," says Catherine Madden, analyst with the market research firm Global Insight (Eberle/Schneider 2007). That failure is also reflected in Volkswagen's tiny market share: only 2.1 percent.

VW dealers in the United States have already voiced their dissatisfaction with the vehicles that are available, and they are pushing for cars that are specifically designed for the American market. It will not be until 2010 and 2011, however, that VW will introduce the successors to the current VW Jetta and VW Passat, which will be the first models designed specifically with the preferences of American customers in mind – although they, too, are being developed in Wolfsburg. Up to now, the company has Americanized its vehicles only slightly, for example by offering different engines or equipment packages. Since no other new designs are on the horizon, this kind of halfhearted attempt to accommodate the wishes of American customers will continue to be the rule rather than the exception.

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<sup>2</sup> For a detailed discussion of the mandates of R&D units, see Ambos (2002: 45-75).

<sup>3</sup> For a detailed discussion of the advantages of decentralization, see Schmid (2000: 5f.) and Kutschker/Schmid (2008: 1002f.).

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**Companies will only be successful globally if they adapt their products to the needs of the respective markets.**

The consequences of a centralized and culturally provincial approach to development are also evident in the → emerging markets. The cars produced by the Volkswagen Group have often been too sophisticated and too expensive for those markets. To cite one example, headquarters in Wolfsburg decided that vehicles intended for the Indian market should be equipped with a twelve-year anti-corrosion finish – ignoring the fact that corrosion protection is not the main concern of Indian customers, who are just beginning to become more mobile and are looking for an affordable vehicle. Such decisions make Volkswagen's cars unnecessarily expensive, putting them out of reach for many Indians. This is a problem that the company's suppliers have encountered before. The chairman of Volkswagen's Board of Management, Martin Winterkorn, recently expressed his puzzlement over the fact that the Tata Nano, the world's cheapest car, contains so much apparently expensive Bosch technology. Bosch chairman Franz Fehrenbach pointed out in response that Bosch is quite able

to provide simple components at reasonable prices. But the high standards of the Volkswagen Group have always prevented it from making use of cheaper options. In other words: German enthusiasm for technology often misses the mark in the emerging markets.

The Volkswagen Group maintains market observation units in today's key markets – the United States, China and Japan – and appears to be well positioned at the moment. Volkswagen's failure to address the needs of American consumers cannot be attributed to the fact that it has fewer outposts (Toyota does indeed have more sites devoted to market observation in the United States) or that those outposts provide inadequate information, although that might theoretically be possible. Rather, the information gathered by its outposts is not used appropriately, not least because of different cultural standards. Volkswagen needs to make changes not in the configuration of its market observation, but in how it deals with processes and cultural aspects within the corporate network. Given its ambitious growth targets, however, the Volkswagen Group would be wise to consider proactively establishing outposts in other promising markets over the medium term.

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### 3.3 Decentralizing development for greater market success

In order to achieve the sales growth envisaged in Strategy 2018, Volkswagen will have to win new customers worldwide. This cannot be accomplished without increased efforts to adapt its vehicles to specific regions and countries. Since this requires a better understanding of local customer needs, Volkswagen will need to undertake further decentralization of its development activities.

#### A decentralized development network and local developers are among the keys to global success.

Toyota provides a model for how a decentralized development strategy works: It adjusts the appearance of its vehicles and its sales strategy to the region or country in question. Key to this effort are a decentralized development network and local developers, which make the company more sensitive to local customer preferences and allow for the development of models that meet local needs. Toyota's first successes with this approach came in the late 1980s, when its luxury brand Lexus, which was targeted specifically to the American market, quickly gained a large share of the premium market.

One of the lessons for Volkswagen is that its new production site in the United States should immediately be entrusted with the task of designing models tailored to the American market. Unfortunately, this plant will not commence operations until at least 2010. Until then the Puebla plant, which is to manufacture the new VW Jetta for the United States, should be used as an intermediate station for vehicle development so that US-specific models can be made available as quickly as possible. Engineers from Mexico are currently undergoing training in Wolfsburg, and this may represent an initial step toward locating development activities in the vicinity of the American market.

Toyota's vehicles, ultimately tailored to different regions, are manufactured on a shared platform that is appropriate for all of Toyota's markets. The company's → standardization/adaptation strategy is based not solely on the standardization of its vehicles, nor on adaptation, but on a combination of both approaches. This allows Toyota to adapt its vehicles to local customer preferences while also producing large numbers of its basic modules, which lowers unit costs.<sup>4</sup> The Japanese manufacturer calls this principle "Global best, local best."

#### By combining a standardized platform with regional or country-specific adaptations, companies can accommodate local customer preferences while also lowering unit costs.

This principle, developed in the 1990s, is applied to all three core global models manufactured by the Toyota Group – the Corolla, the Camry and the Yaris – as well as to the IMV (International Multipurpose Vehicles) series of light commercial vehicles. All of them, and their regional versions, are developed within the company's global network. The success of the Toyota Corolla, the world's best-selling vehicle, was made possible by the use of this principle. Since 1997 the Corolla has been built on a platform that is standardized worldwide, with three different versions for customers in the three target markets: the United States, Japan and Europe. "We combined everything that is good from the United States, Japan and Europe. And we eliminated everything that is bad," said Fujio Cho, chairman of Toyota, in describing how the "Global best, local best" approach was applied to the development of the Toyota Corolla (Grauel et al. 2003: 68).

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<sup>4</sup> For a more extensive discussion of standardization strategies, see Kutschker/Schmid (2008: 1007-1012).

**Figure 7: Toyota’s “Global best, local best” principle**

<p><b>The “Global best, local best” principle</b></p> <p>“Global best, local best – these commitments rule the development of Toyota’s mainstay global models. By “global best” we mean building cars with common value worldwide while pursuing the world’s highest levels of quality and performance. The global best concept is fundamental to the Toyota mind-set. We want</p>	<p>to give superior quality and outstanding cost performance to customers buying Toyota vehicles throughout the world. On the other hand, “local best” expresses a commitment to accurately reflecting the needs and values of customers in different regions. Toyota enhances the value of its core global models by marrying its commitments to being global best and local best.”</p>
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Source: Toyota (2006: 18).

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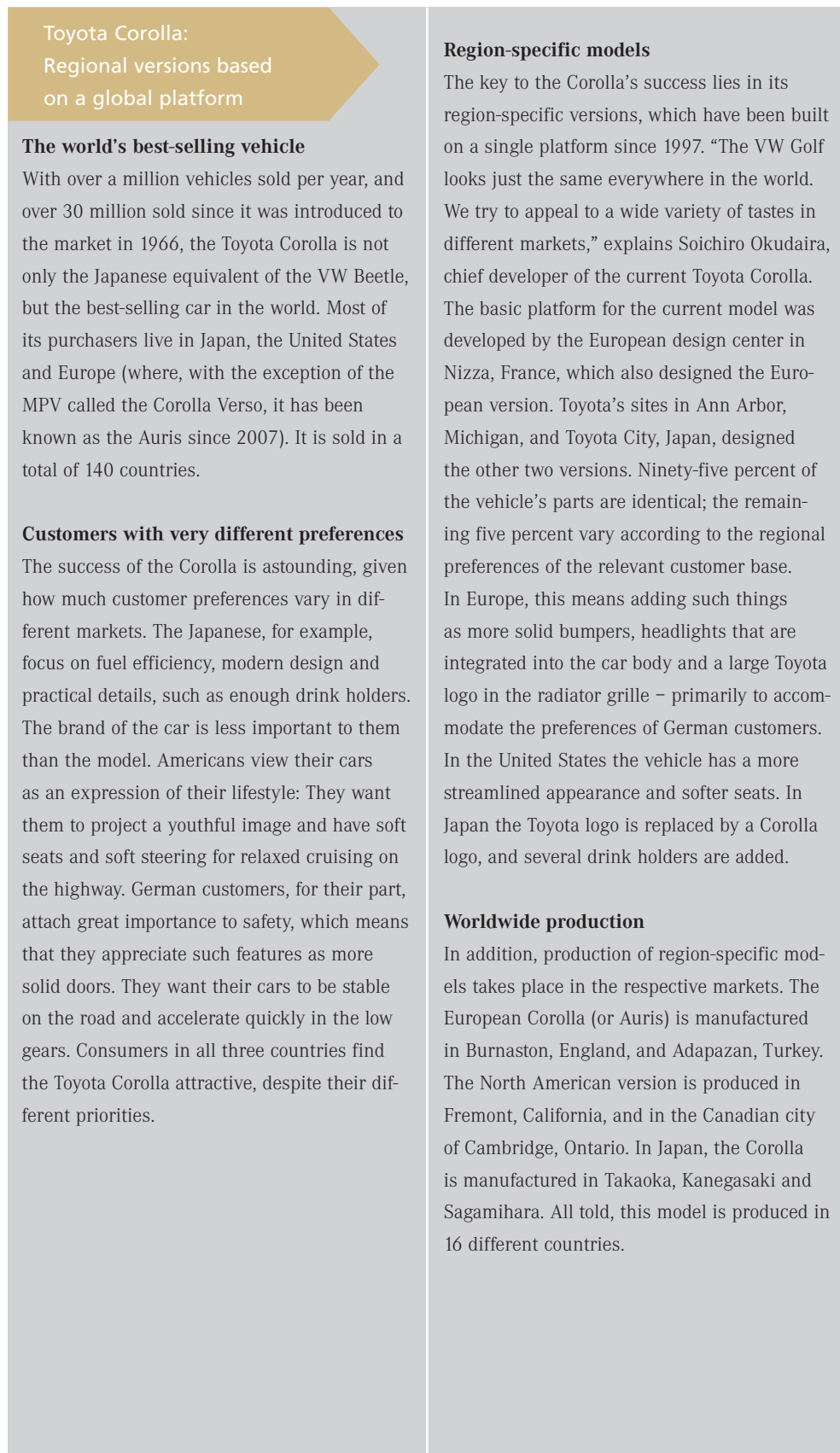
The development process is generally managed by the development center located at Japanese headquarters. Kenichiro Fuse, chief developer at the Head Office Technical Center in Toyota, and his Japanese team handled the basic development of the newest generation of the Toyota Camry. Fuse was also in charge of coordinating three other regional development teams: one in the United States, one in Thailand, China and Taiwan, and one in Australia. Each of these teams designed the version for its respective region. In accordance with Toyota’s philosophy, vehicle production also takes place in those regions. The Toyota Camry is now produced throughout the world, in eight different plants (one each in Japan, Taiwan, China, Thailand, Australia and Russia, as well as in two plants in the United States) serving the surrounding markets.

Toyota’s organizational structure reflects this regional orientation. Regional organizations take on certain responsibilities in the areas of development, production and sales. Both of these aspects – regional organizations and regional adaptations – are an essential part of Toyota’s internationalization efforts, which seek to achieve “glocalization,” or adaptation worldwide to local conditions. “We intend to continue

moving forward with globalization... by further enhancing the localization and independence of our operations in each region,” explains Fujio Cho, Chairman of Toyota (Ghemawat 2007: 139).

A similar strategy would allow Volkswagen to solve the problem of a lack of regional adaptation, promoting sales growth while also reducing the cost of the basic module by producing larger quantities. Both of these effects would be highly welcome under Strategy 2018. As a link to the local markets, the foreign development sites would automatically carry out market observation as well. This is true of Toyota’s development network, in which the foreign sites assume this dual function (again, see Figure 6, p. 41). At the same time, such outposts could be a first step toward decentralizing development activities and creating a global development organization. The establishment of outposts in emerging markets such as Brazil, India or Russia, discussed above, would be helpful. It would provide Volkswagen with a competitive advantage over Toyota, which does not yet have outposts or development units in these markets, and allow Volkswagen to stage a preventive attack as it seeks to make inroads into Toyota’s established market position in the United States.

**Figure 8: Regional adaptation of the Toyota Corolla**



Source: The authors, based on Grauel et al. (2003), Zielke (2003), The Associated Press (2007), "Toyota Unit Signs Contract to Build Plant near Sendai" (2008g), Toyota (2008g, 2008h).

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### 3.4 Decentralized decision-making responsibilities as a prerequisite for successful local development

As a company decentralizes its development activities, it should not lose sight of the fact that decision-making responsibilities need to be decentralized as well. This is clear from a case that occurred a number of years ago: Volkswagen had long shown no interest in modifying its vehicles to appeal to the market in China. Several years ago, Chinese developers from SAIC (Shanghai Automotive Industry Corporation) suggested that Chinese customers would prefer a modification of the tail lights of the VW Polo. Headquarters in Wolfsburg responded by simply rejecting this idea. If all decisions affecting vehicle development continue to be made in Wolfsburg, the benefits of decentralized development may well be entirely lost.

The experiences of Volkswagen's American competitors are a cautionary tale as well. General Motors and Ford, whose value activities have long been decentralized, decided in the 1990s to limit most of their strategic decision making to the United States. They have since reversed course, having realized that centralization had been a major factor in their vehicles' failure to appeal to the European market. Both manufacturers subsequently "re-decentralized" their decision-making structures, giving more authority to their European → subsidiaries. It holds true for Volkswagen, as well as for all other high-volume manufacturers: Companies must do more than merely establish development facilities at foreign sites; they must also equip such units with the necessary decision-making powers. Local developers cannot take advantage of their knowledge of the local market if they have no input into design decisions. Although Toyota's management continues to be relatively centralized, the Japanese company has transferred certain decision-making responsibilities to its decentralized development units; this is crucial for the principle of "Global best, local best" to function.

Volkswagen's subsidiary in China is now recognized as an example of the successful decentralization of a company's development activities and decision-making responsibilities.

**In order to take advantage of local expertise, companies need to equip local personnel with the necessary decision-making powers.**

After dramatic declines in Volkswagen sales in China at the beginning of this century, because its vehicles were not tailored to the Chinese market, the company's Chinese subsidiary was given the authority to design models to appeal to Chinese customers. Up to that point its activities were limited to the modification of existing models, and indeed – as mentioned above – it had sometimes been thwarted in that effort by headquarters in Wolfsburg. The subsidiary's two new models are scheduled to go on the market before the end of 2008; one of them is the VW Lavalda, long known as "Model Y." Volkswagen's vehicles are finally being adapted to suit the preferences of Chinese customers.

In view of the progress that has been made, the plans of Volkswagen's development head, Ulrich Hackenberg, to develop a Chinese version of the VW Polo in Wolfsburg would be a step backward. Chinese sales personnel are already concerned that such a vehicle might not be suited to the market, as has often been true in the past. "Chinese designers are better able to design cars for Chinese people," explains Stefan Fritschi, head of the development center in Shanghai, the site of Volkswagen's Chinese subsidiary ("Volkswagen kämpft um chinesische Kunden" 2006). That is precisely why local designers need the authority to make decisions that concern their designs – for example about a vehicle's tail lights. Figure 9 summarizes suggested measures for decentralizing development activities and decision-making responsibilities by presenting a comparison of Volkswagen and Toyota.



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Winfried Vahland, president and CEO of Volkswagen Group China, who built up the development center in Shanghai, intends to expand the site's responsibilities still further. He is also considering the possibility of developing vehicles for the American market in China, since customer preferences in the two countries are relatively similar. Status and comfort are important criteria for Chinese car buyers as well as for Americans; both groups prefer large, luxurious sedans but attach less importance to the newest technologies and safety than German customers, for example. Chinese engineers are already working in Wolfsburg on a version of the VW Passat for the American market. This could be an initial step in establishing the Shanghai development center as a → center of excellence within the Volkswagen Group. A center of excellence specializes in certain activities, products or processes, based on specific expertise, and assumes responsibility for them throughout the company. Decentralizing development activities not only makes it possible to generate local knowledge and apply that knowledge to the vehicles produced on site; it also provides an opportunity to make such knowledge more widely available for practical use within the entire organization. Centers of excellence are essential for the best possible reconfiguration of development activities.

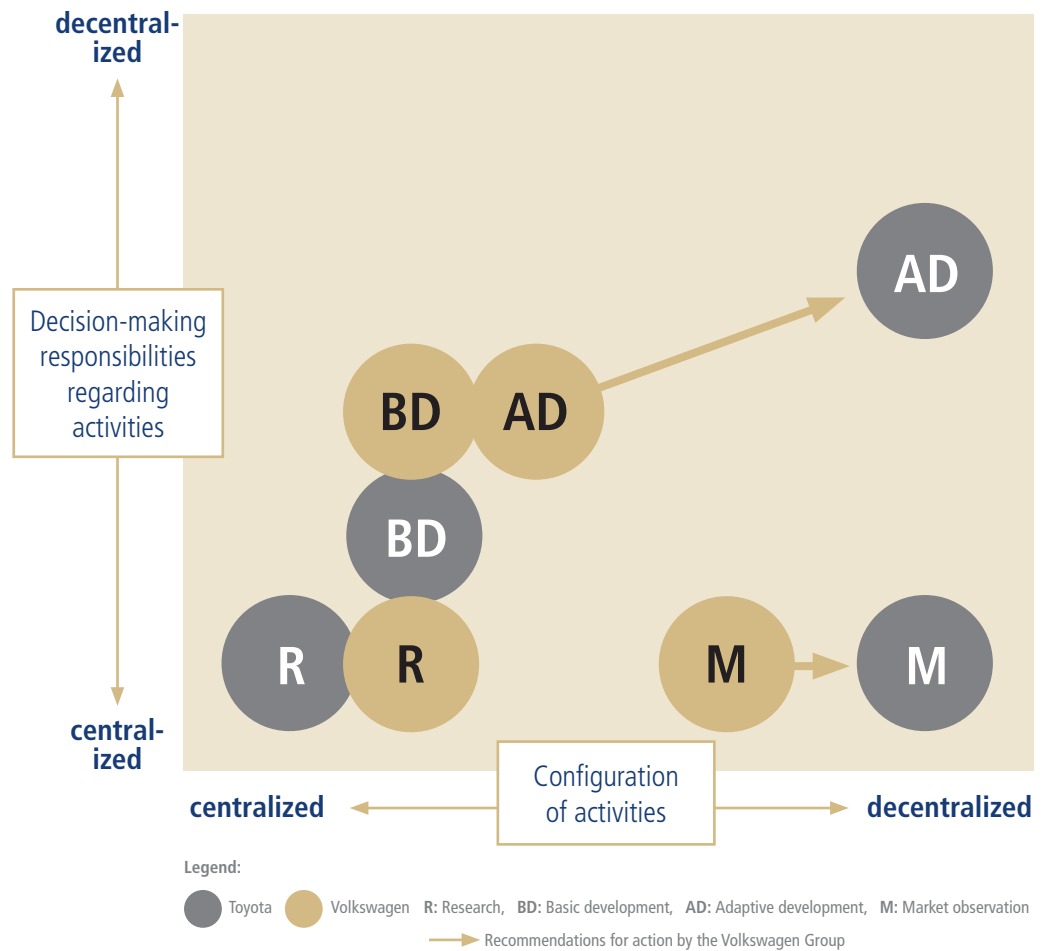
### Summary

In order to achieve worldwide success, a high-volume manufacturer like the Volkswagen Group needs to adapt its vehicle models to the preferences of customers in local markets. This can be accomplished by means of

- the decentralization of selected development activities, aimed at adapting vehicles to the needs of customers in a specific region or country,
- region- or country-specific model adaptations that use identical platforms worldwide, which produces scale effects,

- granting decentralized development units the necessary decision-making authority to put their local expertise into practice,
- the installation of outposts in other growth markets to promote the company's local responsiveness, and
- the establishment of centers of excellence, which take on certain management responsibilities and make local knowledge available to other units of the company.

Figure 9: Options for reconfiguring R&D activities within the Volkswagen Group



Note: Market observation units have no decision-making authority, since they are upstream from decisions in the area of development. They are normally steered by R&D headquarters, which is why market observation units are shown here with centralized decision-making responsibilities.

Source: The authors, based on interviews with experts.

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## 4. The consequences of decentralizing value activities

The observation by Michael Freitag, editor of the *manager magazin* periodical, still holds true: “The [Volkswagen] Group lacks a coherent global concept” (Freitag 2007: 20). The structures are still missing that would allow Volkswagen to benefit from a worldwide distribution and network of value activities, in order to achieve the goals of Strategy 2018. Toyota has shown how a decentralized configuration of both production and development can lead to competitive advantages.

### A decentralization of value activities and decision-making responsibilities also requires changes in the company's management structures.

As our analyses have demonstrated, the decision by the Volkswagen Group to open a plant in the United States is a welcome step toward gaining a foothold in the world's largest automobile market. But more local content in production and greater localization in procurement are also important if the company is to be less vulnerable to fluctuating exchange rates. As for the configuration of R&D activities, it will be crucial to decentralize adaptive development. This makes it possible to develop region- or country-specific models, using globally identical platforms. However, all of these measures are interconnected: If efforts to adapt to local markets are unsuccessful, sales will not increase – and expanded production capacities will not be fully utilized. Excess capacity, in turn, makes it impossible to achieve target yields – and this would spell the failure of Strategy 2018.

The decentralization of decision-making responsibilities also requires changes in the company's management structures. Decentralized units should be given greater responsibility, which means modifying the current system of concentrating decision-making authority at headquarters in Wolfsburg. As decision making is decentralized, it follows that foreign executives, with their own unique cultural backgrounds, should be given more central roles in the company. So

far the Volkswagen Group has a relatively low level of internationalization, for example in its Board of Management and Supervisory Board, compared with other DAX30 companies.

Toyota's corporate culture is well suited to the company's international activities and serves as a model for other globally active enterprises. Respect for all of its stakeholders – also, and especially, in host countries – is an integral part of Toyota's culture. This respect is the foundation of its focus on the customer and its efforts to adapt its vehicles to local preferences. It is also reflected in a sense of social responsibility. One of Toyota's stated goals is to promote higher rates of vehicle ownership in the emerging markets. “Toyota sees itself as a global company that wants to gain the respect and trust of people everywhere in the world,” notes Sonja Sackmann, professor of industrial and organizational psychology and expert on the corporate culture of the Japanese automobile manufacturer (Sackmann 2005: 21). This effort to be responsive is rooted in Japanese culture; indeed, Toyota's corporate culture can still be described as “fundamentally Japanese,” “Japan-based” and “centralistic.”

### In order to achieve global success over the long term, a company must gain the confidence of stakeholders all over the world.

Because they involve management structures and corporate culture, the present study's recommendations for decentralizing value activities, derived from the example of the Volkswagen Group, cannot be put into effect quickly. Leadership structures, which also have consequences for management style, and corporate culture cannot be transformed overnight. The path leading to 2018 will not be easy for the Volkswagen Group, and whether or not it will achieve its ambitious goals will depend on its dedication to that effort. Toyota is currently experiencing declining sales and profits, but Volkswagen, too, will be affected by a decrease in demand in a weakening global economy. “The

momentum is right, but Volkswagen has a long, long way to go to get where they need to be,” says Adam Jones, analyst for Morgan Stanley, seeking to lower expectations (Edmondson 2007). Falk Frey, automobile analyst for the rating agency Moody’s, also doubts that Volkswagen will be able to catch up with Toyota: “Toyota is not standing still; the company is continuing with its growth strategy” (Herz/Schneider 2008a). Toyota’s President Katsuaki Watanabe has already announced that the Japanese manufacturer will make further efforts to tailor its vehicles to regional markets so that customers everywhere will have a complete range of specifically adapted Toyota models to choose from. This would again put Toyota a step ahead of the Volkswagen Group.

Does this mean that Volkswagen should stop viewing Toyota as its model, because the goal is too ambitious? The answer is no. The most important thing is not for Volkswagen to overtake Toyota as the market and profitability leader; instead, identifying Toyota as the standard to live up to is a way of motivating the Volkswagen organization and its stakeholders, modernizing management structures and adapting the corporate culture to meet global challenges. This lays the groundwork for a solid competitive position going forward. It should also be noted that Toyota’s dominance is becoming

less overwhelming. “As other manufacturers copy Toyota, its methods and systems lose their unique superiority. Its success in the past has been due less to Toyota’s exceptional performance and more to the fact that its competitors have performed poorly,” explains Ralf Kalmbach, an automotive expert at the consulting firm Roland Berger (see also the interview with Ralf Kalmbach following this case study).

The recommendations we have developed based on the example of the Volkswagen Group can easily be applied to other companies. In general, they are helpful if a company needs to standardize its activities while also differentiating its products or processes. Glocalization, or increasing localization within the framework of globalization, will continue to be an important phenomenon. Companies cannot assume that everything is globally the same in a so-called global world. ■

#### Summary

The decentralization of production and development activities requires departing from a centralized management structure and cautiously changing a company’s corporate culture.

In the interest of readability we have reduced the number of references contained in this version of the study. A complete list of references is found in the bibliography. A German version of the study can be obtained in printed form as an academic working paper by

contacting the office of the authors (renate.ramlau@escp-eap.de); it may also be downloaded from the website of the Chair of International Management und Strategic Management at ESCP-EAP European School of Management Berlin ([www.escp-eap.de/imsm](http://www.escp-eap.de/imsm)).



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# Speaking with Ralf Kalmbach

Partner and Head of Automotive at Roland Berger  
Strategy Consultants

**“The coordination of international value activities is a crucial factor in achieving success.”**

**Mr. Kalmbach, as more and more value activities are being carried out at different locations around the world, it is becoming increasingly important to coordinate and manage them. Based on your experience as a consultant, are there differences in how automobile manufacturers coordinate their widespread value activities?**

The Japanese manufacturer Toyota is an excellent example when it comes to the coordination of value activities worldwide. Toyota has production sites all over the world, often manufacturing models targeted to specific regions. Such aspects as component production, however, are controlled by headquarters in Toyota City. The central office determines how the company's various production activities are to be distributed worldwide – where plants are to be located and where certain components will be produced – and undertakes the necessary coordination. The South Korean manufacturer Hyundai takes a similar approach.

Other manufacturers do not centralize control of value activities to the same degree. General Motors (GM), for example, does not harmonize its value activities in the United States with those in Asia or Europe to any appreciable extent. There is little coordination between its regional subsidiaries. In other words, Toyota and Hyundai control their international production networks much more stringently than GM does, and they do a better job of coordinating their various locations and activities with one another.

Volkswagen has begun to take an approach to the coordination of its international value network that is similar to Toyota's. However, it will take some time before Volkswagen achieves the kind of management structure found today at Toyota. Among high-volume manufacturers, Toyota and Hyundai are leaders in coordinating their overall value networks. Premium manufacturers as well show an impressive degree of coordination, but this is generally due to the fact that their production activities are much more centralized geographically.

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The geographical distribution of value creation is a central topic in discussions of the demands globalization places on companies. Another crucial factor, however, is how value activities are managed worldwide, and in practice this issue is all too frequently neglected.

#### **How do manufacturers coordinate and control their activities?**

An important aspect of global management is to introduce production systems worldwide, so that it is not necessary for every plant to reinvent them. Again, Toyota provides a model: If you visit one of its plants today, anywhere in the world, you will find the same processes – wherever you happen to be, and whatever models are being manufactured at that location. General Motors and Volkswagen have a long way to go to reach the same level of standardization. The processes that are in place in a VW plant in Brazil are quite different from what you will find in China or at Volkswagen's main production facility in Wolfsburg. Both General Motors and Volkswagen will have to make substantial changes in order to catch up with Toyota in terms of company-wide coordination. They will need to make great strides in standardizing their production systems and the relevant technologies.

Uniform structures are crucial for global coordination, and this requires, among other things, identical management principles worldwide.

Every Toyota plant uses approximately 20 key performance indicators (KPI), and they are the same whether the plant is located in Toyota City or elsewhere. Thus a Toyota manager who moves from one plant to another will immediately be able to get his bearings. In contrast, if you are transferred from VW's main production facility in Wolfsburg to a plant in Brazil, it will take you three months – assuming you are a quick learner – to begin to understand how the plant functions. It is hard enough for an automobile manufacturer to adjust to country-specific conditions; it is important not to allow differences between plants to complicate matters further. Toyota is very aware of this – and it is good at solving the problem.

**A distinction is often made between structural, technocratic and person-oriented coordination. In your opinion, how much importance do automobile manufacturers attach to a person-oriented type of coordination, which takes into account the human factor?**

It varies a great deal. Again, I see the Japanese manufacturer Toyota as the leader in this area. Toyota understands the potential of each human being and makes sure to develop that potential

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to the fullest. Every Toyota plant has a permanent training center for all personnel levels. Each employee is required to participate in a training session every two weeks to familiarize himself with the company's newest procedures, methods and processes. Toyota attaches an enormous amount of importance to training. Western manufacturers, in contrast, often fail to provide systematic training for their employees.

Furthermore, Toyota is a model in showing respect for its workforce. Assume, for example, that an employee has discovered a problem and stopped the assembly line. In our Western culture, someone who took such a step would be treated harshly. But Toyota's response is to recognize that the employee was paying attention and believed that an error had occurred; he was doing his job. At that point, whether or not an error has actually occurred is not important. This attitude of respect for human beings and their potential is exceptional. In Western countries, employees are regarded primarily as productivity factors: They are assigned to a job, given information and told the rules.

Japanese culture also plays a significant role in such contexts, and it has a favorable effect on the issues discussed above. People are viewed

differently at Toyota than in Western industrial culture, and that has a critical effect on all aspects of corporate management.

**You describe Toyota as a model in its approach to coordination. What tools for person-oriented coordination does it emphasize most strongly?**

Toyota attaches a great deal of importance to employee exchanges. Employees are transferred regularly, which allows them to become acquainted with different departments on an ongoing basis and helps them develop a holistic view of the company. I think this is a sensible approach, and one that Western manufacturers fail to practice consistently.

Furthermore, Toyota does a good job of culturally integrating its employees in its plants all over the world. The company has exported its corporate culture, originally Japanese in nature, to all of its plants and adapted it to suit local conditions. Essentially, therefore, that culture is the same at every site. Workers and supervisors speak a common cultural language wherever they happen to be, and they see themselves as part of an international community.

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**What approaches do automobile manufacturers take to the issue of structural coordination? How do company headquarters show leadership in managing value activities that are widely dispersed?**

Manufacturers take different approaches, particularly in managing their regional companies. Take, for example, General Motors Europe, GM's European subsidiary. The primary means by which its American parent company exerts control is through the budget. The parent company does not influence what the subsidiary does with the money it receives – the technologies it chooses to develop or the components it purchases. GM Europe can act more or less autonomously.

Toyota takes a different approach. Its regional subsidiaries also have a certain degree of autonomy, for example in designing products for local markets or structuring distribution channels. But basic issues, such as where a certain model is to be built, which components are to be used or how the production process is to be carried out, are decided by headquarters in Japan. Providing leadership for the company's subsidiaries does not mean drawing up their budgets, but making decisions about concrete activities and processes. For instance, approval is required from headquarters in Japan if a subsidiary



Ralf Kalmbach – Partner and Head of Automotive at Roland Berger Strategy Consultants



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wants to use a different air conditioning module for a vehicle in Europe. The discussions and documentation this entails are extensive and time-consuming; it is not only a matter of determining whether such a change makes sense in Europe, but also whether it would represent an improvement for the company as a whole, and should be considered in Japan as well.

**Based on your experience, why does Toyota take this approach? Why does it put so much effort into coordination?**

Toyota realizes that something like a different air conditioning module means an increase in complexity and therefore involves a critical decision, affecting aspects such as costs. At GM Europe, on the other hand, people simply decide to do things – and eventually every subsidiary finds itself doing one thing differently, then another and another. But these concerns are not GM's focus; instead, it is looking at the financial numbers. Toyota's financial numbers, in contrast, tend to follow from the company's conviction that things must be done properly from the ground up. The main difference, therefore, lies in the degree to which a manufacturer pays attention to the details of its subsidiaries' activities and processes – in other words, whether its leadership is a matter of substance or finances.

**You have described Toyota as a model of organization and coordination, while others have concluded that it is the standard of excellence in other areas as well. Does this mean that Toyota as a whole represents the model for success in the automotive industry?**

We need to put these things in perspective. Toyota's model has been very successful in the past. But as competitors copy Toyota's system and achieve similar effects, for example in quality management, its inherent superiority is declining. When Volkswagen opens a plant in the United States and develops products intended specifically for the American market, as other manufacturers are doing as well, then Toyota's advantages are fewer than in the past. Looking back, it is clear that Toyota's performance has been extremely impressive, particularly when compared with an American automobile industry that has been asleep, and has failed to recognize the writing on the wall. But the more its competitors wake up and adopt its system, the more Toyota's advantage declines.

At the same time, it is important to keep in mind that Toyota's entire method of operation is based on a different cultural understanding. Culture has played a significant role in the



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company's success, and that is something that is not so easy to copy. Twenty years ago, German manufacturers were already sending plane after plane filled with executives who wanted to take a look at Toyota's production system. Aside from production methods, however, nothing has fundamentally changed since that time. Toyota's success is also rooted in its corporate culture. Toyota believes that every small improvement will ultimately have a major effect; and it is remarkably consistent and steadfast in acting accordingly. This applies not only to the company itself, but also to its dealings with suppliers, who are closely integrated into Toyota's systems and enjoy open cooperation and mutual trust. Western manufacturers still have a lot to learn from Toyota in this respect. My prognosis, therefore, is this: Toyota will lose some of its predominance, but it will continue to be one of the best manufacturers in the world. ■

## Ralf Kalmbach

Ralf Kalmbach is a partner with Roland Berger Strategy Consultants and head of the Global Automotive Competence Center.

Before joining Roland Berger in 2004, he served as a managing director and senior partner at Mercer Management Consulting, based in the firm's Munich office.

He was responsible for Mercer's automotive consulting activities and head of Mercer's Global Automotive Team.

With more than 20 years in consulting and two years at an automotive OEM, Mr. Kalmbach has extensive experience in the automotive industry.

Mr. Kalmbach has advised major European, U.S., and Asian corporations on various aspects of their strategy and operations in response to major challenges such as globalization and customer-driven value shifts. He is focused on helping companies to develop and implement value-driven strategies and innovative business designs in the automotive industry.

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# Decentralized centralization

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## Romania as a focus of value creation for Renault's Logan

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## 1. The Renault Group as a leader in the low-cost car sector

### 1.1 The Logan concept

When the French manufacturer Renault introduced its → low-cost car, the Logan, in 2004, its success attracted a great deal of attention in the automotive industry. This vehicle, which can cost even less than 6,500 euros and is sold in most countries under the brand of Renault's Romanian → subsidiary, Dacia, soon became one of the company's most successful models. With this vehicle, Renault was able to make inroads into a new segment of the market that no other manufacturer had discovered for itself to the same degree. Indeed, many had concluded that it was impossible to produce a "decent" car in this price bracket that was capable of gaining widespread market acceptance. Since Renault's success with the Logan has proved the doubters wrong, however, low-cost cars (LCC), or vehicles selling for less than about 10,000 US dollars (approximately 7,500 euros), have come to be recognized as a major opportunity for future growth. "Logan is a spectacular example that really rattled the industry. Logan has really set the terms of the debate," noted Glenn Mercer, automotive expert for the Swiss bank UBS (Guilford 2007).

**With the Logan, Renault opened up a new market segment that no other manufacturer had been able to claim.**

At Renault, the development of the low-cost car can be traced back to the company's former chairman, Louis Schweitzer, who recognized back in the mid-1990s the extent of his company's dependence on the saturated Western European markets. "Seeking to ensure Renault's profitable growth, I determined in 1995 that we should expand into non-European markets," Schweitzer explained (Dacia 2004: 1). His

central goal was to tap into the → emerging markets. Few people in those countries could afford to buy a car, but Renault recognized that higher incomes would provide future market opportunities.

**The low-cost car is based on the principle of simplicity.**

Renault CEO Schweitzer instructed the engineers at the company's R&D headquarters, the Technocentre in Guyancourt, near Paris, to design a model with a base price of 5,000 euros. This was followed in 1998 by the launch of the X90 project aimed at building this low-cost model. Strict adherence to the principle of simplicity was essential to keep the price at the designated level, which meant that this "cheap car" could not offer extensive options or the newest design features. Unlike Renault's earlier models, it was specifically designed not for the → industrialized countries, but to meet the needs of emerging economies. It had to be economical not only in its purchase price, but also to run and maintain.

The end of 2004 brought the market launch of a five-door notchback sedan under the name Dacia Logan. Based on the same → platform, the Logan MCV (Multi-Convivial Vehicle) station wagon was introduced in 2006, followed by the Logan van (based on the Logan MCV) and the Logan pickup in 2007. Its sister model Sandero, a compact hatchback with components that are 70 percent identical to those of the Logan, was launched in 2008. Renault has also announced that it is developing a Logan SUV.

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## 1.2 The minimization of costs in manufacturing the Logan

In order to lower the costs of producing this new vehicle, Renault's engineers used three methods: design-to-cost, carry-over and computer-aided engineering. The design-to-cost method focused on minimizing costs during the development phase. Vehicle unit costs were reduced by using ordinary components and economical materials and by omitting purely visual elements. For example, using an identical exterior rear view mirror on the vehicle's left and right sides resulted in savings of about two euros per car.

### Cost reductions have an effect on the configuration of the entire value chain.

Efforts to increase efficiency included focusing not only on the vehicle's direct costs, but also on potential indirect savings during the production and procurement processes. Choosing body types that are easy to manufacture and limiting the number of available features makes the production process less complicated, which also reduces costs. Tooling costs can be lowered if the front and rear windows of the vehicle are only slightly curved, which makes them easier to install. Finally, since the Logan was to be manufactured in the emerging markets, a decision was made to use traditional steel for most components, since steel is not only more economical, but also easier to obtain in those countries than materials like aluminum.

The carry-over method dictated the use of existing components and construction methods borrowed from other vehicles, as their costs had usually been amortized and their quality and reliability had already been demonstrated. This meant additional savings in development and production, as well as reduced maintenance costs. Logan components were taken from other models manufactured by the Renault Group and its partner, Nissan; Renault and Nissan had entered into a → strategic alliance in 1999, and each has a minority stake in the other. They

work together in a number of areas, as shown in Figure 1, and this has been beneficial for the Logan project.<sup>1</sup>

The Logan is built on the B platform, which was developed jointly by Renault and Nissan for the Renault Clio, Renault Modus, Nissan Micra and Nissan Cube. The Logan's rear axle was taken from this platform, but the front axle is taken from the version preceding the current Renault Clio. The electronic central processing unit and the heating system were also originally used in other Renault vehicles. In 2007 alone, some 1.9 million vehicles worldwide were built on the B platform, which is nearly one-third of the 6.2 million vehicles sold by both Renault and Nissan. This has allowed them to achieve synergies in the development process and → scale effects in production. Both of these factors have reduced the costs of the Logan. From a customer's perspective, it is also important to note that the competitive advantage of a low purchase price might be negated (to some degree) by expensive maintenance – if, for example, the vehicle requires frequent maintenance and repairs. The carry-over method helps to reduce this risk with the use of proven components.

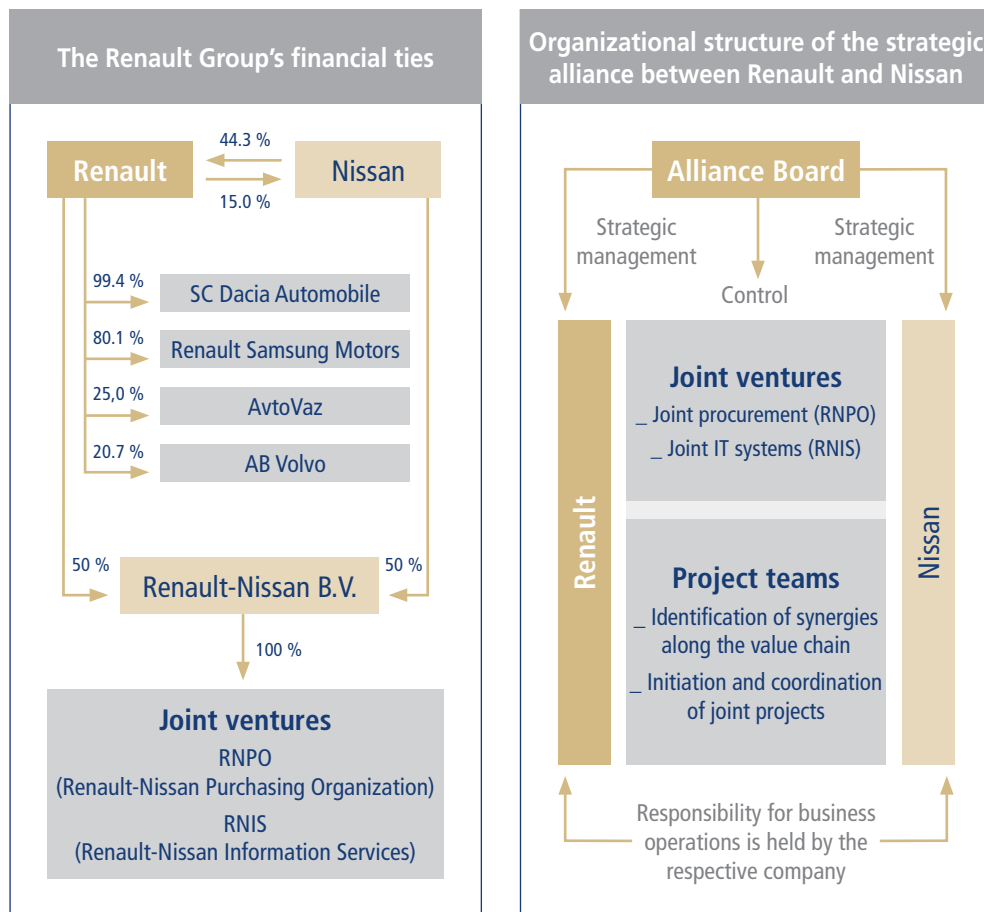
### High maintenance costs would negate some of the competitive advantage of a low purchase price.

Finally, computer models and simulations brought further savings in developing the vehicle and its production tools. While computer-assisted methods have long been common in vehicle development, they had never been applied to this degree. The use of a virtual simulation of every development stage, including noise tests, made it possible to eliminate the expensive construction of Logan prototypes. The computer-aided engineering method allowed the company to save 20 million euros in engineering costs relative to traditional development

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<sup>1</sup> For a more extensive discussion and explanation of the strategic alliance between Renault and Nissan, see Schmid/Hartmann (2007).

**Figure 1: The Renault Group's financial ties and the organizational structure of its strategic alliance with Nissan**



As of March 31, 2008.

Source: The authors, based on Renault (2005: 4, 8), Schmid/Hartmann (2007: 351f.), Renault (2008b: 4).

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methods. Renault spent only 360 million euros to develop the Logan, which is roughly half what is normally required to launch a new vehicle.

In the X90 project, these methods were accompanied by a person-oriented approach to → coordination; a large number of employees were assigned to the project who had already been involved in developing the Renault Twingo. Renault first adopted a strict policy of minimizing costs when it built the Twingo, which was introduced to the market in 1992. The goal was

to attract customers in the fiercely competitive compact car sector with a low purchase price. Lessons learned in the Twingo project aided in the development of the Logan. "There was a significant improvement in the design-to-cost method, introduced in the development of the Twingo in 1992, when the X90 program was launched," explains Odile Paciatici, head of development for the X90 project (Dacia 2004: 3). In retrospect, the development of the relatively inexpensive Twingo was a kind of test run for developing the Logan low-cost car.

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### 1.3 The market success of the Logan

The Logan was introduced to the market at the end of 2004 in Romania, the Czech Republic, Morocco, Algeria and Turkey. Before long it was also being sold in neighboring countries, including the Baltic states (Estonia, Latvia, Lithuania), Russia, Poland, Slovakia, Hungary, Slovenia, Croatia and Tunisia. Demand was unexpectedly high in the Western European countries. After Renault dealers in Germany, France and Italy had begun to import the Logan for their customers on their own, Renault responded in 2005 by starting to sell the Dacia Logan in France, Belgium, Luxembourg, the Netherlands, Germany, Switzerland, Italy and Spain as well. Today the Logan is marketed in a total of 59 countries. Germany was the fifth largest sales market for the Logan in 2007, with 17,500 vehicles sold, after Romania (101,800 units), Russia (67,844), France (32,600) and India (17,706).

In terms of timing, Renault's → internationalization strategy for the Logan might be termed a combined → "waterfall-sprinkler" strategy. The vehicle was introduced in a series of phases in the various foreign markets, but each phase included several markets.<sup>2</sup> Only the first two phases went as planned; Renault had not expected the demand that developed in Western Europe, and it responded with a third phase of internationalization efforts. The Logan provides striking confirmation that internationalization does not need to occur precisely as originally planned; the process can be adjusted to accommodate unforeseen events.<sup>3</sup> Companies need to be alert to signals from surrounding markets so that they can quickly take advantage of opportunities that arise.

When companies enter new markets, group-wide considerations shape their brand strategies. Hence the Logan is sold in 50 countries under the Dacia brand and in seven under the Renault brand. The name Dacia is used in countries

where Renault already has a reputation as a design-oriented, high-volume brand, for example in Central Europe, Turkey and North Africa. Offering a second brand expands Renault's product range and appeals to new customer groups. In countries where Renault does not yet have a strong presence, the Renault is used as a way of opening up the market – in Iran, as well as in Russia, Argentina, Brazil and Mexico. The Logan is now also available under the Nissan brand as part of Nissan's product range in Mexico and South Africa. The company is therefore pursuing a → strategy of (largely) standardizing the product while differentiating the brand, depending on the extent to which the Renault brand is already established and how the company intends to position itself in the market.

**The brand under which the low-cost Logan is sold depends on how established the Renault brand is in the given market and how the company intends to position its main brand.**

Figure 2 provides an overview of selected markets, the brands under which the Logan is sold and its base price. It is evident that Louis Schweitzer's proposed base price of 5,000 euros has not been achieved, although a few countries, such as Romania and Morocco, come close if taxes are not included. The Logan is still a low-cost car, however, since it is less expensive than traditional vehicles. It is sold for considerably more than 10,000 euros only in Brazil and Venezuela, where it is positioned as one of Renault's mid-level vehicles rather than a more affordable alternative.

In Western Europe, other manufacturers sell certain models in the price range of 9,000 to 10,000 euros, which is what the Logan costs with additional features (e.g. power steering, air

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<sup>2</sup> For an overview of timing strategies, see Kutschker/Schmid (2008: 984-995). Note, however, that the matter at issue here is not Renault's entry into a market as a whole, but its initial entry into a specific market segment.

<sup>3</sup> For an explanation of the various initial forces of internationalization, see for example Aharoni (1966) and Kutschker/Schmid (2008: 425-431). The distinction between planned and unplanned (emergent) strategies was made by Mintzberg (1978) and Mintzberg/Waters (1985).

conditioning, side airbags). These include the Citroën C1 (base price 9,190 euros), the Toyota Aygo (base price 9,350 euros) and the Ford Ka (base price 9,600 euros). But all of them are compacts; the Logan is larger, in the same class as the Golf. Renault's primary target group includes families wanting more room, which the Logan provides at an unusually low price. Commercial customers find the MCV, van and pickup models appealing.

For many customers, for example in Eastern Europe, the Logan is the first vehicle that they have been able to afford. Market surveys have shown that other Logan buyers, in Europe and elsewhere, had previously been more likely to purchase used rather than new vehicles. Still others have chosen the Logan as an economical second vehicle. For this reason there has been no indication of → cannibalization effects affecting Renault models, according to Renault dealers in Germany, where the Logan is sold at the base price of 7,200 euros.

**Figure 2: Marketing the Logan in selected countries**

Brand under which the Logan is sold	Country	List price (incl. taxes)		Units sold (2007)
		Local currency	Euros	
Dacia	Romania	22,656 Lei	6,150	102,062
Dacia	Morocco	72,200 Dirhams	6,326	12,639
Dacia	Germany	7,200 Euros	7,200	17,301
Dacia	Algeria	719,000 DA	7,224	9,090
Dacia	Ukraine	11,390 US Dollars	7,368	9,350
Dacia	France	7,600 Euros	7,600	32,688
Dacia	Turkey	15,800 New Lira	8,363	8,951
Renault	India	425,186 Rupees	6,793	17,706
Renault (Tondar) <sup>1)</sup>	Iran	approx. 97,500,000 Rials	approx. 6,900	10,657
Renault	Russia	272,450 Rubles	7,419	67,844
Renault	Colombia	26,390,000 Dollars	9,272	not available
Renault	Brazil	29,490 Reals	11,344	14,764
Renault	Venezuela	41,000,000 Bolívars Fuertes	12,369	13,379
Nissan (Aprio) <sup>1)</sup>	Mexico	114,900 Mex-Dollars	7,050	not available
Nissan (NP200) <sup>1)</sup>	South Africa	89,100 Rands <sup>2)</sup>	7,605	not available

As of the 1<sup>st</sup> half of 2008 (list prices) or December 31, 2007 (units sold).

1) In parentheses: Local variation of the low-cost car's name.

2) Price of the Nissan Bakkie 1400, to be replaced by the Logan pickup in October 2008.

Note: Conversion into euros was based on the average exchange rate at the end of the respective month during the first half of 2008 (exchange rate statistics from the German Central Bank). Price comparisons were based on the model with the least expensive equipment options.

Source: The authors, based on research in the relevant countries.

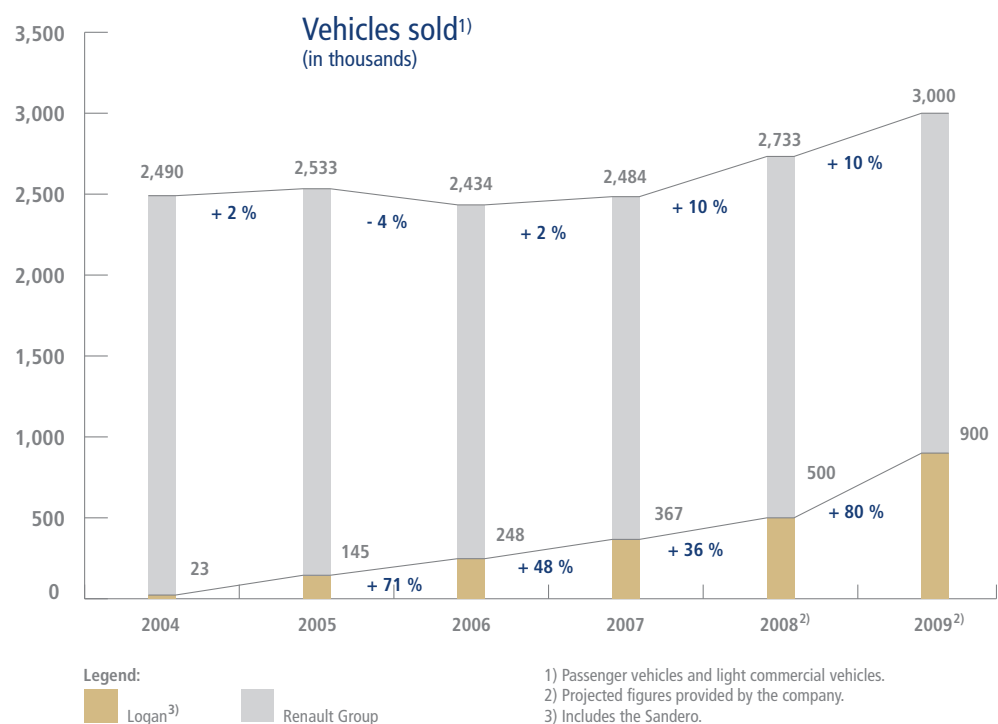
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## The Logan's success has made Renault's Romanian subsidiary a mainstay of the Group.

The success of the Logan has made Renault's Romanian subsidiary Dacia a mainstay of the Renault Group. While Renault has experienced declining sales and a loss of market share in Western Europe, its sales have increased substantially in other markets. In fiscal year 2007, Renault recorded an increase in Logan sales of nearly 120,000 vehicles, or by more than 48 percent. Total sales, including Dacia and all Renault models, rose by only about 50,000 vehicles – two percentage points – during the same period. Clearly the Logan is driving Renault's growth; without it, total sales would have declined again in 2007. Figure 3 shows trends in sales since the Logan was introduced.

With over 350,000 vehicles sold in 2007, the Logan now ranks third among Renault's best-selling models, after the Mégane and the Clio. Indeed, demand so exceeded Renault's expectations in 2008 that it was unable to increase production sufficiently to keep up. The result was waiting periods of several months to purchase a Logan or a Sandero. A significant factor was that Renault had not expected such a high level of interest in these vehicles in Western Europe. Furthermore, low-cost cars compete with used cars, and it was difficult to predict how many used car buyers would opt instead to purchase a new Logan. Since then, however, Renault has adjusted its predictions and capacities. It plans to produce and sell some 500,000 Logans and Sanderos in 2008, and substantial increases in capacity will bring this figure up to 900,000 in 2009.

**Figure 3: Sales figures for the Renault Group and the Logan**



Source: The authors, based on financial statements and corporate data.

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The Logan is not only driving Renault's sales growth; it is also increasing the company's profitability. Renault's profit margin on every Logan that is sold in Western Europe is roughly 15 percent. The only other automobile company to achieve a similar profit margin is premium manufacturer Porsche with its 911 Carrera model. Internationally, Dacia's average profit margin on the Logan was about six percent in 2007. Consequently, the Logan has become crucial in the company's efforts to achieve the goals laid out by Renault's CEO, Carlos Ghosn, in a February 2006, strategy paper entitled "Contrat 2009." In addition to setting a sales goal of three million vehicles – which was originally even higher, at 3.3 million – the plan also calls for nearly doubling the profit margin in 2009, an increase from 3.3 percent to 6 percent, the level Dacia has already achieved. Clearly it is not Dacia's fault that Renault has been forced to revise its sales goals and may well fall short of its target profit margin. According to many experts, the problem lies mainly in the outdated models that were still being sold under the Renault brand as recently as 2007.

### Dacia's success is very important to the Romanian economy.

Dacia has come to play a critical role within Renault Group, but it has also brought great benefits, primarily economic, to the country of Romania. Dacia provides 14,400 jobs at its plants, but today there are also 4,000 jobs with supplier companies in the Pitești industrial park, 6,500 jobs in the Dacia distribution network and 150,000 other jobs in Romania that are linked in some way to Dacia. Both Renault and Dacia are contributing to the country's economic development. Dacia alone accounted for two percent of Romania's gross national product in 2007. The country's international reputation has benefited as well. As François Fourmont, General Director of Dacia, points out, "[...] it is clear that nowadays there is an association between Logan-Dacia-Romania and that Logan depicts a good image of Dacia and, at the same time, of Romania" (Radoslavescu 2005). Romanian Prime Minister Călin Popescu Țăriceanu asserts that the Logan is "the best ambassador Romania has ever had" (Kuntz 2008). The Romanian people, too, are proud of Dacia. The unexpectedly impressive sales of the Logan in Western Europe have given a particular boost to their self-esteem.

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## 1.4 The Logan in the international market for low-cost cars

Rising earnings in the emerging markets, along with greater price-consciousness and higher vehicle maintenance costs in the industrialized countries, are creating the conditions necessary for low-cost cars to succeed. The Logan has also demonstrated that a low-cost car can make a profit. Accordingly, a number of established companies as well as up-and-coming automobile manufacturers from the emerging markets have announced plans to design their own low-cost vehicles. In January 2008, the Indian automobile manufacturer Tata Motors set a new standard for affordability when it introduced its Tata Nano in New Delhi. This → “ultra-low-cost car” (ULCC) will be available in India in 2009 for the equivalent of 1,700 euros. Since this corresponds to 100,000 rupees, termed *lakh* in Hindi, the Nano has been dubbed the “one-lakh car.” Other automobile manufacturers are seeing just how much the price of a car might be reduced. “The Renault Logan showed them a unique design is possible. And the Tata Nano showed them how far that could go,” says Nigel Griffiths, managing director of the automotive section of the market research firm Global Insight (Snyder 2008).

Worldwide demand for low-cost cars comes mainly from the emerging markets, particularly China, India and Russia. Earnings are rising, and people are eager for greater mobility. Mobility for the masses has been increasing for some time now in China and Russia, and the trend is just beginning in India. India’s booming market for motorcycles is still benefiting from a push for greater mobility, since even the country’s middle class is hard pressed to afford the cars that are currently on the market. Companies producing low-cost cars are now seeking to bridge this gap. For instance, the Tata Nano is seeking to appeal to India’s middle class, for which this model is by no means as affordable as the term “low-cost,” used in the industrialized countries, would suggest.

### Low-cost cars represent a growth sector in the automotive industry.

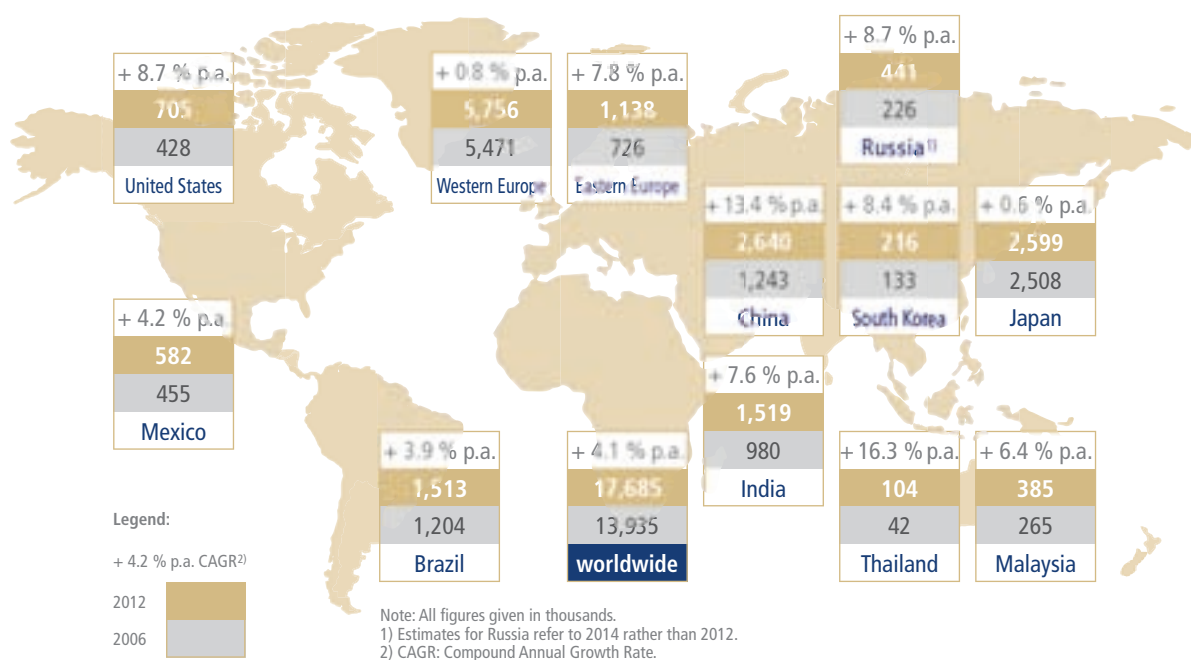
Figure 4 shows forecasts for vehicle sales in the low-price sector (selling for less than 10,000 US dollars) in various countries in 2012 and compares them with the figures for 2006. Annual growth rates in the emerging markets between 2006 and 2012 are expected to range between 3.9 percent and 16.3 percent. For example, forecasts indicate that the Chinese market for low-cost cars will grow by 13.4 percent each year up to 2012. Clearly, the low-cost car sector is a growth market.

However, individual automobile manufacturers are targeting very different segments of the low-cost market, as Figure 5 shows. While the Logan, priced at about 7,500 euros, is currently the most affordable car available in Western Europe, in India it is more expensive than several competing models despite its lower base price of 6,800 euros. Shortly after the introduction of the Tata Nano, Renault announced that it will be working with Bajaj Auto, India’s largest manufacturer of automobiles and motorcycles, to develop an ultra-low-cost car for the Indian market. In contrast to the Logan, which was developed at Renault headquarters in France, this vehicle is to be designed on site by a French-Indian development team in India, which will enable it to better focus on the needs of local customers.<sup>4</sup>

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<sup>4</sup> A detailed discussion of the advantages of decentralizing development activities can be found in the case study of the Volkswagen Group contained in this publication

**Figure 4: Sales forecasts for low-cost cars in 2012 and annual growth rates for the period from 2006 to 2012 in various markets**



Source: Based on Uludag (2007: 6).

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## Summary

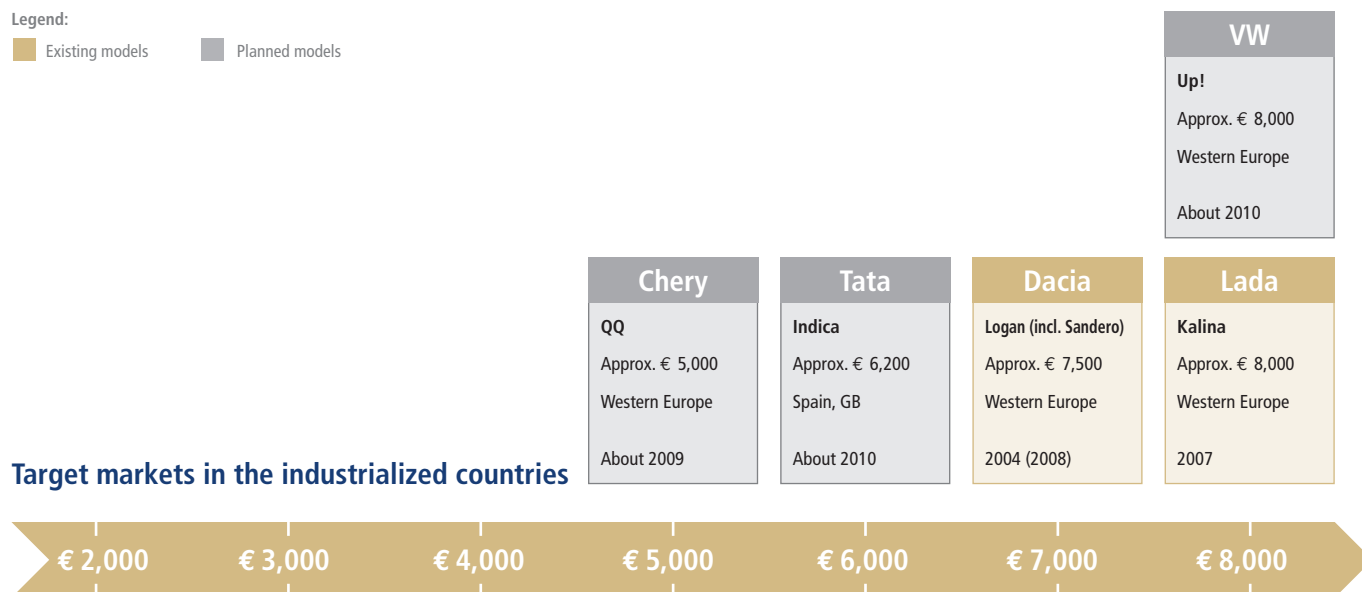
The low-cost car segment offers substantial opportunities for growth in both the developed and emerging countries. Established high-volume manufacturers that are introducing their own low-cost models need to take a very different approach to development:

- The design of a low-cost car needs to be simple and robust to succeed, particularly in the emerging markets.
- Design-to-cost, carry-over and computer-assisted engineering are effective methods for achieving these goals.

Figure 5: Selected existing or planned low-cost cars

Legend:

Existing models    Planned models



As of August 2008.

Source: The authors, based on corporate data and press reports.

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## 2. The configuration of value activities for the Logan

Making the low-cost Logan a reality required simple construction, inexpensive materials and the use of existing components. However, Renault's success in keeping costs low, setting an affordable price and gaining customer acceptance was not due only to these technical aspects. Also essential in the Logan's market success were the appropriate → configuration and coordination of the entire → value chain. Most production stages were concentrated in Romania, where labor costs are considerably lower than in France. In addition, Renault took a

new approach to configuration and coordination in the areas of procurement, development and logistics. This was instrumental in allowing the company to keep the vehicle's price low while taking into account the needs of its customers. The following sections describe the details of Renault's approach.

**The proper configuration and coordination of the value chain have been essential factors in the Logan's success.**

### 2.1 Production: Centralized main facility with decentralized assembly plants

In 1999, as part of its strategy to market a low-cost car, the Renault Group paid 50 million US dollars to acquire a majority stake of 51 percent in the Romanian automobile manufacturer SC Dacia Automobile SA, previously a state-owned company. Over the subsequent three years Renault gradually increased its share to 99.3 percent, and today it owns nearly all of Dacia. As the ailing state-run company was being privatized, Renault was the only party to show interest, and it was already familiar with Dacia from years of working together: From 1968 until the fall of the Iron Curtain, Dacia was licensed to manufacture the Renault 8 and the Renault 12 for the Eastern European markets. In addition to Dacia, which was well-known in Eastern Europe, Renault was interested in acquiring the two vehicle and engine manufacturing plants located in the town of Mioveni, near Pitești, which is some 120 kilometers west of Romania's capital city of Bucharest.

After purchasing Dacia, Renault carried out an extensive rehabilitation program aimed at modernizing the company's nearly 40-year-old production facilities. In terms of production quality and efficiency, the plants lagged far behind modern standards and were no longer capable of manufacturing vehicles that could compete in the market. Renault invested a total of nearly 500 million euros, or ten times what it had paid to acquire the company, to update its facilities, redefine the various departments and optimize

procedures. The company also sought to show sensitivity in intercultural matters. These measures quickly proved effective: Between 1999 and 2002, there was a 50 percent drop in the number of breakdowns in the production of the old Dacia models that were still on the market. Today the two Dacia plants, which now manufacture only Logan models (including the Sandero), are among the most efficient facilities in the entire Renault Group. Without Renault's successful rehabilitation efforts, the venerable Dacia brand, which had produced the so-called "people's cars" of Romania and enjoyed great prestige in such countries as East Germany, would have disappeared without a trace. Its → acquisition by Renault meant the survival of Romania's only automobile manufacturer and allowed it to establish itself internationally.

**After successful rehabilitation Dacia was able to establish itself internationally.**

Renault's approach to modernization sought to achieve only minimal automation of Logan production; manual labor was to play a prominent role. Even over the very long term, it is considered more economical to invest in manpower in Romania than to put a great deal of money into automation, owing to the country's low labor costs. Moreover, manual labor is capable of producing high-quality goods, making vehicles more reliable and helping to achieve Renault's

goal of keeping maintenance costs low. Even today, workers run stamping machines and carry out spot welding by hand in producing the Logan and its sister model, the Sandero. Elsewhere in the automotive industry, this level of manual labor is found only in the production of absolute top-of-the-line models, such as the Audi R8. Figure 6 describes the installation of the spare wheel pan in the vehicle to illustrate Renault's approach to cutting costs.

In addition, Dacia exhibits a high level of vertical → integration, since all of the Logan's production stages are carried out at the two plants in Mioveni. The vehicle production plant not only carries out final assembly; it also contains a pressing plant for stamping the individual parts of the vehicle body, a body shop for welding the parts together, and a paint shop for painting the finished vehicle bodies. The nearby engine and gearbox plant produces engines and gearbox parts, oil pans, cylinder head covers and sub-carriers. This allows Renault to achieve a high level of → local content in its Dacia plants, and it benefits during each production stage from Romania's lower costs for labor and other production factors.

The above comments show how important low labor costs are in determining where a low-cost

car is to be produced. The Logan is now manufactured not only in Romania, but also in Colombia, Brazil, Morocco, South Africa, Russia, Iran and India – all countries with low labor costs as well as target markets for this type of car. By producing this vehicle in Romania, Renault is able to reduce costs by 92 percent relative to France, as shown in Figure 7.

The decision against a high level of automation resulted in the creation of additional jobs in Mioveni. While Renault cut the number of employees from 28,600, the level at the time of the acquisition, to 11,000 (today 14,400), this is still roughly twice as many people as are employed at the French company's other European production sites with a similar capacity. In other words, twice as many jobs were preserved at the Dacia plants as would have been the case at the usual level of automation within the industry. Although Romanian law requires a notice period of only two months, Renault worked with the unions to draw up a multi-year downsizing plan that included early retirement provisions, retraining options and assistance in starting up new businesses. Accordingly, Dacia is regarded in Romania as a model for a socially responsible approach to privatization. Overall, a variety of stakeholders have benefited from the Dacia plants' relatively low level of automation:

**Figure 6: Comparison of the costs of automated and manual vehicle production, as exemplified by the assembly of a spare wheel pan**

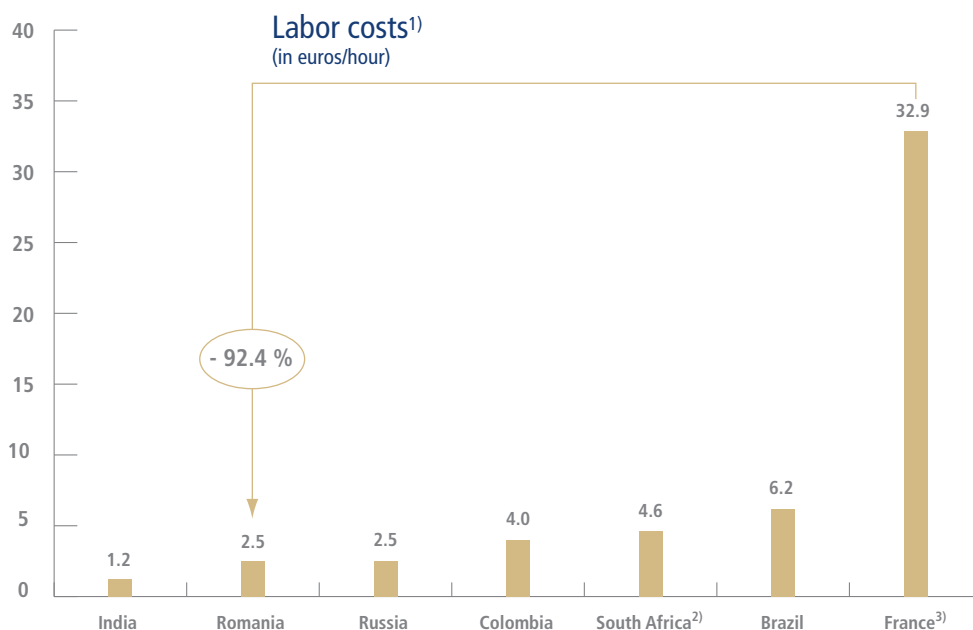
	Automated assembly	Manual assembly
<b>Production steps</b>	_ Laying out the spare wheel pans _ Applying the adhesive _ Pressing in the spare wheel pan	
<b>Volume of investment in facilities</b>	200,000 euros	10,000 euros
<b>Direct labor</b>	–	1 worker
<b>Takt time</b>	60 seconds	60 seconds
<b>Cost per vehicle</b> _ Two-shift operation _ Labor costs 2.49 euros/hour	0.18 euros machine costs <sup>1)</sup>	0.01 euros machine costs <sup>1)</sup> 0.05 euros labor costs

1) Including capital costs, depreciation and maintenance.

Source: Based on Liebeck et al. (2008: 208); data from ILO Laborsta (2008).

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**Figure 7: Comparison of labor costs in selected countries where the Logan is manufactured**



As of 2005.

1) Labor costs = wages and salaries as well as fringe benefits (compensation for days off, special payments, benefits, other additional personnel costs).

2) Wages not including fringe benefits, rather than labor costs.

3) Figures for 2004.

Note: No current data are available for Morocco and Iran, two other countries where the Logan is manufactured.

Source: The authors, based on ILO Laborsta (2008).

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Renault benefits from greater cost-effectiveness, Dacia's employees from additional jobs, customers from the high quality of Dacia's vehicles, and the Romanian state from a company that is (again) prospering.

However, the selection of a production site must not be determined solely by cost considerations; all of the factors related to the site must be taken into account.<sup>5</sup> In the automotive industry, labor costs make up only 15 to 25 percent of all production costs, so the advantage of low labor costs can easily be offset by higher expenses in other areas. These might result from lower productivity, inferior quality, higher finished vehicle transport costs or greater difficulty in procuring components. Romania is an excellent choice as a center for Logan production, since it offers not only cost advantages, but a high level of productivity and quality. "Romania is currently

undergoing a shift from simple wage labor to technically sophisticated, high-quality production," Dirk Rütze, head of the German-Romanian Chamber of Industry and Commerce in Bucharest, points out (Mick 2004). Furthermore, the "transport argument" is refuted by the fact that on-site production makes it even easier to transport vehicles to the emerging markets.

An efficient configuration of production activities requires not only a low-cost site, but also that production stages be distributed within a network in order to take advantage of further cost savings - independent of labor costs. In its Logan production network, which will encompass eight sites worldwide by the end of 2008, Renault has centralized a large portion of value activities in Mioveni, as shown in Figure 8. The two Romanian plants are the Logan's main production sites and manufacture all of the

<sup>5</sup> A comprehensive discussion of various location factors can be found in the case study of Audi contained in this publication.

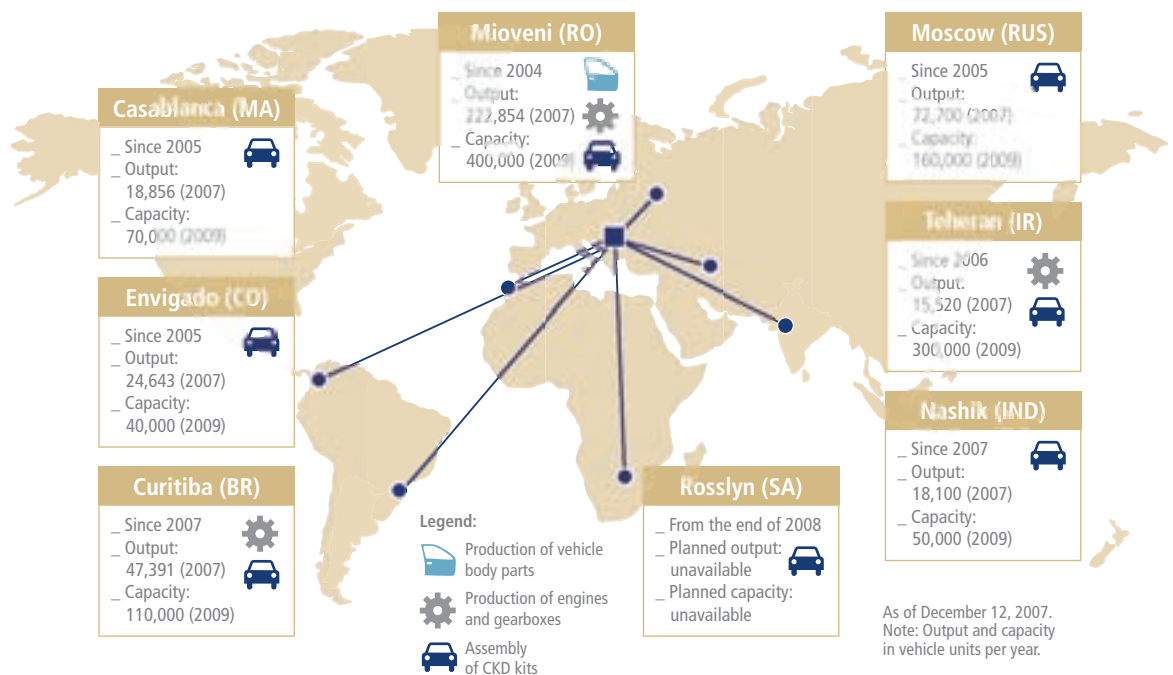
vehicle kits required by the company worldwide. This makes it possible to produce large quantities, which leads to scale effects. These include → size-related effects, such as increased returns to scale and greater → economies of scale, as well as → learning effects, which, given higher volume, allow for greater speed and factor-saving production, thus increasing efficiency. Both of these effects are crucial to ensure the Logan's low purchase price.

The centrally manufactured kits are assembled at the Romanian plant if they are intended for distribution in the European markets. Otherwise they are shipped as → CKD (completely knocked down) kits to plants located in a variety of different regions, where they are assembled and

delivered to the surrounding markets. Assembling the kits on site has the advantage of avoiding import restrictions on finished vehicles. An import duty of 25 percent on completely assembled vehicles, as is currently in force in Russia, would eliminate the Logan's price advantage. In some cases the assembly sites also manufacture engine and gearbox parts to complete the kits. However, the Mioveni site is the only one that

**The hub-and-spoke configuration is advantageous when economies of scale and learning effects are important and different versions of the product are sold.**

**Figure 8: The hub-and-spoke network for producing Logan models**



Source: The authors, based on Dacia (2004), Renault (2008b: 21), Dacia (2008e) and press reports.

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The vehicle and engine plants in the Romanian city of Mioveni serve as the hub of the production network, while the associated assembly plants carry out the final stage of production and establish contact to the local markets. This configuration of production activities is referred to as a hub-and-spoke configuration,<sup>6</sup> and it allows companies to take advantage of economies of scale while also ensuring a local presence. It is advantageous when economies of scale and learning effects are important and different versions of the product are to be sold worldwide. While the Logan is not currently manufactured in different versions, Renault and Dacia are already considering doing so in the interest of targeting the vehicle even more closely to local conditions and customer preferences. This is expected to lead to still higher sales figures and, in turn, to greater efficiency, thanks to additional economies of scale and learning effects.

Renault is employing a variety of → market entry strategies as it establishes its international Logan assembly plants. Rather than opening new assembly facilities in the regional markets, Renault has either integrated the Logan into production at existing plants or begun to collaborate with international partners, including competitors. Such cooperation with competitors is typical of the transnational networks and diverse



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international relationships found in the automotive industry, in which competition

and cooperation go on simultaneously (→ "co-competition"). The Avtoframos plant in Moscow, Russia, developed out of a → joint venture between Renault and the city of Moscow and is currently manufacturing the Logan; beginning in late 2009 it will produce the Sandero as well. This joint venture will eventually include not only a vehicle assembly plant, but also sheet metal processing and painting facilities. There are also plans to have other vehicle production activities handled by Russian subcontractors. This existing assembly plant could become a complete production facility for the Logan and Sandero models.

In Casablanca, Morocco, Renault has contracted to have the Logan manufactured by its partner SOMACA (Société Marocaine de Construction Automobile), in which Renault holds an interest of 54 percent; Fiat and Peugeot have holdings as well. SOMACA assembles the Logan for all North African markets, and the same plant also manufactures the Renault Kangoo, among others, for this region. In Colombia, Renault acquired 60 percent of the Colombian automobile manufacturer Sofasa SA, which assembles Logan kits. The vehicles produced in Colombia are also exported to other Central and South American countries. Renault also has its Twingo, Clio and Mégane models assembled there. Sofasa is involved in work for other manufacturers as well; for example, it produces light-duty commercial vehicles for Japan's Toyota company, which owns 28 percent of Sofasa.

In Iran, Renault is working together with IDRO (Industrial Development & Renovation Organization), the state authority in charge of the country's industrial development. The two partners operate the joint venture Renault Pars, which markets the Tondar, as the Logan is called in Iran. Renault Pars manufactures engines and gearboxes, which are then assembled into finished vehicles by the Iranian automobile manufacturers Iran Khodro and SAIPA using CKD kits from Romania. The Renault plant in the Brazilian city of Curitiba also assembles CKD kits for the Logan, along with other Renault models, using engines and gearboxes produced on site. In India, Renault is launching a joint venture with the largest Indian automobile manufacturer, Mahindra & Mahindra, which is to produce CKD kits for the Logan at the Mahindra plant in Nashik, some 180 kilometers to the northeast of Mumbai. Under its strategic alliance with Renault, Nissan will begin in late 2008 to assemble CKD kits for the Logan pickup at its plant in Rosslyn, South Africa, and distribute the vehicles there under the Nissan brand.

<sup>6</sup> For an overview of the various types of production networks, see for example Meyer/Jacob (2008: 164-167).

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The competitive strategy of cost leadership also affects a company's internationalization strategy, including its strategy for entering new markets.

Cooperation with partner companies and the use of existing Renault sites make it possible to keep initial investments low, as compared with establishing new plants. Manufacturing other models at the same site produces synergies in such areas as the procurement of operating supplies and auxiliary materials. Cooperative arrangements, such as joint production ventures with competitors, can further reduce costs through economies of scale. They also lower capital requirements, since costs are shared by the partners involved. The example of the Logan demonstrates that a competitive strategy of → cost leadership also affects a company's → internationalization strategies, such as its strategy for entering a market while also pursuing greater centralization.<sup>7</sup>

#### Summary

In itself, the selection of a low-wage site does not guarantee success in manufacturing a low-cost car.

- \_ An efficient production configuration requires that numerous production stages be centralized at one location so that the company can benefit from economies of scale and learning effects.
- \_ At the same time, additional decentralized sites with specialized production responsibilities, e.g. assembly plants, can establish contact to the individual markets.
- \_ As decentralization takes place, it is advisable to establish new networks or take advantage of existing ones, since cooperation with partners produces synergies and allows for sharing risks.

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<sup>7</sup> Extensive comments on the advantages and disadvantages of cooperative arrangements, particularly joint ventures, can be found in Kutschker/Schmid (2008: 889-891).

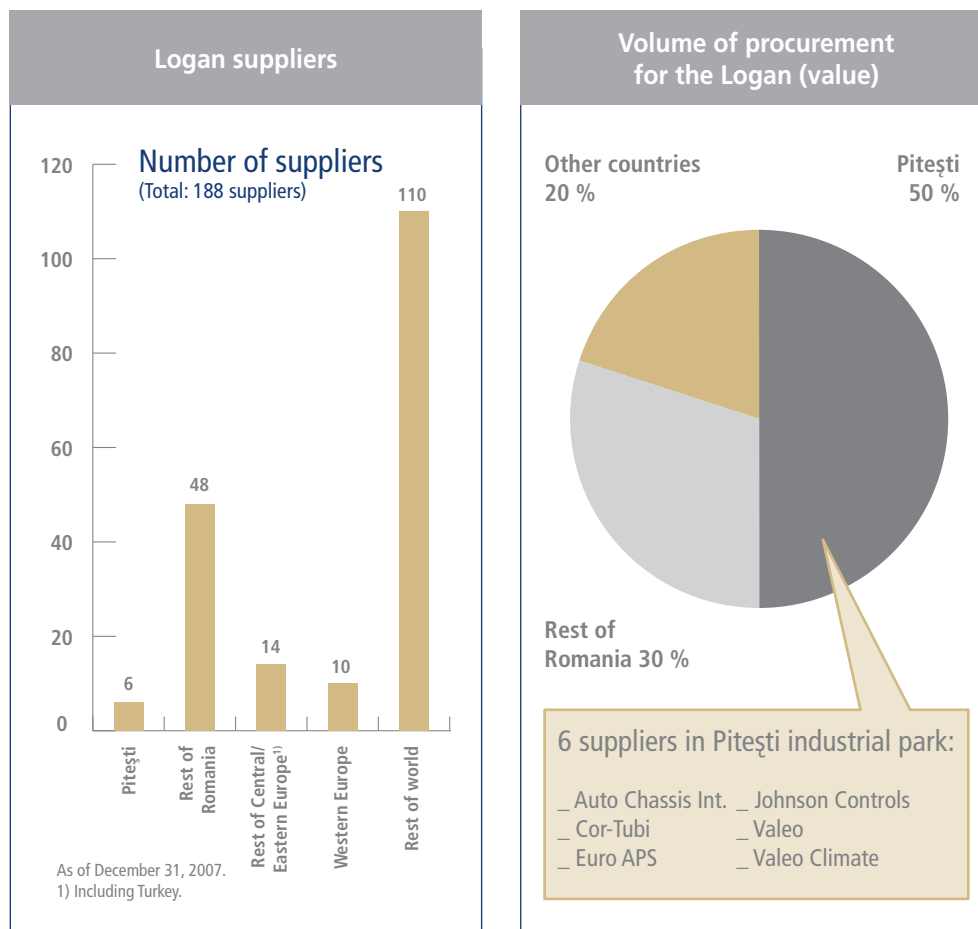
## 2.2 Procurement: Achieving a high level of localization through supplier training

In the automotive industry, procurement costs account for an average of 60 percent of total vehicle manufacturing costs. Consequently, Renault has been seeking to reduce the costs of purchasing components for the Logan and Sandero. Its success in doing so is due largely to the fact that procurement at the Dacia plants is highly localized. As Figure 9 shows, some 80 percent of procurement, in terms of value, occurs in Romania. Since production is largely centralized in Mioveni, although CKD assembly takes place worldwide, Renault is able to take advantage of Romania's low labor, raw material and technology costs globally. Short distances also mean lower transport costs. Indeed, 50 percent of the materials for manufacturing the

Logan are obtained in the Pitești industrial park that has sprung up in the immediate vicinity of the Dacia plants, and this factor alone has reduced costs by 100 euros per manufactured vehicle as compared with traditional procurement → structures.

The numbers are similar for the Logan's sister model, the Sandero. Sixty percent of its parts come from Romania. Another 30 percent are purchased in the neighboring countries of Poland and Hungary. By comparison, the localization level of premium manufacturer BMW's plant in Spartanburg, South Carolina, was only 30 percent in 2007. Most of its parts still come from Europe. Accordingly, BMW has been hard

**Figure 9: Localization of procurement for Logan production**



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hit by the increase in the value of the euro relative to the dollar, despite having a plant in the United States.

The concentration of procurement in the Romanian region is also reflected in supplier numbers: Of the 188 suppliers that provide components for Logan production in Mioveni, 54 (about 29 percent) produce those parts in Romania and another five in the surrounding Central and Eastern European countries. Nine suppliers for the Dacia plants operate from Turkey and 10 from Western Europe. The remaining 110 companies – whose share in the total value of procured goods is much lower than their number would indicate – are located elsewhere in the world. The supplier companies that are active in Romania are not only Romanian companies such as the up-and-coming Euro Auto Plastic Systems (Euro APS); the six automotive suppliers that manufacture Logan components in the Pitești industrial park also include companies like the American supplier Johnson Controls and its French competitor Valeo.

Other suppliers will follow their lead. Another American company, ArvinMeritor, is in the process of moving its production of Logan door panels to Pitești. Dacia suppliers are currently opening more than 20 new plants in Romania. Half of them are entirely new production facilities (greenfield investments), while half are expansions of existing plants. Dacia fully expects to benefit directly from a further decline in production and transport costs. This will also produce more jobs in Romania.

If Renault and Dacia are to achieve the high level of procurement localization they are aiming for, their Romanian suppliers will need to be efficient in their production, provide high-quality goods and ensure reliable deliveries. Under the Alliance Suppliers Improvement Program (ASIP), a kind of academy for suppliers, Renault sends some of its employees to supplier companies to assist in optimizing procurement and quality assurance and to transfer the necessary key technologies. In addition, Renault provides advice on general business issues such as organization and corporate management.

Some 1,800 employees from supplier companies were trained by this program between 2000 and 2004, for a total of roughly 20,000 hours of training. These advisory services are not free; every company that receives support under ASIP and is subsequently accepted into the ranks of Renault suppliers pays a pro-rata training fee to Renault for each component that is delivered. These training efforts are paying off: While the Dacia plants in Mioveni recorded 5,750 faulty parts per million in 2000 (0.58 percent), that number had dropped to 35 (0.0035 percent) by 2007. In this category, the Dacia plants rank third within the Renault Group.

Dacia is also benefiting from the fact that the purchasing organization RNPO (Renault-Nissan Purchasing Organization), which was established as part of the strategic alliance between Renault and Nissan, carries out a large share of procurement for all of the brands included in the alliance and makes important decisions in related matters. It compares suppliers worldwide and selects those that offer the best value for the money. In 2007 it handled 83 percent of the two companies' procurement volume, which corresponds to a total value of 51 billion euros. Its bargaining power made it possible to achieve substantial synergies, which are reflected in the purchase price of the Logan and the Sandero as well. If reasons of economy or quality argue against procuring a part on site, it is purchased somewhere else. Thus the group's → global sourcing combines with local procurement to achieve the best possible balance of procurement for the Logan family of vehicles.

## Summary

Manufacturing a low-cost car in an emerging market requires a high level of localization in the area of procurement.

- \_ A majority of parts need to be obtained near the production site, first in order to benefit from cost advantages, and second to avoid transport costs.

- \_ A high level of localization can only be achieved if local suppliers are able to meet certain quality and reliability requirements. This means that the manufacturer needs to provide support for the development of suppliers in the emerging markets.

## Interview

**Ralf Kalmbach, Partner and Head of Automotive, Roland Berger Strategy Consultants, discusses suppliers from emerging economies as they move toward becoming international enterprises**

**Mr. Kalmbach, which suppliers are automobile manufacturers likely to use when producing a low-cost model? Can local suppliers in the emerging markets compete with established, globally active companies?**

Of course, the established international automotive suppliers will be able to claim a certain share of the procurement volume for low-cost vehicles; look, for example, at Bosch's involvement in the Tata Nano and Valeo's participation in the Dacia Logan. But this share will remain limited. For one thing, every country has certain local content regulations that must be followed, and for another, no low-cost manufacturer can ignore the cost advantages offered by local resources. So manufacturers need to procure a large percentage of their materials locally.

This is certainly possible, but it may sometimes be difficult. Usually manufacturers will first have to train local suppliers. In Russia, for example, Volkswagen is currently facing a major problem: It has not been able to find enough local suppliers that are capable of meeting its quality standards and that offer the logistical capabilities necessary to support series production. The only solution will be

a training program like the one Renault conducted in Romania. There is no other option.

**Over the long term, will the local suppliers from the emerging markets that are springing up near low-cost car production centers become international companies?**

Yes, absolutely. The major automotive companies are building a bridge for local suppliers, so to speak. Their purchasing departments have set certain internal targets for procurement from the so-called low-cost countries, ranging between 20 and 30 percent of total volume. At present, however, none of these manufacturers have been able to meet these targets. But if a local supplier, for example in Russia or India, is qualified and has produced good results, a purchasing department will consider using it as a supplier for the company as a whole.

Of course, this only applies to certain parts. No one is going to transport a painted bumper from India to Europe, but shipping certain forged parts might make sense. Manufacturers' purchasing departments will make sure that local suppliers become serious competitors in all of the core markets relatively quickly. Furthermore, these suppliers – for example Indian small- and medium-sized businesses – are already showing the necessary entrepreneurial commitment to expand internationally.

The interview was conducted by Stefan Schmid and Philipp Grosche.

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## 2.3 Development: Increasing decentralization in target markets

Centralizing development activities is advantageous for a new product like the Logan, since short distances facilitate both organization and coordination. When development is located at headquarters, it is easier to take advantage of the knowledge that is available throughout the company. In the case of the Logan, this has meant using existing construction plans and parts as well as assigning employees to the X90 project who had already been involved in designing the company's first design-to-cost car, the Renault Twingo, in order to benefit from their experience in designing the Logan.

**"I wanted to do more than simply rely on market studies to become familiar with the expectations of future Logan customers. As the project began, I went to potential markets for the Logan."**

Note, however, that the Logan was intended for emerging markets with very different living conditions and consumer preferences than those found in Western Europe. Differences between one country and another are a common reason for decentralizing development activities. The employees who designed the Logan were conscious of that fact, and sought from the very beginning to take conditions in the emerging economies into account. They visited target markets to gather relevant information. As Pierre-Edouard Sorel, product manager for the Logan, reports, "I wanted to do more than simply rely on market studies to tell me about the expectations of future Logan customers. As the project began, I went to potential markets to learn more about local habits and customs" (Dacia 2004: 6). Through a mixture of centralized development and local identification of customer needs, Renault combined the advantages of centralization, such as the → network effects described above, with the advantages offered by decentralization, such as access to local information.

With the growing success of the Logan in a wide variety of markets, Renault also came to recognize that greater attention to local customer preferences and vehicle usage could lead to even higher sales. This is a conflict that frequently arises in international management: While international standardization can generate cost advantages, on the other hand regional or local differentiation can help to increase sales – which, in turn, leads to lower unit costs. High sales numbers and low unit costs are crucial in keeping the Logan's purchase price low and ensuring its economic success. While so far this vehicle has been sold in the same form worldwide, Renault recently announced that it is developing model adaptations tailored to selected sales regions, which will differ in their interior design and features. However, these differences will be relatively minor compared with model adaptations carried out by other companies, so most of the advantages of standardization will still apply.<sup>8</sup>

The fact that more attention is being paid to regional differences in customer preferences and vehicle use is evidence of a company-wide reassessment at Renault. Over the past few years, the company has begun to rethink its configuration of research and development and to establish decentralized development centers throughout the world. In addition to its R&D headquarters at the Technocentre in Guyancourt, it now has nine decentralized development sites worldwide (in Portugal, Romania, Spain, Argentina, Brazil, Chile, Mexico, Colombia, India and South Korea) that carry out design and construction work. One of them is the construction and design center Renault Technologies Romania (RTR), with locations in Bucharest and Pitești, which opened in 2007. These decentralized facilities, staffed by local employees, are the key to translating local customer preferences into attractive vehicle models. According to an official press release from the Renault Group,

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<sup>8</sup> Toyota, for example, makes considerably more changes in its region-specific Corolla or Camry models, including external design features. See also the case study of the Volkswagen Group in this publication.

“[C]ompetitive performance calls for closer contact with local customers. Regional engineering teams will have a better understanding of customer’s needs and vehicle usage conditions on local markets” (Renault 2007c).

### Development activities are located in target markets in order to better understand local customer preferences.

Renault Technologies Romania (RTR) will eventually employ 3,000 workers (its current workforce numbers roughly 1,700), making it the Renault Group’s largest development center outside of France. It is under the supervision of the Technocentre in Guyancourt and is to design and test new vehicles – and in particular to develop a Logan model specifically intended for Central and Eastern Europe, Russia, Turkey and North Africa. This was why Renault chose a site located near Dacia headquarters and the Eastern European sales markets. In addition, RTR was given four satellite sites in Russia, Slovenia, Turkey and Morocco. Over the long term it will assume additional tasks, as well as taking over from the Technocentre in Guyancourt sole responsibility for all of the projects based on the Logan. Thus, the Renault Group has reassessed not only the configuration of development activities, but also their coordination and management. Approximately half of the development work for the Logan pickup as well as the construction of Sandero prototypes has already been carried out by RTR.

Development headquarters in France will continue to be in charge of developing the various Logan models destined for the Western European market. Renault’s existing regional development centers in Brazil and India would be a logical choice for developing other regional models meant for South America and Asia. These regional centers are responsible not only for developing (region-specific) vehicles and drive train components, but also for providing technical support to local production sites, aiding in the procurement of parts from local suppliers and monitoring the market. In addition, these centers assist local suppliers, starting with the

design of components for Renault. Shorter distances to production sites and suppliers allow for better coordination, which can, in turn, lead to higher quality.

For a company like Renault, which comes from a country with a tradition of centralization and is still 15.1 percent state-owned, success in decentralizing certain aspects of development – and thus also the company’s own expertise – is an impressive achievement. It remains to be seen to what extent decision-making responsibilities as well will be decentralized – for example, permitting RTR to take charge of all Logan projects. This would bode well for the Logan’s long-term success, since it would make it easier to adapt the vehicle to local customer preferences. Moreover, abandoning the model of a single decision-making center would result in a more open → corporate culture and greater attention to the cultural influences found throughout the whole company. This would truly put Renault on the path of becoming a “global player,” as it already describes itself on its website.

#### Summary

Developing a low-cost car requires attention to vehicle usage and customer preferences in the emerging markets, which may differ dramatically from the developed countries.

- \_ The advantages of centralization are paramount in the initial design of a low-cost car, since it is crucial to take advantage of existing concepts and components.
- \_ As time goes by, it makes sense to establish decentralized development sites, since this allows the company to learn more about local markets and to tailor its vehicles more closely to local customer preferences.
- \_ In order to adapt a vehicle successfully to the needs of local customers, the management of development activities must be adapted as well. As such activities are decentralized, the relevant decision-making responsibilities also need to be decentralized.

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## 2.4 Logistics: Backbone of the hub-and-spoke production network

A hub-and-spoke configuration of the production network requires an efficient logistical system, aimed at supplying the assembly plants in the regional markets with CKD kits produced at the main plant in Mioveni. Realizing the cost benefits of centralized production at the hub requires effective and efficient distribution, which is why Renault opened a state-of-the-art logistics center in Mioveni in 2005. It is one of seven sites of the company's International Logistics Network (ILN), which organizes and controls the flow of goods within the Renault Group, from inbound to outbound logistics.

The ILN center in Mioveni serves as the central hub and backbone of Logan production worldwide. As shown in Figure 11, this center is responsible for receiving all of the components manufactured by the 188 suppliers, organizing the shipment of CKD kits to the various assembly plants and taking charge of shipping the vehicles produced in Mioveni to distributors in the European markets. With 297 employees and a volume of 872,243 cubic meters of components shipped in 2007, which amounts to more than 23,000 standard containers, the Mioveni logistics center is not only the largest such center in the Renault Group, but the largest of its kind in the entire international automotive industry.

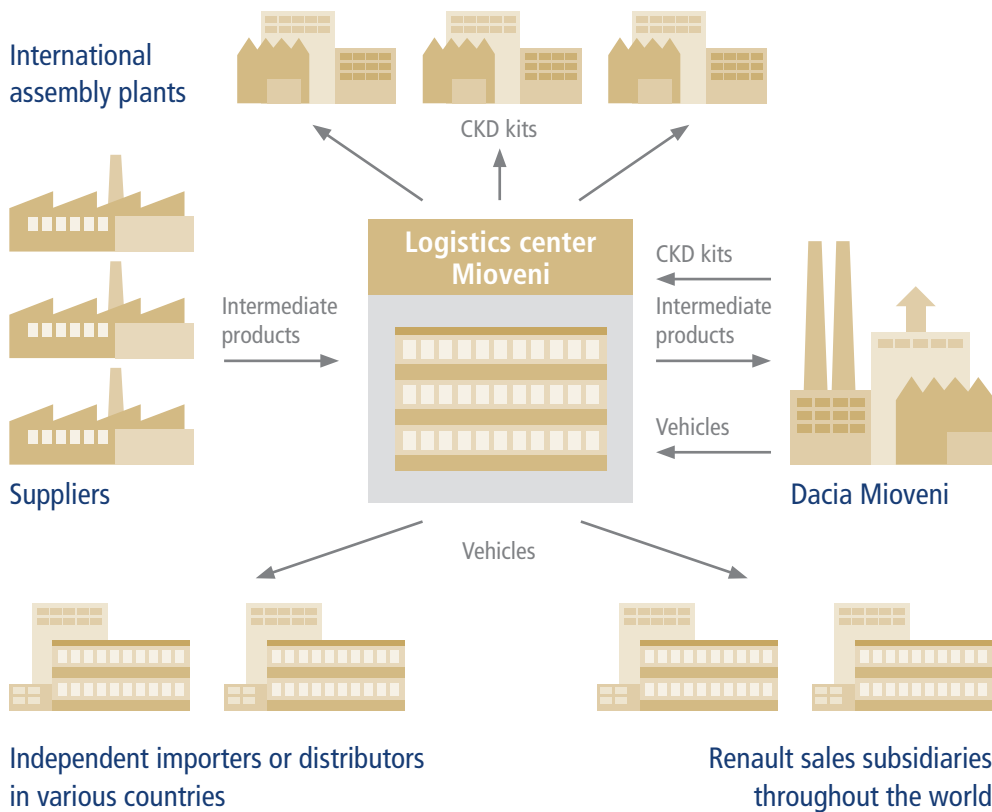
The distribution of new vehicles is also strictly governed by cost considerations, in order to maintain the cost advantage of the Logan and Sandero. In contrast to many of its competitors, Renault usually transports its vehicles by ship, which is the most economical alternative. Most distribution for the German market is handled by the German shipping company Willi Betz. The vehicles are transported by truck from Mioveni to the Danube port of Vidin, a distance of 200 kilometers, where they are loaded onto one of the Betz company's ships. The 1,440 kilometer trip by river to Passau takes about five days. From there Betz car carriers deliver the vehicles to German Renault dealers with a Dacia showroom.

**Benefiting from the advantages of hub-and-spoke production requires effective and efficient logistics.**

By transporting its vehicles by ship rather than land, Renault is able to save 20 percent of the relevant costs. About 80 percent of its vehicles intended for the Western European markets are brought to their intended markets by water, even if land transport would be faster. Finished vehicles destined for southern Europe and CKD kits to be assembled in Morocco, Brazil and Colombia are also transported by ship. The logistics subsidiary, Gefco, of Renault's French competitor Peugeot transports them by train from Mioveni to the Romanian port of Constanta on the Black Sea, where they are loaded onto ships; Renault is clearly willing to cooperate with its competitors in order to cut costs. However, since transporting vehicles by ship takes longer, it is essential to plan ahead so that fluctuations in production and demand do not lead to long waiting periods for dealers and customers.



Figure 10: The logistics network for the Logan's hub-and-spoke production



Source: The authors, based on Dacia (2008e), Mannschatz (2008).

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### Summary

A well-designed logistics network is essential to reap the benefits of a hub-and-spoke production network.

- \_ It is crucial to have an efficient logistics platform at the central production site, which serves as the hub of international production.
- \_ To gain the desired price advantage, companies need to emphasize efficiency when choosing a means of transporting kits to decentralized assembly sites (if applicable) or finished vehicles to their destination markets.
- \_ It should be kept in mind during the planning phase that less expensive transport alternatives require more time, so that waiting periods for customers and dealers can be kept to a minimum.

### 3. The competitive advantages offered by emerging markets

The example of the Logan shows that it takes more than a production site with low labor costs to produce a low-cost car. Upstream and downstream → value functions need to be part of the calculation as well, just as they are important for a cost leadership strategy, as Porter points out. The Renault Group focuses on the “low-cost idea” throughout its value chain, which has allowed it to keep the price of the Logan and Sandero low. It is also clear that a cost orientation is a necessary, but not sufficient, condition for the success of a low-cost car. While cost considerations have played a significant role in the geographical distribution of the relevant value activities, they have not been the only factors in the Logan’s success. The configuration-to-cost model alone does not guarantee success. Other important factors include training suppliers in emerging markets, which promotes a high level of localization in procurement, and taking into account local conditions by decentralizing development activities. Furthermore, it is crucial not only to make changes in the → value configuration, but also to undertake necessary adjustments in the coordination and management of value activities, as is clear from the need to decentralize decision making in the area of development.

Low-cost cars represent a new kind of product in the vehicle market, and they require a new configuration of the value chain. As the target markets for these products, emerging nations play a central role. Figure 12 summarizes once more the steps that Renault has already taken. These measures apply not only to the automotive industry, but also to many other industries as well. The changes Renault has made in the value chain provide a model for other companies as they configure and coordinate their value activities relating to other low-cost products.

It is essential that the entire value chain be appropriately configured, and not only by choosing a favorable production site, since the cost advantage of a low-wage location can disappear fairly quickly. If a company’s business model is based solely on low labor costs during the

production stage, its competitive advantage can easily erode as time goes by. Note that labor costs in the emerging markets have risen dramatically over the past few years. In 2007, labor costs in Romania increased by 30.2 percent, compared with 3.3 percent in France and 1 percent in Germany. Early in 2008, Renault endured a three-week strike by Dacia workers, with the unions demanding a 33 percent increase in wages. The two sides ultimately agreed to an average wage hike of about 27 percent.

#### Emerging economies can become important sources of knowledge and expertise.

Moreover, our analysis of Renault’s value configuration shows that companies from the industrialized countries can generate competitive advantages by integrating emerging economies into their value chains. This can be done, for example, by carrying out development activities in those countries. Knowledge and innovations developed in emerging economies can be used to competitive advantage worldwide – in a company’s domestic market as well. Accordingly, the role played by the emerging markets is no longer simply that of a cheap production site. Instead, they should be viewed as a source of knowledge and expertise that can help establish a strong competitive position throughout the world, as our conversation with Coimbatore K. Prahalad (p. 98) indicates. Since low-cost cars are primarily intended for the emerging markets, it only makes sense to carry out relevant value activities in those locations as well. Furthermore, by locating high-level value activities in → developing countries, companies from the industrialized countries help to promote economic development in other parts of the world. ■

**Figure 11: Overview of the configuration of the value chain for low-cost products**

<p>Renault's configuration and coordination for the Logan: A model for low-cost products in general</p> <p><b>Production</b></p> <ul style="list-style-type: none"> <li>_ Centralizing most production activities to achieve maximum economies of scale.</li> <li>_ Creating supplementary "production satellites" to establish contact to target markets.</li> <li>_ Cooperating with partners to achieve synergies and share risks.</li> </ul> <p><b>Procurement</b></p> <ul style="list-style-type: none"> <li>_ Achieving a high level of localization at the central production site to take advantage of differences in the cost of production factors and avoid transport costs.</li> <li>_ Advising and training local suppliers to achieve the highest possible level of localization.</li> </ul>	<p><b>Development</b></p> <ul style="list-style-type: none"> <li>_ Centralizing the development of low-cost products to allow for the use of parts and concepts that are already available within the company.</li> <li>_ As time goes by, decentralizing the development of country- or region-specific models that reflect customer preferences.</li> <li>_ Decentralizing decision-making responsibilities related to model adaptations, to ensure that customer preferences are taken into account.</li> </ul> <p><b>Logistics</b></p> <ul style="list-style-type: none"> <li>_ Establishing a suitable internal logistics network to ensure that centrally manufactured goods are distributed effectively and efficiently within the production network.</li> <li>_ Making consistent efforts to choose the least expensive means of transporting goods to dealers and customers to maintain the price advantage of a low-cost product.</li> <li>_ Taking longer transport times into account during production planning so that waiting periods for dealers and customers can be kept to a minimum.</li> </ul>
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#### Summary

- \_ Manufacturing a low-cost product requires not only certain product and process innovations, but also a reconfiguration of the value chain and changes in the management of value activities. Cost optimization is only one factor among many.
- \_ Low-cost products have macroeconomic implications: Emerging nations are no longer simply an "extended workbench" for international value creation. Rather, they can be a source of innovation.

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In the interest of readability we have reduced the number of references contained in this version of the study. A complete list of references is found in the bibliography. A German version of the study can be obtained in printed form as an academic working paper by

contacting the office of the authors (renate.ramlau@escp-eap.de); it may also be downloaded from the website of the Chair of International Management und Strategic Management at ESCP-EAP European School of Management Berlin ([www.escp-eap.de/imsm](http://www.escp-eap.de/imsm)).

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# Speaking with Coimbatore K. Prahalad

Professor of Corporate Strategy at The University  
of Michigan's Ross School of Business

**“We are moving away from a firm- and product-centric view of value to a network-centric and co-created view of value.”**

**Mr. Prahalad, 20 years ago you published — together with Yves Doz — the Integration-Responsiveness Grid. In it you argued that companies have the choice between global integration and local responsiveness. Would you say that the I-R Grid still holds true today?**

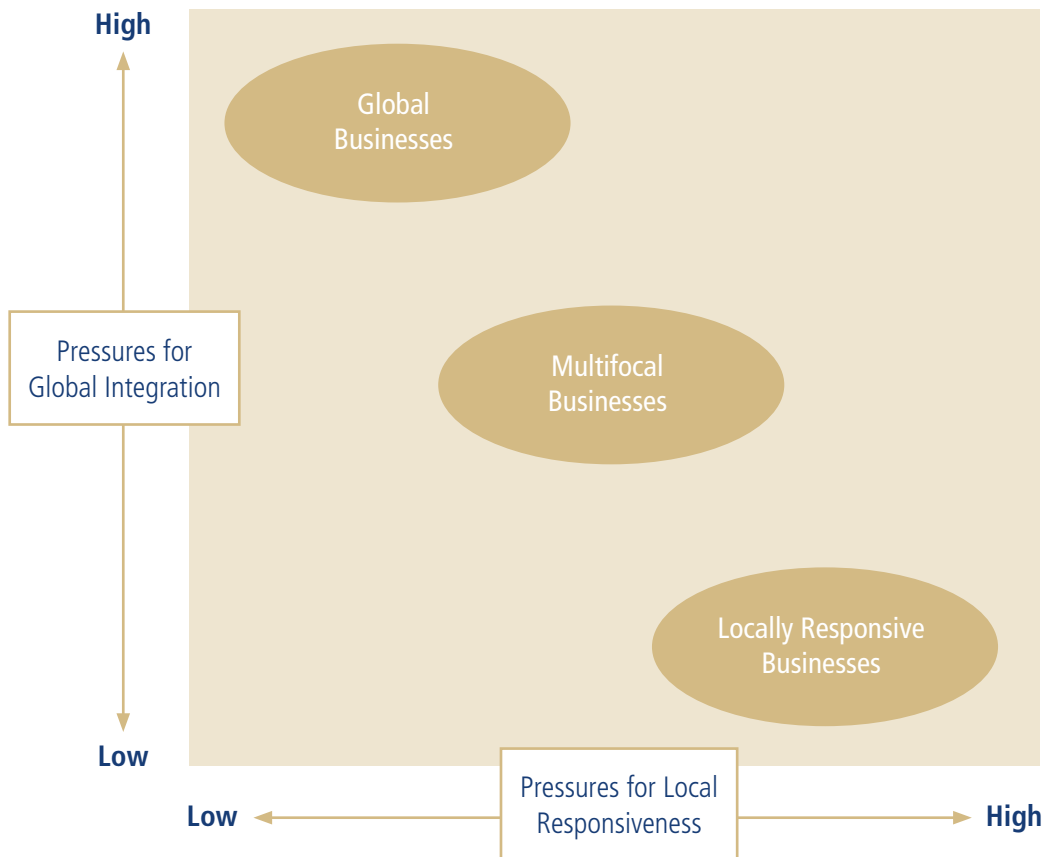
Managing Global Integration (GI) and Local Responsiveness (LR) is more critical today than it was 25 years ago. If you recall, the basic thesis of the book was that a business simultaneously faces the need for GI and LR. As we outlined in the first chapter, few if any businesses are at either extreme in the I-R Grid. Most of them are in between.

To quote: “In the case of the TV business, the strategic choice is not all that clear-cut. Some elements of strategy, like plant size and technology, may have to be managed centrally. On the other hand, deliveries, competitors, and some key customers may have to be managed region-

ally and locally. That implies that managers cannot make a one-time choice on which of the two dimensions to leverage. They must simultaneously focus their attention on aspects of the business that require both global integration and aspects that demand local responsiveness, and on varying degrees of strategic coordination. This need for multiple focal points for managing suggests that managers must reflect the need for multiple points of view — the need to integrate and be responsive at the same time — in the way the business is organized. That requires the organization to be multifocal or matrix” (pg. 25-26).

The spirit of the book was clear. While the extremes in the I-R framework are appealing, a wide variety of factors, including the action of governments, does not allow for either pure form. We must learn to manage both. The tension between GI and LR is real and it is not a trade-off. The I-R Grid provided a basis not just for understanding where a business stood at a

Figure 1: Integration-Responsiveness Grid



Source: Prahalad/Doz (1987: 27).

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given point in time, but also how it is likely to change. Further, it showed vividly why the businesses within a corporate portfolio may be different. The message was: “Don’t use one system to manage all businesses.” Further, it provided managers a road map on how to create a “multifocal organization” to manage the tensions in the second half of the book.

Much discussion of managing the global firm has taken place since then. New acronyms have come and gone. Ideas such as the Transnational Firm and “glocal” gained currency. In the I-R framework, we said we have to think and act both globally and locally – depending on the functions and tasks within the business.

It was not “Think Global and Act Local.” The basic concepts of Global Integration and Local Responsiveness, I believe, have stood the test of time. Further, the idea of continually managing the tension between the two and not making a trade-off has been vindicated. Most importantly, the need for creating a “multifocal” organization has gained currency.

With the focus on emerging markets, the I-R framework and the associated organizational ideas become more relevant. Needless to say the Internet and [other] collaborative tools make the creation of practice communities and multifocal people and organizations easier.

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**A major topic in your publications is your interest in developing countries. Has the role of developing countries for multinational corporations (MNCs) changed during the last years?**

Yes. Most MNCs focused on the top of the global economic pyramid – 1.5 billion out of the 6.5 billion people in the world. I called attention to the 5 billion underserved – the bottom of the pyramid, if you will. As the Berlin Wall fell and billions wanted to join the global economy, it was obvious that by creating the preconditions for the active participation of the “poor” as micro-consumers and micro-producers, micro-investors and micro-innovators, a new wave of growth will result.

Consider what has happened in just a short period of seven years. For the first time in human history, 3 billion people are connected through the cell phone. The poor have become the source of growth and wealth creation. Just the wireless carriers in China, India, South Africa, and Brazil have a market capitalization in excess of 500 billion US dollars. This wealth was created by catering to the poor. India alone sells more than 8 million new subscriptions per month. More importantly, it is changing the lives of the poor. Their ability to transact businesses – be it selling fish or vegetables at mar-

ket prices, paying for small transactions through text messaging, or calling for medical help in an emergency – has created a new opportunity for developing unique applications. The poor represent not only an emerging market, but – increasingly – a source of innovations.

Not just Nokia and Samsung, Motorola, and LM Ericsson get this message. MNCs such as Unilever, Danone, DSM, P&G, Microsoft, Intel, and AMD are learning very rapidly that not participating in these markets is not an option. It is very critical for them to learn how to build low cost, world quality products and services.

**In your book “The New Age of Innovation” you focus on value creation in networks. To what extent do you see networks as an appropriate organizational structure for creating value?**

The basic ideas of network-based innovation can be traced back to the book “The Future of Competition” and to an extent to “The Fortune at the Bottom of the Pyramid.” In “The New Age of Innovation,” we tried to make this not just a concept, but also to provide a road map on how to build the capabilities to make it work.

The core drivers of this change are globalization, ubiquitous connectivity (3 billion people

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connected), digitization, and the consistent drop in prices (e.g. a 30 US dollar cell phone and a 0.01 US dollar long-distance call), convergence of technology and industry boundaries (e.g. a cell phone today is a phone, a computer, a camera, a map, a calendar, a watch, a radio and a TV), and the emergence of social networks (e.g. Facebook). These, coupled with globalization, are changing the very dynamic of innovation – the basic relationships between consumers and consumer communities and the firm. We are moving away from a firm- and product-centric view of value to a network-centric and co-created view of value. Let us take a popular example: Apple. It does not create its content. It does not manufacture its product. It designs it. Resources are sourced from a wide variety of vendors – big and small – around the world. Resources are based on global access. Let us call this  $R=G$ . However, Apple allows each one of us to create his or her own playlists. This provides a personalized, co-created experience – one person, one experience, created by the consumer with the help of Apple. Let us call this  $N=1$ ; one co-created experience at a time. Apple is not alone. The same pattern applies to Google, Netflix, OnStar (automotive telematics), Medtronic (pacemakers), or Build-a-Bear Workshop (toys). This is a 180-degree departure from the traditional industrial system-logic initiated by Henry Ford with Model T – undifferentiated consumers



Coimbatore K. Prahalad – Professor of Corporate Strategy at The University of Michigan's Ross School of Business

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(“You can have any color you want as long as it is black.”) and total Vertical Integration (River Rouge Plant).

Co-creation and a network-based view of access to resources is the wave of the future.

**The automotive industry is seeing the rise of new players, such as Tata from India or Brilliance from China. What could be their role in the automotive industry of the future? Which internalization strategies might be appropriate for them?**

Every major nation seeks to have a piece of the automotive pie. U.S. and European industry sat quietly by when the Japanese firms built their automotive capabilities – both in motorcycles and cars. Now they are credible players, with Toyota being number 2 in vehicles and number 1 in profitability. Incumbents also waited for Hyundai to emerge as a major player. Now, we should ask whether India and China will leave this market untouched.

The process of building a global auto presence seems to follow a clear path. First, cater to the emerging domestic market. Hone your skills, build scale, and build credibility. Then, either export from a strong domestic base – as traditionally Japanese and Korean firms have

done – or acquire technology, management, design and brands to expand – as Tata has done with the Jaguar/Rover deal. Simultaneously, Tata announced the Tata Nano, a car for 2,500 US dollars (originally 2,000 US dollars at the exchange rates prevailing at that time). Tata Nano is an inflection point in the industry. It can open a market of millions of new customers all over the world. So what has Tata done? At one end opened up a new market segment with Tata Nano, and on the other end secured a position, tentative as it may be, in the world luxury segment. They have the low-end cars in India called Indica. They are also in commercial vehicles, from ACE to Tata trucks. They have a global manufacturing presence, from South Korea (Daewoo trucks) to India and Europe. They have access to world-class design and engineering capabilities. They have access to managerial talent that is not confined to India.

How firms like Tata will knit together these diverse acquisitions with so many micro-cultures is of great interest to those who follow the firm. But the fact is that in a very short period of five years they have emerged as an innovator (Tata Nano) and a credible global player. They straddle the pyramid – luxury-end to the low-end. They are also a commercial, recreational, and traditional auto-maker. It is time to keep them on your radar screen. ■

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## Coimbatore K. Prahalad

C.K. Prahalad, the Paul and Ruth McCracken Distinguished University Professor at The University of Michigan's Ross School of Business, specializes in corporate strategy. His books include *Multinational Mission: Balancing Local Demands and Global Vision* (1987), co-authored with Yves Doz, *The Fortune at the Bottom of the Pyramid: Eradicating Poverty through Profit* (2004), and *The New Age of Innovation: Driving Co-created Value Through Global Networks* (2008), co-authored with M.S. Krishnan.

A prominent world-class figure, Professor Prahalad has consulted with the top management of many of the world's foremost companies. He serves on the Board of Directors of NCR Corporation, Hindustan Lever Limited and the World Resources Institute. He is the chairman and founder of The Next Practice. C.K. Prahalad was voted the most influential business thinker in 2007.

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# From assembly plant to center of excellence

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## The rise of Audi's subsidiary in Győr, Hungary

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## 1. Establishing Audi Hungaria as a subsidiary of Audi AG

### 1.1 Various reasons for direct investment in Győr

In February 1993 the Bavaria-based company Audi AG, which is part of the Volkswagen Group, established a wholly owned → subsidiary called Audi Hungaria Motor Kft. in the Hungarian city of Győr. After about 18 months of planning and construction work, an engine assembly plant began operations in Győr in October 1994. This represented a change in Audi's production strategy; for the first time in the company's history, it was moving some of its production abroad. Until then all of Audi's production had been carried out at two locations in Germany: in the city of Ingolstadt in Upper Bavaria, home to company headquarters, and in Neckarsulm in the Württemberg region, just over 200 kilometers away.

Establishing a subsidiary in Győr was part of a strategic reorientation of the entire company. Audi began an extensive expansion and reworking of its vehicle range in 1994, introducing the reengineered A4 and A6 models and launching the A8 luxury sedan. This was an effort to counteract weak sales of existing vehicles caused by the 1992 economic slump, while also structurally generating new sales growth – especially in the case of the A8.

This reorientation required a new production strategy. The Audi A4, which replaced the successful but aging Audi 80, was a model with an innovative four-cylinder engine and five-valve technology that the existing facilities in Ingolstadt and Neckarsulm were not equipped to produce. In addition, expected sales growth would require new engine assembly lines to expand capacity. In the interest of long-term competitiveness, Audi was looking for a site that would provide distinct cost and productivity advantages.

In an eight-month selection process, Audi reviewed more than 180 possible sites all over Europe as potential locations for a new engine assembly plant, the majority of them in Central and Eastern Europe. Among the finalists were the German cities of Magdeburg, Chemnitz and Ingolstadt and the Czech cities of Broumov and Mladá Boleslav. The industrial city of Győr (known as Raab in German) was finally selected in 1992. Győr, with a population of 130,000, is the sixth largest city in Hungary and located between Vienna and Budapest, about 120 kilometers from each.

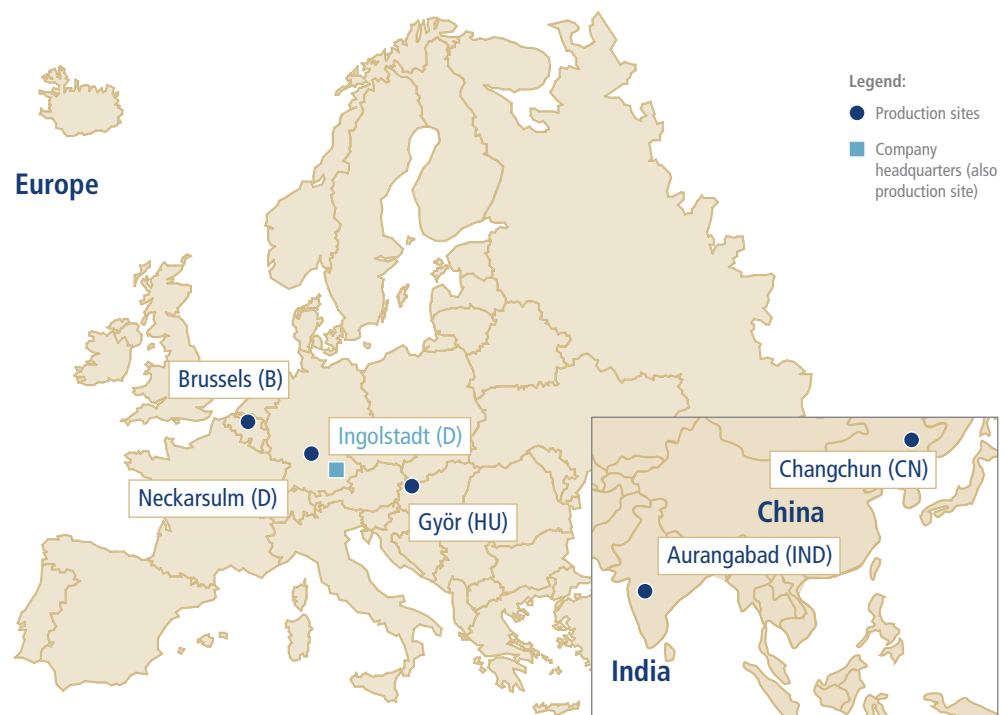
Győr is also relatively close to Audi AG headquarters in Ingolstadt – only 610 kilometers away. Company headquarters, the German production sites and the existing suppliers are therefore all within a reasonable distance. Moreover, Győr has the advantage of being well connected to the transportation infrastructure. This is evident from Figure 1, which shows Audi headquarters in Ingolstadt and the other European production sites, as well as Audi plants in India and China. Győr is located on the railway line between Vienna and Budapest and has a direct highway connection to Germany, making it easy to reach by rail or road. These reasons alone, however, would not have tipped the balance in Győr's favor.

Another major factor in selecting Győr was labor costs, which were considerably lower than at home. When the decision was made, labor costs (wages and salaries, along with fringe benefits) were only one-eighth as high in Hungary as in Germany.<sup>1</sup> Hungarian labor law was also considered more employer-friendly, because the unions

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<sup>1</sup> Labor costs in Hungary have risen since that time, but they are still considerably lower than in Germany. In 2007 labor costs per hour amounted to 7.70 euros in Hungary, compared with 29.20 euros in Germany. While such comparisons are problematic, we can conclude that the ratio is roughly one to four (Destatis 2008).

**Figure 1: Audi AG production sites**



Source: The authors, based on Audi (2008e).

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had less influence. Both of these advantages still hold true. Furthermore, the 40-hour week was, and remains, the norm for workers in Győr, and companies are allowed to operate up to four shifts, seven days a week. Shifts can be called or canceled at short notice without the need for lengthy negotiations with the works council. This allowed Audi not only to cut costs, but also to make production much more flexible, leading to further savings. Other production factors offered savings as well; energy, cleaning, transport and security in particular are less expensive than in Western Europe.

Moreover, an unfinished production hall measuring 100,000 square meters was available in Győr at a low price from the industrial conglomerate Rába, a relic from the pre-1989 era. Rába's commercial vehicle division had been planning to produce diesel engines for the Eastern European markets in cooperation with its German competitor MAN. After the opening of the former Eastern bloc, however, this project was abandoned. For Audi, this meant investing only one-third as much as such a plant would have cost in Germany. In addition, the plot of land on which the

building was located was relatively large, offering room for expansion. Audi took advantage of this opportunity to build onto the existing parts of the structure. Sixteen months after an agreement was signed with the city of Győr, engine assembly could finally begin.

Hungary granted Audi full exemption from business and earnings taxes for a period of five years, as is customary for foreign investments in the country. The exemption could be extended for an additional five years if Audi were to reinvest all of its profits from the Győr site during the initial five-year period. From the outset, the Győr plant was treated as a duty-free zone; in other words, Audi is not required to pay duty when importing supplier parts, nor when → exporting finished engines.

Along with these financial advantages, the high level of education and training of the Hungarian workforce argued in favor of investing in that country. Győr in particular offered sufficient numbers of well-trained potential employees, including both skilled workers and university graduates. Shortly before Audi's decision, the

Rába conglomerate had been forced to eliminate over 20,000 jobs in Győr, many of them in its commercial vehicle division. This meant that a large number of people with a relevant vocational background were looking for work in the region. In addition, the local Institute of Transportation and Telecommunications, which has enjoyed university status since 2002, is continually training engineers and other specialists, including economists. In Győr, Audi could count on an ongoing supply of well-trained workers and experienced job candidates who would be able to start immediately when the new site commenced operations.

Audi's decision to open a plant in Győr was therefore based largely on issues of efficiency. Total costs of investment in Győr were between 30 and 40 percent lower than the cost of establishing a new plant in Germany, and at that time ongoing production was roughly 60 percent less expensive than at home. It was clear from its consideration of these location factors that Audi's management was seeking to make the company more competitive in its cost structure. Procurement issues were also important; suitable personnel had to be available and the new site needed to provide easy access to the existing supply and production networks. Strategic considerations played a significant role as well; the new assembly plant in Győr was clearly an important part of Audi's strategic reorientation and essential for reaching its growth targets.

### Companies that base their location decisions primarily on low costs, ignoring other factors, may encounter problems.

An analysis of Audi's decision regarding a plant site shows that → direct investment is not motivated by a single factor, but by a variety of considerations. Laying the groundwork for the successful development of Audi Hungaria required giving serious thought to a number of location factors. Other companies today find themselves struggling with low productivity because they chose foreign locations mainly on the basis of cost advantages, ignoring such potential problems as a lack of well-trained workers. "When

location decisions are strongly cost-driven, it appears that other relevant factors are given too little attention," explains Steffen Kinkel, expert on site planning at the Fraunhofer Institute in Karlsruhe (Kinkel 2006: 12). VW, Audi's sister brand within the Volkswagen Group, is currently experiencing difficulties because it cannot find enough suitable workers to staff its new plant in Kaluga, Russia. Thus VW is making only slow progress toward achieving its original goal, which was to use this plant to help open up the promising Russian market.

#### Summary

- \_ In making decisions about foreign locations, companies need to be clear on their goals in making a direct investment in a foreign country. Success requires a comprehensive and holistic evaluation of all location factors.
- \_ It is particularly important to undertake a dynamic assessment of the potential investment. If the decision is based too much on cost advantages, for example, changes in relative costs over time may offset the site's advantages. In some cases this may lead to an expensive relocation.

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## 1.2 Innovative structures and processes for Audi Hungary

The first innovation concerned organizational structure. Audi immediately established a new kind of leadership culture in Győr, aimed at promoting entrepreneurship within the company. Only two levels of management were instituted, in the interest of creating unbureaucratic and flexible → structures. In contrast to the situation at the company's German plants, where the organizational system was still based on a traditional division of labor with fixed responsibilities, workers at the Hungarian plant immediately began working in flexible teams – much as is the case at Toyota, the industry model.<sup>2</sup>

**Skilled workers assume responsibility for their tasks and are given the necessary authority, since they are the ones who are most familiar with their work.**

The teams consist of several skilled workers who are in charge of operations, facility maintenance and quality assurance. Team members handle operational and organizational issues related to specific production stages, an arrangement that makes it possible to streamline decision making. The teams also play a central role in optimizing production. At a conventional automotive plant, executives are responsible for solving problems and improving processes, but in Győr these tasks are performed by skilled workers. They are expected to be constantly looking for ways to optimize work processes and continually offering suggestions, not just when a concrete problem arises – another similarity to Toyota and its continuous improvement approach (known as “kaizen” in Japanese). “The associates who perform the value-added jobs are the most familiar with the actual work and the actual problems that affect the work,” notes Jeffrey Liker, Professor of Industrial and Operational Engineering at the University of Michigan and an expert on Toyota's management method, in explaining the advantages of assigning responsibility to skilled workers (Liker 2006: 273).

Team leaders, who first serve as operational members of the team, are in charge of making sure that there is an adequate supply of parts, carrying out quality inspections, substituting as needed for absent team members and training their colleagues. Although they are not officially considered part of management, they assume responsibilities that would be assigned to the management of traditional organizations. The role of team leaders and skilled workers is one of the main reasons why Audi Hungary has been able to limit itself to two levels of management. Jürgen Hoffmann, former Chairman of the Board of Management of Audi Hungary, points out the advantage of a “lean” organization: No employee can shirk his responsibilities, since others would immediately notice. The workforce at Audi Hungary has accepted this arrangement without objection.

Only a few Hungarian employees were introduced to the operational methods in place at Audi's German plants in Ingolstadt and Neckarsulm; it was felt that limiting exposure to those methods would make it easier to establish a new system in Győr. Jürgen Gebhardt, former head of production at Audi AG, knew from his experience at Opel that when new employees fall back on traditional methods, it is much more difficult to put updated structures and processes in place at a new site.

Another innovation involved logistics, with Audi taking a new approach to integrating the Győr plant into its operations. The Hungarian plant is → integrated into the value network of Audi AG through a sophisticated external logistics system that is managed and implemented by Schenker, a subsidiary of Deutsche Bahn, Germany's national railway company. Freight trains transport the some 3,000 individual parts that are needed to assemble the engines (e.g. intake and exhaust valves and spark plugs) from Ingolstadt to Győr and return the finished engines to Ingolstadt. From there, the engines assembled in Győr are distributed to their destinations.

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<sup>2</sup> Further information on Toyota's production system can be found in the case study of the Volkswagen Group contained in this publication.

It was important to structure the internal logistics systems in Győr in a similarly innovative way. At a plant of this size, internal logistics is crucial for achieving a high level of efficiency. First, the plant was designed to ensure that distances between the delivery sites for engine parts and the assembly lines, as well as between the various assembly stations, were as short as possible. Second, all internal plant logistics were → outsourced. As production began in Győr, Rudolph Logistik Kft., the Hungarian subsidiary of the German logistics specialist Rudolph Logistik Gruppe, took over responsibility for the movement of goods within the Audi plant, including in the production halls and between the various assembly stations. Rudolph employees handle everything associated with incoming goods, goods inspection, inventory management, assembly line supplies and the shipment of assembled engines to other Audi plants. Since Audi employees are not involved in moving goods, they can concentrate exclusively on the production process.

**Innovative organizational and management methods lead to flexibility and ongoing optimization, which puts the Győr site at the top in terms of productivity and quality.**

It is largely due to the modern organizational and management methods described above that the Győr site today ranks at the top among Audi AG locations in terms of productivity and product quality. Thomas Faustmann, current Chairman of the Board of Management of Audi Hungaria, points out, “Our company’s success is based on flexibility and an ongoing optimization of our core processes” (Audi 2008f). Today, the Hungarian subsidiary is a → center of excellence and an important strategic pillar of Audi AG, as well as the entire Volkswagen Group.

**Summary**

- \_ When a company establishes a new plant in a foreign country, it derives advantages that are directly related to the plant’s location, but it also has an opportunity to introduce innovative organizational structures in the company as a whole. This can be done from the ground up, without interference from old and time-worn ways of doing things.
- \_ Particularly when it is located in a different environment, a new site can provide feedback that can change the culture of the overall organization.

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## 2. Developing Audi Hungary as a center of excellence within the Volkswagen Group

### 2.1 Ongoing development as a center of excellence for engine production

Audi Hungary fulfilled the expectations of its parent company and quickly assumed an important role within Audi AG. Except for the plant in Sant' Agata Bolognese, which is exclusively devoted to producing engines for Audi's Lamborghini subsidiary, the Hungarian plant is Audi's only engine production plant. This has made it a group-wide center of excellence, a term used for a subsidiary that

- \_ has expertise in one or more → value functions or one or more products,
- \_ is responsible for several (country) markets in the above-mentioned area(s) and
- \_ is well integrated into the corporate network so that the entire company can benefit from its expertise.

Figure 2 shows strategic options for centers of excellence, depending on their expertise and geographic area of responsibility.<sup>3</sup> Functional centers of excellence have special capabilities with respect to a value function such as procurement, production or sales. They may also specialize in certain aspects of a value function, for example the production of selected parts or the assembly of the end product. The expertise of a product-oriented center of excellence relates to a specific product, and the center of excellence carries out all of the → value activities associated with that product, such as the procurement of intermediate products, the manufacture of the product and its marketing and distribution.<sup>4</sup>

Originally, the Győr site was to be built and expanded based on a three-stage investment plan totaling 409 million euros. The first stage, carried out in 1993 and 1994, included the basic construction of the plant and its production facilities. Upon completion of this stage, the plant

had an assembly capacity of up to 750 engines per day, and its task was exclusively to assemble four-cylinder engines for the Audi A4. All of the necessary engine parts were brought in by train from Germany.

During the second stage, completed in 1996, Audi doubled the plant's capacity to 1,500 engines per day. According to plan, the Győr site also began manufacturing the cylinder housing for the four-cylinder engines assembled there. Departing from the original plans, however, the Board of Management of Audi AG decided that same year to have Audi's entire range of engines produced in Győr.<sup>5</sup> The introduction of the A4, A6 and A8 models two years earlier had led to sales growth, as the company had hoped, which meant that engine and vehicle production capacity had to be increased. Since the company was pleased with the engines manufactured in Győr and with the plant's productivity, it seemed only logical to move all engine production to Hungary. This freed up capacity for vehicle production at the German plants and made good use of the Hungarian subsidiary's expertise in building engines. This paved the way for Audi Hungary to become a center of excellence in engine production.

The third stage of the original investment plan followed in 1997 and 1998 with the expansion of production capacity to 2,200 engines per day. Production of crankshafts and piston rods was also moved to Győr. Audi Hungary eventually took over responsibility not only for all aspects of Audi's engine assembly, but also for producing those engine components that were not obtained from outside suppliers. All of the value activities related to engine production were

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<sup>3</sup> This paper provides a simplified overview, distinguishing only between functional and product-oriented centers of excellence. We are not concerned here with those that are process-oriented. For a comprehensive look at all three types, see Schmid (2003).

<sup>4</sup> For more information on the development of subsidiaries' capabilities, see Schmid/Schurig (2003).

<sup>5</sup> Engine production in Ingolstadt was gradually moved to Győr. Production volume in Ingolstadt continued to drop until engine production was suspended there entirely in 2000 (Audi 2001: 57f., Audi 2002a: 60).

**Figure 2: Types of centers of excellence and their areas of responsibility**

Geographic area of responsibility	Functional center of excellence	Product-oriented center of excellence
Worldwide responsibility	Worldwide functional mandate	Worldwide product mandate
Regional responsibility	Regional functional mandate	Regional product mandate
Responsibility for selected countries	Functional mandate for selected countries	Product mandate for selected countries

Source: Based on Schmid (2003: 276).

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now concentrated in Győr, and Audi Hungaria had become a functional center of excellence in engine production. Since the Győr site is Audi's only engine production plant in the world, it can be said to have a worldwide functional mandate.

The increase in Audi Hungaria's responsibilities and growth in Audi's sales led to a steady increase in the number of engines produced each year, as shown in Figure 3. By 1999, five years after the Hungarian plant had opened, its annual engine production had already exceeded the one-million mark. In the 14 years since the plant commenced operations, a total of 14.8 million engines have been produced in Győr. This was made possible by further expansions that gradually increased production capacity from 750 to 6,900 engines daily. Today Audi Hungaria produces eight different engines: the R4 Otto and TDI engines (four cylinders), the V6 Otto and TDI engines (six cylinders), the V8 Otto and TDI engines (eight cylinders), the V10 Otto engine (ten cylinders) and the V12 TDI engine (twelve cylinders).<sup>6</sup>

**The production system established in Győr became the model for the production system that has now been implemented at all of Audi's sites.**

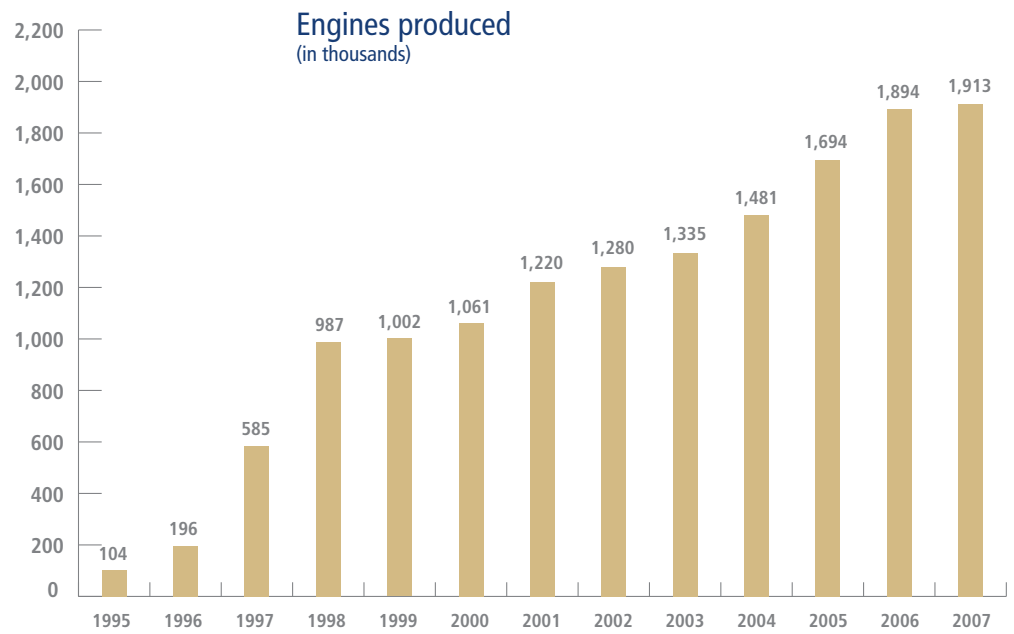
Audi Hungaria has demonstrated in a number of ways that centers of excellence have a positive

effect on the company as a whole, and not just on their local markets. The production system implemented in Győr, which increased efficiency (for example by outsourcing internal logistics) and introduced innovative procedures (such as a state-of-the-art organizational structure), became the model for the production system that was put in place at all Audi AG sites in 1999. The transfer of knowledge went both ways, not only from the German plants to Hungary, but also in the other direction, and the entire company benefited. The Audi plant in Győr serves as a company-wide → benchmark for measuring the efficiency, productivity and quality of other sites, and this has brought additional positive feedback effects. Internal competition between sites has also boosted productivity at the German plants, as Jürgen Gebhardt, former head of production at Audi AG, has pointed out.

In becoming a center of excellence, Audi Hungaria has not only contributed to the international growth of its parent company, Audi AG; it is now a leader in engine production for the entire Volkswagen Group. Only 37 percent of the engines produced in Győr in 2007 were intended for vehicles sold under the Audi brand name. The remaining 63 percent went to other customers within the Volkswagen Group, as shown in Figure 4. The VW brand now uses nearly as many engines produced in Győr as Audi AG does.

<sup>6</sup> TDI stands for "turbocharged direct injection" and refers to Volkswagen's diesel engines that use direct fuel injection coupled with a turbocharger (Volkswagen 2008b).

Figure 3: Annual engine production at Audi Hungaria

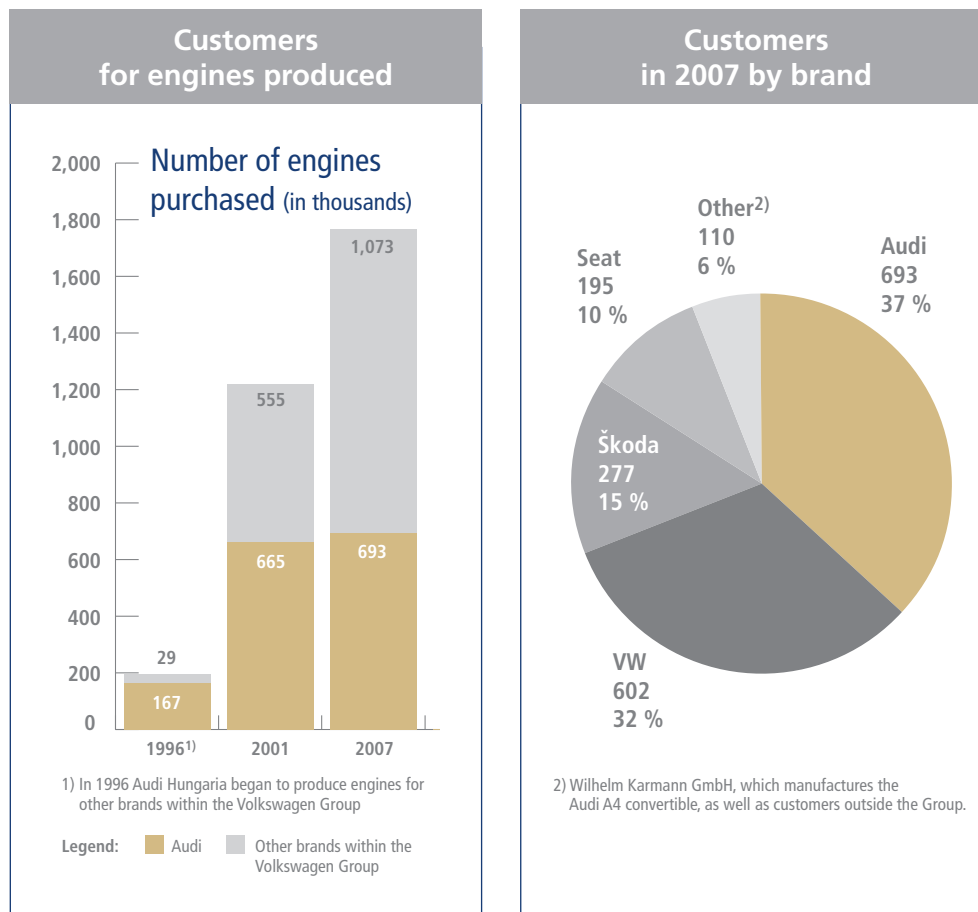


Source: The authors, based on Audi (2007a: 1), Audi (2008g: 9).

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**Figure 4: Engine production by Audi Hungaria and customers within the Volkswagen Group**



Source: The authors, based on Audi (1997: 10), Audi (2002a: 61), Audi (2008: 75).

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## 2.2 Simultaneous expansion as a center of excellence in convertible assembly

In 1998 there was a further increase in the value activities carried out at Audi Hungaria: The Hungarian subsidiary took over all assembly work for the Audi TT model, which was available as a coupé and as a roadster (convertible). As with the production of engines, vehicle assembly was integrated into Audi's existing value network, in keeping with the network principle. Vehicle bodies are still welded together and painted in Ingolstadt, then transported by rail to Győr for final assembly; the assembled vehicles are then returned to Ingolstadt by rail. Network-based production allows Audi to benefit from the advantages offered by both sites: The use

of existing facilities in Ingolstadt eliminates the need for further investments, while lower wages in Győr lead to savings on labor-intensive assembly work.

Audi Hungaria was quickly able to establish itself as a serious alternative to Audi's other sites in the area of vehicle assembly. Since officials at company headquarters in Ingolstadt were pleased with the quality of assembly in Győr, between 2001 and 2003 the plant was also chosen to assemble the A3 model and its sports car version, the S3. Since the end of 2007 the Győr plant has also assembled the A3

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convertible, along with the two versions of the Audi TT. It is the only Audi facility that currently assembles convertibles – the Audi TT roadster and the Audi A3 convertible. The Audi A4 convertible, the third “open” model sold under the Audi name, is not manufactured by the company itself, but is produced in the Westphalian city of Rheine under a → contract manufacturing arrangement with production service company Wilhelm Karmann GmbH.

Producing a convertible involves certain special requirements during the manufacturing process, for example because the process is less automated. Moreover, far fewer of them are built as compared with conventional vehicles. This makes it difficult to integrate convertible manufacture into a traditional framework, and many companies outsource production to external production service companies. Audi decided to take advantage of the Győr site, as Audi Hungaria has the necessary flexibility and the expertise for convertible assembly. Indeed, the Audi TT coupé, the Audi TT roadster and the Audi A3 convertible can be assembled on the same production line. Audi’s Hungarian subsidiary can therefore be called a functional center of excellence in the area of convertible assembly, again with a world-wide mandate.

However, the plant’s special competence in assembly is limited to convertibles. It assembled slightly fewer than 57,000 vehicles in 2007, which accounts for only six percent of Audi’s total vehicle production. Consequently, Audi Hungaria cannot be considered a functional center of excellence for assembly in general. Its expertise is not great enough to distinguish it from other sites that also carry out these activities successfully.

Nevertheless, Rupert Stadler, Chairman of the Board of Management of Audi AG, expects the Hungarian subsidiary to continue to be an essential part of the company’s vehicle production: “Audi Hungaria’s vehicle production has been outstanding in the last few years, starting with the Audi TT coupé and the TT roadster. We are confident that our Hungarian plant, in producing the new Audi A3 convertible, will

play an important role in achieving our strategic goal of manufacturing 1.5 million vehicles in the year 2015” (Audi 2007b). Over the long term, it would be a good idea to produce the Audi A5 convertible, which is to take the place of the A4 convertible in 2009, in Győr as well. According to press reports, Audi is considering taking over the manufacture of the A5 convertible rather than having it produced by Karmann in Rheine, as the preceding model has been. From the perspective of Audi AG, it would make sense to use the Győr site. This would not only take advantage of resources within the company; it would also help to utilize and expand the specialized expertise of Audi’s Hungarian subsidiary.

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## 2.3 Upgrading the center of excellence for engine production by adding development responsibilities

At its own initiative, rather than at the suggestion of headquarters in Ingolstadt, Audi Hungaria was given responsibility for development activities related to series production. These involve ongoing production and include production support (when beginning production of new engines), engine testing, adaptive development, solving technical problems during the production process, minimizing product costs and redesigning engines during their life cycle. Audi Hungaria has gained additional expertise in these areas and is now able to solve production problems independently, without help from the German plants. This has also increased its autonomy, which is essential for a successful center of excellence.

Originally, this idea was met with skepticism at company headquarters. While the capabilities of the Hungarian engineers were not in doubt, there was anxiety about an unchecked “knowledge drain” and a loss of power. “We spent two years trying to convince those in charge,” observed Jürgen Hoffmann, former Chairman of the Board of Management of Audi Hungaria, at the opening of the development center (Sailer 2000). Norbert Pauli, head of engine development at the Győr site, added, “There was such skepticism in Ingolstadt that we gave our project the code name of Csárdás [*Authors’ note:* Hungarian national dance]” (Sailer 2000). But ultimately the Hungarian subsidiary prevailed, and it began to expand its development work in 2001.

**From that time on, the Győr site was more than an “extended workbench” for the German sites; its value activities now included more than just production.**

Audi AG funded this project in two stages, investing 18 million euros in 2001 and 8 million euros in 2004. A total investment volume of 26 million euros may seem insignificant, but it had a marked effect on quality. The site was now more than just an “extended workbench” for the

German sites; its value activities had expanded to include more than production alone.

Today Audi AG has benefited greatly from its Hungarian subsidiary’s enhanced competence and autonomy, which have led to greater efficiency and productivity in the network’s production. Before, problems arising during the engine production process that required input from a development engineer – during testing, for example – usually meant a time-intensive process of shipping the engines back and forth between Hungary and Germany and required coordination between the respective employees. This additional effort is no longer necessary. Over the long term, it would be wise for Audi Hungaria to be in charge of all aspects of engine development. This would greatly simplify interactions between development and production and among the workers concerned. Audi Hungaria could then become a center of excellence in the area of engine development as well.

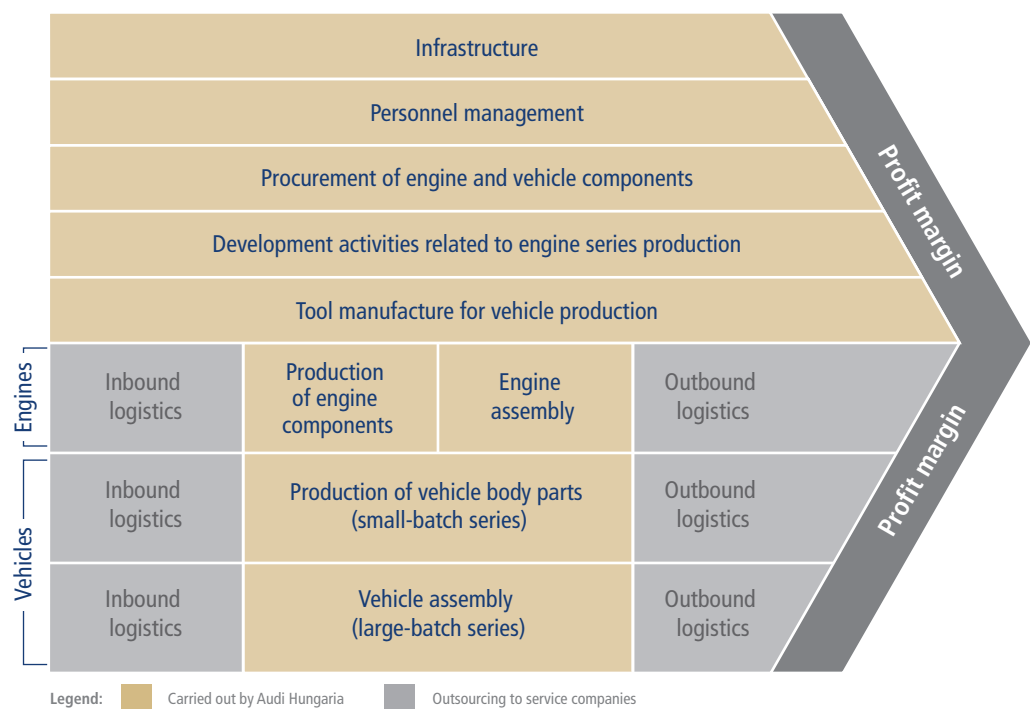
The development center represented one of the first projects in which Hungary was viewed not simply as a production site, but also as a place where development work could take place. This was particularly gratifying for the Hungarian government, and the Ministry of Education provided nearly 1 million euros in support. Audi is not the only company to conduct research and development in Hungary; the cell phone manufacturer Nokia, the network equipment manufacturer Ericsson and the technology company Siemens have facilities there as well. Clearly, Hungary is becoming a site for high-quality value creation. The trade publication Corporate Location concluded: “The indicators suggest that Hungary is moving up the value chain. [...] It is timely that Hungary is attempting to transform itself from just a manufacturing base into a destination for investors searching for value-added locations” (“No Longer the Poor Man of Europe” 2000).

## 2.4 Ongoing acquisition of additional capabilities – expansion as a center of excellence for vehicle production?

The opening of tool production facilities at the Győr site in 2005, at a cost of 40 million euros, was the final step, so far, in the development of the Hungarian subsidiary. This rounded out Audi Hungaria's production capabilities. Győr won out over the other Audi AG sites in Europe (Brussels, Ingolstadt and Neckarsulm) in an in-company selection process. Tools and equipment for vehicle series production are now being produced in Hungary, including stamping equipment, drawing, cutting and copying tools as well as the so-called grippers that are used to join vehicle body parts.

The center for tool manufacture also produces vehicle body parts for Audi's small-batch series, a new feature at that site. Today the Győr plant supplies vehicle body parts for Audi's top-of-the-line RS4, S6, RS6 and R8, which are sold in considerably lower numbers than the company's regular series models. Production includes outer skin panels, doors and hatchbacks, parts that require a complex cutting and joining technique and a great deal of manual labor to achieve the superior quality offered by these premium vehicles. The → value chain at the Győr site includes all of the steps shown in Figure 5.

Figure 5: Value chain at the Győr site



Source: The authors, based on Porter (1986: 21).

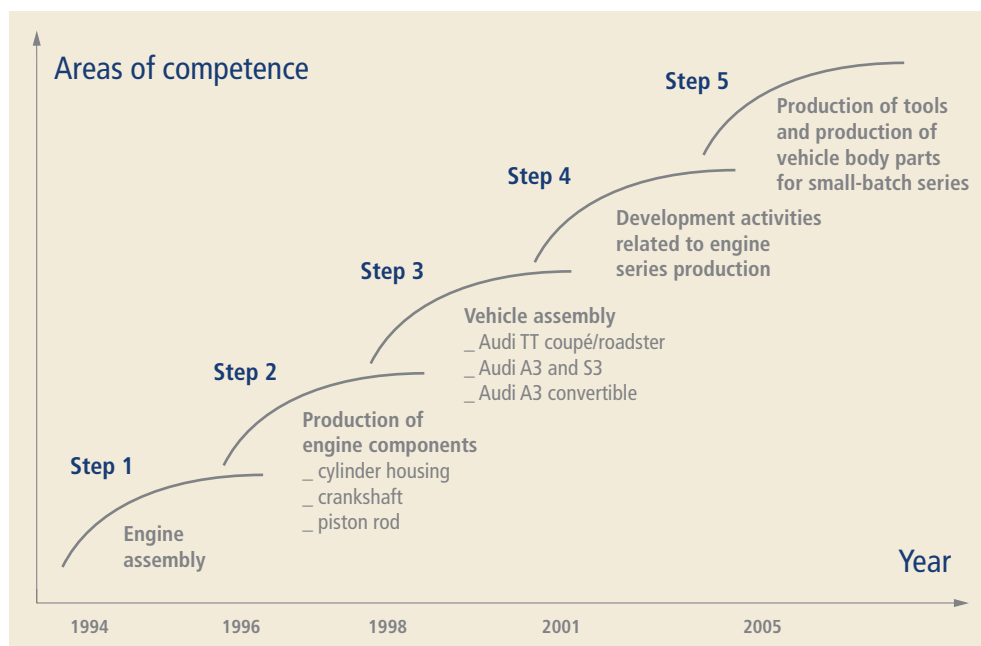
BertelsmannStiftung

A look at limited-lot series production is helpful in determining whether Audi Hungary might be capable of taking on additional vehicle production tasks. Two options are conceivable: First, the Győr site could expand to include not only assembly, but also production of its current models. If Audi Hungary's limited-lot series production proved to be as satisfactory as its vehicle assembly, the Győr site might take over the entire process of manufacturing the Audi TT coupé and roadster models as well as the Audi A3 convertible – including building vehicle bodies. This would upgrade its role as a center of excellence to include convertible production as well as assembly. Another possibility would be for the Hungarian subsidiary to produce a

specific higher-volume model, such as the Audi A3, which was assembled there for a limited period of time in the past. This would make Audi Hungary a functional center of excellence in the production of that model.

Figure 6 shows the increase in Audi Hungary's value activities and the current value chain at the Győr site. Its responsibilities are likely to continue to grow.

**Figure 6: Audi Hungary's areas of competence**



## 2.5 Audi Hungaria as a growth driver within the Volkswagen Group

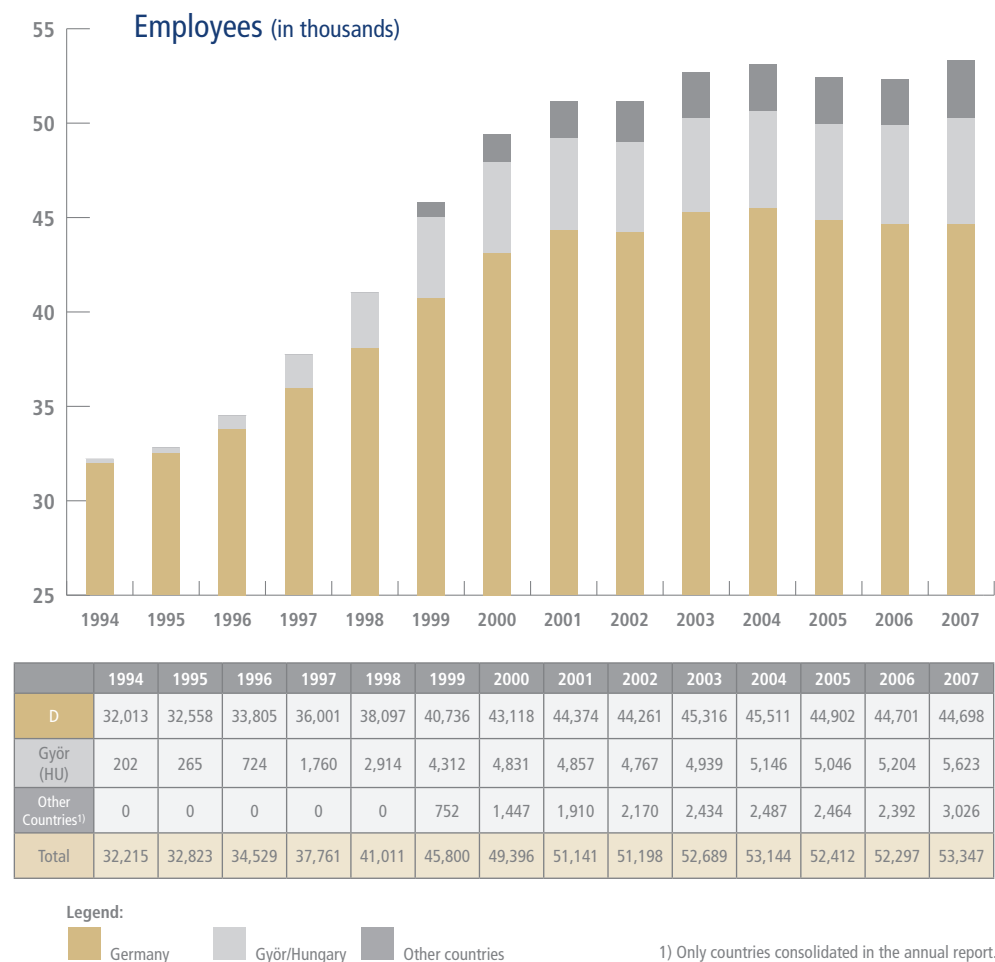
Audi AG and particularly the German sites have benefited in a variety of ways from the Hungarian subsidiary as a center of excellence, and not least from the transfer of knowledge from Hungary to Germany. This is reflected in company-wide figures. Fears that Audi Hungaria and its expansion would lead to a loss of jobs in Germany have not been borne out. On the contrary: There has been a steady increase in the number of employees at the German plants since the mid-1990s, as shown in Figure 7. The much discussed “job drain” has not occurred. The Győr site has helped Audi in pursuing its strong growth strategy (see also the interview with Rupert Stadler on p. 118). As a multiple center of excellence, Audi Hungaria has provided Audi

AG with certain → competitive advantages in this context. “For [innovative] companies, globalization is usually a win-win situation,” says Matthias Wissmann, President of the German Association of the Automotive Industry VDA (“Für Globalisierung gerüstet” 2008; see also the conversation with Matthias Wissmann following this case study).

**The Győr site has helped Audi to pursue a strong growth strategy.**

Many other stakeholders have also benefited from the development of Audi Hungaria. In terms of sales volume, Audi Hungaria is currently Hungary’s second largest company, after

**Figure 7: Employees of Audi AG in Hungary, Germany and other countries**



Source: The authors, based on annual reports.

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the oil and gas company MOL, as well as its second largest exporter, accounting for about nine percent of the country's export volume. The Győr region in particular has benefited greatly from the Audi plant. Audi AG – along with other automobile manufacturers – has triggered an economic boom by locating some of its value activities there. Today there are eleven other automotive plants at the intersection of Hungary, Austria, Slovakia and the Czech Republic, which is why this region has been dubbed the “Detroit

of Eastern Europe.” And the advantages Hungary offers go far beyond low labor costs. “The Hungarians have shown that they can produce high-quality automobiles,” says Stefan Menzel, Deputy Head of Companies and Markets for the newspaper Handelsblatt, underscoring the country's importance to the automotive industry (Menzel 2008). Indeed, Daimler recently chose Hungary as the site for its new compact vehicle plant, over a number of cheaper alternatives.

## Interview

**Rupert Stadler, Chairman of the Board of Management of Audi AG, discussing the role of domestic and foreign sites in safeguarding jobs**

**“Over 80 percent of Audi's workforce is still employed in Germany ...**

Given the complex products we are dealing with, core competence is essential and clearly far from a trivial matter. One example is the design of the tailgate on our SUV models. It requires competence in tool manufacture, development and production, aspects that are by no means standard in modern automotive engineering. In Germany, we are able to find the best workers for each core competence, not least thanks to our excellent educational system.

**So you are more likely to increase the number of employees in Germany in the coming years than to cut jobs ...**

We are currently expanding our workforce. Last year we hired 600 university graduates,

and we are looking to recruit another 800. In the future, too, we will hire more personnel where it is necessary. Expertise is paramount. And I, personally, feel very comfortable with what Germany has to offer. But our employees in Germany are aware that they are taking on a certain responsibility when they come to work for us.

**I gather that you think you will be able to maintain an 80-20 ratio of German to foreign sites by increasing productivity ...**

Audi decided 15 years ago to move engine production to Hungary. It was a difficult decision, and there were natural concerns that this step would lead to a massive loss of jobs in Germany. But what happened? We now employ 5,800 people in Hungary, and we have also hired 10,000 new employees in Germany – a clear win-win situation. Over the long term we will need to hire new workers in areas where we expect to see growth.”

Source: Götz (2008).

### Summary

Parent companies should not regard their foreign subsidiaries as mere “extended workbenches” if they want to take advantage of their full potential.

- \_ Instead, they can cultivate their foreign subsidiaries by giving them additional responsibilities in the value chain, for example for R&D or high-value production activities.
- \_ Foreign subsidiaries can develop into cen-

ters of excellence that assume a leadership role in the corporate network and make good use of their unique strengths beyond their own location.

- \_ Western companies should not limit their subsidiaries to the industrialized countries, but also consider the potential offered by subsidiaries in up-and-coming economies, for example in the emerging markets.

## 3. Challenges in managing centers of excellence

As our research has shown, the role of a center of excellence requires a certain amount of autonomy; the subsidiary must be allowed to take advantage of its specific capabilities. Audi Hungaria has been able to assume leadership responsibilities within Audi AG in its areas of expertise. It makes all of the relevant decisions on issues of maintaining and increasing efficiency and quality in engine production. Its leadership position has been enhanced by taking on related development activities in series production.

Moreover, centers of excellence need to be well integrated into the corporate network so that the entire organization can benefit from their expertise. Companies that are successful in their use of centers of excellence are complex network-based enterprises characterized by a variety of vertical and horizontal flows of information between the corporate units. The parent company needs to make sure that its centers of excellence have a certain degree of autonomy but are also well integrated into the network.

The task of integrating centers of excellence into the corporate network, while also ensuring necessary autonomy, is accomplished by using certain → coordination tools. In a network enterprise, person-oriented tools are particularly important for integrating the company’s various units. They are the subject of Figure 8, which was already dealt with briefly in our introductory chapter. Such tools include personal

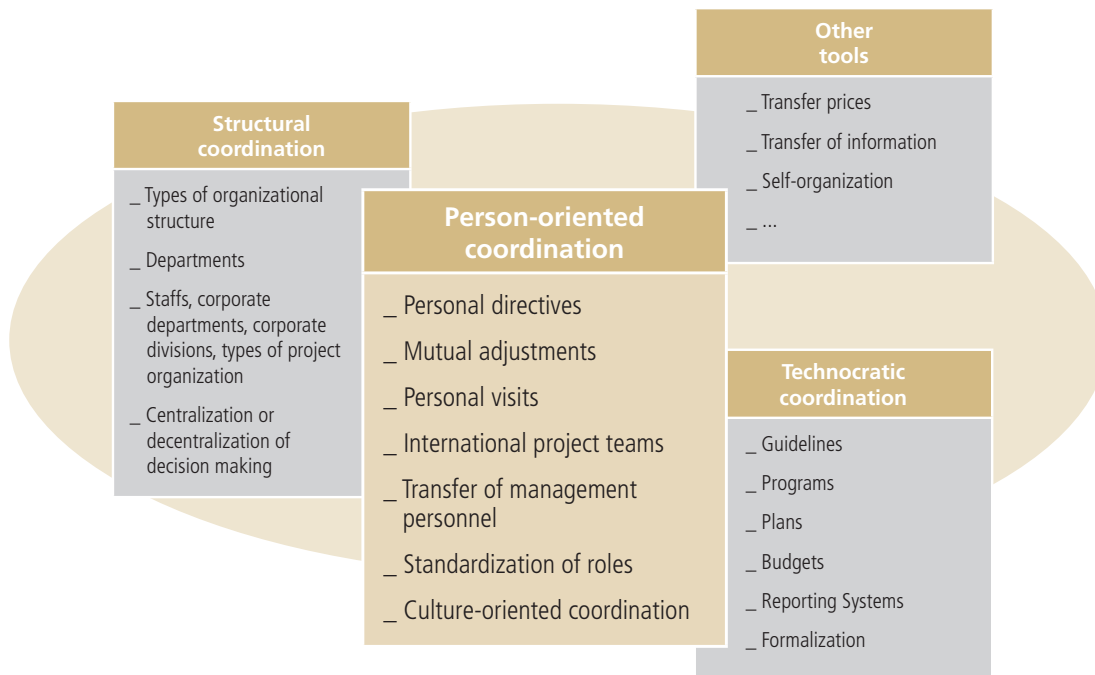
instructions, regular visits to the parent and sister companies by center of excellence staff (and vice versa), the establishment of international project teams, and the transfer of management personnel. Since the management of centers of excellence is strongly person-oriented, the “human factor” is central to the management of the company as a whole. One example of the role of person-oriented → coordination in integrating Audi Hungaria into the larger organization is that executives from the German sites are sent to help manage Audi Hungaria. Local managers receive a great deal of support from their German colleagues. Frequent personal visits in both directions and mixed-nationality project teams are also important in integrating the site into the corporate network.

**Centers of excellence require both autonomy and integration at the same time.**

While person-oriented coordination tools are very important in a network enterprise, they are not enough. Structural and technocratic instruments are needed as well, and in most cases they are used in combination with one another. There also needs to be both vertical coordination, between the parent company and the subsidiary, and horizontal coordination between the various subsidiaries, for example between centers of excellence whose value activities build on each other.



**Figure 8: Overview of approaches to coordination in network enterprises**



Source: Based on Kutschker/Schmid (2008: 1033).

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Because centers of excellence have their own specific areas of expertise, responsibilities and leadership roles, it is impossible to provide general recommendations about appropriate coordination tools. “The individual strategic role of a subsidiary plays a crucial role in determining what type of coordination will maximize the subsidiary’s contribution to the success of the company as a whole,” explains Katharina Kretschmer, management consultant for The Boston Consulting Group. It is important to remember that centers of excellence need to be managed on a highly individual basis. If, for example, Audi were to develop its Brussels plant into a center of excellence, its management and coordination would need to be adjusted accordingly. Simply copying the methods used at the Győr site would hardly be successful.

Scientific studies of coordination within international companies have provided some initial insights: For instance, the various value activities need to be managed in an individualized way. Person-oriented coordination tools have

been shown to be effective in the area of research and development, and tend to be preferable to structural or technocratic instruments. In production, technocratic instruments are effective, as are person-oriented methods, but structural instruments are less successful. These are only preliminary results, since much research remains to be done on how best to coordinate value functions. It appears, however, that the activities carried out by a center of excellence are important for determining how its management should be organized.

**Changing a hierarchical company to a network-based enterprise that includes centers of excellence requires a change in its approach to management and in its corporate culture.**

If a hierarchical company is to become a network-style enterprise with centers of excellence, this will require a change in its → corporate culture. This has implications for the company’s

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management culture, since it requires balancing the competing demands of autonomy and integration and recognizing subsidiaries as sources of expertise and skills. Cultural elements of host countries also need to be incorporated into

the company's corporate culture. A strategic decision to upgrade subsidiaries into centers of excellence requires not only a structural reorganization of the company, but also a careful effort to reshape its culture. ■

### Summary

Establishing centers of excellence has certain implications for the management of the subsidiaries concerned. Companies that fail to take this into account will not be able to reap the benefits such centers offer.

- \_ Centers of excellence need to have a certain degree of autonomy in their areas of competence so that they can put their expertise into practice.
- \_ At the same time, they must be well integrated into the corporate network so that the entire company can benefit from their expertise.

- \_ Because of differences in their activities, expertise and roles, individual centers of excellence need to be managed in different ways. The executives involved are in charge of choosing the appropriate coordination instruments.
- \_ The integration of all of a company's centers of excellence requires that cultural elements from host countries be incorporated into the corporate culture of the company as a whole.

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In the interest of readability we have reduced the number of references contained in this version of the study. A complete list of references is found in the bibliography. A German version of the study can be obtained in printed form as an academic working paper by

contacting the office of the authors (renate.ramlau@escp-eap.de); it may also be downloaded from the website of the Chair of International Management und Strategic Management at ESCP-EAP European School of Management Berlin ([www.escp-eap.de/imsm](http://www.escp-eap.de/imsm)).

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# Speaking with Matthias Wissmann

President of the German Association of the Automotive Industry (VDA)

**“Production sites in foreign countries and growth at home, with stable or even higher employment, are not mutually exclusive. Indeed, they are both essential for successful growth.”**

**Mr. Wissmann, value activities in the automotive industry are becoming increasingly internationalized, particularly in the areas of production and development. What challenges do you see facing German manufacturers as they compete on a global scale?**

The automotive industry is one of the most important pillars of Germany's economy. With annual sales amounting to 290 billion euros, it accounts for more than one-fifth of the country's total business volume. The worldwide trend toward premium vehicles and clean diesel cars has had a positive effect on qualitative growth over the past few years. Attractive new models from German manufacturers, an increase in features and – not least – the strong sales of commercial vehicles we have seen for a number of years have also contributed to this positive trend. The German automotive industry has tripled its sales since the early 1990s, and its

share of Germany's overall business volume nearly doubled during the same period, reaching a level of 21 percent. Clearly, the automotive industry is by far the most important branch of Germany's economy. Owing to the international crisis in the financial and real estate markets, however, automobile manufacturers are having an increasingly hard time selling their products.

Despite its current problems, the automotive industry remains committed to maintaining its production sites and safeguarding jobs in Germany. In 2007 the industry employed nearly 744,500 people, 72,300 more than ten years earlier. The proportion of all jobs in Germany that are associated with the automotive industry has increased from 9 to 14 percent since 1991. In other words, one in seven jobs depends on this key industry. Counting those who are employed indirectly by the automotive industry, this adds up to over five million German jobs.



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One factor in the success of Germany's automotive industry is its ongoing efforts toward internationalization. Over the past ten years, German manufacturers have doubled their passenger vehicle production in other countries, exports have increased by 50 percent and domestic production has risen by about 25 percent. This shows that production has increased much more dramatically in growth markets – China, India, Russia, Latin America – than at home. A worldwide production network, including suppliers, is essential for opening up and maintaining new markets over the long term. Exports alone are not enough. Global engineering is indispensable for ensuring that all of a company's expertise is available to its employees in every country, as this drives innovation. These two trends, internationalization and innovation, are two sides of the same coin.

**General Motors and Ford currently find themselves in considerable difficulty throughout their organizations, while their European subsidiaries are still in relatively good shape. What role could or should Opel and Ford Germany play in their corporations' value chains?**

Fortunately, the automotive industry is doing better in Germany than in other countries in this difficult environment, with declining markets in Western Europe and North America. The expertise of the European subsidiaries in the area of development is reflected in the demand we are seeing in the United States for CO<sub>2</sub>- and fuel-efficient models developed in Europe.

**The automotive industry is of critical importance to Germany and its economy today. Given increasing globalization, what will its significance be in 20 years? And what role does German politics play in the automotive industry?**

Thanks to its commitment to research and development, the German automotive industry has an excellent chance of maintaining its prominent role in world markets. One of its strategic trump cards is its expertise in CO<sub>2</sub>-efficient clean diesel, which continues to show a great deal of potential, particularly in the growth markets of India and China, as well as Russia.

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The political sphere is particularly important right now. Efforts are being made to pass a CO<sub>2</sub>-based motor vehicle tax quickly, so that potential customers have an incentive to purchase an environmentally friendly new car. This would serve two purposes: promoting climate protection while also stimulating car sales. In view of the increasingly difficult economic situation, policymakers should do everything in their power to prevent a further increase in the cost of mobility for individual consumers. It should also be pointed out that companies need to have room to invest in research and development. The overly rigid, penalty-based regulations currently under consideration in Brussels to curb CO<sub>2</sub> emissions are not the answer. We need CO<sub>2</sub> regulations with a sense of proportion.

Finally, it is crucial to invest more in our traffic infrastructure. After adjustment for inflation, resources spent on maintaining and expanding roads and highways have declined by one-third relative to the mid-1990s – despite the fact that traffic has increased dramatically, not least because of the eastern expansion of the EU. Moreover, not all of the increased income from toll charges is being used for the appropriate purposes. So we are still struggling with the costs of traffic congestion, which also produces an unnecessary increase in CO<sub>2</sub> emissions.

**By founding its Hungarian subsidiary, Audi has shown that internationalization can generate competitive advantages for a company as a whole. Since the Győr plant was opened in 1994, jobs have increased substantially not only in Hungary, but also at the German plants. Can this serve as a model for the German automotive industry?**

Győr is one of many examples of the successful internationalization strategy pursued by German manufacturers and suppliers. The automotive industry is one of the few German industries that have grown at home while also taking advantage of production and market opportunities abroad.

The dramatic expansion of foreign production by German manufacturers during the past few years has also brought changes in various segments of the markets. The traditional notchback sedan has lost some of its predominance in favor of new models and vehicle concepts that are tailored to certain customer preferences, such as family vans, city cars and convertibles.

The mixture of innovative, future-oriented production sites at home, which offer increasing development capabilities, and economical production sites abroad, has made it possible for

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German automobile manufacturers to improve their position and gain a larger share of important foreign markets. There is considerable demand for more and more sophisticated vehicle equipment, but also, and in particular, for intelligent solutions for increasing fuel efficiency. Moreover, the example of the Győr site has shown that production sites in foreign countries and growth at home, with stable or even higher employment, are not mutually exclusive. Indeed, they are both essential for successful growth.

**Automobile manufacturers are becoming increasingly internationalized, not only by exporting their products, but also by establishing their own subsidiaries in production and other areas. What does it mean for German automotive suppliers that value creation is increasingly part of a worldwide network?**

German suppliers have usually moved into new growth markets along with vehicle manufacturers, and in many cases they have even preceded them in establishing themselves abroad. More than 2,000 foreign production sites are currently in operation in some 80 countries. Small- and medium-sized enterprises in particular have expanded their foreign activities. They are integrated into the international value structures of German automobile manufacturers, but their



Matthias Wissmann – President of the German Association of the Automotive Industry (VDA)

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presence in foreign markets also helps them win new customers. The picture is certainly a positive one.

Our experiences at foreign automobile shows – whether in Beijing, Shanghai, Moscow, Tokyo, New Delhi or Sao Paulo – indicate that it would be a good strategic move for the German Association of the Automotive Industry (VDA) to set up a joint stand for small and medium-sized supplier companies; this would facilitate new contacts between manufacturers and suppliers in these markets. Long-term success requires that suppliers be present in growth markets. The VDA supports its members in this context,

particularly by providing advice. In addition, new concepts such as the low-cost Tata Nano vehicle represent opportunities for German companies, which are supplying a large share of the materials for this new model.

A network approach to value creation – in other words, a change in existing supply chains, with much-needed variety – offers a real opportunity for the German supply industry. Suppliers need to keep their strengths in mind: innovative leadership, high quality standards, cost leadership and the highly regarded selling points “Made in Germany” and “Research in Germany.” ■

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## Matthias Wissmann

Matthias Wissmann is President of the German Association of the Automotive Industry (Verband der Automobilindustrie VDA) and Vice President of the Federation of German Industries (Bundesverband der Deutschen Industrie BDI). He began his political career as National Chairman of the Christian Democratic youth organization Junge Union and member of the Federal Executive Board of the Christian Democratic Union (CDU). From 1976 to 2007 he was a directly elected member of the German Bundestag. During that period he served as spokesman for the CDU/CSU parliamentary group on economic policy and held the offices of Federal Minister of Research and Technology (1993) and Federal Minister of Transport (1993–1998), among other responsibilities. Until 2007 he was Chairman of the Bundestag European Union Affairs Committee.

Matthias Wissmann is the author of several books, including “Deutsche Perspektiven” (German Perspectives) and “Die Soziale Marktwirtschaft” (Social Market Economy). He also serves in a voluntary capacity on the boards of Philharmonia of the Nations and the Ludwigsburg Castle Festival.

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# Global networks and decentralized configuration strategies

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## Strategic, structural and cultural implications

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## 1. Restructuring international value creation

Our examination of case studies of automotive companies has allowed us to identify trends in the management of international value creation and to outline measures for structuring the corresponding → value chains to meet the needs of the future. We have identified important levers that will allow companies to achieve long-term success in global competition. These include, in particular, the strategic and → structural dimensions of value creation. At the same time, companies need to make internal cultural changes, especially regarding the management of → value activities.

All three case studies have shown that greater decentralization of value activities is imperative if companies are to remain competitive beyond their national borders. Moreover, increasing value creation in the various markets involves not only individual → value functions, but virtually the entire value chain. While many companies have long been seeking to decentralize sales (and in some cases marketing as well) – often in very different ways (Quelch/Hoff 1986) – the current focus is increasingly on decentralizing value activities in the fields of procurement, production and development. As we have demonstrated, however, the goal is not to carry out every value activity in every market and thus (again) to establish → subsidiaries all over the world as → miniature replicas of the parent company (White/Poynter 1984, 1989).

Instead, we need what might be termed “decentralized centralization,” in which a variety of activities are bundled together in different countries. Following the models of → transnational organization (Bartlett 1986, Bartlett/Ghoshal 1987a, 1987b, Baurle/Schmid 1994) and → heterarchy (Hedlund 1986, 1993) that are outlined in the international management literature, it is important to act globally as well as locally, and

centrally as well as decentrally, as Coimbatore K. Prahalad pointed out in our interview.

There are a variety of reasons why such decentralized centralization is important. For example, decentralized plants need to have a high level of localization in such areas as procurement, which insulates the company from exchange rate fluctuations, as shown particularly by the case study of the Volkswagen Group; they also offer the opportunity to benefit from differences in the costs of production factors, as demonstrated by the Renault and Audi case studies; and they allow companies to take advantage of the resources of local suppliers, as reflected in the case study of Renault. However, a high level of localization does not mean that all procurement activities are highly decentralized. Rather, using the advantages of → global sourcing whenever the benefits of centralization outweigh the disadvantages is important (Corsten 1993, Mair 1995). Centralization does not necessarily need to take place in the country where the company has its headquarters, but rather where an international comparison suggests that the benefits would be greatest.

Carrying out production activities in local markets can be a wise decision, not least because customers in certain countries and segments of the market are increasingly interested in purchasing a vehicle that has been manufactured locally. This is an important consideration, one that was evident in our case study of the Volkswagen Group and underscored by Carl-Peter Forster, President of General Motors Europe, at the Capital Automobile Summit held in Berlin in September 2008, when he noted, “Productivity in production no longer offers a decisive → competitive advantage or disadvantage. Instead, being a local manufacturer – producing on site – is increasingly becoming a sales argument.”

Furthermore, laws in the growth markets of the → emerging countries often favor local production, as shown by the case studies of Volkswagen and Renault. Since many of these countries want value activities to be carried out within their borders when they relate to products sold there, they have introduced such measures as → local content requirements and import duties on fully assembled vehicles. These steps are intended to ensure that the (rising) earnings of the local population are not siphoned off abroad, but instead help to further the country's economic development (Petersen 2004: 3, 149, 311).

Decentralizing development activities is also becoming increasingly important. Owing to stiff competition in the automotive industry, high-volume manufacturers in particular need to focus more attention on adapting their vehicles to the circumstances and preferences of their customers in their target markets – as is clear from the case studies of Volkswagen and Renault. “The concept of a standardized world car, one that can be sold in precisely the same form in every global market, does not work in the high-volume segment,” observes Ralf Kalmbach, an automotive expert with the Roland Berger consulting firm. Thus decentralized development sites have the responsibility of making use of local resources and adapting specifically designed models to the needs of local customers.

High-volume manufacturers, in particular, need to adjust their vehicles to individual regions or countries; they must compete today not only on pricing, but based on product features, for example by offering attractive vehicle equipment and design. They cannot pursue a single-minded → cost-leadership strategy (Porter 1999: 38-40, 97-164). However, premium manufacturers as well can derive crucial competitive advantages from adapting their vehicles to a given region or country – even if their → differentiation strategies are based primarily on their brand image or on certain product features such as innovative technologies. This is why premium manufacturer Daimler has significantly expanded its adaptive development activities in recent years, and is also considering decentralizing such activities. “If it makes sense to develop certain model

adaptations for a local market, then development activities will have to be located there as well,” explains Harald Rudolph, Director of Strategy at Daimler. He continues, “In China, there is no way to avoid carrying out development work within the country. This might involve different chassis requirements or equipment features, for example.”

#### Glocalizing value creation

Increasingly, high-volume automobile manufacturers need to take a decentralized approach to value creation within their corporate networks. This does not mean that every activity takes place at every site; rather, it requires so-called “decentralized centralization.” This is the only way for automobile manufacturers to achieve continued success in the global market and to benefit from new growth opportunities.

Our analyses have also shown that simply decentralizing value activities is not enough. It is especially important to → integrate individual corporate units effectively in order to create global network enterprises. This also requires the decentralization of certain management functions and decision-making responsibilities. Decentralized decision-making → structures are clearly required in the local development of region- or country-specific models, for example. If adaptation is to be successful, a decentralized development unit must be involved in relevant decisions; otherwise the company reaps no benefit from its expertise. This is clear from the case studies on the Volkswagen Group and Renault, and Ralf Kalmbach also emphasized this point in our conversation.

No matter which specific value activities are carried out by a foreign → subsidiary, its resources and expertise will not be fully utilized until it becomes a specialized → center of excellence (Schmid 2003).<sup>1</sup> As is abundantly clear from the Audi case study, this allows foreign subsidiaries to generate competitive advantages for the entire company that are helpful not only in the local market but worldwide, and this can have very



positive ramifications for the domestic market. Therefore, promoting the development of foreign subsidiaries and assigning certain responsibilities to those subsidiaries, in accordance with their respective areas of expertise, is important. In global networks, competitive advantages are generated not only by corporate headquarters in the domestic market, but also by foreign subsidiaries, and particularly by centers of excellence. With the decentralized centralization of management functions, such centers of excellence can take on leadership roles throughout a company in their areas of competence.

#### Decentralizing management functions

A decentralized configuration of value activities needs to be accompanied by the decentralization of management functions and decision-making responsibilities. Foreign corporate units take on certain management functions so that they can contribute their local resources and expertise for the benefit of the company as a whole.

After the introduction of mass production in the automotive industry at Ford and General Motors back in the 1920s and the development of the lean manufacturing concept at Toyota beginning in the 1950s (Womack et al. 1991: 18), the next profound change in the value structures of the automobile industry is likely to involve achieving a global balance between the centralization and decentralization of value activities and decision-making responsibilities. Borrowing the terminology used by Womack et al. (1999), we might call this the “third revolution” in the automotive industry.

Our investigations have also shown that the → emerging markets will play a major role in creating sustainable → value configurations in the future. They were a focus of all three case studies. While automobile manufacturers in the established markets are faced with stagnating or

declining sales figures, emerging nations offer opportunities for sales growth, and they also represent possible sites for further value activities. Consequently, locating a wide range of such activities and decision-making responsibilities in the emerging markets is a central component in the strategies of automobile manufacturers to meet the needs of the future. These countries will increasingly be the site of value creation that can produce significant innovations. The case studies on Renault and Audi are informative in this context, as is the conversation with Coimbatore K. Prahalad.

#### Involving the emerging markets

In the future, the role of the emerging markets will no longer be limited to serving as cheap production sites for the industrialized countries. They will also take over more significant value activities, which will offer companies competitive advantages throughout the world. It is therefore crucial to ensure that sites located in these countries are an integral part of companies’ value chains.

The decentralization of value activities and decision-making responsibilities, as called for in this publication, need not mean losing jobs in the automobile manufacturers’ home countries. On the contrary: The cases we have examined demonstrate that companies can generate growth for their overall organizations – and thus also for their domestic sites – by relocating certain value activities abroad. The case study outlining the successful development of Audi’s Hungarian subsidiary provides a particularly striking illustration of this point. For their part, companies that fail to respond to the need to decentralize value activities and create global networks will find themselves facing declining sales figures and hence a loss of jobs, at their domestic locations as well.

<sup>1</sup> For a more complete discussion of companies’ resources and expertise, see Barney (1986, 1991), Wernerfelt (1984) and Gouthier/Schmid (2001).

It should also be noted that the internationalization of German automobile manufacturers and automotive suppliers that has already occurred has not brought with it a decline in employment in the German automotive industry, as Figure 1 shows in its comparison of employment statistics in 1997 and 2007 (jobs with manufacturers and suppliers). Indeed, during this period, employment increased by nearly 11 percent (VDA 2008: 5), at a time when German manufacturers and suppliers were establishing a number of international production sites, thus → internationalizing their value networks to a greater degree.

Other studies have also shown a positive relationship between the internationalization of value activities and increased domestic employment (Klodt 2007: 138, Klodt/Christensen 2007). Experts predict a similar trend for the future; worldwide demand for cars produced by German manufacturers is expected to increase by roughly 1.8 million units by the year 2020. Some 700,000 of these additional vehicles will likely be produced at German sites (“Deutschland 2020. Zukunftsperspektiven für die deutsche Wirtschaft” 2008: 9). However, this kind of sales growth can only occur if companies implement the measures outlined above for decentralizing value activities and decision-making responsibilities.

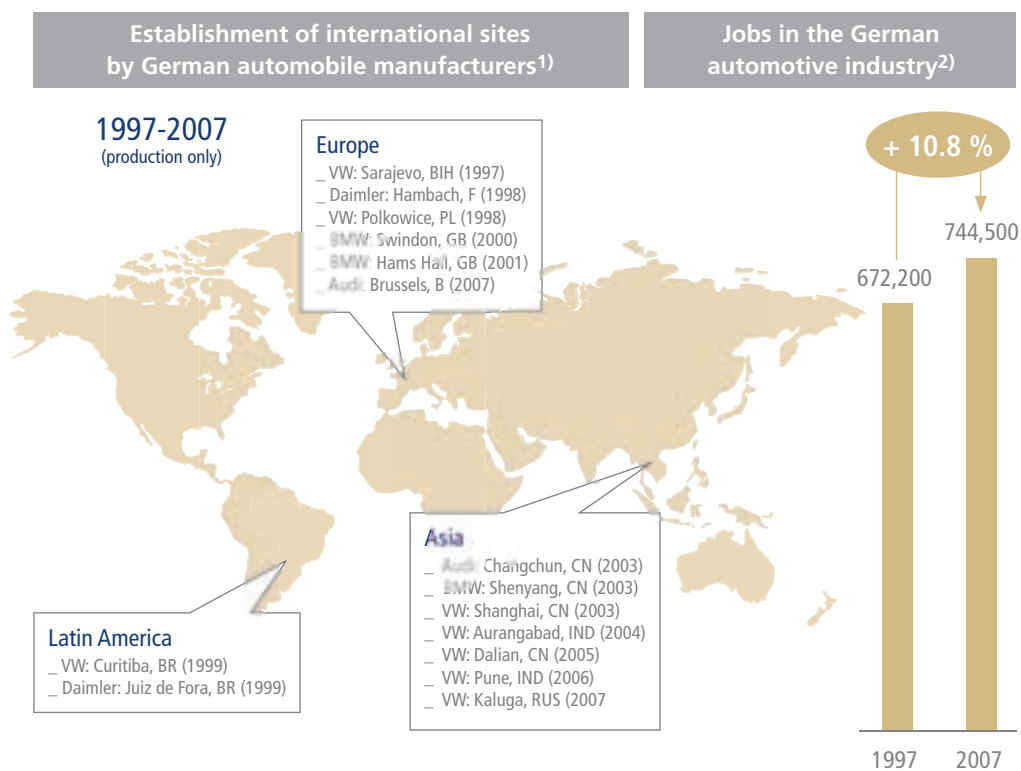
The case studies contained in this publication have also shown the need to look critically at frequently cited ideas from the strategic and international management literature. For example, the aggregated configuration-coordination profiles of entire companies presented by Michael Porter (Porter 1986: 27) are not an accurate reflection of reality. Our case studies show that each value function involves a different → configuration strategy. For instance, while the → configuration of production activities is already somewhat decentralized in the Volkswagen Group, as well as at Renault and Audi, research and development activities have been strongly centralized in all of these companies, at least in the past. And even within a single value function there may be good reasons for employing different configuration strategies. Thus we see – with reference to Toyota – that decentralizing

adaptive development activities offers clear advantages, while it may be wise to continue to choose a largely centralized configuration for basic development, and even more so in the case of research.

Our case studies also demonstrate that foreign subsidiaries, with their specific value activities, are integrated into the corporate network in different ways and should be managed individually. This also means a need for different sets of → coordination instruments. In the case of the Volkswagen Group, for example, we recommend decentralizing decision-making responsibilities in the area of adaptive development, in the interest of greater autonomy for the units involved. The case study of Audi AG and its Hungarian subsidiary explains in detail how an individual subsidiary can assume a leadership role within the overall company in its value competencies, and how the nature and intensity of → coordination activities need to be adjusted accordingly. This, too, argues against the conclusions drawn by Porter (1986: 27), who presumes that all corporate units are to be coordinated in the same way.

Overall, it cannot be assumed that a single configuration-coordination profile applies to an entire company. Instead, a company’s overall profile encompasses all of the configuration-coordination profiles related to the company’s various value functions. We therefore argue in favor of a differentiated approach to such functions and the use of an expanded configuration-coordination matrix, as shown in Figure 2. For purposes of illustration, the value functions of research, development and production are entered into the matrix individually, taking into account that individual value stages can exhibit different configuration-coordination profiles in their functions.

**Figure 1: Establishment of international sites by German automobile manufacturers and increase in the number of jobs in the German automotive industry**



1) Selected examples of production sites, followed in parentheses by the year production began. Most are new facilities, but in some cases these refer to acquisitions or shares in existing plants (e.g., Audi acquired a plant in Brussels from VW).

2) Automobile manufacturers and suppliers.

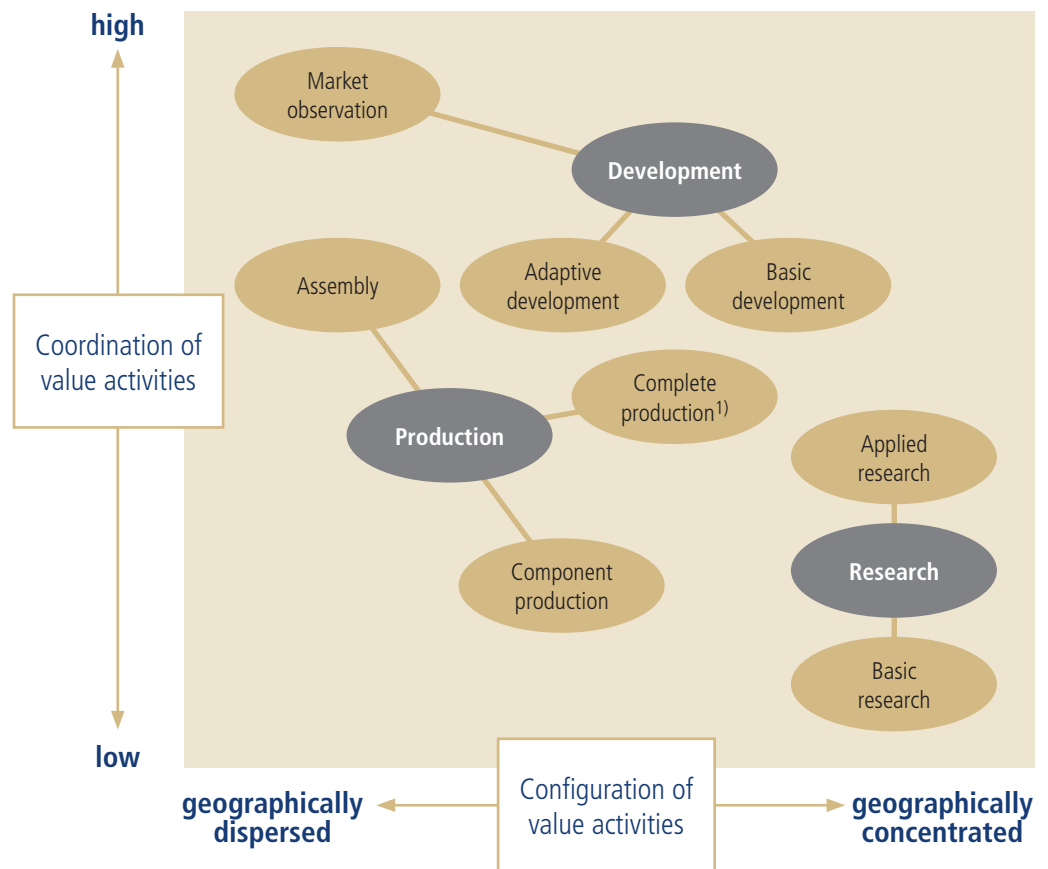
Source: The authors, based on VDA (2008:5), press reports and corporate data.

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### Function-specific configuration and coordination

There can be no configuration-coordination profile for a company as a whole, since the individual value functions within a company differ substantially in their geographic distribution and in the way their activities are coordinated. Each value function has its own profile and should be configured and coordinated individually.

Figure 2: Expanded configuration-coordination matrix for a hypothetical company



1) The term "complete production" includes the basic production stages of an automobile manufacturer: stamping the parts of the vehicle body, building the vehicle body, painting vehicle bodies and assembling the vehicles.

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## 2. Necessary changes in the management of international companies

Changes relating to value configuration affect not only corporate strategies and structures, but also → corporate, and particularly management culture. As value activities and decision-making responsibilities become increasingly decentralized, companies move from being strictly hierarchical structures to network-like organizations. In that sort of network-based company, foreign subsidiaries gain influence relative to the domestic parent company. Accordingly, upper management of the parent company should no longer assume that all of the company's primary competitive advantages are generated at home, as many have believed in the past (e.g. Hymer 1972, 1976). Instead, it must be recognized that both the parent company and the subsidiaries contribute to the company's portfolio of competitive advantages (Hedlund/Kogut 1993). Because they are embedded in a number of different contexts within the host country, subsidiaries are able to tap into various sources of innovation (Schmid/Schurig 2003).<sup>2</sup>

This means that international companies need to rethink the roles played by their subsidiaries. In the past, foreign subsidiaries were often simply asked to implement in the respective local market what had been developed and decided by the parent company; today, in contrast, we can assume that foreign subsidiaries are able to offer significant strategic contributions and act as centers of excellence with leadership roles within the corporate network.

As the case study of Audi has shown, subsidiaries in foreign countries are no longer responsible only for their respective local markets, as is common in the case of → polycentric (Perlmutter 1969: 12f.) and multinational companies (Bartlett/Ghoshal 1988: 64f.). Depending on

their capabilities, subsidiaries can become functional or product-oriented centers of excellence (Schmid et al. 1999, Schmid 2003). This means that decisions are no longer made exclusively at headquarters, but instead we see the decentralized centralization that was described above – in the case of Audi, in the area of engine production.

If foreign units are to gain the significance they deserve, there must be a change in management style. Instead of a “top-down” approach, in which foreign subsidiaries are simply required to follow orders from headquarters, a “bottom-up” management style should be introduced that allows foreign units to have a voice and participate in decision making. Figure 3 summarizes the changes that are needed in the management of international companies.

Companies clearly need to take action with respect to their corporate culture. Neither purely → ethnocentric nor purely polycentric → cultures are needed. Instead, companies should move toward a → geocentric culture to develop a common cultural understanding shared by the parent company and its subsidiaries, and to account for changes in the strategies and structures of value creation (Perlmutter 1969: 13, Kutschker/Schmid 2008: 287). Automobile manufacturers, particularly within the high-volume sector, must establish themselves locally while also maintaining a global orientation. This also applies to their basic assumptions, values, norms, attitudes and convictions, as well as to the relevant behaviors and artifacts (for more on this understanding of culture, see Schmid 1996: 137 and Kutschker/Schmid 2008: 672). Carl-Peter Forster, President of General Motors Europe, made the following comments at the Capital

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<sup>2</sup> For more on the role of the “embeddedness” of subsidiaries in their environments, see Pahlberg (1996), Andersson et al. (2001a, 2001b) and Forsgren et al. (2005).

Automobile Summit held in Berlin in September 2008: “Automobile manufacturers cannot stay local. They need to increase their global presence. The big challenge in this regard will be to keep the entire company together, while at the same time maintaining a sense of solidarity at the local level.”

As value activities become more internationally dispersed, and as the management of those activities is assumed by a wider array of units, it is increasingly important to handle cultural differences properly, which involves acquiring cultural competence with respect to a number of dimensions. In particular, companies need to

see to it that their employees gain more knowledge of other cultures and learn to interact appropriately and work together effectively with colleagues or business partners from different cultural backgrounds (Müller/Gelbrich 1999: 32, 35f.).<sup>3</sup> Accordingly, there is a need for diversity management among upper and middle management and operational staff. This helps to achieve a balance between globalization and localization in the cultural sphere.



**Figure 3: Change in the perspective of international management as a result of the decentralization of value creation**

	Traditional view	Modern view
Type of organization	Strictly hierarchical	Network
Source of competitive advantages	Country of origin	Country of origin and host countries
Role of subsidiaries	Implementation	Important strategic contributions, centers of excellence
Responsibilities of subsidiaries	Domestic market	Transcending domestic market (product or function)
Decisions	Centralized at headquarters	Decentralized centralization
Management style	Top-down	Top-down and bottom-up
Corporate culture	Ethnocentric (shaped by country of origin) or polycentric (shaped by host countries)	Moving toward a geocentric approach (elements from country of origin and host countries)

Source: The authors, based on Schmid (2003: 278).

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<sup>3</sup> Regarding intercultural and multicultural management, see Adler (2002), Schneider/Barsoux (2003) and Schneider/Hirt (2007).

At the same time, corporate culture has an important function in integrating the various corporate units into the company network; it also serves as an instrument of coordination (cf. Hedlund 1986: 24, Bartlett/Ghoshal 1988: 55f.). However, concluding that more attention should be paid to corporate culture should not be misinterpreted as favoring a completely homogeneous culture. Rather, it is important to create a framework within which the individual divisions, functions and subsidiaries can comfortably exist. The aim is to find an optimal way to bring together the various subcultures, without seeking to make them completely uniform. Such cultural diversity is also important in the light of the brand diversity found in a network enterprise. Think, for example, of Audi, Bentley, Lamborghini, Seat, Škoda and VW within the Volkswagen Group; Dacia, Renault and Renault Samsung within the Renault Group; and Daihatsu, Hino, Lexus, Scion and Toyota within the Toyota Group.<sup>4</sup>

also being integrative enough to bind together a global network of corporate units.

Changes in value configurations represent changes in the surface structures of a company, which need to be reflected in its deep structures (cf. Schmid 1996: 115-130, Kutschker/Schmid 2008: 690-692). It is clear that strategic, structural and cultural measures for reorganizing international value creation and creating a competitive network enterprise are all intertwined, and it is only together that they can achieve their full effect. These complex changes cannot be made overnight. Companies are therefore well advised to move quickly to adopt the perspective outlined in this publication, and especially to initiate the necessary cultural changes. ■

#### Geocentric corporate culture

Changes in the configuration and coordination of value activities must be accompanied by a change in corporate culture. In order to respond appropriately to the decentralization of value activities and decision-making responsibilities, companies need to achieve unity within diversity. They must develop a culture that is flexible enough to adjust to local circumstances, while also being integrative enough to bind together a global network of corporate units.

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<sup>4</sup> For more on the brand management of international companies, see Bieling (2005), Meffert/Perrey (2005), Giersch (2007) and Schmid/Kotulla (2007, 2008).

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# Glossary

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**Acquisition.** The term acquisition refers to the takeover of a company (the object of the acquisition) by another company (the subject of the acquisition, or purchaser), in which all or at least the majority (over 50 percent) of shares are purchased (in terms of voting rights and/or capital interests). The purchase of less than 50 percent of shares in a company is referred to not as an acquisition, but as the purchase of a → minority stake.

**Allocation strategies.** A company's allocation strategies include → configuration strategies and → standardization/adaptation strategies. Allocation strategies determine how a company navigates between globalization and localization.

**Benchmark.** Benchmarking is a procedure used in the strategic analysis of companies with the goal of making improvements. This term refers to an ongoing assessment of certain factors and their target values that are of relevance to a company. Possible factors include processes, products, methods and functions. Factors relating to a competitor may be assessed, or a comparison may be made between different corporate divisions or involving companies from different industries. In that case benchmarks are specific target values or objectives to be achieved.

**BRIC countries.** The acronym BRIC is derived from the first letters of the countries Brazil, Russia, India and China – the → emerging markets that have experienced particularly dramatic economic growth over the past few years, and have thus provided companies with substantial growth opportunities. The term was coined by Jim O'Neill, chief economist for the Goldman Sachs investment bank.

**Cannibalization effect.** The term cannibalization effect refers to the negative impact one brand of a company may have on the sales of another brand of the same company. In this case an increase in market share by one brand leads to a loss of market share for the other brand; the two brands are in competition with each other. A cannibalization effect occurs particularly when customers do not perceive the various brands of a given company to be adequately differentiated from one other.

**Center of excellence.** A center of excellence is a → subsidiary that has specific expertise in one or more → value functions or in one or more products. Within this area or these areas, it is responsible for several (country) markets and is characterized by a high level of → integration within the corporate network. This allows the entire company to benefit from its expertise. A distinction is made between functional and

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product-oriented centers of excellence. *Functional* centers of excellence have particular expertise with respect to a → value function or individual tasks within a value function. *Product-oriented* centers of excellence, on the other hand, have specific expertise with respect to a product and carry out all → value activities that are associated with that product.

**CKD.** CKD stands for “completely knocked down” and refers to a common process in the automotive industry in which kits are produced at a given site, then taken to another site for assembly into finished vehicles. The assembly site is usually located in the target market where the vehicles are to be sold. In contrast to the → SKD process, in the CKD process vehicles remain disassembled in their component parts. This allows automobile manufacturers to avoid customs duties on finished vehicles, for example.

**Competitive advantage.** Competitive advantages are advantages one company has over its competitors. Since they need to be viewed in the context of the company’s competitors and other aspects of its environment, they are not absolute, but relative advantages. Competitive advantages arise from a company’s → potential for success, derived from such factors as superior resources, capabilities and expertise. If an advantage in resources, capabilities and expertise is to become a competitive advantage, it needs to involve aspects of the product or service that are somewhat permanent as well as relevant to and recognized by the company’s customers.

**Competitive strategy.** Michael Porter identifies two basic types of competitive strategies: a → cost leadership strategy and a → differentiation strategy. He also introduces a strategy involving a concentration on focal points, in which a company concentrates on a particular customer group and offers products tailored specifically to that group. This focus strategy also seeks to achieve an advantage in terms of cost or differentiation. When companies combine the cost leadership and differentiation strategies, this is termed an → “outpacing” strategy.

**Configuration.** In the field of international management, the term configuration refers to the degree of geographic dispersion or geographic concentration of → value activities. Different value activities can be dispersed (decentralization) or concentrated (centralization) to differing degrees. Centralization means that similar value activities are carried out only at a certain center, for example at company headquarters. Decentralization means that similar value activities are carried out at the same time in different locations by different corporate units, for example by various foreign → subsidiaries.

**Configuration strategies.** Configuration strategies include all of the → options for the geographic distribution of → value activities. The chosen configuration can lead to → competitive advantages, so configuration has not only a structural, but also a strategic dimension.

**Contract production.** Contract production is another option for entering new markets, in which a company assigns one or several stages of production to a contractual partner rather than completing them itself. This might involve having preproduction, finishing or the entire production process carried out abroad.

**Coopetition.** The term coopetition is used to describe cooperative competition, in which companies that are normally competitors in the market cooperate on certain → value activities. Such cooperation usually occurs within the framework of precisely defined projects.

**Coordination.** Coordination is the adjustment of elements within a system for the purpose of optimizing that system. In the field of international management, coordination means fine-tuning the individual units of an international company, which are often scattered around the world. Coordination requires the use of numerous → coordination tools.

**Coordination strategies.** Coordination strategies include all types of → coordination tools used by a company to coordinate its corporate units. Appropriate coordination can lead to →

competitive advantages, so coordination has not only a structural, but also a strategic dimension.

**Coordination tools.** A distinction can be made between structural, technocratic and person-oriented coordination tools. *Structural* coordination tools include all of the tools that build on explicit organizational arrangements and can be considered part of the formal organizational structure. They involve the design of organizational structures, departments, staffs, corporate divisions, corporate functions and types of project organization as well as the centralization or decentralization of decision making. *Technocratic* coordination tools include all arrangements and regulations that are not associated with persons. Their goal is to standardize approaches to solving problems that arise repeatedly in the same or similar form. Such standardization occurs primarily through rules and programs, plans, budgets and reporting systems, and in most cases also by formalizing the appropriate arrangements. *Person-oriented* coordination mechanisms relate to the people within an organization and make them the focus of coordination efforts. The main person-oriented coordination mechanisms are personal instructions, mutual adjustments, visits, transfers of management personnel, the standardization of roles and culture-oriented coordination.

**Corporate culture.** → Culture.

**Cost leadership strategy.** Michael Porter distinguishes between two basic types of → competitive strategies: a cost leadership strategy and a → differentiation strategy. If a company chooses a cost leadership strategy, it seeks to manufacture the given product or service as cheaply as possible so that it can sell it at the lowest price in the competitive arena.

**Country-of-origin effect.** The term country-of-origin effect refers to the fact that customers often attribute certain qualities to a product or service because it originated in a specific country. The product or service therefore takes on specific image advantages or disadvantages. For example, customers in some countries associate “Made in Germany” with high quality.

**Culture.** Culture refers to the totality of the basic assumptions, values, norms, attitudes and convictions of a social unit, which manifest themselves in a variety of behaviors and artifacts and have developed over time in response to the manifold demands that have been placed on that social unit. Culture can relate to a wide variety of entities, including countries, industries and companies.

**Differentiation strategy.** Porter distinguishes between two basic types of → competitive strategies: a → cost leadership strategy and a differentiation strategy. In pursuing a differentiation strategy, a company seeks to differentiate itself from competitors based on its unique characteristics. If customers recognize and appreciate such unique qualities, the company may be able to charge higher prices than its competitors, for example.

**Direct investment.** The term direct investment refers to transnational investments with an inherent control motive: The investor is seeking to gain a certain amount of control over an economic unit in another country. While both natural persons and legal entities can be investors in this context, the objects of investment are normally companies. The investor can be assumed to have a long-term interest in the direct investment.

**Economies of scale.** → Size-related effects.

**Economies of scope.** The term economies of scope refers to synergy effects that result from combining certain → value activities of one or more than one company (or of other organizations or parts of organizations). Economies of scope may occur, for example, if a company is able to manufacture two different products using the same facilities or if it can use components developed for one product in manufacturing another.

**Emerging markets.** There is no generally accepted classification of countries based on their economic development. Relying on the categories identified by the International Monetary Fund (IMF), we distinguish in this

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publication between → industrialized countries and emerging markets. The classification of a given country depends on a number of economic criteria, including gross national income. Among the countries generally regarded as emerging markets are the nations of Eastern Europe, the former Soviet Union, Brazil, India and China.

**Ethnocentric.** An internationally active company can be described as having an ethnocentric orientation if it acts on the assumption that the parent company is generally superior to its → subsidiaries or that the home country is superior to host countries with respect to important strategies and measures. Howard Perlmutter also calls this a “home country attitude.” As a matter of principle, decisions are made at headquarters and key positions in the subsidiaries are filled by managerial staff from the parent company’s home country. One result is that the → corporate culture is primarily shaped by the culture of the parent company’s country of origin. See also → geocentric and → polycentric.

**Export.** Exports are goods or services originating in one country and delivered to another. A distinction is made between indirect and direct exports. It is an *indirect export* if a company does not export such goods or services itself, but via trade intermediaries in the home country, for example domestic export companies or foreign trade companies. In the case of *direct exports*, goods or services are exported to a foreign country in two different ways: first, without the help of an intermediary in the host country (e.g. directly to the end consumer), or second, through intermediaries in the host country, for example through an exclusive importer in the foreign country.

**Foreign share.** The foreign share is determined by comparing absolute numbers for foreign aspects of a company with the corresponding figures for the company as a whole. It can be calculated for sales, number of employees or a company’s profits, for example. The resulting numbers are also referred to as FTO ratios (foreign to total operations ratios).

**Geocentric.** A company with a geocentric orientation, which Howard Perlmutter refers to as a “world-oriented orientation,” considers a parent company and its → subsidiaries to be a global entity. It develops a character that is largely independent of the individual countries’ → cultures and the specific features of the parent company and its subsidiaries. Decisions are made jointly by the relevant units of the company. Nationality plays no role in the recruitment of executives. See also → ethnocentric and → polycentric.

**Global sourcing.** The term global sourcing refers to procurement that is carried out on a worldwide basis. A company-wide determination is made of which goods are to be procured from the parent company and which from individual → subsidiaries. Global sourcing is a way for companies to take advantage of differences in the cost of goods or to obtain goods that are not available in certain markets, for example.

**Heterarchy.** The term heterarchy was coined by Gunnar Hedlund to describe a certain type of international company. Characteristic of a heterarchy are a large number of → centers of excellence that are established not only by the parent company, but also by its → subsidiaries. These centers of excellence can vary; depending on the area in question, corporate units may be simultaneously subordinate and superordinate to other units. Lateral communication is an essential characteristic of a heterarchy: Information is exchanged throughout the company. A large number of → coordination tools are used to maintain an international company as a heterarchy. Culture-oriented coordination (an aspect of person-oriented coordination) is a particularly important → coordination tool in the heterarchy.

**Industrialized countries.** There is no generally accepted classification of countries based on their economic development. Relying on the categories identified by the International Monetary Fund (IMF), we distinguish in this publication between industrialized countries and → emerging markets. The classification of a given country depends on a number of economic criteria, including gross national income. Generally

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included in the category of industrialized countries are countries with a high level of economic development, particularly the Western and Central European countries, the United States, Canada, Japan, Australia and New Zealand. However, Hong Kong, Singapore, South Korea and Taiwan may also be classified as industrialized countries.

**Integration.** Integration refers to the act of making an element part of an existing whole or an existing order. In the present context, it means making a corporate unit part of the international corporate network. Integration occurs with the help of → coordination tools. It is important to note that the coordination of corporate units is an ongoing task, while integration usually occurs only on certain occasions, for example when a new partner becomes part of a → strategic alliance or in the → acquisition of a → subsidiary. In the field of international management, integration is significant mainly because of the increasing decentralization of → value activities.

**Internationalization strategies.** Internationalization strategies have five dimensions: first, → market entry strategies; second, → target market strategies; third, → timing strategies; fourth, → allocation strategies; and fifth, → coordination strategies.

**Joint venture.** A joint venture is an entity that is formed by two or more companies and possesses its own legal personality. The companies involved contribute capital, knowledge and personnel to the newly established enterprise.

**Learning effects.** Learning effects are → scale effects that result from what employees have learned. Workers learn something new with every additional unit they produce. Activities can then be carried out more quickly, better and in an increasingly factor-saving way, which produces cost savings. In contrast to → size-related effects, which can lead to fixed-cost degression, among other things, learning effects result in a decrease in variable costs.

**Licensing arrangements.** Licensing arrangements are contractual agreements through which the licensor grants to the licensee certain intangible assets, such as patents, brands, copyrights or expertise under certain stipulated conditions. The licensee pays a licensing fee to the licensor for the use of such intangible assets.

**Local content.** The term local content refers to the share of total value added that originates at a certain location. For example, many → emerging markets pass local content regulations stipulating that a certain share of the value added required for a product or service must be produced within the country. Because of such local content regulations, automobile manufacturers frequently choose to use the → SKD or → CKD process.

**Low-cost car.** Low-cost cars (LCC) is the term used in the automotive industry to refer to vehicles that are manufactured at unusually low cost and can therefore be sold at a particularly low price. Generally it is applied to automobiles sold for about 10,000 dollars (roughly 7,500 euros) or less, but there is no fixed definition. The term was coined in the → industrialized countries, where most vehicles sold today are considerably more expensive than low-cost cars, especially because of their many technological features. From the perspective of the → emerging markets, however, for which these low-cost cars are primarily intended, the term is not accurate. Rather, these reasonably priced cars are often the first vehicles that are affordable for large segments of the population. A few manufacturers have recently announced that they are coming out with vehicles that will be available for under 2,000 euros. Because of the even lower manufacturing cost and price of these vehicles, they are sometimes called ultra-low-cost cars (ULCC).

**Market entry strategies.** Market entry strategies are the measures companies use to enter and develop a foreign market. Among the various market entry strategies are → exports, → contract production, → licensing arrangements, → minority stakes, → strategic alliances, → joint ventures, → subsidiaries and → mergers.



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**Merger.** When two companies join together to increase their market presence, this is referred to as a merger. Each company gives up its own independence; the merger results in a new company. A distinction is made between mergers of equal and of unequal partners. The line between mergers and → acquisitions is often blurred. If one of the partners is clearly predominant, the arrangement is more likely, from an economic perspective, to be termed an acquisition rather than a merger.

**Miniature replica.** Roderick White and Thomas Poynter use the term miniature replica to describe a → subsidiary that is a copy of the parent company. In its own market, the subsidiary carries out → value activities that are similar to those of the parent company in its country of origin, but on a smaller scale. A miniature replica's area of responsibility is limited to the respective country market. Miniature replicas can be found in industries with substantial import barriers or high transport costs, or in sectors that allow for only limited → size-related effects.

**Minority stake.** It is called a minority stake when a company acquires an interest of no more than 49.9 percent in another company. A minority stake can be a first step to an → acquisition.

**Not-invented-here syndrome.** In the context of international management, not-invented-here syndrome refers to a phenomenon in which products or services that were developed in a certain corporate unit (for example within the parent company) are not taken up by other units (for example by a → subsidiary) or are rejected entirely because they originated elsewhere. The term is also used to describe a reserved or negative response by customers to products or services that were not invented or produced in their own country.

**Outpacing strategy.** Michael Porter makes a distinction between two basic types of → competitive strategies: a → cost leadership strategy and a → differentiation strategy. When a company chooses not to limit itself to either a cost leadership or a differentiation strategy but

instead combines both of these → competitive strategies, this is referred to as an outpacing strategy. For example, a company may be able to sell its product at the most affordable price while also offering the best quality.

**Platform.** A platform is the technical foundation of an automobile to which other parts are added. Which components are considered part of the platform differs from one manufacturer to another. Along with the floor pan, it generally includes the drive train, chassis components and wiring harness. Some manufacturers also include the engine and gearbox. Platforms allow the company to use as many identical components as possible in several models, which reduces complexity and costs, for example through → size-related effects. In most cases it is hardly noticeable to the customer when several models are built on the same platform because they continue to have their own unique appearance.

**Polycentric.** If an internationally active company has a polycentric orientation, which Howard Perlmutter refers to as a "host country orientation," then it accepts the many differences between the home and host countries, for example in terms of culture. It realizes that there are different patterns of thinking within the corporate network, and none is given priority. Most decisions are made by local → subsidiaries. Local personnel fill managerial positions and are considered best able to deal with the local market. See also → ethnocentric and → geocentric.

**Potential for success.** A company's potential for success includes its resources, capabilities and competencies that can lead to → competitive advantages and help achieve its long-term goals. Companies may make good use of their potential for success – but they may also let it go to waste. Resources, capabilities and competencies are not effective on their own; companies need to activate and exploit them.

**Primary activity.** → Value activity.

**Responsiveness.** The term responsiveness refers to a company's ability to adapt to the needs and wishes of its stakeholders. Local responsiveness, or companies' responsiveness to the needs and wishes of their local stakeholders, is becoming increasingly important in the context of international business. This often leads to a decentralization of → value activities, which in turn results in a need for → integration.

**Scale effects.** Scale effects include → size-related effects and → learning effects.

**Secondary activity.** → Value activity.

**Size-related effects.** Size-related effects can result when a company succeeds in increasing output during a given period. This allows fixed costs to be distributed over a larger amount of output and lowers unit costs. If unit costs are lowered by increasing plant capacity (for example by eliminating underemployment), this is termed *fixed cost degression* or *higher returns to scale*. If unit costs are reduced by expanding the size of the plant, this is called *economies of scale*.

**SKD.** Acronym for "semi knocked down." This refers to a common procedure in the automotive industry: First, modular vehicle components are manufactured, after which they are assembled at another site, in most cases in the target market for the finished vehicles. In contrast to the → CKD procedure, with the SKD approach these vehicles are not completely broken down into their individual parts, but instead into pre-assembled units, for example the finished vehicle body. The SKD procedure allows automobile manufacturers to avoid paying import duties on finished vehicles, for example.

**Standardization/adaptation strategies.** Companies can market their products or services in identical or different forms worldwide; in other words, they can either standardize or adapt them. Between the extremes of standardization and adaptation there is also the possibility of carrying out partial differentiation.

**Strategic alliance.** A strategic alliance is a cooperative arrangement between at least two and usually more than two companies. Partners in a strategic alliance work together in precisely defined areas, but in contrast to a → joint venture this does not result in the establishment of a separate new enterprise. The goal of the companies involved is to achieve their objectives more easily or more quickly.

**Strategy.** The term strategy refers both to the planned set of measures chosen by a company to achieve its long-term goals and to unplanned (emergent) patterns of decision making and action. Strategies include decisions and actions that take into account a company's characteristics, such as its resources, as well as characteristics of the environment, for example the competition within the given industry. Companies use their strategies to achieve → competitive advantages.

**Structure.** In the field of management, the term structure includes all of the arrangements that help to organize the company's activities. Such arrangements focus particularly on the division of labor and the company's → configuration, → coordination, management and control.

**Subsidiary.** Subsidiaries are legally independent units of a company. In terms of their structure, a distinction can be made between newly founded companies, so-called "greenfield investments," and → acquisitions. In terms of ownership, we can distinguish between majority holdings (between 50.1 percent and 99.9 percent of capital shares and/or voting rights) and wholly owned subsidiaries. In addition, there are subsidiaries with a complete → value chain as well as specialized subsidiaries (e.g. production plants or sales companies).

**Target market strategies.** Just as companies need to decide how to enter a given market (→ market entry strategies), they also need to determine which market or markets they are aiming for. Target market strategies determine the number of countries and the geographical regions in which the company wants to do business (market presence), which specific

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country markets the company will enter (market selection), and to which segments within those country markets it wants to appeal (market segmentation).

**Timing strategies.** Companies need to coordinate the timing of their entry into various (country) markets. They may enter several different markets successively (waterfall strategy) or at the same time (sprinkler strategy), or they may choose a combination of both approaches (waterfall-sprinkler strategy). In addition, when entering a specific country, companies need to make the strategic decision of whether to act as pioneers or followers.

**Transnational organization.** A transnational organization or a transnational company seeks to combine global efficiency, local adaptability and worldwide learning capabilities. The aim is to use a network organization to take advantage of widely scattered and interdependent values and resources. Note that → subsidiaries are assigned differentiated and specialized roles, for example as → centers of excellence. The term transnational organization is particularly associated with Christopher Bartlett and Sumantra Ghoshal.

**Ultra-low-cost car.** → Low-cost car.

**Value activity.** A company's activities aimed at creating value are called value activities. Michael Porter divides value activities into primary and secondary activities. *Primary activities* include activities in the areas of inbound logistics, production, outbound logistics, marketing/sales and service. Porter identifies procurement, research, development, human resource management and infrastructure (e.g. the accounting system) as *secondary activities*, also known as support activities.

**Value chain.** A company's value chain is made up of its various → value activities as components of the company-wide process of value creation. The model of the value chain developed by Michael Porter is particularly well known. It is primarily intended to serve as a tool for analyzing the role of individual → value activities in a company's overall value creation and

their contribution to producing → competitive advantages.

**Value configuration.** → Configuration.

**Value function.** → Value activity.

**Waterfall-sprinkler strategy.** → Timing strategies.

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