

Chapter 1

Multinational Corporations as Networks

The complexity of Multinational Corporations (MNCs) regarding the multiple geographical markets and the dispersed activities within the company often renders centralised management models ineffective and inefficient. The acknowledgement of the increased relevance of foreign subsidiaries and the observation that some subsidiaries take over strategic roles within the MNC led to a conceptualisation of the MNC as a network. In this Chapter, the network perspective of the MNC is explained, nodes and linkages in the network are described and the advantages of this perspective to understand the modern MNC are demonstrated.

From Centralised Hubs to Integrated Networks

From the early 1980s, the limitations of hierarchical models of the company with regard to their capability to manage the complexity of a Multinational Corporation (MNC) became obvious in the course of increasing internationalisation, the emergence of more and more MNCs, and the constantly rising relevance of foreign subsidiaries. Studies by scholars such as Prahalad, Doz, Bartlett and others revealed that top management in the home country had more and more problems in effectively and efficiently processing and understanding the vast amount of information necessary to coordinate the MNC flexibly.

MNC management is confronted with the challenge of designing systems that allow flexible responses to the strongly heterogeneous context in which the different subsidiaries have to compete, to sense the diverse opportunities and demands that the MNC faces, and to simultaneously ensure the necessary coherence to act as one company, to achieve global scale effects by specialising their subsidiaries' activities and to exploit synergy potentials. In a sophisticated and differentiated configuration of specialised assets and responsibilities, the interdependence of worldwide units increases and the structure of an *integrated network* becomes necessary to coordinate the dispersed activities. In this network model, management regards each of the worldwide units as a source of ideas, skills, capabilities, and knowledge that can be used for the benefit of the total organisation. Efficient local plants may be converted into production sites with worldwide responsibility and innovative organisational units may become the MNC's centres of competence for a particular product or process (Bartlett/Ghoshal/Beamish 2008, pp. 341-342).

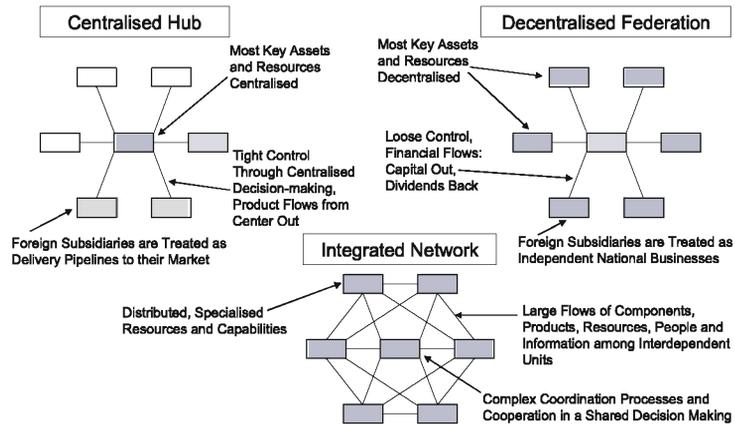
*The Integrated
Network Model*

*From
Dependence or
Independence to
Interdependence*

To understand this modern type of network model better, Figure 1.1 contrasts it with two alternative models, the *centralised hub*, a traditional model where the foreign subsidiaries just implement central decisions and have no autonomy, and the *decentralised federation*, a multinational model with great autonomy of the subsidiaries but only weak linkages within the MNC, which acts mainly as a holding company. While national subsidiaries in decentralised federations enjoy considerable *independence* from the headquarters, those in centralised hubs remain strongly *dependent* on the parent company. Integrated networks are *interdependent* organisations, with dispersed, specialised, but integrated – i.e., coordinated – interrelationships between the units (Bartlett/Ghoshal/Beamish 2008). Such networks result in a so-called *decentralised centralisation*, i.e. the activities are globally integrated and aligned. Subsidiaries are not necessarily coordinated by the headquarters but, in some cases and for some products, by a foreign subsidiary (Birkinshaw/Morrison 1995, p. 734).

Figure 1.1

Alternative Models of the MNC



Source: Adapted from Bartlett/Ghoshal/Beamish 2008, pp. 338, 342.

*Many Network
Models*

From the 1980s, more and more scholars started to model the MNC as a *network*. The “transnational organisation” (Bartlett/Ghoshal 1989), the “heterarchy” (Hedlund 1986), and the “differentiated network” (Nohria/Ghoshal 1997) are just a few examples. While there are many differences in detail, all named models agree in the recommendation to organise the MNC as an integrated network of dispersed organisational units.

Networks consist of *nodes* (in this case mainly foreign subsidiaries) and *linkages* between those nodes (like coordination relationships, product flows, communication, etc.). Some of the nodes, i.e. of the foreign subsidiaries, achieve – due to unique resources, capabilities and competences, for example – a crucial influence on the decisions of the MNC: foreign subsidiaries can take over “strategic roles” (see Chapter 3). Competitive advantages of the MNC are not necessarily developed in the home country anymore and then transferred and exploited in foreign countries but can be established by single foreign subsidiaries or by cooperation in the whole MNC network. *Learning* becomes necessary to create and diffuse knowledge quickly within the MNC (Schmid/Kutschker 2003, pp. 163-164).

Heterogeneity between Foreign Subsidiaries

The network perspective of the MNC acknowledges that foreign subsidiaries are and should be heterogeneous: “to be truly effective, multinational corporations should be differentiated” (Nohria/Ghoshal 1997, p. xv). Looking at the German MNC *Siemens*, which is described in detail in the case study to this Chapter, one can see that the company is active in about 190 countries. Some foreign subsidiaries (e.g. in France or the UK) were established in the mid-1850s, but others are just a few years old. Some foreign subsidiaries focus, for instance, on R&D for energy generation, while others are responsible for the manufacturing of industry automation equipment. Some only occupy a few people, while the subsidiary in the USA has over 72,000 employees. Some work in slow-growing countries like Western Europe, others in fast-growing emerging economies like China. Some have national responsibility, some have worldwide responsibility.

The *Siemens* example demonstrates that subsidiaries can be distinguished by many different criteria. Heterogeneous characteristics of subsidiaries include, inter alia (Morschett 2007):

- value-added activities carried out by the subsidiary, reaching from single activities (e.g. only sales) to full value chains
- dominant motives for the establishment of the country subsidiary, for example, resource-seeking or market-seeking (see Chapter 4)
- available resources and capabilities of the subsidiary
- local conditions of the host country, e.g. political and economic situation
- degree of horizontal and vertical product and communication flows with other subsidiaries and the headquarters
- control and influence of the headquarters

- national, regional or worldwide responsibility of the subsidiary
- age of the foreign subsidiary or time period of belonging to the MNC (in the case of an acquisition)
- size of the subsidiary (sales, employees, financial assets, etc.)
- performance of the subsidiary.

The role typologies of international management (see Chapter 3) try to categorise subsidiary roles following some of these characteristics.

Subsidiaries as Centres of Excellence

Network models also assume that subsidiaries can become “centres of excellence” (or competence centres) for the MNC. A centre of excellence is “an organizational unit that embodies a set of capabilities that has been explicitly recognized by the firm as an important source of value creation, with the intention that these capabilities be leveraged by and/or disseminated to other parts of the firm” (Frost/Birkinshaw/Ensign 2002, p. 997). Studies have shown that most MNCs have foreign subsidiaries in the role of centres of excellence (Schmid/Bäurle/Kutschker 1999, pp. 108-109). Such centres of excellence play a highly strategic role in the MNC network.

High Autonomy and Strong Integration

A high competence is an obvious prerequisite for this role and centres of excellence are characterised by a simultaneous appearance of *high autonomy*, because a relatively high degree of freedom is necessary to deploy its competences effectively, and of *strong integration* in the MNC to ensure that the competence is available for other country subsidiaries as well (Forsgren/Pedersen 1997). Centres of excellence can concern products or processes or functions of the MNC (Frost/Birkinshaw/Ensign 2002, pp. 998-1000). It becomes increasingly obvious, though, that the concept of a centre of excellence is not a dichotomy (to be one or not) but rather a continuum, i.e., each subsidiary experiences a different level of being a centre of excellence within its MNC.

Flows in the MNC Network

The network perspective of the MNC illustrates it as nodes and linkages. Those linkages include potential superordination and subordination in the headquarters-subsidiary relations and coordination relationships that might be more or less centralised. Sometimes coordination might not be given through the corporate headquarters in the home country but rather from a superordinate subsidiary that acts as the regional headquarters.

Linkages in the network also encompass a number of different transactions among units located in different countries. Hence, the MNC can also be thought of as a *network of capital, product, and knowledge flows* between organisational units (Gupta/Govindarajan 1991, p. 770). In the network perspective, it becomes evident that, *instead of unidirectional flows* of products, components and know-how from the headquarters to the foreign subsidiaries, there are *bidirectional and reciprocal flows* and interdependencies. Not only are there *vertical linkages* between the headquarters and each subsidiary but increasingly, there are *horizontal relations* between the subsidiaries, concerning product flows but also employees and knowledge exchange.

For example, a French sales subsidiary of the German car manufacturer BMW mainly receives product inflows while the German factories exporting to other countries are a source for product outflows. The US factory of BMW selling its vehicles to Mexico illustrates horizontal product flows. In cross-border production processes (see Chapter 16, International Production & Sourcing), components are produced in different countries and often transported to a subsidiary that assembles the finished products. Similarly, dispersed R&D activities and innovation processes are only possible through substantial vertical and/or horizontal knowledge flows (see Chapter 17, International Research & Development).

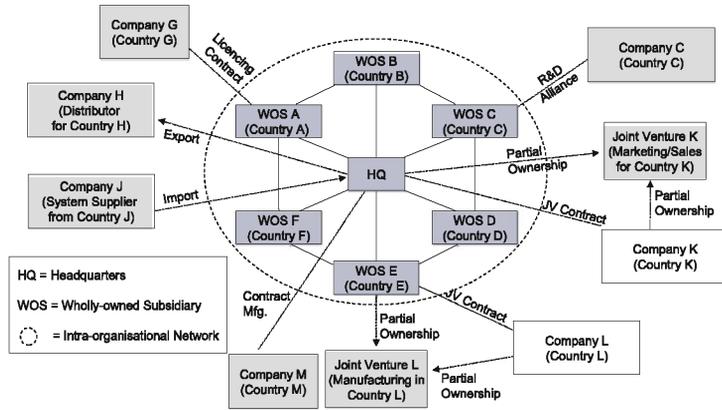
Generally, these flows within the MNC may have different magnitude and different directions, and the transactional perspective increases the number of potentially heterogeneous characteristics of MNC subsidiaries, since substantial differences across subsidiaries within the same MNC will exist. The role typologies (Chapter 3) try to capture systematically some of these differences.

Intra- and Inter-organisational Networks

As has been mentioned in the introductory Section, MNCs comprise entities in two or more countries, regardless of the legal forms and fields of activity of those entities, whereby it is not relevant what legal form the entity has but only that “active, coordinated management of operations in different countries, as the key differentiating characteristic of a MNE” (Bartlett/Ghoshal/Beamish 2008, p. 3) is possible. A MNC must own or control value-adding activities in more than one country (Dunning 1993a). As a *subsidiary* was defined “as any operational unit controlled by the MNC and situated outside the home country” (Birkinshaw/Hood/Jonsson 1998, p. 224), foreign subsidiaries are not necessarily wholly-owned. The enormous relevance of cooperative operation modes (see Part IV of this book), like licensing, joint ventures, franchising, etc., makes the inclusion of these internationalisation modes necessary in the conceptualisation of a MNC.

Figure 1.2

The MNC as an Intra- and Inter-Organisational Network



Source: Adapted from Schmid/Kutschker 2003, p. 165.

As an example of the potential complexity, Figure 1.2 illustrates the MNC network, consisting of wholly-owned subsidiaries but also other foreign activities that are closely linked to the company, by partial ownership, contracts or otherwise.

Increasing Relevance of Inter-organisational Networks

So, it is not only the company itself that is more and more structured as a network. Networks, as *stable relational systems* between different organisational units, have grown tremendously in relevance in the last few decades. Cooperative arrangements between companies are becoming a very common business form: some authors have called that a change from “market capitalism” to “alliance capitalism”.

Cooperations as Hybrid Operation Modes

Cooperations, as hybrid arrangements between the transaction forms of “market” and “hierarchy”, seem to combine the advantages of both extremes and help to compensate the weaknesses of both (Das/Teng 1999). Bartlett and Ghoshal, who originally developed their network model with the perspective of a purely intra-organisational network, recognised later that this perspective is too narrow and has to be expanded to include the inter-organisational network (Ghoshal/Bartlett 1991). In this perspective, it is acknowledged that the MNC is involved in strategic alliances with other companies.

Blurry Boundaries of the MNC

With this perspective, however, the idea that a MNC has clearly defined boundaries becomes disputable (Nohria/Ghoshal 1997, p. 19). While one could merely see the external network (inter-organisational) as an extension of the internal (intra-organisational) network, a clear separation between both becomes almost impossible (Morschett 2007). For example, while a close and long-time customer would usually still be seen as part of the inter-organisational network, a 95 %-owned foreign company would usually be seen as part of the intra-organisational network. Whether majority-owned subsidiaries, parity joint-ventures or contract manufacturers that manufacture a company's product with a fixed long-term contract are "internal" or "external", cannot be clearly defined, however. One could even argue that MNC networks like this do not even have clearly defined boundaries (Hakansson/Johanson 1988, p. 370). A "boundaryless corporation" (Picot/Reichwald/Wigand 2003) might well be the consequence.

However, for practical reasons, it is frequently necessary to define the boundaries, but this is necessarily subjective and it depends on the purpose of the exercise. Some authors suggest that the *perceived identity* of the organisational units might be decisive: "We argue that normative integration is the glue that holds differentiated networks together as entities called firms. [...] it is the distinctive codes of communication shared by the members of the multinational that truly demarcate the boundaries of the organization" (Nohria/Ghoshal 1997, p. 6).

Corporate (Internal) and Local (External) Embeddedness

If, for analytical reasons, one still tries to distinguish between the internal and the external network, a foreign subsidiary is linked to the MNC headquarters and to other subsidiaries, i.e., to the internal or corporate network.

Furthermore, the local network of the foreign subsidiary is relevant. Critical resources of the subsidiary are linked to the subsidiary's specific relationships with customers, suppliers and other counterparts (Anderson/Forsgren 1996). This local network is a powerful resource and often plays an equally strong role for the operative activities of the subsidiary and even for the strategic competitiveness of the subsidiary as the relationship to the rest of the MNC. Regarding, for instance, the know-how that is relevant for the subsidiary, it is not only the knowledge transfer from the rest of the MNC, e.g., from the headquarters, but also the question of how new, locally relevant knowledge is created within the subsidiary. Here, the external, local network of the subsidiary is a strategic source for subsidiary-specific advantages. These "network resources" of each subsidiary can enhance the com-

*Local Network
as Network
Resource*

Subsidiaries as Linking Pins

petitiveness of the total MNC, because they influence the competitiveness of each subsidiary in its local market but also – by transfer of knowledge to peer subsidiaries – the capabilities of the company network (Andersson/Forsgren/Holm 2002). As mentioned above, the presence in heterogeneous local contexts can be seen as a basic advantage of MNCs compared with purely national players. Thus, one can also consider *the foreign subsidiary as an important connection, a “linking pin”, between the external, local network in a host country and the internal company network* (Andersson/Forsgren/Holm 2002, p. 992).

Embeddedness

To work successfully in a network, each subsidiary is *embedded* in relations with other actors (Andersson/Forsgren 1996). This basically refers to an adaptation of the resources of the subsidiary to its specific network, i.e., other network actors. The adaptation includes specific investment, technical adaptations of production processes, adaptations of the product design, etc. This embeddedness has to occur regarding the local network in the host country (“local embeddedness”), but also regarding the linkage of the subsidiary to the rest of the MNC, i.e., to the intra-organisational network (“corporate embeddedness”). However, this *dual embeddedness* might lead to a conflictual situation. The subsidiary is exposed to *different internal and external stakeholders* who usually try to influence its behaviour in accordance with their own interests. Different contexts can lead to tension which leads to a *dilemma* in the MNC. A strong local embeddedness of the subsidiary can enhance its competitiveness and also the knowledge creation of the MNC in total. And the local embeddedness enhances the absorptive capacity of the subsidiary for new local knowledge. However, this local embeddedness often reduces the embeddedness in the corporation and thus diminishes the potential influence of headquarters (Andersson/Forsgren 1996).

Tension between Local Environment and Corporate Integration

Eventually, this dilemma is a consequence of basic challenges of the MNC, and captured in particular with the discussion of the integration/responsiveness framework (Chapter 2). Higher responsiveness to local conditions and stronger internal integration are potentially two forces in tension that have to be optimally resolved in the MNC.

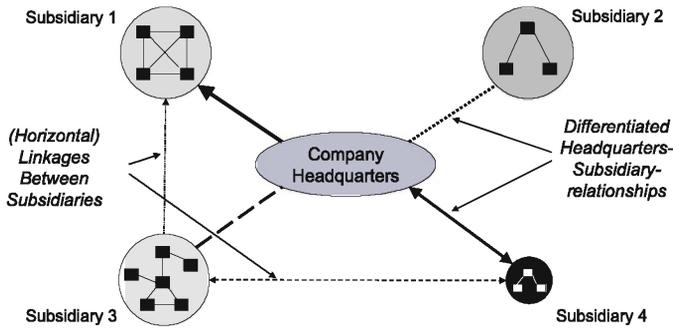
Coordinating the MNC Network

With increasing complexity of the MNC, and the dual tendency to disperse activities to differentiated subsidiaries around the world with simultaneously competitive pressure to coordinate the widespread activities, managers recognised that the organisational structure is insufficient to manage the challenging tasks facing the network. In addition to the formal structure of the company – which is still a powerful instrument – other instruments, including processes, communication channels, decision-making locus and

interpersonal relationships become necessary for coordination. In particular, more subtle and informal coordination mechanisms are seen as relevant for coordinating MNC networks (Martinez/Jarillo 1989, p. 489; Bartlett/Ghoshal/Beamish 2008, pp. 335-336).

The Structure of the MNC as a Differentiated Network

Figure 1.3



Source: Adapted from Nohria/Ghoshal 1997, p. 14.

One main problem with the organisational structure (i.e., a functional or a divisional structure) to coordinate the MNC lies in heterogeneity. All subsidiaries are confronted with the same MNC structure, but in a differentiated network, “variations within such MNCs can be as great as variations across them” (Nohria/Ghoshal 1997, p. 12).

Subsidiaries, as has been mentioned, have different tasks, different resources, different competences. They have different internal structures. Thus, as has been shown in the model of the integrated network, horizontal linkages between subsidiaries emerge and are beneficial. Direct horizontal links between subsidiaries, however, make central coordination from the headquarters even more complicated. In all, the headquarters-subsidiary relationships must be heterogeneous as well. Stronger centralisation of decisions for certain subsidiaries and more autonomy for other subsidiaries might be adequate. Formal and standardised procedures might be well suited for production subsidiaries but counter-productive for R&D subsidiaries, and so on. Thus, flexible and more complex coordination mechanisms become necessary. Frequently, delegation of decision power to the dispersed organisational units is suggested, in combination with coordination via a strong corporate culture, i.e., normative integration (Bartlett/Ghoshal 1987; Buckley 1996, p. 32). To stimulate horizontal transactions between subsidiar-

Complex and Differentiated Coordination

ies, informal communication by means of the creation of a network of personal and informal contacts among managers across different units of the company are seen as crucial. In all, in order to implement complex strategies that result from interrelated, multiple-country, specialised activities around the world, an enormous coordination effort is needed. Thus, all types of coordination instruments, formal and structural, plus informal and more subtle mechanisms, are needed (Martinez/Jarillo 1989, p. 492). The different coordination mechanisms are discussed in more detail in Part III of this book.

However, even in the model of the differentiated network, headquarters still exist and still have a somewhat hierarchical position in the network. While the heterarchical models have become prominent, most empirical studies still indicate a higher power in the headquarters, mostly in the home country. The network model in its extreme, i.e., a network of equally powerful organisational units with extreme decentralisation of strategic decisions to different subsidiaries and no hierarchical power in the centre, is *more an ideal-type* in literature than a common phenomenon (Morschett 2007). “Notwithstanding the fact that MNCs are indeed becoming ‘heterarchies’ [...] i.e., integrated complex networks with significant devolution of authority and responsibility to the subsidiaries, the parent corporation continues to serve” (Gupta/Govindarajan 2000, p. 483) at least as a *primus inter pares*, and usually as the strongest unit concerning knowledge generation, decision power, etc.

Conclusion and Outlook

Originally, the network perspective was only used for a specific type of MNC model, in which all foreign subsidiaries have rather high autonomy, specialised assets and competences which they leverage for the total MNC (see Figure 1.1).

Every MNC is a Network

It becomes evident, however, that many elements of a network, including relationships with internal and external actors, some degree of horizontal linkages and specialised tasks, some differentiated characteristics of the subsidiaries and transactional exchange between different organisational units in different countries, are not features of a specific MNC type but – more or less – of all MNCs. One can thus conclude that “every MNC is a network” (Gupta/Govindarajan 2000, p. 491), even if some key resources and capabilities might still be optimally concentrated within the home-country operation (Bartlett/Ghoshal/Beamish 2008, p. 205). In any case, the network perspective is very useful to understand the MNC, regardless of the relevance or role of the specific nodes in these networks.

Case Study: Siemens¹

Profile, History, and Status Quo

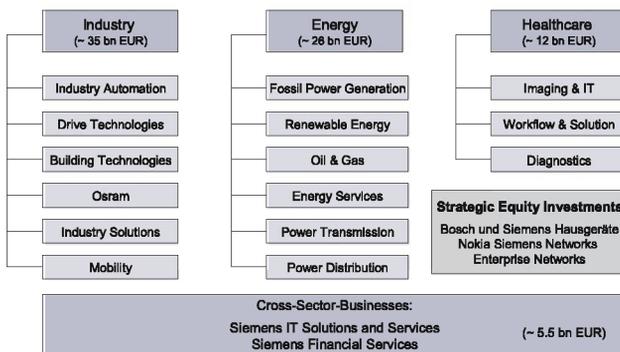
Siemens was founded in 1847 by the researcher Werner von Siemens in Berlin (Germany). Starting as a 10-man business, *Siemens* is today a MNC with nearly 400,000 employees. In 2009, it reported worldwide sales of 77 billion EUR. In 2010, the company had two corporate headquarters, in Berlin and Munich, and was present in nearly 190 countries all over the world. *Siemens* is one of the biggest companies in electronics and electrical engineering worldwide.

In 2010, *Siemens'* business operations were divided into three main business sectors with 15 divisions and two cross-sector businesses (see Figure 1.4).

Business Sectors and Divisions

Siemens' Business Sectors in 2010 (and Sales in 2009)

Figure 1.4



Source: Siemens 2010.

The objective of this rather new structure is to exploit better growth and customer potential as well as to increase the company's cost efficiency and profitability.

"Company founder Werner von Siemens had an international orientation from the very beginning" (Siemens 2008a, p. 22). Soon after *Siemens'* founda-

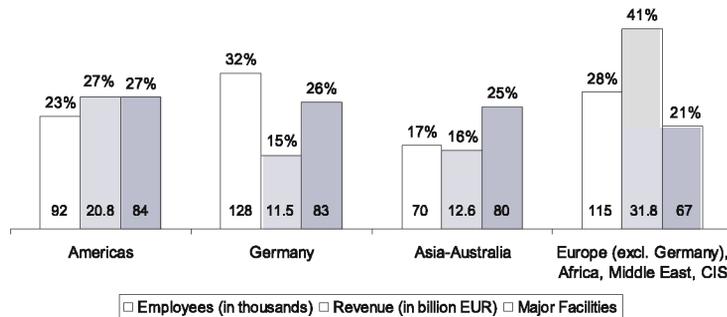
¹ Sources used for this case study include the corporate web sites (mainly <http://www.siemens.com>) and various annual and interim reports, investor-relations presentations as well as explicitly cited sources.

tion, in 1850, the company opened its first office outside Germany: a sales office in London (UK). The next foreign subsidiary was established in 1855 in Russia. Over time, *Siemens* expanded its business operations throughout the world.

Regarding its geographical spread, in 2010 the company's international presence was worldwide and within the company divided into four regions: Germany, Europe (excluding Germany)/Africa/Middle East/Commonwealth of Independent States (CIS), Americas, Asia-Australia. Regarding the employee distribution of the group, most employees are located in Germany (32%). However, whereas Germany shows the highest number of employees within the four geographic regions, it only takes the last place in terms of revenues (15%). Moreover, most major facilities of *Siemens* are now located in the Americas (see Figure 1.5).

Figure 1.5

Siemens Global Presence (as of September 2009)



Source: Siemens 2010, p. 5.

All in all, it can be stated that about half of *Siemens'* employees and facilities are located in Europe (including Germany) where also about half of the group's revenues are generated.

Selected Business Sectors and Business Activities

Siemens' Business Sector "Industry"

In 2009, *Siemens'* business sector *Industry* reached sales of about 35 billion EUR and had a workforce of about 207,000 employees in more than 50 countries worldwide. "With the business activities of *Siemens VAI Metal Technologies*, (Linz, Austria), *Siemens Water Technologies* (Warrendale, Pa., USA), and *Industry Technologies* (Erlangen, Germany), the *Siemens Industry Solutions Division* (Erlangen, Germany) is one of the world's leading solution and service providers for industrial and infrastructure facilities" (Siemens 2008f). *Siemens Industry Solutions Division* offers standardised solutions and is coordinated from Erlangen (Germany).

*Siemens Industry
Solution*

Osram (Lighting) – to illustrate briefly another industry division of *Siemens* – was registered in 1906 as a brand name. Since 1978 *Siemens* is the only shareholder of the lighting company which has its headquarters in Munich (Germany) and 48 manufacturing facilities in 17 countries. In 2007, *Osram's* worldwide sales amounted to 4.7 billion EUR of which 41 % were generated in the Americas, 38 % in Europe (including Germany), 17 % in Asia-Pacific and 4 % in other countries/regions. Moreover, in 2007, *Osram* had a workforce of more than 41,000 employees distributed across Europe (35 %), Asia-Pacific (34 %), the Americas (27 %) and other countries/regions (4 %).

Osram

Siemens Financial Services

Siemens Financial Services, one of the cross-sector businesses, provides financial solutions in the business-to-business area across all three *Siemens* business sectors. The financial services sector comprises about 1,800 employees and is worldwide active in more than 30 countries, especially in the regions Europe (including Germany), Americas and Asia-Pacific. The "international network of companies [is] coordinated by *Siemens Financial Services GmbH* in *Munich*", Germany (Siemens 2008d).

*Siemens
Financial
Services*

Research & Development

In 2009, *Siemens* invested 3.4 billion EUR in major R&D activities. The company has 30,800 employees in R&D in 150 R&D locations spread over 30 countries worldwide (see Figure 1.6). The most important R&D centres are located in Germany (especially Berlin, Munich, Nuremberg-Erlangen), Austria, the USA (especially Princeton), China (especially Beijing, Shanghai), India (especially Bangalore) and Russia (especially Moscow, Saint Petersburg). Considering R&D employees in the five geographical regions of the

company, Germany employs 36 %, Europe (excluding Germany) 28 %, Americas 23 %, Asia-Pacific 12 % and Africa/Middle East/CIS only 1 % of *Siemens*. In short, the home country, Germany, is the most important location in the world for *Siemens*' R&D activities and nearly two-thirds of the company's R&D employees are working in Europe.

Figure 1.6

Siemens' Major R&D Locations



Source: www.siemens.com.

Selected Characteristics of Siemens' Subsidiaries in Selected Countries

Many Large Foreign Subsidiaries with a Long History

Siemens Origin in Berlin

As already mentioned, *Siemens* was founded in 1847 in Berlin. In 2007, *Siemens* had 74 major plants and 35 branch offices located in Germany, generating sales of 12.6 billion EUR and employing 126,000 people, of whom 11,700 were working in R&D.

First Foreign Subsidiaries in the UK and Russia

In 1850, *Siemens* established its first sales office in the UK and in 1858 its first manufacturing plant. The company is established at over 100 locations in the UK. In 2007, *Siemens* achieved sales of nearly 4 billion EUR and had about 20,000 employees in the UK, with about 5,000 employees working in the manufacturing sector.

After delivering pointer telegraphs to Russia in 1851 and setting up a construction office in 1853, *Siemens* established its first manufacturing subsidiary outside Germany in 1855, in Saint Petersburg. In 2007, *Siemens* counted

30 offices and 3,000 employees in Russia, where its sales amounted to 946 million EUR.

Siemens' history in the USA reaches back to 1854 when the company was asked to provide the country with a railway telegraph to Philadelphia. In 2007, *Siemens* was present at 795 locations in the USA, in all of the 50 states as well as in Puerto Rico. In 2007, the company reached sales of 14.8 billion EUR. Moreover, in 2007, *Siemens* had about 72,000 employees in the USA. In 2006 and 2007, the USA has been *Siemens'* largest market.

Siemens entered the *Chinese market* in 1872 when providing the country with its first pointer telegraph. In 1904, the company built its first office in Shanghai and quickly expanded its activities to other Chinese cities. As at 2007, the company had set up over 70 operating companies as well as 60 regional offices in *China*. In 2007, *Siemens* achieved sales of 5.2 billion EUR and had 50,000 employees in China. Remarkably, all business sectors the company has around the globe are nowadays active in China, which makes China a very important location for *Siemens*.

Siemens' first business contracts with India reach back to 1867. In 2007, *Siemens* had 17 production plants in India, generated sales of 1,700 million EUR, employed 16,800 people and was embedded in a large regional network of service and sales offices as well as distribution partners.

Relatively Young and Small Foreign Subsidiaries

In contrast to the abovementioned countries in which *Siemens* has been present for more than 100 years, and in which the subsidiaries consequently have very long experience and local knowledge, and often considerable size and own resources, there are also countries where *Siemens* is not been present for long and where it only has small subsidiaries.

For example, *Siemens* has a relatively young presence in the Lower Gulf region, comprising the United Arab Emirates, Bahrain, Qatar, Oman and Yemen. *Siemens* set up its first representative office in the Emirates in 1973. Then, in 1999, *Siemens LLC* was founded as a *regional headquarters* which is *responsible* for *Siemens'* activities in the five countries mentioned above.

A heterogeneous picture is given when considering some of the former Eastern Bloc countries: Whereas *Siemens* has been present in Hungary since 1890 with its first subsidiary, the company started its operations in Poland only in 1991 and in Kazakhstan in 1994. Moreover, in the Ukraine, *Siemens* has been active since the 1850s, but opened its first representative office only in 1992. However, whereas *Siemens* has a long history in Hungary, in 2007, the company counted the same number of employees in Hungary and Poland (each

*USA: Siemens'
Largest Market*

*Siemens' Net-
work in China
and India*

*Young History
in Lower Gulf
Region*

*History in
Former Eastern
Bloc Countries*

about 2,000 employees) and generated higher sales in Poland (453 million EUR) than in Hungary (259 million EUR). Moreover, in 2007, *Siemens* had 300 employees in the Ukraine, where it achieved sales of 163 million EUR, and 140 employees, and sales of 68 million EUR in Kazakhstan.

Local, Regional or Global Responsibility of Subsidiaries

Selected Global and Regional Business Centres and Offices

Most of *Siemens'* business activities are coordinated from the company's home country, Germany. The respective CEO and CFO of *Siemens'* business sectors Industry and Energy are located in Erlangen (Germany). However, as a first indicator for decentralised decision making, the coordination of the business sector Healthcare is carried out from Malvern, Pennsylvania (USA). Each CEO of the three business sectors is also a member of the managing board. The 15 business divisions, being rather autonomous, have their own CEO and CFO and are again divided into different national and regional units. The divisions as well as its national and regional units receive mainly strategic directives from the top of their business sector.

Headquarters in Germany

Siemens' office in Berlin, where the company was founded and still has one of its two corporate headquarters, plays an important role for the company's activities located around Berlin, in Germany and all over the world. Berlin is one of the biggest manufacturing locations and many of the Group's activities are concentrated in the German capital. *Siemens* exports 90 % of all products it manufactures in the Berlin area. In 2004, *Siemens* decided to concentrate its formerly dispersed service and sales operations concerning Germany as a whole in Berlin. Moreover, *Siemens* not only coordinates from Berlin the company's activities across Germany, but also coordinates some of its worldwide subsidiaries.

Siemens' office in Munich was established in 1890 as a technical office and was at that time the company's first company-owned sales office outside Berlin. Besides Berlin, Munich is the second location for the company's corporate headquarters. Whereas *Siemens'* office in Berlin is, among other things, the distribution and service centre for the Berlin region and its adjacencies, Munich is the centre for distribution, solutions and services for the regions of Upper and Lower Bavaria. Moreover, the headquarters of *Siemens'* industry division, *Osram*, is located in Munich.

In Nuremberg-Erlangen (Germany) there is another important office which has global responsibility for most of *Siemens'* business divisions, e.g., *Siemens Industrial Solutions and Services*, *Power Generation*, *Power Transmission and*

Power Distribution. In total, one-third of *Siemens'* worldwide revenues is coordinated from here.

Although most of the head offices of *Siemens'* business divisions are located in Germany, the company also coordinates some divisions from other locations outside its home country of Germany: For example, *Siemens' Oil and Gas* division has its headquarters in Oslo (Norway) and the healthcare division *Diagnostics* is headquartered in Deerfield, Illinois (USA). Moreover, *Siemens Building Technologies*, established in 1998 in Zurich (Switzerland) by acquisition of the industrial sector of Electrowatt Ltd., employs about 29,000 people in 51 countries. *Siemens Building Technologies* "is part of *Siemens Switzerland Ltd*, Zurich (Switzerland) and consists further of *Siemens Building Technologies GmbH & Co. oHG*, Erlangen (Germany), *Siemens Building Technologies Inc.*, Buffalo Grove, IL (USA), their subsidiaries and affiliates" (Siemens 2008g). Today, the global head office of the *Siemens Building Technologies Group* is located in Zug (Switzerland).

These examples indicate the application of a type of "decentralised centralisation", whereby decisions – in this case for business divisions – are taken in a rather centralised manner but the locus of decision making is not in the home country of the MNC.

Besides business divisions, *Siemens* is also involved in two strategic equity investments in the form of 50-50 joint ventures – *Bosch und Siemens Hausgeräte* and *Nokia Siemens Networks* – where control is shared with the business partner. While *Bosch und Siemens Hausgeräte*, established in 1967 between *Robert Bosch GmbH* (Stuttgart, Germany) and *Siemens AG* (Munich), is globally controlled from Munich, *Nokia Siemens Networks*, established in 2007 between *Nokia Corp.* (Espoo, Finland) and *Siemens AG* is controlled from Espoo. Similarly, *Fujitsu Siemens Computers*, a joint venture between *Fujitsu Limited* (Tokyo) and *Siemens AG* launched in 1999 was dissolved as of 1 April 2009, and *Siemens'* share was sold to the former partner, *Fujitsu*. A 49% stake in *Enterprise Networks B.V.*, with its headquarters in Amsterdam, is also part of *Siemens'* Strategic Equity Investments. These strategic investments are granted great autonomy in their decisions, being strongly influenced by the business partner.

In 2007, *Siemens* established a *Regional Business Centre* for Oil and Gas for the countries of the Gulf Cooperation Council and Iran, which has its regional headquarters in Abu Dhabi in the United Arab Emirates. Furthermore, some divisions of *Siemens*, among them *Osram* and *Siemens Home and Office Communication Devices*, have established regional bases in the United Arab Emirates.

Division Head Offices Abroad

Head Offices of Siemens' Joint Ventures

Regional Business Centres in the UAE

Regional Offices in China

On the subnational level, *Siemens* has 60 offices in China which are responsible for coordinating the company's activities in specific regions within China. Furthermore, having regional offices in China allows the company to pursue a *local marketing strategy* and to react to changes in the Chinese market (e.g. changes in consumer needs) without long delays.

Importance of Siemens R&D Activities in China

Siemens' R&D Activities in China

"China already is an important research and development base for *Siemens*, and will be further extended. Emphasis is on locally designing and developing the right products for the Chinese market to meet local customer needs, and also using the advantages China offers to develop technologies in China for global application" (Siemens 2008c). Thus, the Chinese R&D organisation has mainly local tasks, but also some *global responsibility*. Since the end of the 1990s, *Siemens* has established a couple of R&D centres in China focusing on different R&D activities in the company's different business areas. Establishing *local R&D centres* in China allows *Siemens* to localise and to customise its products and solutions to the Chinese market. However, products and solutions developed in China are not only intended to be sold in the Chinese market, but may also be exported around the world.

Selected Local R&D Centres in China

Local R&D centres may also provide their capabilities and know-how to other *Siemens* companies around the world specialising in the same business divisions. Moreover, some R&D centres located in China combine their activities with other R&D centres in other countries. For instance, the R&D centre of *Siemens' Osram* division works closely together "with other *Osram* Component Groups in Germany, Italy and the USA" (Siemens 2008c). Some of the company's R&D centres in China, e.g., in the area of medical technology, are the only R&D centres in specific business areas located outside Germany. Furthermore, some bases carrying out R&D also carry out manufacturing activities, such as *Bosch Siemens Household Appliances*, located in Beijing. In addition, the "*Asia Centre of Excellence* in Shanghai, which will focus on R&D, manufacturing, service and marketing for *Siemens* medical products [...] will become the focal point of all *Siemens* medical activities in China" (Siemens 2008c). Besides Shanghai, Beijing and Nanjing are also important R&D locations for the company in China. Furthermore, R&D centres in China also cooperate with other business divisions in other locations in China. Finally, *Siemens* has also entered some R&D joint ventures in China.

Local Embeddedness of Subsidiaries

In many countries, *Siemens* works closely with *regional suppliers*. For instance, in China, where the company has strengthened its local procurement activities since 1999. According to Siemens (2003), the company “works closely with local suppliers to prepare them to meet the company's high standards for quality and reliability, thereby transferring modern management know-how to its partner companies. [...] Thanks to its substantial efforts in developing local procurement, *localisation rates* in some of *Siemens'* business areas in China already reach up to 75 %.”

Moreover, *Siemens* participates in diverse *projects with different research institutions* in different countries, including Germany, Brazil, Poland and China. For instance, in China, *Siemens* works closely together with local universities and has in total 16 cooperations with high-ranked Chinese universities aiming, among other things, at fostering R&D and sharing knowledge.

In addition to *Siemens'* cooperation with regional suppliers and educational and research institutions, the company also participates in several *cultural and social programmes*.

*Cooperation
with Regional
Suppliers*

*Cooperation
with Research
Institutions*

Summary and Outlook

Starting as a ten-man operation in 1847 in Berlin, *Siemens* grew over time into one of the largest MNCs in its field which is nowadays spread over 190 countries worldwide. *Siemens'* international network of subsidiaries shows strong heterogeneity concerning different characteristics of the foreign units, e.g., with regard to size, age and autonomy as well as geographical responsibility.

Questions

1. Modern models of the MNC characterise it as a “differentiated network”. Using the example of *Siemens*, explain this perspective of the MNC.
2. MNCs are characterised – among other things – by complex interdependencies within their internal and external networks. Take the example of *Siemens* R&D activities in China and try to depict the complex internal (and external) interdependencies of *Siemens'* international network. Then, investigate whether *Siemens'* R&D activities around the world are coordinated centrally from one (or a few) locations or whether *Siemens* gives autonomy to its subsidiaries to decide (largely) independently on their R&D activities in their respective countries.

3. *Siemens* is a German MNC. Illustrate and discuss the relevance of *Siemens'* home country for the company's international network today.

Hints

1. See, e.g., www.siemens.com for an overview on *Siemens'* R&D activities in China.
2. For your answer, take into consideration – among other things – the role of specific German locations for the coordination of *Siemens'* international network as well as the importance of Germany in the field of R&D.