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### Global trade & the Dutch hub: understanding variegated forms of embeddedness of international trade in the Netherlands: clothing, flowers, and high-tech products

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### **High-tech consumer products**

The importance of efficient logistics and an attractive business climate for a distribution node in a largely integrated value chain

*“Logistically, we feel the Netherlands is the distribution leader of Europe with its central location, excellent distribution networks and state-of-the-art infrastructure. Secondly, the highly educated Dutch workforce, with their strong multilingual skills and a multinational approach to business was an important factor. Finally, the economics of operating in the Netherlands are very attractive.”<sup>41</sup>*

Since the 1970s, when the first microprocessor based on a semiconductor was created, a whole new industry has developed. Semiconductors now have penetrated our offices and private lives as data processing technologies have entered the world of personal computers, laptops, mobile phones, digital cameras, mobile music players, and memory sticks. Nowadays we all carry such high-tech consumer products around with us. The application of semiconductors has become part of our daily lives. In 2006 nineteen percent of the market for semiconductors was used by mobile phones, another nineteen percent by consumer electronics, and around forty percent by computer manufacturers (Van Ammelrooy, 2007). With the birth of high-tech products, new trade flows have started to cross the world. Many of these flows enter and leave the Netherlands on their way from production plants to consumer markets. The role and reasons for the Netherlands in the value chain of high-tech (consumer) products such as laptops, mobile phones, and digital cameras is the subject of this chapter.

An important expectation this chapter starts with is that physical and juridical infrastructures and a general attractive business climate are the most important assets of

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<sup>41</sup> James Richardson, Cisco’s vice president for Europe (<http://newsroom.cisco.com>, accessed February 3rd, 2009).

the Netherlands for distribution nodes. Especially for products of the Industrial World these assets are thought to be important. In case of Market World products also localized knowledge of logistics is expected to be possibly important in attracting trade-logistic activities. In the highly integrated value chain of high-tech products, control of the chain is expected to be at the headquarters of large corporations located outside of the Netherlands.

## **7.1 High-tech consumer products: the rise and development of a new industry**

### ***7.1.1 The semiconductor industry and the high-tech value chain***

The development of semiconductor technologies has been very rapid since its beginning in the 1970s. It all started in the US, in Silicon Valley and Japan, but by the year 2000 Singapore, Korea, and Taiwan had also become very important semiconductor producing countries with Korean Samsung being the second largest semiconductor producer after Intel from America (Dicken, 2007, p. 333). Semiconductors are an important input to many consumer products. The logic of the semiconductor industry has huge impacts on the organization of value chains of these consumer products, including trade and distribution. Figure 7.1 shows some basic value chains for creating a consumer product with a semiconductor inside. It is based on a classification of semiconductor firms that Dicken (2007, p. 336-337) gives. We can discern three different types of value chain organizations and lead firms for high-tech consumer products: (1) Value chains that are governed by lead firms, Dicken (2007) calls them vertically integrated captive producers, that have integrated both semi conductor production, consumer products design and possibly also production. The semiconductors produced are entirely used by the company itself; (2) Value chains governed by lead firms (vertically captive-merchant producers) that do the same as the first but also sell their semiconductors to other firms; (3) Value chains that are governed by lead firms that do not produce semiconductors but only invent and market consumer products. The production of consumer products might be integrated in the firm, but also outsourced. These firms might either (a) buy their semiconductors directly from a semiconductor producer (merchant producer who produces only for sale, or from a vertically captive-merchant producer), or from (b) a 'fables' semiconductor firm that only designs semiconductors but commissions a foundry to make the semiconductor to customer specifications.

The integration of the production of semiconductors gives the advantage that delivery of semiconductors is secure when there is high demand. However, in an economic crisis this can be a disadvantage since semiconductor plants are very costly to build. When their production capacity is only partly used, this is a large burden to a firm

due to high capital losses. The demand for chips fluctuates greatly and more quickly than new production capacity can be installed. It takes six to twelve months to install new production capacity, whereas an increase in demand as high as eighty percent above average sales might take place within three months (Wu et al., 2005). When there is overcapacity, price declines of thirty to forty percent are often observed in the sector (Het Financieel Dagblad, 2007). In economic hard times, particularly smaller firms have to work together and find partners for take-overs to be able to continue to invest in new generation production equipment (Hijink, 2008). It is the expectation that only the largest chip manufacturers such as Intel and IBM will be able to build their own factories for chip production in the future. Other high-tech firms will use the capacity of foundries such as Chartered, TSMC and UMC or will have to work together with other firms to build chip factories (Het Financieel Dagblad, 2004). Following Wu et al. (2005, p. 126), the ability to manage capacity is the most critical factor for long-term success in high-tech industries such as semiconductors, consumer electronics, and telecommunications. As a result, tight control over supply, distribution, and stock is very important, as we will see later on in this chapter.

### *7.1.2 Product characteristics*

One of the most important ways the semiconductor industry influences the consumer products industry is its blazing technological progress; technologies are becoming obsolete faster and faster (Oakley, 1996). Processors gain speed as memory storage increases every year. A 256 megabyte memory stick was the standard five years ago, but today most memory sticks start at 1 gigabyte of storage. Because of these fast technological changes, products must be marketed as quickly as possible: if you don't sell it today, you won't sell it anymore. Therefore, High-tech products are sometimes even classified as perishables (Wu et al., 2005).

In general, the product life cycle of high-tech products is short and shows a bell-shaped curve meaning after an initially slow start, demand increases exponentially and then declines (Wu et al., 2005). In every stage, demand for production capacity is different. There are different strategies of capacity management:

- (1) subcontracting of production;
- (2) relational or incomplete contract making; in which case parties specify informal agreements about how they will behave (since capacity investment must take place before a new product is fully defined)
- (3) capacity reservation;
- (4) building up inventory before product release as a substitute for production capacity (Wu et al., 2005).

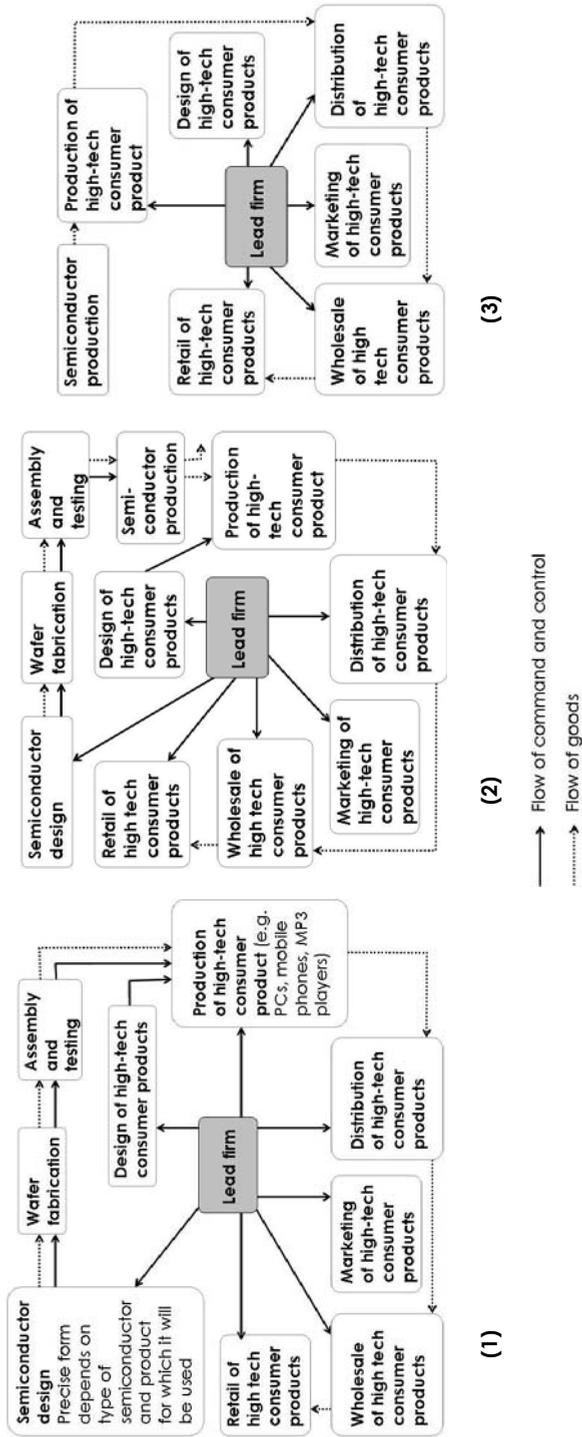


Figure 7.1 Three basic organizations of the value chain of high-tech consumer products (extension of Dicken, 2007, p. 318).

It is clear that the strategy chosen influences distribution. For example, when inventory is taken as a substitute for production capacity, this means more warehouse space is needed, especially before a product is launched.

Although the volatility and leading-edge aspects of high-tech products certainly influence the distribution, marketing, and sales activities in this sector, other characteristics play a role as well, and might even be more relevant for marketing and distribution of high-tech products (Meldrum, 1995). These include product-related uncertainties for producers, retailers, and consumers. As long as a technology is not very well-known, there are perceived risks in buying the product. The product still has to prove its utility, usefulness or ability to solve a problem. Also important is the fact that new products sometimes still lack an adequate external infrastructure of sales and post-sales services to help customers and retailers (Meldrum, 1995). In a case like this, trust and credibility become important issues: *'the credibility of the technology forming the focus for product evaluation, and the credibility of the supplying organization'* (Meldrum, 1995, p.52). Here distributors may play a role, as they mostly work with products of many different suppliers and can thus evaluate all of these products, offering better advice. But this is most-likely an issue for ground-breaking new technologies. When proven technologies are further developed, for example the data storage capacities of memory cards or sticks, issues of trust and credibility seem to be less important. It is then more important to be able to quickly deliver these new technologies without being left with large stocks of old models. The aforementioned marketing strategies probably have repercussions for the distribution and logistics strategy of a firm, as Bruce et al. (2007) mention. However, literature on this issue is very scarce, if present at all. Even a special issue on the marketing of high-technology products, services and innovations<sup>42</sup> did not address the question of wholesale trade, distribution and logistics requirements as it relates to marketing high-tech products (Sarin and Mohr, 2008).

Another important characteristic of the semiconductor and high-tech consumer products industry that I haven't seen mentioned in marketing and distribution-related literature is that these products are becoming smaller and smaller. High-tech consumer products therefore have an increasing value to weight ratio. This makes transportation over long distances easier and even the use of costly air transportation very common. Particularly at the start of their life cycle, high-tech consumer products enter Europe by air. Subsequently, they are transported by truck throughout Europe. Later on in the product life cycle, goods may come by ship to refill stock sold in earlier sales waves. Less fashionable items such as computer monitors often also come by container ship.

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<sup>42</sup> Industrial Marketing Management, volume 37, issue 6, 2008

### 7.1.3 Outsourcing and control of the value chain

Electronics firms that bring consumer products to the market nowadays are generally not the producers of their products: they let firms like Flextronics, Foxconn, Quanta, and Invec make their consumer products for them (value chain model 3 in Figure 7.1). These producers are better able to flexibly fill production capacity since they work for different brand name companies at the same time. They are also able to make better deals when they purchase production materials (Schouten, 2008). Sometimes even design takes place at these producers, but the most advanced products are still designed by the consumer electronics brands (Schouten, 2008). The need to quickly respond to technological innovations and to be able to get products quickly to consumers makes control of the entire value chain important, including product marketing and distribution (Beard and Easingwood, 1996, Bruce et al., 2007). Particularly when it comes to bringing products to market, lead firms need to have a strong control on distribution activities and sales. Incentives for distributors and retailers are often needed to let them invest in consumer attention for a product (Bruce et al., 2007, Hultink et al., 2000). This is most likely the case with new products that do not yet have a very strong market position.

There are many channels to reach the market and many ways to organize sales. In the PC market firms continue to adapt the channels they use to new circumstances. Firms may use direct sales through the internet, sales by selected retailers, their own shops, or other distributors for specific markets (Chu et al., 2007, p.31). Chu et al. (idem) distinguish six distribution channels: direct outbound, direct inbound, dealer/value added reseller (VAR)/system integrators (SI), retail, the Internet, and others.

*“Direct outbound represents sales by a manufacturer’s sales force, agents, or representatives. Direct inbound captures a manufacturer’s telemarketing and catalog sales. Dealer/VAR/SI, such as corporate account resellers and computer specialty dealers, focus on sales to large-volume buyers. The retail channel refers to storefront companies that sell to a large number of unrelated customers, Internet direct sales refer to sales through the manufacturers’ Web sites.” (Chu et al., 2007, p. 31)*

From the channels mentioned above, the most important are dealer/VAR/SI, with thirty-five percent of PC sales, and retail with 31 percent of sales (Chu et al., 2007). Value added retailers and system integrators are resellers that sell packages or total ICT solutions to their (business) customers instead of retailers, who sell individual products to private consumers. Moreover, these firms offer a range of other services like training, seminars, technical and financial assistance, and installation, as their websites show. To serve the European market, many high-tech production firms work with large European

distribution centres that deliver directly to large retailers or to dealers or distributors who in turn serve the market of (smaller) retailers or corporate end-users. In consumer products, as opposed to industrial products, channel choice does not seem to be very decisive for product success (Hultink et al., 2000). However, Chu et al. (2007) have shown that shifts in channel strategy can have large impacts since it has repercussions for downstream firms that might stand to lose a large part of their sales. I have also found this in my research where a lead firm was very cautious about going directly to a large retailer, since it could disturb relations with its distributor who first served this retailer. In general I found that customer size is a very important determinant of sales organization in high-tech consumer products: with larger customers bypassing distributors is attempted, although even then distribution to individual shops might be a problem. As a distributor explains:

*“Retailers are just not specialized enough in distribution to individual retail outlets. Their organization is just not adjusted to that work. Even with a large retailer like Mediamarkt there are twenty outlets to serve. On the contrary, a distributor is specialized in this.” (PH 28)*

However, some companies like Dell have deliberately chosen a direct sales strategy to end-consumers, no matter how small their purchases are.

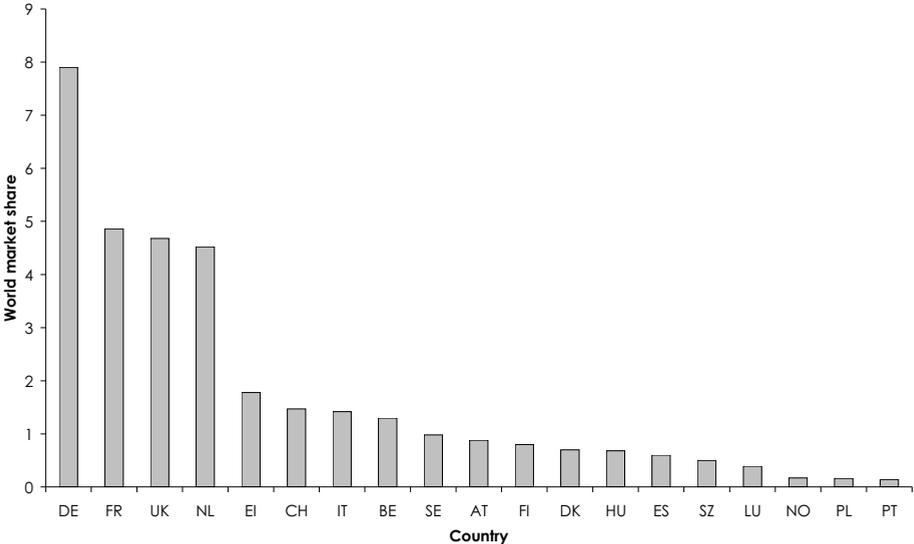
## **7.2 Concentration of distribution in the Netherlands**

### ***7.2.1 A relatively large importer and exporter of high-tech products***

Although there is no data available specifically describing trade in products containing microprocessors or semiconductors, data suggests that the Netherlands has developed into one of the most important locations for distribution centres for these types of products. With a per capita export of IT and consumer electronics of 55,199,804 USD in 2006 (International Trade Centre, 2009), the Netherlands was the third largest per capita exporter in the world and the sixth largest exporter in absolute terms, with a 5.36 percent share in the world market. Particularly in the categories of automatic data processing machines (HS 8471) and parts & accessories of computers and office machines (HS 8473), the Netherlands trades a large part of world imports and exports (for every category greater than seven percent). This importance also comes to the fore in the Balassa indices for exports of these categories of goods; both are 2.4 (Intracene trade data). In 2005 the

Netherlands was the fourth largest importer/exporter of high-tech products<sup>43</sup> in the EU after Germany, France, and the UK (Meri, 2008). Meri explains the relatively high value of exports for the Netherlands through the ‘Rotterdam effect,’ meaning imports and re-exports of these products through the port of Rotterdam. Although this effect is also well-known for Belgium with the port of Antwerp, Belgian exports are much lower than Dutch exports. Belgium only takes 1.3 percent of world market share for high-tech exports, whilst the Netherlands takes more than 4.5 percent in the same year (see Figure 7.2)<sup>44</sup>. Rotterdam effect as such is not enough to explain the Dutch position in these exports.

**Figure 7.2: World market shares for high-tech exports, EU member states and selected countries, 2005**



Source: Meri (2008, p. 4)

<sup>43</sup> The products included in this category are aerospace, computers and office machines, electronics and telecommunications, pharmaceuticals, scientific instruments, electrical machinery, chemistry, non-electrical machinery and armament. See for exact SITC codes (Meri, 2008).

<sup>44</sup> Part of the Dutch high-tech exports consists of domestically produced goods from high-tech firms such as ASML. But their products do not fall into the category of data processing machine or parts and accessories of computers and office machines for which Balassa indices are high. Furthermore, the share of the product group in which they fall in Meri’s work (the group is ‘other’ in Meri’s figure 8. In this group non-electrical machinery is included, of which SITC 7311 is part which includes the machinery of ASML) is a relatively small group of products in Dutch high-tech exports.

These large shares in re-exports are the result of European distribution center re-exports of large international lead firms in high-tech consumer products. Distributors do not play a large role in re-exports, as they mainly only operate in one country. There are just a few pan-European or global distributors, such as Tech Data, Ingram Micro, and Dertech. Besides, many country-specific distributors serve local markets. Even pan-European and global players have local sales organizations and distribution contracts with high-tech suppliers at the level of individual countries. However, they have centralized some of their distribution activities. Therefore, concentrations of high-tech product re-exports result from the European distribution centers of the lead firms (brands) serving distributors and large retailers in different European countries and sales organizations.

### *7.2.2 European distribution centres: mainly from US and Asian firms*

The largest share of high-tech product exports from the Netherlands is probably taken by re-exports of European distribution centers from American and Japanese firms that serve the European market through these centers. A Capgemini and ProLogis survey in 2006 (Lenders et al., 2006) reports that 20 percent of all high-tech and electronics distribution centers in Europe is located in the Netherlands, followed by Germany (17 percent) and France (13 percent). In 1996 63 percent of European distribution centers in the Netherlands were from the US, 24 percent from Japan, 8 percent from Taiwan, 3 percent from Nordic countries, and 2 percent from Korea (BCI, 1996). The US is an important source of foreign direct investments in the Netherlands. In 1996 57 percent of all European distribution centers of US firms were located in the Netherlands. For Japanese, Taiwanese, Korean and Nordic country firms this figure was 52 percent, 71 percent, 60 percent, and 58 percent respectively (BCI, 1996). Two thirds of Japanese and American firms outsourced their European distribution centre. An even larger portion of distribution centers from other countries was outsourced in 1996 (BCI, 1996). This means foreign firms do not actually own the majority of European distribution centers. However, from 2005 to 2007 European distribution centers have been the second most important destination for foreign direct investments (see Table 7.1). In 2008 more than half of all foreign direct investments reported by the Netherlands Foreign Investment Agency went to sales and marketing offices and European distribution centers (Ministerie van Economische Zaken, 2009).

**Table 7.1: The direction of foreign investments between 2005 and 2007**

Activity	2005	2006	2007	Sum 2005-2007 (millions of Euro's)	Share 2005-2007 % of total sum
Manufacturing/assembly	199	140	232	571	39.6
European distribution centers	66	26	158	250	17.3
European/global headquarters	94	49	64	207	14.4
Marketing and sales	9	90	29	128	8.9
Other	108	0	17	125	8.7
Research and development	18	23	30	71	4.9
Repair/training centers	5	3	43	51	3.5
Shared services	1	23	5	29	2.0
Custom contact centers	6	2	1	9	0.6

Source: NFIA (2008)

A general picture of foreign direct investments by different countries might give an impression of the importance of these countries as owners or users of European distribution centers in the Netherlands. US firms were still very important sources of foreign direct investments in 2007, but Asian countries like China, Taiwan, Korea, and Malaysia had also started to develop as sources of foreign direct investment (see Table 7.2).

**Table 7.2: The ten most important countries of origin of direct foreign investment in the Netherlands between 2005 and 2007**

Country of origin	2005	2006	2007	Sum 2005-2007 (millions of Euro's)	Share 2005-2007 % in total sum
United States	295	201	157	653	45.3
PR China	4	12	174	190	13.2
Japan	122	28	38	188	13.0
Korea	12	13	36	61	4.2
Switzerland	0	60	0	60	4.2
United Kingdom	16	19	16	51	3.5
Sweden	0	0	45	45	3.1
Malaysia	0	3	36	39	2.7
Canada	1	0	37	38	2.6
Taiwan	8	17	12	37	2.6

Source: NFIA (2008)

All this shows that the Netherlands plays an important role as European distribution center for high-tech products, electronics and computers. In general lead firms outsource most of the logistic activities they perform in the Netherlands. One of the firms in the study had also located its European, Middle-East and African headquarters in the

Netherlands. Also in this case, many activities like IT, loan administration, repair centres, advertising, and public relations were entirely or to a large extent outsourced. A large part of the work of these headquarters then comes down to the coordination of service provider activities. This does however, not mean that all of these service providers are locally hired. They can come from other countries as well.

### *7.2.3 Concentration in Amsterdam, Rotterdam, and the south*

European distribution centres of high-tech consumer products are mainly most-likely located in the west, centre, east and south of the country. However, no data on the location of European distribution centres for high-tech consumer products is available. Only the Netherlands Foreign Investment Agency could provide some data, namely the location of distribution centres owned by foreign companies at January 1<sup>st</sup>, 2009. Their location is shown on Map 7.1.

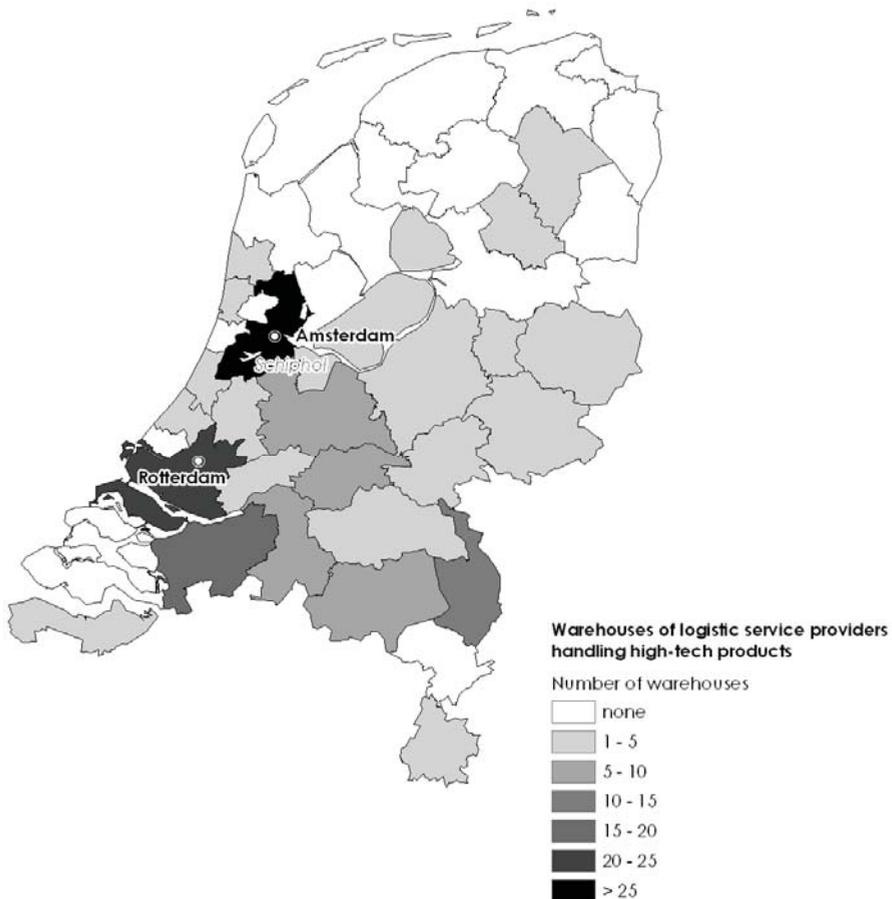
**Map 7.1: The location of foreign-owned European distribution centres of consumer electronics on January 1<sup>st</sup>, 2009**



Source: NFIA, personal communication

Unfortunately enough, data on the location of European distribution centres of high-tech consumer products operated by a logistics provider that could show the importance of Amsterdam, is not available. The only other data available that might give an indication of the location of firms for high-tech consumer products is: (1) warehouse location data for logistics service providers who handle high-tech products and (2) data on wholesale firms in these products.

**Map 7.2: The number of warehouses of logistics service providers who mention high-tech products as goods they handle by corop-region, June 2008**



Source: map created with the information given in the list of members of NDL, available at [www.ndl.nl](http://www.ndl.nl)

Map 7.2 shows the distribution of warehouses of logistics service providers who report that they handle high-tech products. This distribution is based on data compiled from information given at the website of NDL (Netherlands Distribution Country), an association that supports the Dutch distribution sector. This map clearly shows the largest concentration of warehouses in the Amsterdam-Schiphol area, around Rotterdam, and, although more scattered, in the region of Noord-Brabant and the northern part of Limburg.

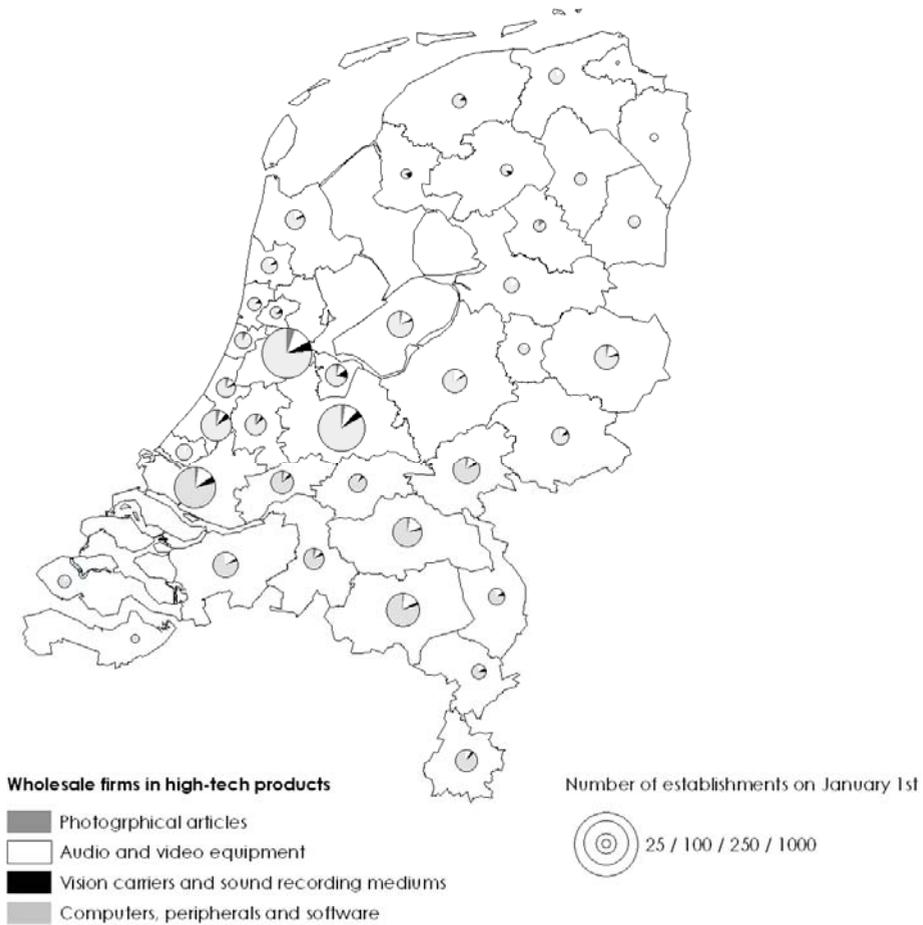
Although the warehouses on the map also include warehouses for goods other than high-tech products, the map does reflect some important points that might be related to high-tech products. First, the importance of the Schiphol-Amsterdam region seems to reflect the importance of air transportation in this sector. Second, as some high-tech goods come by container ship, especially parts less prone to technological change (e.g. laptop bags, monitors, head-sets), warehouses in the Rotterdam region are not surprising. Furthermore the map shows that the north of the country plays an insignificant role as a location for high-tech product warehouses.

Map 7.3 on page 204 shows more or less the same distribution of firms, although Brabant appears less important here. Although the wholesale firms on this map, as we have seen in the previous section, probably mainly only serve the Dutch market, their distribution might also reflect the location of their suppliers. The maps together indicate that distribution and trade services in this sector are mainly concentrated around Amsterdam and Rotterdam and are secondarily concentrated in the centre and south of the country. The North of the country is unimportant as a location.

#### *7.2.4 Focus on European distribution centers*

The focus of the fieldwork for this case study has been on firms that distribute high-tech consumer products through the Netherlands (or did so in the past), on distributors, and on logistics service providers that organize the flows of high-tech consumer products through the Netherlands. In the following paragraphs I will first discuss what the main activities of these firms engaging in high-tech import/re-export actually are. I will then discuss what these firms consider as the main location factors that have attracted them to the Netherlands, and the position that these functions have (developed) in the value chain.

**Map 7.3: Wholesale firms in high-tech consumer products (SBI-codes 51477, 51432, 51433, 5184) by corp-region**



Source: map created with data from StatLine (Statistics Netherlands, [www.cbs.nl](http://www.cbs.nl))

### 7.3 Trade activities of the high-tech value chain in the Netherlands

#### 7.3.1 European distribution centres: handling of goods, keeping stocks

Basically logistics services involve handling flows from production plants abroad including transport and customs formalities to the warehouse and within the warehouse. Traditionally, logistics services end when products are transported to the customers (lead firms), who are usually distributors or large retailers. Recently customer

service and stock management have emerged as new logistics services, yet this is something requiring further development. However, as a large logistic service provider explained (PH 7), lead firms appear afraid to outsource these tasks as they fear losing control over an important part of the value chain. Furthermore, shippers might know their markets and customers better than their service providers and are therefore better able to make the right supply-chain decisions in view of developments in the industry (Lambooy et al., 2001). At the same time, as the internet becomes a more important way of ordering high-tech products, the contact between customers and service providers may become more direct anyway. It may be a matter of time before logistics providers become more involved in customer service and stock management (PH 7).

Good stock management is essential in the high-tech value chain since it lowers costs by requiring less stock to be on hand. This is particularly true for first generation high-tech consumer products that are part of the Market World, are fashionable, and have short product lifecycles. They require quick handling and distribution. Concentrating this distribution makes efficiently organizing distribution possible, keeping idle inventory levels low.

*“Those goods [high-tech market world consumer products, m.l.] have prices that fluctuate by the week. So when it takes three, four weeks to ship them here from the Far East, they might have already lost ten, twenty dollars off the sales price per item. Therefore this merchandise ships by air. It may cost you five, six dollars, but you can sell it immediately.”* (PH 26)

Second generation products at the end of their product life cycle or parts of high-tech product packages that are less fashionable and have longer life cycles (such as monitors or memory cards) are part of the less-dedicated Industrial World. Often these products are no longer designed by lead firms, but by their suppliers (Schouten, 2008). These lower-valued and less time-sensitive articles can also come by sea.

Stock management is, however, not only a matter of centralization of inventory. To be able to have zero or very small amounts of inventory the value chain has to be managed upstream through manufacturing and downstream through retail. For this good forecasting skills are needed. Firms differ in how much attention they pay to both manufacturing and retail, but in general it means they try to influence activities at both ends of the value chain, usually without becoming financially responsible for these activities. One of the high-tech companies in this research has changed the way they purchase goods. Instead of buying from the factory, transporting goods to the warehouse and selling and redistributing the goods, they now only become the owner of the goods once the goods are in the warehouse and sold to a customer. This means at the same time they send the order to purchase from the supplier, let's say a laptop, they also

send a bill for the laptop to the customer. It is also only then that this company declares the products to customs. This way, they never own stock. On the other side of the chain, the company tries to control the stocks at retailers and distributors. This way the company tries to prevent having to get rid of remaining inventory at discount prices when new models are introduced. However, not all companies are so intensely involved in stock management at distributors and retailers. As a distributor explained:

*“Some companies are not interested in keeping stocks at distributors low. Their only consideration is: once I’ve sold it to a distributor, it is one step closer to the final consumer and my work is done.”* (PH 28)

However, even when stocks at retailers are not controlled by the lead firm and no zero-stock strategy is at work, good internal stock management is essential for lead firms, as it can generate enormous cost-savings. One of the companies in this research, for example, explained how splitting up its central European stock into different administrative units for each national sales organization or distributor had resulted in a reduction of their European stock costs by one third: from 150 million to 100 million Euros. Centralizing, better controlling, and eventually shifting stocks from one national sales organization to another had thus created a very big financial advantage.

As we will see later on, although stock management is important, the fact that inventory is stored in the Netherlands does not necessarily mean ideas or best practices of how to organize stocks also come from Dutch sources. It also does not imply that the countries to which these goods are sent, have Dutch-managed logistic centres abroad. But if management functions do not necessarily take place in the Netherlands, what work is undertaken in these European distribution centers? One example is the adaptation of goods for country-specific requirements. This can be achieved by something like adding a country-specific plug and has long been an important value adding activity in European distribution centers. This kind of value-adding is being increasingly done in the Far East, just as assembly activities have shifted from places like Ireland and Scotland to Eastern European countries with lower wages (Van Egeraat and Jacobson, 2005b). Therefore in Europe, increasingly only customer-specific (rather than country-specific) packages of goods are made.

*“Our operations in the Netherlands consist mainly of moving boxes. Products are already country specific when they arrive here.”* (PH 4)

Accessories such as laptop bags and the laptop itself generally come from different manufacturers and are transported to Europe differently; sometimes bags come by ship or truck, whereas laptops come by air. They are only combined in the European

distribution center. As inventories of goods are kept deliberately low, cross-docking and package-making is what mainly occurs in European distribution centers: goods come in, are handled, and leave the distribution center the same or next day.

*“Everything goes by air. Flight time is about twelve hours. In general our flights land at night and our stuff is at our customers next day. They bring the goods right to our distribution center, the same morning things are combined: computers arrive, the accessories are already there, they are combined, a sticker is added to the box and the same afternoon the goods leave. Delivery can be next day. That’s how fast it can be from the Far East to here.” (PH 24)*

### **7.3.2 Distribution: the need of local presence**

Lead firms and their head offices have strong control over stock management and logistics organization. Although they outsource logistics and transportation to often global logistic service providers, local presence of the lead firm is still felt as needed in distribution. No matter what country of origin a lead firm has, in my research every company tried to keep very tight control over its distribution and stocks. This opposes the idea of an author like (Whitley, 1998) that the context of the national business system of a lead firm influences its global organization. In the case of high-tech consumer products, the global context of technological innovation seems to be so dominant that for every lead firm, no matter its national origin, control over supply, distribution, and stocks is essential. Other parts of the value chain might show more traits of specific national business systems, but at the distribution link this research shows a more globally-uniform strategy of tight control over logistics and distribution activities.

*“There is central management [...] but we also have a man in Sweden, in Britain, in France, to keep these local people working. Because [...] you have wishes and requirements and you really need someone able to address your wishes but who is also able to make sure that requirements are fulfilled. [...] When you start to subcontract [to local people, m.l.] this does not mean that you can forget. On one hand this logistics service provider does not know everything. On the other hand, you just have to make sure that he understands you well. You have to supervise him.” (PH 17)*

This need for local supervision of logistics and distribution might also have to do with the fact that there are probably no worldwide uniformly working logistics service providers. The Netherlands is dominated by foreign multinational logistics service

providers such as DHL, Schenke, Kuhne & Nagel, and FedEx. Many of the Dutch logistics providers have been taken over by these firms. Since large international logistics firms have grown mainly through such takeovers, their IT systems and ways of working can be quite different from country to country, although their general terms of contract will be the same (PH 10, PH 20). This means that a high-tech firm that has developed a logistics solution in one country and wishes to copy it in other countries without getting all kinds of complications with new IT-systems, does not necessarily avoid these problems when working with a multinational logistics service provider. However, firms still might perceive advantages to having a logistics service provider who operates in many countries. It gives them a feeling of being more flexible and communications tend to be easier between different branches of the same logistics provider than between different providers. But internationally operating logistics service providers certainly do not make local presence superfluous.

Local presence of lead firms is also needed when it comes to wholesale trade to different European countries. Literature indicates the importance of at least some customization in case of a global product launch (Bruce et al., 2007, Oakley, 1996). The larger the differences are with respect to retail channels and competition, country mores, language and symbolic meanings, and technological infrastructure, the more customization must take place for a worldwide launch (Bruce et al., 2007). Also interviewees mentioned that total centralization seems impossible when it comes to understanding and addressing markets.

*“They would prefer to do everything [marketing and advertising, m.l.] from the headquarters and it has actually been like that for some time. But then, they recognized that they had so little knowledge of the Belgian and Dutch markets that they wanted to have real offices over there as well. Between Belgium and the Netherlands you already see a large cultural difference. So, it’s hardly possible to manage everything from the headquarters... you always need local people. We had a Dutch guy running the Belgian market but he wasn’t able to do that. Now, we have Belgians working for us for the Belgian market. You could possibly centralize back-office work, but front-office, I mean, sales and everything, then you really need Belgians for Belgium.” (PH 24, global high-tech firm)*

Even in organizations that are very centralized when it comes to marketing and sales, local sales organizations are responsible for the translation of the centralized sales campaigns.

*“Our budgets for marketing campaigns come from central headquarters. [...] In the Netherlands we have to set up and rollout these campaigns with knowledge of the Dutch market. [...] You don’t have to rollout every marketing campaign, but once a certain marketing concept is invented, you have to follow that to a large extent. You cannot refuse everything.” (PH 4)*

High-tech lead firms do not always own the sales organization abroad. Sometimes companies work with exclusive distributors who represent the company abroad and some large (internationally operating) resellers buy directly from the high-tech firm. Online purchases also mostly buy direct from these firms. Working with distributors lowers overhead costs and improves the fluid assets of firms. Smaller inventories are needed when using distributors for the supply of individual retailers. Also, these distributors are very country-specific in their approach. Most distributors operate in only one country and the few that are more pan-European in their approach still work with local sales organizations, and sometimes even warehouses.

### **7.3.3 Relations in the value chain**

The relations of high-tech lead firms with distributors and retailers seem to be under pressure continuously and very sensitive to economic conditions. When a distributor does a good job and one of his customers becomes very large, the lead firm might want to take over this customer. Therefore this can be harmful to the relation. However, a lead firm also has means to please a distributor and to get its help, for example for local campaigns. These are often difficult to organize financially for a lead firm. Paying a distributor for specific campaigning activities increases the expenditures of lead firms. This is not much appreciated by the shareholders of high-tech lead firms. Instead of campaigning payments, a lead firm can give distributors discounts on product prices. This only influences turnover, which is less of a problem for shareholders. Discounts are carrots lead firms can use towards distributors. In return to these carrots, lead firms expect distributors to help the promotion of a product without making it a true campaign for which a distributor gets paid. The balance between giving and taking creates a tension in the relation between the high-tech firm and distributor.

*“It is a game of give and take. Whenever something like that [lead firm takes over a customer of distributor, m.l.] happens, you have to talk to that distributor and explain that next time, there’s something in for him.” (PH 4)*

This ‘something’ can be a discount as mentioned above, although a distributor also knows that for such a discount he has to do something extra to stimulate sales, otherwise

he will never get a discount again. However, how much he will do depends on demand: when demands for a product decrease, a distributor may insist on giving discounts, otherwise he won't be able to move any of his inventories. With stagnating demand, distributors may gain more power vis-à-vis the high-tech firm. One can imagine that they then try to get a larger say in issues such as stocks, discount prices, and product releases. On the other hand, when demands are high, lead firms get more power and working with more distributors can even increase their powers vis-à-vis these distributors.

Nevertheless, we should not overlook the importance of distributors in the chain. In the end, lead firms greatly need the capability of distributors to finely distribute goods. Lead firms are not competitive in delivering goods at the level of individual retailer, nor having goods in stock, at the right price, under the right conditions, at the right time. Distributors state that they are closer to resellers and therefore, better able to meet their demands. Furthermore, distributors try to stand out through the services they offer, such as training, advice, and installation. This is not the kind of activity a lead firm is focused on to distinguish itself from other suppliers. Lead firms then, also need distributors.

Since both clearly have their own expertise, it cannot be said that the relations between distributor and lead firm is captive. The expertise of both partners suggests a modular kind of governance. However, it is clear that when the demand for a particular product is high, a lead firm can gain a lot more power in the relationship therefore approaching captive relations: a highly dependent distributor in spite of the distributor's capabilities.

In short, the international trade activities in the value chain of high-tech products in the Netherlands are mainly distributive services and partly also marketing functions that bridge cultural barriers. Marketing functions are primarily nationally based and do not lead to exports. They are generally located within various market areas and are not completely centralized. The function of international trade services in this chain in the Netherlands is mainly related to increasing the efficiency of the value chain, making smaller inventories possible. These are very logical functions when considering that Market World products are primarily involved, for which larger inventories and slow distribution chains are a problem.

The lead firms in this chain clearly control and coordinate the logistics functions, even when they are outsourced. However, logistics service providers may take the lead in activities relating to issues like customs. Through specialization they often develop superior skills, as they encounter customs problems more often than individual high-tech firms. These problems arise when highly innovative new products have not yet had clear customs procedures defined for them. For example, a product might change from one product category to another when a new tool is added, or it

might even become unclear what kind of product it is, making it difficult to declare. An example could be a screen that might be a television screen and a computer screen, or a mobile phone that is a camera at the same time. This can cause delays at borders with customs clearance. One can imagine that logistics service providers are better able to fix these sorts of problems than lead firms that do not have the same broad range of experience with border and customs processes. This, however, is not the case. Logistics service providers would rather form agreements with high-tech firms that free the logistics firm from financial claims. Responsibility then remains with the high-tech company to correctly declare these products.

#### **7.4 Assets for the concentration and location of distribution and logistics of high-tech products in the Netherlands**

##### ***7.4.1 The process of logistic design and location choice: from strategic headquarter decisions to localized assets***

The desire to benefit from economies of scale is often mentioned by companies that have centralized their European logistics through a European distribution centre. Besides these internal economies of scale, warehouses, inventories, and external economies of scale may play a role. The process of logistics design and location choice, described below, shows that the role of these external economies increases at the level of detail reached in the decision process.

When a high-tech lead firm (shipper) wants to (re-)organize its European logistics, there are generally two strategies it can take. The first strategy applies to a situation where the shipper has already chosen a country for its location or has very clear ideas on how it wishes to organize its logistics. In this research an example of the former was a high-tech shipper from Japan that wished to locate in a specific German region since it was centrally located on the map of Europe. This area in Germany, according to the interviewee, was not very advanced in logistics. This fact was later discovered by the Japanese firm, but once located in Germany the firm only wanted to reorganize its logistics within Germany. A second strategy applies to firms that have no idea where to locate and how to organize logistics. The first method of approaching a solution to this lack of knowledge is pursued when a company defines its demand for logistics service providers in a specific country to organize logistics in the most efficient way. In the second case, a firm often starts with a consultant or demand-for-free consultancy of large logistics service providers. These consultants then develop several options for the organization and location of distribution centres and distribution.

To find an optimal location consultants and shippers that design their own distribution system work with general logistics parameters like product type, transportation modes and requirements, locations of production and demand, needs with respect to time to market, and expectations on market developments. With this knowledge they can make network analyses and decide how the market can best be served from a geographic point of view. Since time to market is very important in the logistics of high-tech products, it is important to locate European distribution hubs where products can be quickly transported to the markets.

*“Depending on logistic parameters we ‘hub’ an order through Breda or through France.” (PH 6)*

The more time sensitive high-tech products are, the more important a central location from which a large market can be served quickly becomes. The Netherlands is considered a good site for this. However, road congestion might become a push factor here. Proximity to airports is also very important, since almost all of these goods are transported by air. The attractiveness of an airport is dependent on how much freight it can handle and the cost of infrastructure around the airport. In general, the capacity and capabilities present at Schiphol Airport are considered good, but relocation is always an option.

*“The roads around Amsterdam are increasingly busy and Schiphol has reached its growth limits, so you see many flows now relocating to Zaventem and Luxemburg.” (PH 10, international logistic service provider)*

Also customs formalities play a role here. The Dutch customs are generally considered as very efficient and well organized. This lowers the costs and time of handling goods and shortens time to market. This is essential due to the short product life cycles of high-tech products.

Only in the next step, once possible regions for location are chosen, is the availability of logistics facilities taken into account. Some optimal locations from a geographic point of view aren't that optimal in practice, when there are no service providers available. The Netherlands might not possibly be the most central location in Europe in absolute terms, but a more central location like the Elzas in France is not an option since, as the respondents in this research explained, the region lacks the population and workforce needed to develop into an important logistics hub.

In the steps that follow, many other aspects like an attractive business climate are taken into account. The importance of multilingual skills was frequently mentioned

in this research. The Dutch labour market stands out positively in this: multilingualism is something not generally present in other countries and especially important when customer service is added to logistics operations in the Netherlands.

*“Take, for example, the ability to speak English. When you look at Italy, the ability to speak English is definitely not obvious.” (PH 4)*

The flexibility of the workforce in the Netherlands, with its extended system of temporary employment agencies is also important for logistics centres that have peaks and valleys in the demands placed on a workforce. Geodis Venlo Logistics Centre, for example, which is the European, Middle-East, and African distribution centre for a world leader in printing technology, employs a workforce between 250 to 500 people in peak times. This easy doubling of workforce is made possible with temporary workers. In addition, when countries and regions are chosen for logistics, the actual location site has to be selected. Here availability and cost of office and warehouse space is important.

#### ***7.4.2 Domestic rivalry as a competitive advantage, only in late phases of location decisions***

The strategy companies use to develop optimal logistics organization shows several important themes with respect to the assets that attract high-tech value chain logistics to a place. First, only a location that combines a central location within a market area with good logistics facilities, an attractive business environment (fiscal), and available space for operations, will be able to attract a European distribution centre or other logistics facility. These are then important characteristics or assets for the local production system and state to attract distribution centres of shippers of high-tech products.

Second, it shows that local knowledge on logistics like the ability to design the organization of logistics is not a first consideration when it comes to the location of these activities. Strategic decisions like how to organize logistic operations and in which countries to locate key functions such as warehousing and transportation hubs, are often made in a different country than where the logistics operations will be located. A global shipper might contact the consultancy branch of a global logistics service provider for its European operations, instead of the department of such a service provider in a specific country. Still, logistics service providers often mention Dutch knowledge of how to organize logistics flows and the leading position of the Netherlands regarding logistics-based knowledge, alongside the US, Germany, and the UK. Logistics service providers point to knowledge available in the Netherlands and the importance of using that knowledge for the Benelux market, the most important for tenders in logistics. As a representative of a large logistics service provider explains, when this knowledge comes

from corporate headquarters of the logistics company in let's say France, market responses would probably be slower and less adequate due to a lack of knowledge in the specific ways of doing things in the Netherlands. However, it is not clear that this is a matter of specific logistics knowledge. According to one of the interviewees, it is mainly a matter of perception that the Netherlands is very good in the logistics of information and communication technologies and consumer electronics. Furthermore, when a shipper has a tender for Benelux, this means that at the strategic level of the shipper (or its consultant) Benelux has already been decided as the best place to locate logistic operations. Shippers design the geographic organization of their European logistics largely in-company as part of their strategy, without specific Dutch knowledge.

*"We are the ones who have developed the whole system of merging, hubs, producing; we have developed that system ourselves. It is something other parties can help us with to find smart solutions, but it is something we do ourselves as a company. So that's not some kind of unique knowledge available here." (Interviewer: you mean this is knowledge that is part of the global company?) "Yes, exactly!" (PH 6, global high-tech firm)*

In short, the decision to locate in a specific country at the strategic level seems not be dependent on the logistics knowledge available in a specific country.

Third, the way in which logistics decisions are made shows that, once a logistic model and optimal locations are defined with the help of network analysis, for example how or if the market will be split-up for distribution purposes, the availability of logistics providers and costs start to play a role. At this point, tenders often go out to different global logistics service providers that can show how they could fulfil the wishes of the shipper, and at what costs. Corporate then decides on the use of one or more logistics service providers at the corporate level of the shipper. Transport and distribution play roles only on local levels.

At this point domestic rivalry, one of the arguments in Porter's (1990) diamond, may emerge as an asset of a local production system. One could plead against this argument since shippers generally do not work with comparisons of local players when they decide upon the organization of their global or European logistics and locations of their operations. They work with global service providers for that, and therefore global competition seems to be more important than local competition. However, logistics providers do work with local transporters and other service providers of like those dealing in warehouse space. At that level intense local competition might result in better deals. These better deals with local service providers might also result in a situation where the best deals global logistic service providers can offer are often those located in the Netherlands. As a case in point, the broad choice of logistics service providers and

handlers at Schiphol airport enables firms to continuously look for the best deals and assure their shipments will quickly be handled after landing. This can be different at other airports, where less service providers are available (PC 17). If this is true, and the way in which shippers of high-tech products work to design and implement their logistic organization suggest that it is, the competitive strength for the location of the Netherlands as a trader (distributor) of high-tech products is partly due to the fierce competition of distribution and transport service providers based there.

### **7.5 Value chain governance and embeddedness of high-tech product distribution in the Netherlands**

The previous section has shown how a mix of different factors makes the Netherlands an attractive place to locate a European distribution centre for high-tech products. It is however not very clear how territorialized these factors are. As explained in the theoretical chapter, geographical embedding is also dependent on how relations in the value chain are governed.

The relations between high-tech lead firms and logistics service providers are mostly modular or market-based, implying that shifts to other service providers are made rather easily. Furthermore, lead firms often do not have direct investments in logistics infrastructure like warehouses that would at least temporarily bind them to the Netherlands. In this respect the territorialisation and embedding of high-tech product import/export in the Netherlands do not seem very strong.

In the outsourcing of high-tech product logistics, key performance indicators play an important role. These are indicators of what a lead firm expects from its logistics service providers. Indicators include such things as percentage of losses or damages to goods, instances of delays, and mistakes in delivery. Often different logistics service providers are contracted at the same time and performances are monitored. The service provider with the best performance gets most of the work. Most lead firms tender logistics services yearly. This means that every year new service providers can be chosen. But changes to the global logistics service provider used are usually not the decision of the lead firm's branch in the Netherlands. This is decided higher up in the lead firm, as part of a broader strategy. Only the outsourcing of transportation at the local level is the responsibility of local organizations of shippers and logistics service providers. This suggests that the embedding of distribution activities of a lead firm is not so strong in the Netherlands.

However, although companies work with key performance indicators and an abundance of logistics providers suggest their expendability, some firms have quite strong relationships with their providers to ensure high quality levels.

*“We try to speak to our warehouse operator at least once every three months and when problems arise, more often. [...] We recently visited them. We then also invite the transporters and before long we have an appointment to visit our customers here, to see what is going well, and what improvements should be made. [...] At some point, when you know each other a bit more, it works much easier.” (PH 24)*

Logistic service providers that organize the transportation and logistics of goods in the Netherlands for the lead firms might also outsource parts of the work, such as trucking. The outsourcing of this kind of work is mostly the responsibility of the local department of internationally operating logistics service providers.

*“There’s just a lot of local knowledge that goes with that. Selection of transporter... of course you always work with contracts, but you cannot see from the outset whether or not you are dealing with a good transporter. That comes by experience. That is local experience. And that is, of course, difficult. We use these key performance indicators for that. You can keep your transporters alert with that.” (PH 26)*

Demand in the chain of high-tech products fluctuates; autumn is particularly busy. Companies tend to work with a stable basic amount of charters with long-lasting relations combined with more flexible contracting for additional capacity in peak times when ‘you just have to source your truckers [trucking capacity, m.l.] wherever you can.’ (PH 7)

The relations described so far do not influence the decision to organize distribution through the Netherlands. The decision to distribute through the Netherlands relates to the location decision of the European warehouse. The distribution facilities used for central European distribution such as warehouse and computer facilities are generally all outsourced or designed to be. Large high-tech firms do not want to own these facilities since this reduces their flexibility and gives them less working capital. High-tech companies sometimes even ask their logistics service provider to take over the whole warehouse, all personnel included. However, when the logistics service provider owns a dedicated warehouse, this does not make the lead firm instantly more geographically flexible. In cases like this, contracts are often set for longer time periods than when warehouses are not dedicated to one specific client.

Also logistics providers often do not own the warehouses they use. They generally and increasingly rent these buildings. Flexibility in operations seems to be more important than low prices. Non-asset based companies are becoming the standard. Costs for writing off buildings are avoided, making a company more flexible. They can move quickly and without obligation. Smaller, independent players seem to be the last

to keep their own warehouses and sometimes rent them out to others. The possession of buildings can give them an advantage.

*“With respect to costs, once you own a building outright, you can write off building on a longer period of time, offering a better deal to a customer... so you can work below general market prices. [...] But the trend is to chose for flexibility, more than for price advantages. Because, at some point, you know market prices and you know your competitors that are present in this region. You know what they pay and what you pay and prices are more or less equal everywhere. When you make an offer, and your colleague makes an offer, you know that these are more or less the same because the majority of the companies have sold their buildings and lease them back. The only difference you can make is a long-term contract that lowers prices.” (PH 10)*

Logistics service providers generally dictate the specific software used in contractual agreements.

*“That is especially the case with very large customers that have very large systems running. But in that case, the hardware used is still ours. Because the infrastructure, the cabling, and everything... we try to use our own since, whenever we loose a customer, we can re-use those things. Everything we can re-use we prefer purchasing ourselves. Other things we prefer to be customer-sourced.” (PH 20)*

So the investment in warehouses does only temporarily fix European warehouse activities to the Netherlands. In principle these companies are quite flexible to leave when the costs of staying become too high.

Also the logistics knowledge present at logistic service providers does not seem to attach lead firms to the Netherlands. Since, although logistics service providers like to present themselves as fully able to invent logistics solutions, in general lead firms seem to be keen to invent their own solutions.

*“First we intended to outsource logistics entirely, but what you see is that you still need a logistics position in your company, not only to be able to specifically explain your wishes to your logistics service provider, but also to communicate your requirements and how these can be met. Of course the nice scenario is when the logistics service provider tells you everything he can. But often you talk to salespeople and not to operational managers, and*

*there is some... I have to be careful here, but there is some difference between these two.” (PH 17)*

So although lead firms frequently use the Netherlands as their European distribution gateway, they do not specifically seem to use the logistics knowledge that is available in the Netherlands. They tend to source this knowledge from within their multinational organization, which is often outside of the Netherlands. This is the same for the global logistics service providers who may have a centralized research department to advise shippers on the organization of their European distribution, wherever it is in Europe.

Becoming place-bounded with respect to logistics activities seems to be something shipping companies like to avoid, in so far as this decreases flexibility and the ability to react to changing market circumstances. This is no surprise when we take in mind the characteristics of the high-tech industry discussed earlier in this chapter. For this industry capacity management is the most significant problem to be solved. This problem also affects the trade and logistics links in the chain, creating a scenario where costs to a certain extent are seen as less important than flexibility. The accommodation of flexibility has become one of the main competitive advantages to be developed, inter alia through flexibility in the labour force. However, it also results in a weaker position for trade-logistics services. They are easily hired and fired with fluctuations in the market.

Although the respondents of this case study generally see flexibility as important, they have also repeatedly mentioned costs as a major location factor. One of the respondents, for example, mentioned the relatively low cost of office space around Amsterdam, compared to other major European cities and logistic hubs. This makes the city a very attractive location for them. More general traits, like the attractive business and fiscal climate, were frequently mentioned. This includes such things as the relatively low corporate tax rate of the Netherlands, the possibility of tax deferments, and the participation exemption that applies to Dutch holding companies. This is an instrument to avoid double taxation when a company operates in different countries. These attractions of the Dutch business climate are, as we will see in the next chapter, clearly the result of a deliberate policy to attract foreign investment. This in tandem with a deliberate policy to develop the country into a distribution centre between Europe and beyond, has made the Netherlands a very attractive location for trade logistics and sales functions of foreign companies. Nevertheless, the analysis in this chapter shows that for high-tech trade logistics functions, the importance of costs in their location choice weakens their embedding to the Netherlands. When costs rise, or lower-cost areas emerge, these companies are prone to relocate.

This weak geographical embedding has also been reported for other parts of the value chain of high-tech products. A case in point is the Irish and Scottish microcomputer industry that suffered from many closures in the last decade. These

plants did not appear to be part of a cluster or agglomeration binding them to Scotland or Ireland. Rather they appeared to be drawn by relatively low wages and fiscal incentives. As a result, many of these plants closed their doors when wages rose from 1998 onward (Van Egeraat and Jacobson, 2005a). In this case, *'to a large extent, geographical proximity has been substituted by 'organisational proximity' [...] and 'temporary geographical proximity'* (Van Egeraat and Jacobson, 2005a, p. 415), meaning operations can easily be located elsewhere while maintaining high quality management. Most of the information that had to be exchanged during operation of these plants was of relatively low intensity, requiring low levels of face-to-face contact. Even when face-to-face communication was needed, this could be organized through a combination of short-term travel of engineers or the stationing of resident planner-engineers (Van Egeraat and Jacobson, 2005a). This may have made relocation easier than in cases where local presence and proximity to local suppliers is important. In the case of centralized distribution and logistics links in the value chain, organisational proximity to distribution knowledge seems to be more important than geographical proximity.

As long as the Netherlands enables high-tech firms to operate effectively through short lead times from aircraft to distribution centre and final destination, as well as a flexible labour market to respond to fluctuations, these companies will remain here. However, when another place becomes more attractive due to lower land prices, fewer flight restrictions, or even more efficient customs, these companies may relocate. Logistics providers are in a continuous process of re-evaluation and possible relocation.

## **7.6 Changes in the high-tech chain and the position of the Netherlands**

Developments in the value chain of high-tech products might affect the position of the Netherlands. There are three major developments that affect the chain: (1) Increasing speed of innovation; (2) Increasing shift of value-adding activities to low cost countries in Asia; (3) More and more security measures at borders.

The first development increases the need for speed and efficiency in distribution. Innovations make current technologies and products obsolete and make the ability to quickly bring products to market even more important. This can be done through efficient logistics. As has been discussed in Chapter 4, the ability to deliver flexibility in trade-logistics, seems to be a strong suit of the Netherlands. The respondents of this case study have mainly suggested that this logistics efficiency is due to labour market flexibility and fast Dutch customs procedures. Although a few respondents have also mentioned knowledge of logistics, it has not become clear that this is the ultimate advantage of the Netherlands in this field. As we already have seen in Chapter 4, this is also difficult to assess for the country as a whole. However, there are

some indications that the Netherlands has developed some competitive advantages or territorialized assets in this.

Another way product innovation is shortening product life cycles is through perceived obsolescence. This is the feeling marketers and advertisers want to give consumers in order for them to replace products that work perfectly well, but may not be the most up to date version or newest model. This can be done through sometimes only minor product enhancements, including new colours or product design. This may require lead firms to put even more effort into marketing their products. It is however questionable if these marketing functions will locate to where distribution takes place. In the words of Fred Forshty, VP for World Wide Manufacturing at Apple Corporation, the goal is *“the ability to launch new products quickly, with simultaneous worldwide introduction of localized versions”* (Oakley, 1996, p. 75). Whereas the production of localized versions will probably take place in Asia, where the largest part of production already takes place, the introduction of these versions will most likely be organized either by central headquarters or by nation-specific sales organizations. These local sales organizations are quite important for tapping markets, even without the localized versions of sales products mentioned above.

The second development will mean less product-based value-adding activities for Europe and the Netherlands. Distribution may increasingly become a matter of redistribution without stocking and value-adding activities. However, the third development of increased security requirements will probably add work to the flow of goods at the point of entry to the EU.

*“Security is an issue. Over the last ten years there has been a tremendous change. Airfreight security has increased tremendously, to the detriment of speed. And it costs a lot of money. The building has to be secure, all freight has to be known, declared, from a known customer recognized as such by the military police. Freight has to be recognized as capable of being transported by air. The last years after September eleventh, a lot of administrative duties have been added. That has been a very big change.”* (PH 26)

This makes efficient handling at the border and a market-sensitive customs organization even more important than before. For this, solutions based on information and communication technology and joint action by public (e.g. customs), semi-public (e.g. port authorities), and private (logistic service providers) parties may be important. Chapter 4 has already shown that this practice of joint action is something rather well-developed in the Netherlands. The continuation of developments described above and the increased need for logistic knowledge may make distribution activities in high-tech product value chains more embedded in the Netherlands and may add to the

continuation of high levels of re-exports of these goods. However, as we have seen in this chapter, these relations are definitely not certain and it still is something to be proven in the course of time.

To conclude, this chapter has shown that, just as expected, physical and juridical infrastructure and an attractive business climate are important assets for attracting trade-logistic activities. Contrary to our expectations it is not very clear that products from the Market World, that are more demanding with respect to logistics, use localized knowledge on logistics. The headquarters of high-tech lead firms and logistic firms, mostly located outside the Netherlands, seem to be the most important sources of knowledge of this kind that they export to the Netherlands through their in-company network of offices.