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Development of Distribution Logistics for Fast Moving Consumer Goods in Poland

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Hausmaninger, Martin

**Development of Distribution Logistics for Fast Moving
Consumer Goods in Poland**

**Herausgeber: die Professoren des Instituts für
Transportwirtschaft und Logistik**

Preface and Acknowledgments

Every person arriving in Warsaw for the first time, will note very quickly that this city is as modern and developed as any other Western European town. Many people from Western Europe though, have a quite different picture of Poland, which seems to reflect that of some time ago. In fact, this country is changing at such a quick pace so that people in Western Europe are not able to catch up with all the things happening here. Of course the city of Warsaw does not give a complete picture of the whole country. A short trip to regions like Podlasie in the East of Poland reveals the big differences, existing in this country. Therefore, Poland is an interesting place for carrying out research.

During the gathering of all the data for the following work, I was living and working in Poland, which gave me the chance to get a much deeper understanding of the country with all its problems and opportunities. However, I also realized, how difficult it can be to do research in a foreign country. Cultural differences and language barriers should never be underestimated. It would certainly have never been possible to gain such deep insight into the topic, without the help of several people.

Therefore, I want to thank all the people that helped me to find and understand all the information incorporated in this work. Special thanks go to Anna Gębał, for helping me to come across the language barriers, by translating several articles and statistics. Furthermore I greatly appreciate all the help that I received from the people at DHL Exel Supply Chain in Warsaw, during my internship at this company. Here I want to thank especially Piotr Karbowski, who offered me the internship but also Grzegorz Skalski, Tomasz Barta, Piotr Mularski, Marcin Krzciuk, Przemysław Łyczba and Łukasz Tomalik, who patiently answered all my questions. Last but not least I also want to thank Krzysztof Rutkowski, Professor at the Warsaw School of Economics, for all the useful material and my supervisor Marcus Einbock, for his numerous useful suggestions.

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LIST OF ABBREVIATIONS

3PL	Third Party Logistics
4PL	Fourth Party Logistics
CEE	Central Eastern Europe
COICOP	Classification of Individual Consumption by Purpose
DC	Distribution Center
DESC	DHL Exel Supply Chain
DoS	Days of Supply
EU	European Union
EU15	The 15 members of the European Union before the enlargement on 1 st of May 2004
EU25	The 25 members of the European Union after the enlargement on 1 st of May 2004
EUR	Euro
FDI	Foreign Direct Investment
FMCG	Fast Moving Consumer Goods
GDP	Gross Domestic Product
km	Kilometer
KPI	Key Performance Indicator
LLP	Lead Logistics Provider
OECD	Organization for Economic Co-operation and Development
PLN	Polish Zloty
PPP	Purchasing Power Parity
RDC	Redistribution Center
SKU	Stock Keeping Unit
sqm	Square meters
TEN	Trans European Networks
USD	US Dollar
WH	Warehouse

1 INTRODUCTION

During research on the Polish economy it turned out that the whole system has changed a lot and is still under transformation. The entrance into the European Union especially has had a great impact, bringing several changes. The effects of this are numerous and the rapid changes are presenting a big opportunity but, of course, also a huge challenge for the country.

Due to these rapid developments, the country is interesting for research. The EU extension makes the country also more interesting for companies from Western Europe, because the fall of trade barriers makes it easier to access this market. The fast changes in the transformation period though, also result in a lack of information regarding the current state of the economy. Also the prediction of the future development becomes more difficult.

The growth of the economy also has an impact on logistics. As the demand for FMCG is increasing the businesses engaged in distributing these goods also grow and adapt to the new market environment. Therefore, this work analyzes the current distribution system for fast moving consumer goods in Poland and tries to project how this system will develop in the future.

The author was personally involved in a project of a 3PL provider, concerning the realization of a distribution solution for a tobacco producer. This was an excellent possibility to get detailed background information on the distribution of fast moving consumer goods (FMCG). For this reason the further research was concentrated on this field as well.

While the theoretical part is mainly based on literature research, the empirical parts use a range of sources including official statistics from the Polish and European statistics office, market research data from various companies, studies, published by consulting companies and articles from special magazines and journals. In addition, data that was not available from these sources was gathered during several interviews with experts in the Polish distribution market. The information for the case study was mainly taken from the project documentation provided by the 3PL provider and expert talks with people involved in the project.

The topic is analyzed in four parts. After this introduction, chapter 2 shows the most important theoretical aspects of distribution logistics in the FMCG industry. It defines the relevant terms and determines the most important factors impacting distribution operations. This provides the basis for chapter 3, analyzing the environment for distribution logistics in Poland. The theory on the distribution channel is the basis for chapter 4.

Chapter 3 analyzes the conditions for distribution logistics in Poland starting with the physical infrastructure, including warehouses and road infrastructure. The main emphasis is on supply, demand and quality. The analysis of logistics operations shows cost and problems of warehouse and transport operations. The accessibility of markets is limited to that of international markets, because the market potential of Poland is

shown in detail in chapter 4. Finally, some further factors, impacting the development of distribution operations are discussed.

Chapter 4 provides an overview of the FMCG market, with main focus on distribution logistics. It covers all the elements of the distribution channel, including wholesalers, retailers and 3PL providers. In addition, the development of consumption of FMCG in Poland is presented. The chapter tries to analyze the past changes in the distribution channel and project the future development. These changes also affect the manufacturers. The data on their strategies is very scarce though. Therefore, the author tried to gather more data, by means of a survey. However, due to the concern regarding data confidentiality of many companies it was not possible to get sufficient responses. The next chapter gives a good example of the changing strategy of a tobacco manufacturer.

Chapter 5 gives a practical example of a distribution operation in Poland. It analyzes the distribution strategy of a tobacco producer who decided to change its strategy in order to save cost and prepare for the changing market environment. This case study will show, how some trends, identified in chapter 4 and 5 are impacting companies in practice. The case is of special interest, as it includes the realization of a shared distribution solution for two competitors, provided by a 3PL provider.

Finally the conclusion in chapter 6 provides a summary of the major findings and identifies areas for further research.

2 THEORETICAL ASPECTS OF DISTRIBUTION IN THE FMCG INDUSTRY

Before starting the analysis of the Polish market, this chapter gives a general overview of the theoretical aspects of distribution logistics. It also defines relevant terms in order to give a clear picture of their meaning and usage in this work.

2.1 Definitions of Relevant Terms

As the title suggests, the core of this work is about distribution logistics in the context of fast moving consumer goods. Both terms are subject to varying definitions and shall therefore be more closely analyzed at the beginning.

2.1.1 The Term Distribution Logistics

The term distribution logistics is very old. The first application of logistics theories in the business context was very focused on distribution logistics, which is evidenced by the fact that the first book published on basic enterprise logistics, was titled "Physical Distribution Management".¹ Furthermore, the first logistics organization was named "National Council of Physical Distribution Management".²

Literature gives an unclear picture of the term, because of varying definitions including different activities and product categories. The following will try to give an overview of the usage in literature and make a definition that is suitable for this work.

2.1.1.1 The Selection of Goods, Which are Subject to Distribution

Firstly, the goods, which are subject to this activity, are defined. In this respect, most authors have a rather similar point of view. Only one publication was found that includes also goods which are meant to be used for further production.³ However, this definition is from the year 1947, when distribution was - as discussed before - the main focus of logistics. In more recent publications, it is commonly accepted that the term distribution is applied, when talking about **finished goods**.⁴ This also makes sense in the context of this work, where only the distribution of fast moving consumer goods is analyzed. FMCG also belong to the category of finished goods.⁵

Reducing the focus of distribution logistics to finished goods, allows us to differentiate the term clearly from the term materials logistics, which is concerned with the delivery of raw materials between the different stages of production.⁶ Figure 1 shows one possibility to separate the flow of goods into different phases. However, in some cases it might not be clear, whether a product is a finished good, which is a term that is not

¹ This book was published by Bowersox/Smykay/LaLonde in 1961. see Weber/Kummer (1998), p.11

² see Weber/Kummer (1998), p.11

³ "Die Distribution hat damit diejenige Art wirtschaftlicher Betätigung zum Inhalt, welche die Güter von der Produktion zur Verwendung (Weiterverwendung zur Erstellung neuer Güter oder Letzverwendung im Bereich der Konsumtion) führt." Klein-Blenkers (1947), col.473

⁴ see Waters (2003), p.13; Specht/Fritz (2005), p.36, Vitasek (2005), p.36; Pfohl (2004a), p.212

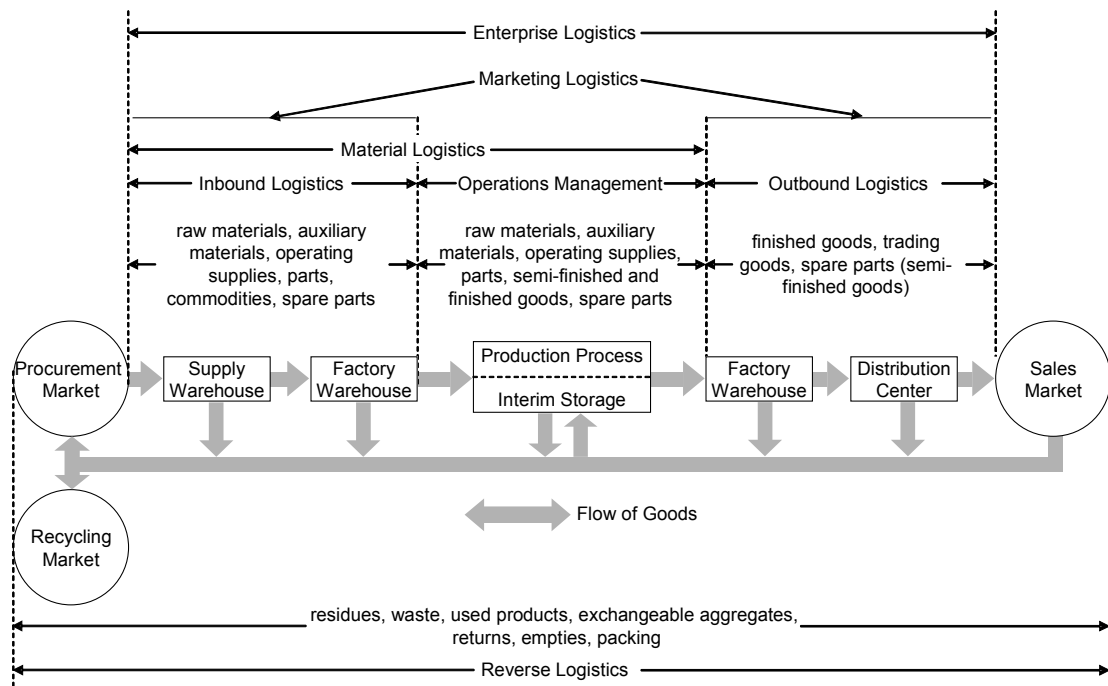
⁵ For the definition of fast moving consumer goods see chapter 2.1.2 on page 9.

⁶ see Pfohl (2004a), p.18

closely defined in any of the mentioned sources. This can be demonstrated by the example of soil. Soil can be bought by private consumers, for their indoor plants or gardening. In such a case, the soil is a finished good. A gardener, in contrast, buys soil, for the purpose of growing plants that he can sell later. In such a case the soil is a raw material.

Figure 1: Distribution Logistics as one Phase in the Flow of Goods

Based on: Pfohl (2004a), p.18 (translated by author)



The above examples suggest that distribution logistics only refers to deliveries made to private customers. However, it is also possible to distinguish between B2C (Business to Consumer) and B2B (Businesses to Businesses) distribution. While the former denotes deliveries to private customers, the latter is about deliveries to businesses customers.⁷ Here it becomes even clearer that the nature of the good is central, in the definition of distribution, because a company uses many products, like pens, paper and so on, which would be defined as finished goods. In a company, however, they are not used by a private consumer, but by an employee.

To solve this problem, finished goods could be defined as products, which do not undergo any further transformation, before they are consumed.⁸ Again, one could argue that an architect is transforming a pencil into a design of a building, meaning that the pencil is his raw material. However, the term raw material is commonly only used in manufacturing, and not in the service industry.

Finally, one author suggests that distribution logistics also concerns spare parts.⁹ This seems to make sense if these spare parts are things that have to be frequently ex-

⁷ see Waters (2003), p.30

⁸ see Pfohl (2004a), p.211

⁹ see Vitasek (2005)

changed, like certain filters, for example, and if these parts are normally exchanged by the consumer himself. In such a case one might even see them as finished goods. However, if the stocking and lead time calculation of these spare parts is subject to a special cost-benefit analysis (including, for example, the calculation of the downtime cost of machines), than it might be justified to talk about spare part logistics.¹⁰

The above shows clearly that the term finished goods can be defined in many ways. It is impossible to find a definition that does not allow any further questions. Still, the previous discussion should be enough to show, which products are usually meant, when talking about distribution.

2.1.1.2 Functions of Distribution Logistics

2.1.1.2.1 Distribution Logistics in Contrast to Other Functions

Many sources suggest that distribution logistics is strongly related to marketing and therefore requires cooperation with this discipline.¹¹ Consequently, this thesis also analyzes many aspects of marketing, including for example consumption statistics. Still, distribution logistics should be clearly distinguished from the distribution function as a whole, which includes logistics but also marketing and finance tasks. The functions, included in the distribution function are:¹²

- Sales preparation (market research, evaluation of past sales experiences, sales planning).
- Sales initiation (advertising, individual offers).
- Stock keeping for sales purpose (in factory warehouses or distribution centers).
- Execution of sales:
 - Conclusion of contracts (negotiation and reaching of agreement).
 - Fulfillment of contracts (order processing, picking, packaging, dispatching, delivering, reacting on complaints).
- Financial aspects (billing, financing and debt collection, including reminders).
- Maintenance of the sales relationship (customer service, including repairs, advice, spare part services and customer relationship management).

While the financial aspects can be clearly attributed to the finance function, the differentiation between the marketing and logistics is more difficult. Therefore, it is necessary to find a criterion, allowing a differentiation between these two functions.

Marketing is concerned with the recognition and development of potential markets. Logistics, in contrast, is about the development and usage of abilities. This means that, in order to exploit the market potential (which was developed by the marketing function),

¹⁰ see Pfohl (2004a), p.224

¹¹ see Ross (2004), p.75-79; Waters (2003), p.13; Weber/Kummer (1998), p.312f; Specht/Fritz (2005), p.45; Pfohl (2004a), p.211

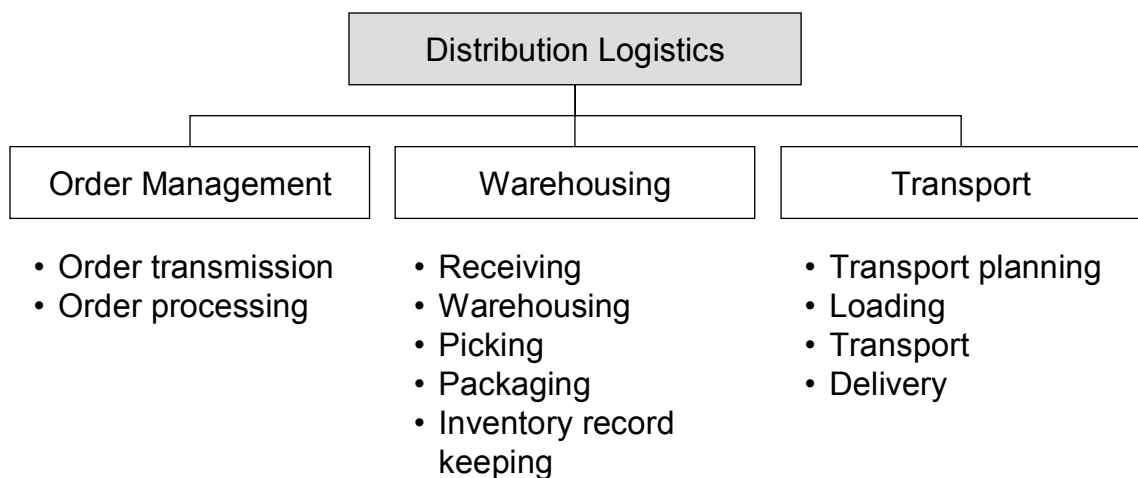
¹² see Schäfer (1966), quoted in Specht/Fritz (2005), p.44; similar tasks are described in Pfohl (2004a), p.212

the company also needs to have the abilities to serve these markets (which is provided by the logistics function).¹³

According to this definition, the marketing function covers sales preparation and initiation as well as the maintenance of the sales relationship. Also the conclusion of contracts belongs to the marketing function. The financial aspects are part of the finance function and the remaining tasks, are part of distribution logistics and include stock keeping and the fulfillment of contracts.

Figure 2: Functions of Distribution Logistics

Based on: Gleißner (2000), p.47 (translated by author)



The functions order management, warehousing and transportation, shown in Figure 2, shall be defined here as the main functions of distribution logistics. But in fact, during the distribution process, a lot of other activities are carried out as well. These functions shall be defined as the additional functions of distribution logistics. Finally, the management of distribution logistics also includes strategic decisions¹⁴ which are discussed further below.¹⁵

2.1.1.2.2 Main Functions of Distribution Logistics

The main logistics function mentioned before, are now closer described.

Order management is concerned with the "timely, accurate, and efficient processing of customer orders into the firm..." It includes "...order entry, inventory allocation and picking, and order confirmation and shipping."¹⁶ This definition shows that the order management process is linking the customer request with distribution operations. It can therefore also be seen as part of the information basis, on which all the other processes run.

¹³ see Weber/Kummer (1998), p.312f

¹⁴ see Vitasek (2005), p.36

¹⁵ see chapter 2.3 on page 14

¹⁶ Ross (2004), p.88f

"The purpose of **warehousing** is to satisfy the discrepancies that arise between inventory availability and the time and place requirements of the marketplace."¹⁷ In the context of distribution logistics this means that the purpose of warehousing is to bridge the time between production of the finished good and their consumption. For distribution logistics, the term distribution center (DC) is often used instead of warehouse. A DC can be specified as a special warehouse dedicated to the distribution of finished goods while a warehouse stores also raw material.¹⁸ In many cases though, the same building can be used for raw materials, semi-finished goods or finished goods at the same time. For this reason, the terms warehouse and distribution center are used as synonyms in this work.

There are a number of different warehouses available that can serve as DCs. They can be dedicated to goods like the **general merchandise warehouse** or store bulk products like wood, which is then referred to as **commodity warehouse**. The latter will not be used in distribution logistics though. Furthermore there are **cold storage- and temperature-controlled warehouses** that can be important for temperature sensitive goods. A special facility relevant in international distribution is the **foreign free-trade-zone warehouse**, which allows goods to be transported to a country without legally importing them. As long as they are stored within this warehouse or if they are re-exported, no duty has to be paid.¹⁹

In addition, warehouses can be distinguished by the type of ownership:²⁰

- The **private warehouse** is owned and operated by the company storing the goods. It gives the company a high level of control. In the case of continuously large volumes this can also be the cheapest version.
- A **public warehouse**, in contrast, is rented on a monthly basis. The company avoids capital investment, enjoys high flexibility and can use special services provided by the party running the warehouse.
- The **contract warehouse**, finally, is a special form of public warehouse but based on long-term agreements. The company can choose to lease only the space or, in addition, also equipment, manpower and administrative services.

The **transportation** function has to bridge the space gap between production and consumption of goods.²¹ There are different possible modes of transport, including motor, rail, air, water and pipeline transport. All of them have advantages and disadvantages and the selection of the right mode depends on the requirements of the goods.²² In the case of FMCG the most important requirements on the transport system are the following:

¹⁷ Ross (2004), p.89; A wider definition can be found in Weber/Kummer (1998), p.29: "Unter Lagerung versteht man die gewollte, d.h. zielgerichtete Überbrückung von Zeitdisparitäten von Objektfaktoren."

¹⁸ According to the definition used by the The Council of Supply Chain Management Professionals a warehouse is a "storage place for products. Principal warehouse activities include receipt of product, storage, shipment, and order picking". A DC, in contrast, denotes a "warehouse facility which holds inventory from manufacturing pending distribution to the appropriate stores" Vitasek (2005), p.36

¹⁹ see Ross (2004) 543-550

²⁰ see Ross (2004) 543-550

²¹ "Unter Transport versteht man die gewollte, d.h. zielgerichtete Überwindung von Raumdisparitäten von Objektfaktoren." Weber/Kummer (1998), p.33

²² see Ross (2004), p.620-631

- High density of the transport network: In contrast to manufacturing companies, which receive a bulk of goods to one or few locations, the final customer buys goods in numerous locations, which are spread across the whole country. Therefore, a dense transport network is essential for distribution.
- The possibility to realize point-to-point services: As the regional distribution covers only short distances, an additional change in the mode of transport would be too time consuming.

These requirements can only be met by motor transportation²³ which is the reason, why FMCG are mainly distributed by motor transport. However, road transport is confronted with the problem of increasing congestion which causes delays and higher costs. While the number of transport facilities can be increased quite easily and flexible, the infrastructure is subject to long term planning and long construction periods. This means that the capacity of infrastructure can not be increased in the short term. Should any bottle necks arise, they have to be dealt with by optimizing transport and increasing efficiency. This can be achieved by the use of new technology and more efficient methods of transport organization. Still it is vital for the development of a nation that transport infrastructure capacity meets the growing demand.²⁴

2.1.1.2.3 Additional Functions of Distribution Logistics

In addition to the main functions, there are some further activities that are carried out during the distribution of goods. These include

- bulk braking and sequencing,
- value added processing,
- and the return of goods.

The final customer wants to go to the shop and choose from a great variety of products. Manufacturers though, usually specialize in the production of one or few similar product categories. For this reason, the bulk of goods coming from the manufacturer have to be broken into smaller units, in order to meet the demand of the retailers for a small quantity of a large number of diverse products. This activity is called **bulk braking**.²⁵

Ideally the retailer receives a mix of different products from the same or different manufacturers in one delivery. Therefore, the mix of product has to be combined into a single lot, which is called **sequencing**.²⁶

Value added processing is an activity that became necessary with the introduction of the new principle of postponement. It requires the party, carrying out the distribution, to perform tasks that are normally done during the manufacturing process. These tasks include "...sorting, labeling, blending, kitting, packing and light final assembly."²⁷ Merchandising denotes special value-added services for special marketing campaigns and

²³ see Weber/Kummer (1998), p.35-39; Ross (2004), p.620-631

²⁴ see Ross (2004), p.652-657

²⁵ see Ross (2004), p.75-79

²⁶ see Ross (2004), p.75-79

²⁷ Ross (2004), p.77

promotions like special packaging or promotional packing of a product family or related products.²⁸

Return of goods might be also seen as part of the distribution function.²⁹ However, in the context of this work, the return of goods is seen as reverse logistics and will not be analyzed.

2.1.2 Definition of Fast Moving Consumer Goods

The term fast moving consumer goods (FMCG), is very frequently used in praxis. In literature, however, it is not used as often, and clear definitions are scarce. In one dictionary, these goods are described as "...consumer goods of low unit value, for repeat selling that are normally in universal demand."³⁰ This definition fits very well the idea of this work, and shall therefore be analyzed in detail. It consists of various interesting elements that help to differentiate FMCG clearly from other goods:

- Consumer goods: This element says that the goods are for consumers and not for companies. Consequently, FMCG are definitely not industrial goods, which are bought by companies.³¹ This does not mean that companies do not buy FMCG at all. But the main target market are private consumers. Another possibility is, to distinguish consumer goods from goods of production.³² This term emphasizes more the fact that consumer goods are not used for production. Furthermore consumer goods exclude services, which are so called intangible goods.³³
- Repeat selling means that these goods are bought frequently by the consumer, because they are used up "...in one or few uses."³⁴ Consequently, they are not durable goods.³⁵
- Low unit value: This again, excludes most durable goods. This element is especially important in logistics context, because, as discussed later, the value of the good has an influence on the logistics strategy.
- Normally in universal demand: This means that these goods are needed by everybody and that they are not dedicated to persons or companies with special needs.

FMCG under this definition are very similar to convenience goods that a consumer buys "...frequently, immediately and with a minimum of effort."³⁶ These goods can be further subdivided into staples, impulse goods and emergency goods:³⁷

²⁸ see Ross (2004), p.75-79

²⁹ see Vitasek (2005), p.87

³⁰ Koschnick (1995), p.1288

³¹ Industrial goods include "...materials and parts, capital items and supplies and business services." Kotler (2003), p.411f;

³² see Pfeiffer/Bischof (1947), col.918f: Consumer goods are defined as goods that are used in private and public households, while goods of production are used in the production process of companies.

³³ see Kotler (2003), p. 410; Pfeiffer/Bischof (1947), col.918f

³⁴ Kotler (2003), p. 410

³⁵ "Durable goods are tangible goods that normally survive many uses." Kotler (2003), p.410

³⁶ Kotler (2003), p. 411

³⁷ see Kotler (2003), p. 411

- **Staples** are goods that consumers purchase on a regular basis and include products like ketchup, toothpaste and crackers.
- **Impulse goods** are goods that a consumer buys without any planning or search effort and include, for example, candy bars and magazines.
- **Emergency goods** are purchased in case of urgent need. Here an example is an umbrella in case of sudden rain falls.

Only emergency goods might not always exactly fit the previous definition of FMCG which are used up in one or few uses. But while a convenience good might not necessarily be a FMCG, all FMCG are basically convenience goods.

2.2 General Factors Influencing the Distribution Strategy

After defining the two most important terms for this work, the following will discuss various factors that have an impact on the distribution strategy of a company. After an overview of today's global environment for distribution logistics, the most important factors that influence distribution operations on a regional level are discussed. Finally the properties of the distributed product make a difference in the distribution strategy. This will be analyzed in the case of FMCG.

2.2.1 Today's Global Environment for Distribution Logistics

During the last few years, several new developments have had a great impact on distribution logistics. On the one hand, there were several external factors that led to changes in the supply chain. On the other hand, the use of new methods and technology has improved the efficiency of supply chain operations.

2.2.1.1 External Developments Impacting Distribution Logistics

The changing business environment forced enterprises to rethink their strategies in order to meet the changing requirements and stay competitive. These changes include:³⁸

Globalization: The fall of trade barriers allowed firms to locate their production facilities in new countries with lower production costs. As a consequence, the distribution of goods has to be organized on an international scale. As the example of Poland shows, the emergence of new markets demand new distribution structures in these regions. This, and the restructuring of Europe's distribution will be discussed in the next chapter.³⁹

Pressure to reduce cost: There is a continuous trend towards bigger enterprises in all kinds of industries. This leads to growing economies of scale and a greater dominance of the supply chain by these enterprises. Retailers and wholesalers enjoy more power and can force manufacturers to reduce prices. At the same time competition in the manufacturing sector increases. This forces manufacturers to reduce cost, including the cost of distribution. Well managed distribution logistics becomes a competitive advantage.

³⁸ see Waters (2003), p.30-33; Specht/Fritz (2005), p.33-34

³⁹ see chapter 3.2.3 on page 44

New kinds of retailers: Factory outlets and discounters put high price pressure on manufactures and create demand for changes in the distribution system.

Direct delivery: An increasing number of customers are buying online or through mail order, directly from manufacturers or specialized online shops. This reduces cost and lead times but it calls for new distribution structures, such as the ones provided by express parcel service providers.

Increasing environmental concerns: Higher awareness of environmental problems caused by distribution logistics requires improvements regarding use of resources, recycling and emission control. An example reflecting this development is the EU directive on "waste electrical and electronic equipment" (WEEE) according to which "producers must provide for the financing of the collection, treatment, recovery and environmentally sound disposal of waste electrical and electronic equipment"⁴⁰. This change will increase the demand for reverse logistics operations.

2.2.1.2 Use of Improved Methods and Technology

The following is a list of new methods and technology that mainly allow companies to operate distribution operations more efficiently:⁴¹

- **New information technologies** like RFID and bar coding which help to keep information on stock levels up to date.
- **Better communication and collaboration:** Improved communication through the use of electronic data interchange (EDI) leads to better collaboration along the supply chain. Efficient consumer response and supply chain management are terms that express the new idea of cooperation along the supply chain, including the distribution channel.
- **Production postponement:** This is a method of postponing the customization of goods, which allows for the reduction of stock levels.
- **Cross-docking:** Instead of stocking a range of goods in regional DCs they arrive simultaneously from different factories or central DCs and are immediately reloaded on the waiting trucks for local distribution.
- **Outsourcing:** The increased trend towards outsourcing will be discussed further below.

2.2.2 Evaluating the Conditions for Distribution Logistics in a Country

The strategy of distribution logistics depends to a great extent on the conditions prevailing in a certain country. The number of warehouses necessary for achieving certain lead times, for example, depend greatly on the conditions of the transport infrastructure. But, as will be shown later, tax legislation can have an influence on the stock levels as well. The following factors influence the performance or cost of distribution operations.⁴²

⁴⁰ EU (2006)

⁴¹ see Waters (2003), p.28-34; Specht/Fritz (2005), p.33-35

2.2.2.1 Capacity, Cost and Quality of Infrastructure

The basis of distribution operations is the infrastructure. It consists of

- warehouses,
- and transport infrastructure.

The cost of the warehouse building can, for example, be influenced by the real estate prices prevailing in the country, but also the cost of construction and engineering, fees and permits, and financing or leasing play a role. In addition, the case of Poland will show that the prevailing competition among warehouse developers can also make a difference in the price.

The cost of transportation depends greatly on the available infrastructure and transport services. Bad or insufficient transport infrastructure causes increasing cost of transport operations.

2.2.2.2 Operating Costs

Operating costs are influenced by the cost of all resources necessary, to run the distribution operations. This includes power supply, labor and management. Concerning labor, not only the cost is of relevance, but also qualifications. For road transportation, for example, the availability of workers with a truck driver's license is necessary. In addition, social attitudes, like an emphasis on social welfare, as well as high union membership can lead to higher cost of labor.

2.2.2.3 Closeness to Markets

Distribution operations, especially the non mobile part, which is constituted by the warehouses, have to be located within reasonable distance to the customers. Depending on cost and speed of transportation and the requirements concerning lead times the location should be closer or can be located more distant from customers.

As the location of warehouses is a long term decision, it should also take projections concerning the future development of demand into account.

In addition to the country where the warehouse is located, it might be of interest, to serve also foreign markets. If an international distribution network is planned, the attractiveness of various countries for taking such a hub function, has to be analyzed.

2.2.2.4 Other Factors

Further factors that have to be considered include the following:

- Bad attitude of governments towards foreign investment can cause problems for companies operating in this country.
- Tax considerations: Taxes to be taken into account are the ones levied on property and inventory as well as payroll taxes.

⁴² In Waters (2003), p.109-112 some factors are listed that have to be taken into account, when choosing between different countries for distribution operations. Further factors can be derived from general instructions on the site analyzes for DCs as can be found in Specht/Fritz (2006), p.130f and Ross (2004), p.583-584

- Differences in languages, culture and law can present an obstacle to efficient operations.
- Exchange rates can cause additional problems because they make it difficult to predict the real cost.

2.2.3 Selection of the Right Logistics Strategy for FMCG

The distribution strategy finally also depends on the kind of product.⁴³ Porter identified the two basic strategies of cost leadership and product differentiation in order to determine a company's overall strategy. This concept can be applied to logistics as well and results in the following two logistics strategies:⁴⁴

- The **lean strategy** aims at reducing cost to a minimum by continuously eliminating all possible waste of resources.
- The focus of the **agile strategy** is on customer satisfaction. It tries to reduce lead times and increase service levels.

Table 1 gives an overview of the two strategies. It is important to note that both strategies have their limits. While the lean strategy also has to assure a certain amount of customer satisfaction, the agile strategy is limited by budget constraints. This makes it clear that in practice a company can not always rely on one strategy. It has to find a suitable combination of both. Although in fact, there are several possibilities like the use of IT and cross docking, which allows the pursuit of both strategies at the same time.⁴⁵

Table 1: Lean Versus Agile Supply Chains

Based on: Waters (2003) 68

Factor	Lean Logistics	Agile Logistics
Objective	Efficient operations	Flexibility to meet demands
Method	Remove all waste	Customer satisfaction
Constraint	Customer service	Cost
Rate of change	Long-term stability	Fast reaction to changing circumstances
Measures of performance	Productivity, utilization	Lead time, service level
Work	Uniform, standardized	Variable, more local control
Control	Formal planning cycles	Less structured by empowered staff

Using common sense would suggest that for goods with low unit value, as is the case with FMCG, the lean strategy would be most suitable. If the unit value is low, this means that logistics cost make up for a bigger part of the total cost.

However, the purchasing behavior of consumers that prevails in the case of FMCG is very special and therefore needs a suitable distribution strategy. In the case of conve-

⁴³ see Pfohl (2004a), p.97f

⁴⁴ see Weber/Kummer (1998), p.178; Waters (2003), p.66

⁴⁵ see Waters (2003), p.68-69

nience goods (to which FMCG belong as well)⁴⁶ the consumer will simply buy the goods from a different manufacturer, if his favorite version is not available. From the retailers point of view this is not a real problem, as his turnover is not affected in such a case. He can increase the service level for a product category, by stocking goods from different manufacturers. The manufacturer, in contrast, is faced with a losing market share.⁴⁷

2.3 Designing the Distribution Channel Structure

While the previous part discussed the factors influencing the distribution strategy, this part will now analyze a main element of the distribution strategy, the design of the distribution channel structure. After defining the term, this part shows how to find a suitable structure for the distribution channel and discuss how logistics service providers can become channel partners.

2.3.1 Definition of the Distribution Channel

The distribution channel is composed of the "companies or individuals who participate in the flow of goods and services from the manufacturer to the final user or consumer."⁴⁸ This means that the members of the distribution channel carry out the distribution functions, which were identified above. Furthermore it is important to note that the distribution channel includes the elements owned by the manufacturer, as well as the elements owned by other parties.⁴⁹ Consequently, the distribution can be divided into an internal part, which is managed by the manufacturer, and an external part, which is managed by the other channel partners.

2.3.2 Design of the Internal Distribution Structure

The internal distribution structure refers to the network of warehouses, operated by the manufacturer. Depending on his or his customer's lead time requirements and the structure of the external distribution channel (especially the number of drop points that have to be served), the manufacturer has to establish an optimized network of distribution centers. The structure can have a different number of levels and a different number of warehouses.

2.3.2.1 Levels of Distribution Centers

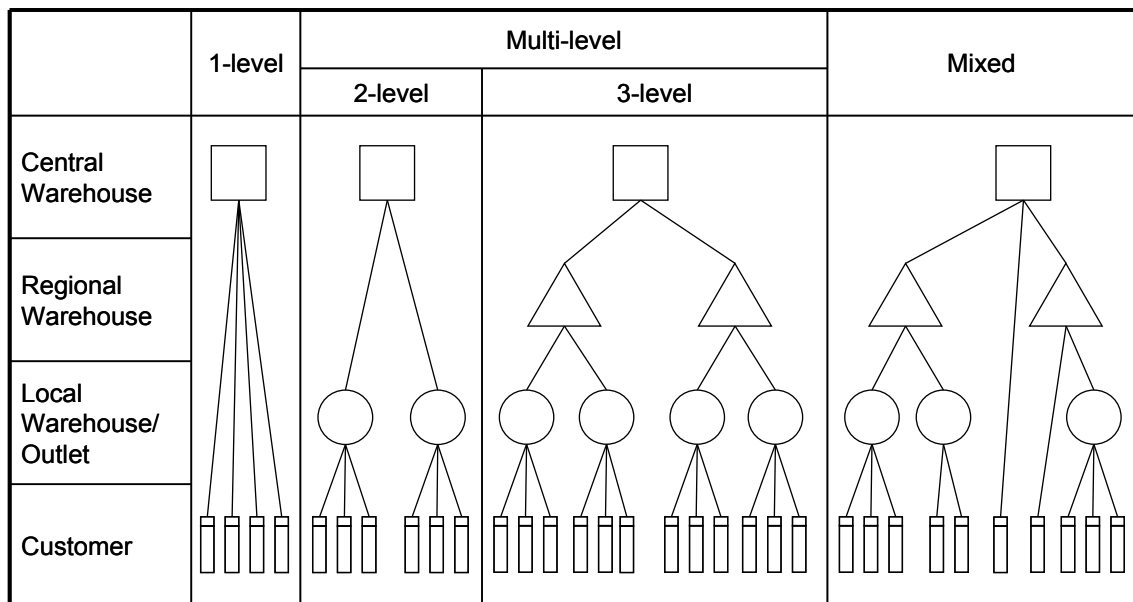
The manufacturer has the possibility to use zero, one or several levels of warehouses, for the distribution of his goods to the other channel partners. For further optimization also a mixed structure can be used. Figure 3 shows several examples for such distribution structures. Every structure has its advantages and disadvantages and also depends on several factors.

⁴⁶ FMCG were above defined as convenience goods. see chapter 2.1.2 on page 9

⁴⁷ see Pfohl (2004a), p.97f. The author argues that in the case of impulse goods, the retailer can not substitute the goods with comparable goods from competitors. This can be true, if the consumer is not willing to accept the competitors goods. Another factor of influence could be that the presence of more different goods convinces more consumers to buy one of them. However, this is not further specified by the author. As this is of little relevance for the further analysis, this shall not be further investigated.

⁴⁸ Vitasek (2005), p.36

⁴⁹ see Weber/Kummer (1998), p.205

Figure 3: Examples for Possible Distribution Structures*Based on: Gleißner (2004) p.19 (translated by author)*

The advantage of fewer levels is that the flow of goods is not interrupted so often, which saves time and cost. However, if the time discrepancies between the point of shipping and the point of receiving are too big, it is not possible to guarantee on time deliveries any more. In addition, the multi level structure can increase the volume of goods transported over the various connections, because the warehouses can function as consolidation point of goods from different factories. Consequently, if the volume of goods is high enough and the lead time requirements can be met, it is of advantage to use fewer levels. In the case of too long distances or low volumes, more levels should be used.⁵⁰

The analysis of the internal distribution structure could be applied to the whole distribution channel from the manufacturer to the retailer, including all participating channel partners. In fact the external distribution structure can be very similar to the internal one and the external can substitute the internal structure. This shows that the design of the external distribution structure also has an influence on the requirements of the internal structure. For example if a manufacturer partly starts selling directly to retailers, this means a change in the external distribution structure. If this retailer has a central warehouse and orders high volumes, the manufacturer might make direct deliveries from the central DC to this retailer. At the same time he can keep delivering to the small wholesale outlets through his local distribution centers. Consequently, his internal structure changed to a mixed structure.

2.3.2.2 Number of Distribution Centers

The number of DCs to be used in the distribution network is closely connected to the overall strategy balancing between cost and service level. It depends on the number of levels as well as on the number of warehouses on each level. Figure 4 shows, how to

⁵⁰ see Gleißner (2000), p.49-62

calculate the optimum number of DCs, taking different cost factors into account. While the cost of warehousing and primary transport increases with the number of warehouses, the cost of secondary transport decreases.⁵¹

Figure 4: Determining the Number of Warehouses by Cost

Based on: Gleißner (2000) p.60 (translated by author)



The number of facilities influences delivery lead times. This also has to be taken into account when determining the number of warehouses. Storing goods closer to the customer allows shorter lead times. Very long lead times can cause lower sales and lost profits, because consumers choose products from competitors instead.⁵²

The number DCs is indirectly also influenced by the performance of the transport system. Bad roads and traffic jams can slow transport down and therefore require distribution facilities to be located closer to the customer, in order to meet lead time requirements.⁵³

2.3.2.3 Recent Trends in the Design of Distribution Structures

While huge central DCs of up to 300,000 sqm become popular in the US⁵⁴ there has been a trend towards centralized distribution in Europe⁵⁵ because the establishment of the European Union facilitated distribution across borders.⁵⁶ The future development in Europe is currently discussed but not clear yet. Some point out the huge cost savings of centralized warehousing⁵⁷ while others argue that rising fuel costs, worsening con-

⁵¹ see Gleißner (2000) p.60; Primary transportation shall here be defined as the transport link between factory and DC (Vorlauf), and secondary transportation as the link between DC and customer (Auslieferung).

⁵² see Ross (2004), p.581

⁵³ see Cushman & Wakefield (2006b), p.2 and chapter 3.2.3.1 on page 45

⁵⁴ see Hoffman (2005)

⁵⁵ see Tierney (2005)

⁵⁶ see Weber/Kummer (1998), p.210; Huysmans et al. (2003), p.81

⁵⁷ see Tierney (2005)

gestion and work time restrictions might favor a bigger number of warehouses close to customers.⁵⁸

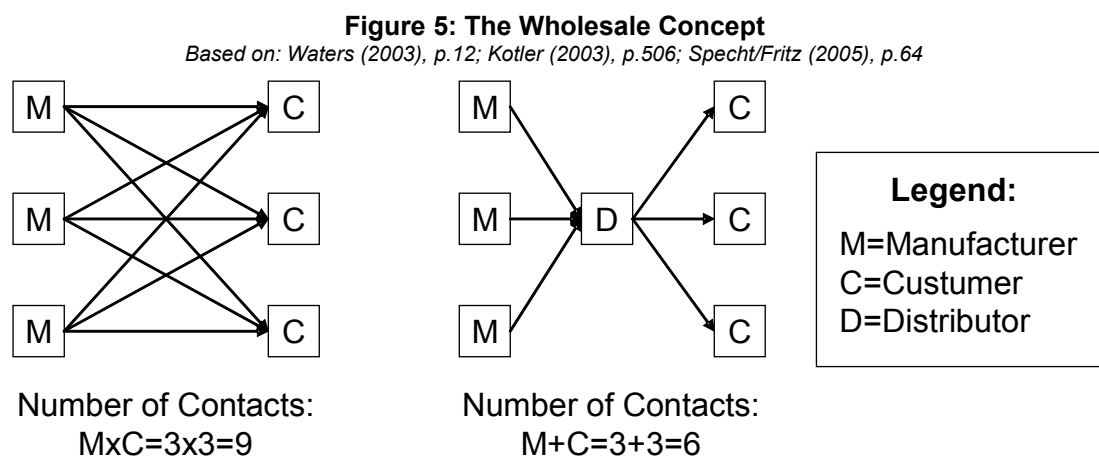
A market survey carried out by Eurinpro and Roland Berger observes that companies in Europe increasingly try to use the advantage of both, centralized and regionalized DCs, by setting up hybrid structures, implementing both strategies. Depending on the product, distribution will be done either directly from a central DC or from a regional DC. The survey also predicts this trend to intensify in the future.⁵⁹

2.3.3 The External Distribution Channel and its Elements

2.3.3.1 General Aspects of the External Distribution Channel

The external part of the distribution channel consists of the intermediaries, trading with the goods and taking over part of the distribution function. The participating parties are also referred to as channel partners.⁶⁰

The main reason for using intermediaries is the reduction of transactions as shown in Figure 5. Using no intermediary, the total number of transactions between three manufacturers and three customers (e.g. retailers) is nine. With the help of one distributor (e.g. wholesaler), the total number of transactions is reduced to six. From the manufacturer point of view, the number of transactions is reduced from three to one. For the manufacturer this represents a reduction of complexity. In addition, the intermediaries are also carrying out important distribution functions, as the further discussion shows.



Possible channel partners range from manufacturers to retailers. Figure 6 shows various possible channel structures, typical for the consumer market. Depending on the number of intermediaries, the distribution channel structure is called a zero, one or more level structure. The introduction of further intermediaries makes sense if the reduction of complexity helps to reduce cost by more than what the additional intermediary costs.

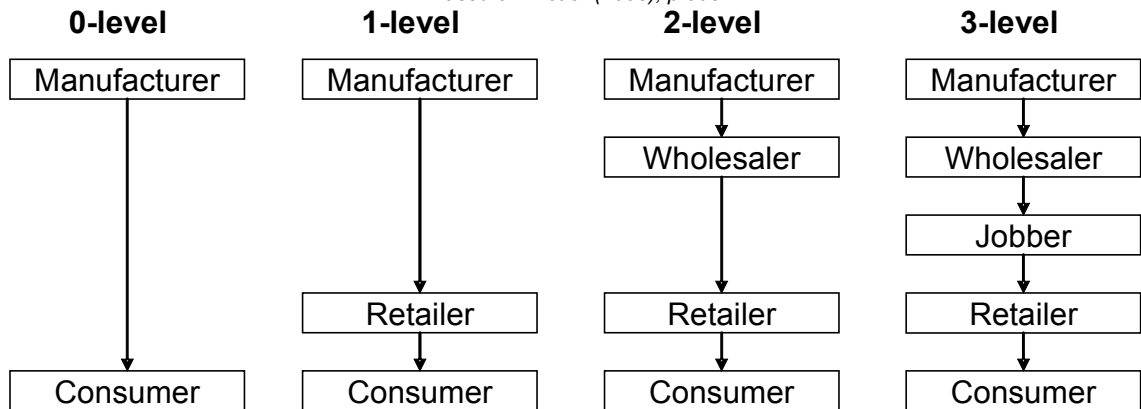
⁵⁸ see Perry (2006)

⁵⁹ see Huysmans et al. (2003), p.81-85

⁶⁰ see Vitasek (2005), p.21

Figure 6: Typical Distribution Channel Structures for Consumer Marketing

Based on: Kotler (2003), p.508



2.3.3.2 Different Players in the Distribution Channel

The partners shown in Figure 6 can be divided into wholesalers and retailers. Both groups take over special distribution functions and in both groups different types can be found that have specialized in some way.

2.3.3.2.1 Wholesalers

The general definition of a wholesaler could look like the following: "Wholesaling includes all the activities involved in selling goods or services to those who buy for resale or business use. Wholesaling excludes manufacturers and farmers because they are engaged primarily in production and it excludes retailers."⁶¹ This means that the wholesaler acts as intermediary between the manufacturer and the retailer.

2.3.3.2.1.1 General Function of Wholesalers

The wholesaler takes over numerous functions in the distribution channel. The following is a list of these functions, showing also what benefits the wholesaler can bring to the manufacturer:⁶²

- **Selling and promoting:** The wholesaler can reach small business customers at low cost and establish trust relationships with retailers. This way he takes an important role in selling and promoting the products of the manufacturer.
- **Bulk breaking:** He breaks the big lots from the manufacturer into smaller units and delivers them to the customers in the quantity they need. This way he achieves savings for customers.
- **Buying and assortment building:** He buys products from different manufacturers, breaks them into smaller units and puts them together again to build the assortments the customers need.
- **Transportation:** The wholesaler is also taking over part of the transport. As he is closer to the buyers he can therefore provide quicker delivery to the market.

⁶¹ Kotler (2003), p.547

⁶² see Kotler (2003), p.547

- **Financing:** The wholesaler is also financing the time between shipment from the manufacturer and delivery to the retailer. On the one hand he grants credit to customers and on the other hand he is financing the suppliers by ordering early and paying bills on time.
- **Risk bearing:** By taking title to the goods, the wholesaler absorbs the risk and cost of theft, damage, spoil, and of goods becoming obsolete.
- **Market information:** The wholesaler obtains market information regarding competitors' activities, new products, price development etc. that can be of great value to his suppliers and customers.
- **Management services and consulting:** The wholesaler also helps retailers to improve operations by training their sales clerks, helping with the design of store layouts and displays and setting up accounting and inventory control systems.

2.3.3.2.1.2 Special Types of Wholesalers

In contrast to the full-service wholesalers, which should offer all of the services listed above, the limited-service wholesalers offer only a limited range of specialized services. Two important types of limited service wholesalers are the cash and carry wholesalers and the jobbers:⁶³

- **Cash-and-carry wholesalers** offer a limited number of FMCG and sell to small retailers for cash. They do not take over transportation to the retail outlets, which means that retailers have to pick up the goods at the wholesale outlet.
- **Jobbers** (also called rack jobbers) deliver goods to the retailer and put goods directly into the shelf. They are also responsible for keeping them fresh, putting the price on the goods, setting up point-of-purchase displays and keeping inventory record. They also take title to the goods and earn only on goods being sold to the final consumer.

2.3.3.2.2 Types of Retailer

In contrast to wholesaling, "...retailing includes all the activities involved in selling goods or services directly to final consumer for personal, nonbusiness use. A retailer or retail store is any business enterprise whose sales volume comes primarily from retailing."⁶⁴ The important difference between retailer and wholesaler is that the retailer is selling to the final consumer.

There are several different types of retailers competing in the FMCG segment. They mainly differ in the range of goods they offer, and the size of the retail outlet. The following are the most important types of retailers dealing with FMCG:⁶⁵

- **Supermarkets** in Poland usually have outlets with a size of 400-1,000 sqm (small supermarkets) or 1,000-2,500 sqm (big supermarkets) and sell at rela-

⁶³ see Specht/Fritz (2005), p.74f; Kotler (2003), p.548. There are several more types of specialized wholesalers. However, in the Polish FMCG market the only important type is the cash and carry wholesaler. The jobber is mentioned because he is part of the structure displayed in Figure 6

⁶⁴ Kotler (2003), p.535

⁶⁵ see Specht/Fritz (2005), p.79-88; Kotler (2003), p.536; Rutkowski (2005), p.22f

tively low margins. Their product range serves the total need for food, laundry and household products.

- **Discounters** offer standard merchandise at low prices. On the one hand they use their market power to put pressure on prices from manufacturers. On the other hand they try to keep cost as low as possible by offering a limited range of goods and using efficient supply chain management.
- **Convenience stores** include gas stations, kiosks and shops at train stations and airports. The outlets are relatively small and have long opening hours, seven days a week. They sell a limited range of high-turnover goods at higher margins and sometimes offer snacks and drinks.
- **Hypermarkets** are huge outlets. In Poland their outlets have a size of usually more than 2,500 sqm and they offer a wide range of goods including FMCG and non-FMCG.

2.3.4 Logistics Service Providers Taking over Distribution Functions

After giving insight into the various players in the distribution channel, the following will now provide the background on outsourcing of the distribution function to logistics providers. It will define the relevant terms and show the motivation behind outsourcing.

2.3.4.1 Contract Logistics and Different Types of Logistics Providers

Over time, the outsourcing market for logistics services has developed different kinds of logistics providers. This development resulted in several new terms that shall be defined.

The term **contract logistics** denotes a partnership between a logistics provider and a customer. In such a relationship the logistics provider has the responsibility for the planning of the process, but also has to react to special customer requests. The logistics provider needs to acquire know-how about the processes of the customer. Consequently, the partnership has to be long or medium term in duration and has to be based on a framework agreement.⁶⁶

Third Party Logistics provider (3PL provider): The term 3PL could be defined as "outsourcing all or much of a company's logistics operations to a specialized company."⁶⁷ This definition says that 3PL is rather about extensive outsourcing than about having a truck company simply carrying out transportation on behalf of his customer. 3PL is about focusing on core competencies and outsourcing logistics activities that another company can do better because they have special know-how on this topic⁶⁸. The company carrying out these logistics activities is the 3PL provider. He organizes all the "transportation, warehousing, cross-docking, inventory management, packaging, and freight forwarding"⁶⁹ for his customer. In contrast to normal logistics service providers, like carriers or forwarders, the 3PL is buying or renting dedicated

⁶⁶ see Baumgartner/Darkow/Zaddek (2004), p.22f

⁶⁷ Vitasek (2005), p.101

⁶⁸ see Nowlan (2004)

⁶⁹ Vitasek (2005), p.101

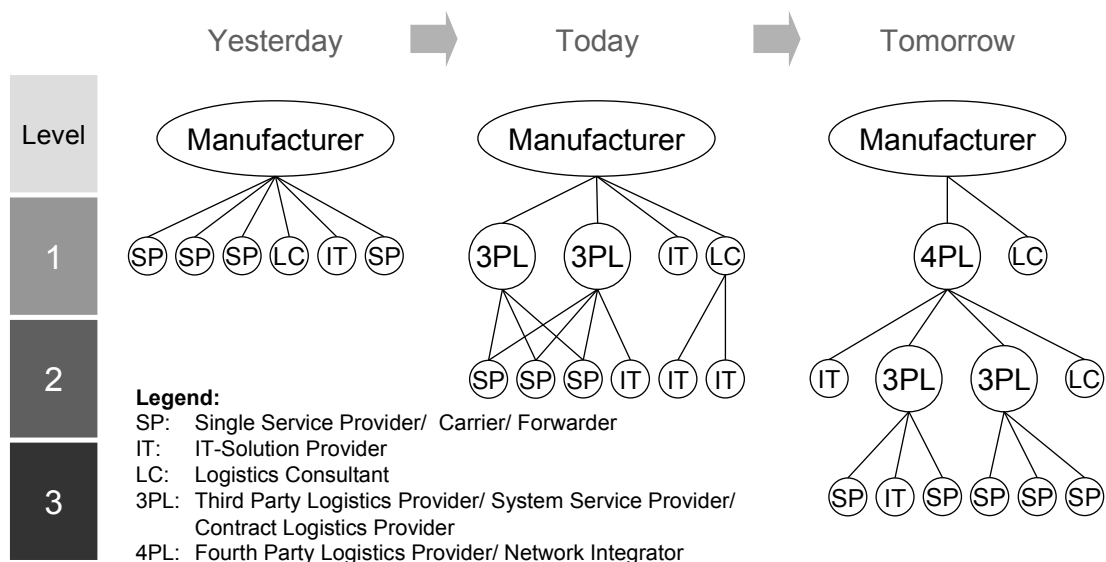
trucks and warehouse facilities for his clients, gains detailed knowledge of his customer's processes and provides individual solutions. For this, the 3PL provider has to enter into a long term contract with the client. Consequently, the term contract logistics and 3PL are very similar.⁷⁰ For this reason, the terms contract logistics and 3PL are used as synonyms in this work.

The **Fourth Party Logistics provider (4PL provider)**, is not carrying out, but just managing the logistics services. He does not own any assets in the supply chain. Instead he is coordinating 3PL providers, IT-solution providers and logistics consultants. A further characteristic of the 4PL providers is that they do not just manage a part of the supply chain, but the whole supply chain, from the supplier of the raw materials to the distribution to the final customer.⁷¹

The **Lead Logistics Provider (LLP)** is somewhere in between the 4PL and the 3PL provider. On the one hand he offers basic logistics functions and owns assets in the supply chain. On the other hand, he also offers advanced services like supply chain management, inventory management and integration of other logistics providers. They originate from the asset based 3PL providers that realized that their core activities become increasingly commoditized.⁷² This means that their services become standard products, which are easily replicated by competitors. In order to stay competitive, a provider has to offer new sophisticated services. Consequently, they extend their service portfolio by the services of 4PL providers, without giving up their assets.⁷³

Figure 7: Development of the Structure of the Logistics Service Providers

Based on: Baumgartner/Darkow/Zadek (2004), p.20 (translated by the author)



The previously defined terms and the described development of the logistics providers are shown in Figure 7. While in the past, the manufacturer had to deal with many different logistics providers and manage the whole process on his own, he is now using the

⁷⁰ see Baumgartner/Darkow/Zadek (2004), p.20

⁷¹ see Baumgartner/Darkow/Zadek (2004), p.23f; Pfohl (2004b), p.27; Müller-Dauppert (2005), p.13

⁷² see Langley et al. (2005), p.15

⁷³ see Müller-Dauppert (2005), p.14; Baumgartner/Darkow/Zadek (2004), p. 26f

service of the 3PL providers, who manage the logistics processes. However, 4PL providers now also emerge. They can help the manufacturer to further reduce the complexity of his logistics operations.

In addition to the development of new kinds of service providers, a trend of consolidation can be observed in the industry. Some logistics providers try to extend the global scope of their operations this way. The acquisition of Exel by Deutsche Post, for example, combines the focus of Deutsche Post in Europe and Asia with Exel's strength in the US market.⁷⁴ Kühne & Nagel bought ACR Logistics in order to get a stronger position in France and the United Kingdom.⁷⁵

2.3.4.2 Motivations for Outsourcing Distribution Logistics

The basic motivations for outsourcing logistics operations are to reduce cost and improve the quality of service. The logistics provider can help to achieve this goal in the following ways:⁷⁶

- **Additional know-how:** By engaging a specialized company for logistics activities the firm can profit from special knowledge the company gained through its experience with many customers: Firms experiencing rapid growth, might find themselves in the situation that their logistics operations do not fit the size of their business anymore, simply because their knowledge of supply chain management does not grow at the same pace.
- **IT knowledge and tools:** Many firms also hope to acquire special IT knowledge through outsourcing. Customers expect from 3PL providers to own special tools for managing the logistics process.
- **Reducing capital investment:** If the customer is, for example, renting warehouses and trucks from the logistics provider, instead of buying them, he can use the capital for alternative investments bringing higher returns.
- **Flexibility:** As a logistics provider has a broad customer base, he can deploy his resources flexibly between them and avoid seasonal overcapacities that a manufacturer of a certain product category might experience.

In distribution logistics, logistics providers can also play an important role, and current developments show that they might get more and more involved in the distribution process.

For a manufacturer, there is always the possibility of bypassing the wholesaler, by selling directly to the retailers. This is especially interesting, if the wholesaler is inefficient and if retailers are big enough.⁷⁷

Recently there is also a trend that manufacturers share resources, like warehouses, with competitors in order to reduce cost. Here the 3PL provider plays an important role as a neutral party, assuring that all customers enjoy the same service level and that sensitive data is kept confidential.⁷⁸ This means that the 3PL provider is becoming a

⁷⁴ see Burrige (2005)

⁷⁵ see McCall (2005)

⁷⁶ see Nowlan (2004); Langley et al. (2005), p.11 and 27

⁷⁷ see Kotler (2003), p.550

⁷⁸ see Huysmans et al. (2003), p.103

channel partner, offering services that were previously offered by wholesalers.⁷⁹ According to a survey, manufacturers plan to increase the use of shared facilities in the future.⁸⁰ How much the wholesale industry will be affected by these developments is not clear yet.

⁷⁹ see Nowlan (2004)

⁸⁰ see Huysmans et al. (2003), p.113

3 CONDITIONS FOR DISTRIBUTION LOGISTICS IN POLAND

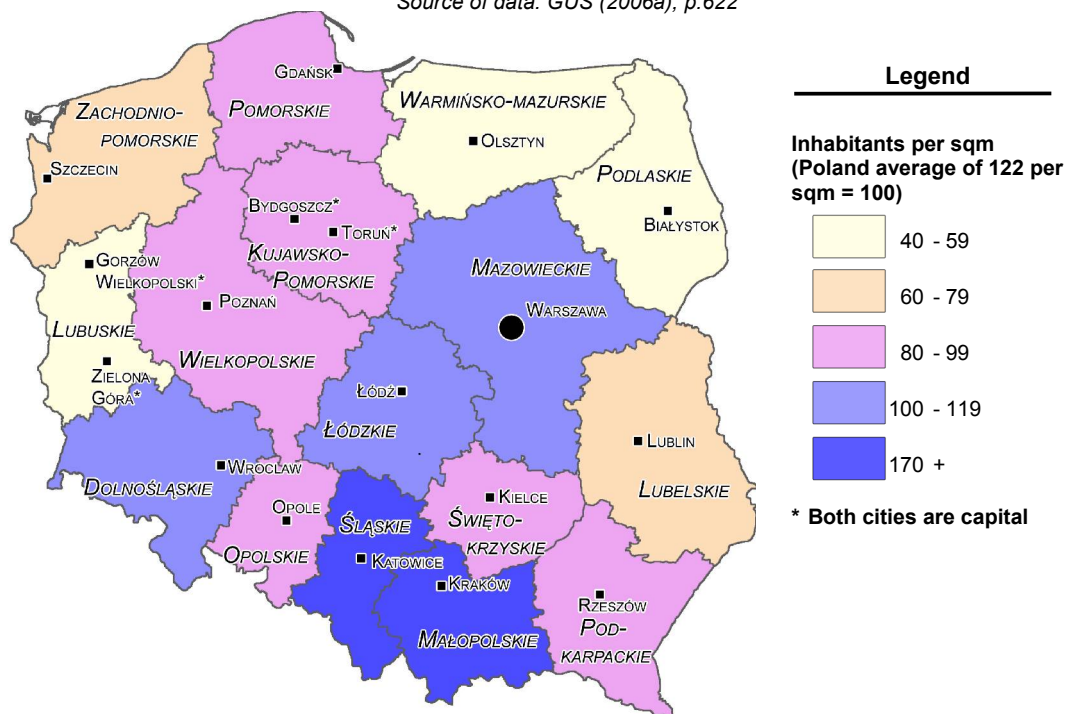
After the overview of the theoretical aspects of distribution logistics, this part gives a detailed analysis of Poland regarding conditions for distribution logistics. An introduction will provide basic information on the country's history, population structure and current economic conditions. This will be followed by a detailed analysis of the factors, relevant for distribution logistics in Poland. The final part summarizes the identified strengths, weaknesses, opportunities and threats in a SWOT analysis. The whole chapter will treat distribution of consumer goods as a whole and not focus solely on FMCG, because the analyzed aspects are equally relevant for all consumer goods.

3.1 Background Information on Poland

Poland, officially called the Republic of Poland, is located in Central Europe⁸¹ and one of the ten new EU members, which joined the Union on 1st of May 2004. It stretches over an area of more than 300,000 km² and is the home country to over 38 million inhabitants, of which about 1.7 million live in its capital Warsaw.⁸² Administratively Poland is divided into 16 voivodships, which are shown in Figure 8, together with their capitals and the population density.

Figure 8: Population Distribution in Poland in 2005

Source of data: GUS (2006a), p.622



⁸¹ The geographical location of Poland is in Central Europe. Eastern Europe normally includes countries like Ukraine, Belarus, a part of Russia etc. However, many sources quoted in here use Eastern Europe as synonym for Central Eastern Europe (CEE), including Central as well as Eastern Europe. Therefore the following discussion will use both terms as synonyms as well.

⁸² see GUS (2006a), p.577/608/620

The country was historically located between Prussia, Austria and Russia. This fact caused the country many invasions from all sides and from the end of 18th century until the end of World War I it was divided between Prussia, Austria and Russia.⁸³ During World War II, Poland was again invaded by Germany and Russia and became a part of the communist block after the war.⁸⁴ In 1980 the trade union "Solidarity" (Polish: *Solidarność*) was founded, which made a major contribution to the fall of communism in 1989.⁸⁵ Since then Poland struggled to convert into a market economy. But finally, on 1st of May 2004, it managed to become a member of the European Union. However, the effects of the communist's centrally planned economy can still be felt today.

Table 2: Key Economic Indicators

Source of data: EIU (2006a)

	1995-1999 average	2000	2001	2002	2003	2004	2005	2006	2010
Real GDP growth (%)	6.0	4.2	1.1	1.4	3.8	5.3	3.4	4.8	3.9
Unemployment rate (%)	12.6	14.0	18.0	19.7	19.9	19.6	18.2	16.9	13.7
Consumer price inflation (%)	16.4	10.1	5.5	1.9	0.7	3.5	2.2	1.2	2.3
Current-account balance as a % of GDP	-3.3	-5.8	-2.8	-2.5	-2.1	-4.2	-1.4	-1.5	-2.1

Economic indicators (Table 2) show that the economy is on its way up, but not all indicators are favorable at the moment. On the one hand, the country enjoys solid GDP growth, which is projected with 4.8% for 2006, and inflation will be well below 1.2%. The current account deficit is below 2% of GDP, which can be seen as an indicator for a competitive economy.⁸⁶ The unemployment rate, on the other hand, is at a high level. Although the economy is growing continuously, unemployment increased from 12.6% in the second half of the nineties to almost 20% in 2003. It has been decreasing since then but will remain high for some time to go. This, however, can be attributed partly to the population structure and partly to the effects of transformation from a centrally planned to a market economy (privatization and restructuring of state-owned companies). The diagram in Figure 9 shows two big waves with the second one representing the baby-boom generation, born in the early 1980s. Consequently, the number of working people will keep increasing until 2010.⁸⁷ In contrast to this stands the population structure of the whole EU, where the biggest part of the population is around 40 years old.

⁸³ see Davis (2004), 77-114

⁸⁴ see Davis (2004), 128-170

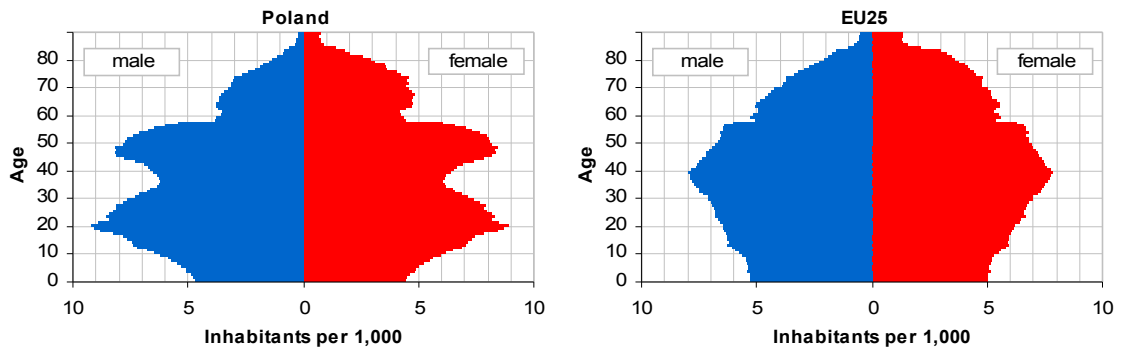
⁸⁵ see Davis (2004), 173-182

⁸⁶ see EIU (2006d)

⁸⁷ see EIU (2006b)

Figure 9: Age Structure of Population

Population by sex and age on January 2005 in Poland and the EU. Source of data: Eurostat (2006)



Only 17 years ago, the Polish people achieved to abolish the communist system to introduce a market economy. Only 15 years after the fall of communism, Poland joined the EU. Poland's preparation for EU membership has been a driving force behind the reforms of its economy and with the entrance of Poland into the European Union on 1st of May 2004 the country has undergone fundamental changes and offers local, as well as international firms, many new possibilities for doing business there. However, the economy is still under transformation. The country offers many opportunities for companies, but the differences between the old centrally planned economy and the new market economy have not yet been overcome. This is causing major problems that also impact distribution operations.

3.2 Analysis of Relevant Factors for Distribution Logistics

The following is an analysis of the factors relevant for distribution logistics, as identified in the theoretical discussion above.⁸⁸ It covers

- characteristics of the distribution infrastructure in Poland,
- cost of logistics operations,
- access to international markets,
- and some further aspects.

3.2.1 Characteristics of Distribution Infrastructure in Poland

Infrastructure is the basis for any distribution activity. As discussed in chapter 2, the required infrastructure consists of warehouses and transport infrastructure. They are both essential for ensuring that goods are delivered at the right time and to the right place. The following gives an overview of the infrastructure available in Poland.

⁸⁸ see chapter 2.2.2 on page 11

3.2.1.1 Analysis of Warehousing Infrastructure

3.2.1.1.1 General Aspects of Warehousing in Poland

In contrast to the transportation infrastructure, which will be analyzed later, the warehouses in Poland are entirely developed by private companies. Real estate advisers, active in Poland, follow the developments in the market. They publish information on land developers and available warehouse space in the various regions as well as rental prices.⁸⁹ It must be noted though, that they only track public and contract warehouses and no private warehouses. For example, factory warehouses, built by the manufacturers, are not included.

Figure 10: Classification of Warehouses
Internally used by the real estate adviser DTZ

Class A – Modern warehousing facility constructed after 2001, of area larger than 5,000 sqm, with the following specification:

- Concrete or steel construction.
- Clear height: at least 10 meters.
- Depth: 50-100 meters.
- Floor loading: at least 5 tonnes.
- Sufficient number of loading docks (depends on the location).
- Standard column gird: 24x18 meters.
- Warehouse should be fenced and guarded. Service charge must include property management and insurance of the building.

Class B – Warehousing facilities constructed before 2001 of post industrial buildings, with the following specification:

- Clear height: up to 6 meters.
- Insufficient number of loading docks, which are on the same level as the loading ramp ("0" level).

Class C – Any other than Class A or B, poor quality storage space.

Many reports mention that figures refer to so called class A warehouses. In fact though, there is no official classification of warehouses available. According to information from the real estate adviser DTZ, the analyses of major analysts include class A and B warehouses. The classification used by DTZ internally for market research purposes is shown in Figure 10. These standards are not applied too strictly though, because modern warehouses close to the city center, like in Warsaw Zone I & II, can not meet them.⁹⁰ So the following data will refer to modern warehouse facilities constructed after 1995, meeting more or less the standards defined by DTZ.⁹¹ Basically these standards are the same as in any Western European country. Differences can only be noted in the degree of automation. As labor costs are much lower than in Western Europe, high investments in automation are not profitable.⁹²

Reports from different real estate advisers show the same data and the figures differ only slightly. The small variations in the data from different sources might be attributable to the unclear definition of modern warehousing. Also recently completed fa-

⁸⁹ see DTZ; Colliers; Cushman & Wakefield;

⁹⁰ see Table 3 on page 30

⁹¹ According to Information from DTZ all modern warehouse space was constructed after 1995

⁹² see Expert Talk Rutkowski (2006); Expert Talk Chazanow (2006)

cilities might not be included in some statistics, especially if the report was published earlier than others. However, the differences between the total market figures do not exceed 10% and are, therefore, negligible when giving a general overview of the market.

3.2.1.1.2 Parties Active in the Polish Warehouse Market

The Polish warehouse market is mainly organized by three types of companies. Their core business and the relationships between them are shown in Figure 11. The acquisition of property and the construction of warehouses is carried out by special companies, called developers. Their core business is not the construction of warehouses itself, but the selection of a suitable location, buying of land, and renting facilities to customers.⁹³ Hence they only supervise construction. In Poland they are planning to build warehouse parks with up to 450,000 sqm⁹⁴ of warehouse space and rent facilities to logistics providers, retailers or manufacturers. The biggest developers can be seen in Figure 12. They are mainly foreign companies from the USA and the UK.⁹⁵ ProLogis is the clear market leader with by far the biggest share of 28%. But if the projects, currently planned by the developers, are realized the market will become much more competitive, and the share of ProLogis will shrink to 15%.

Figure 11: Parties in the Warehouse Market

Based on: Expert Talks Skalski (2006)

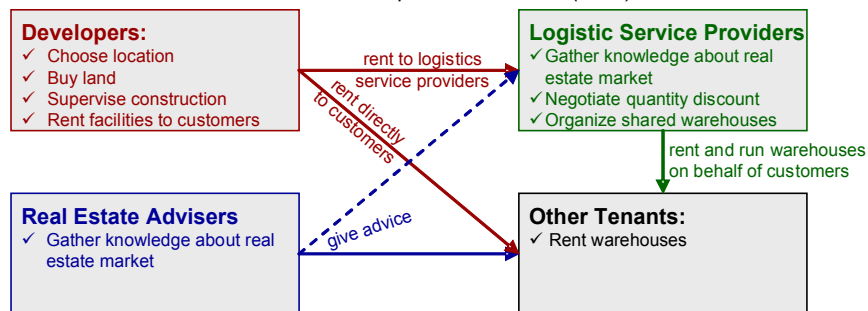
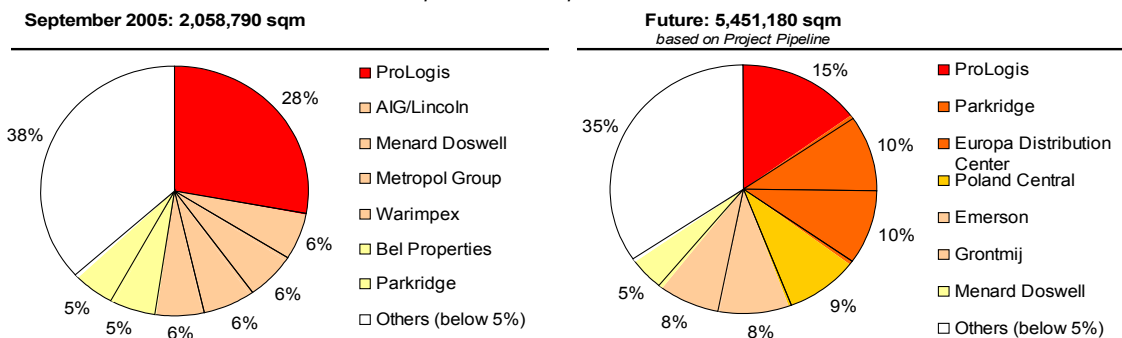


Figure 12: Market Share of Warehouse Developers

Source of data: Cushman & Wakefield (2006a), p.14-15

Future is based on plans of developers, with undefined time horizon.



⁹³ see Expert Talks Skalski (2006)

⁹⁴ Currently the biggest warehouse parks have about 100,000 sqm. But according to future plans, parks in Warsaw and Central Poland will feature 450,000 sqm. see Cushman & Wakefield (2006a),14f

⁹⁵ see DTZ (2004), p.8

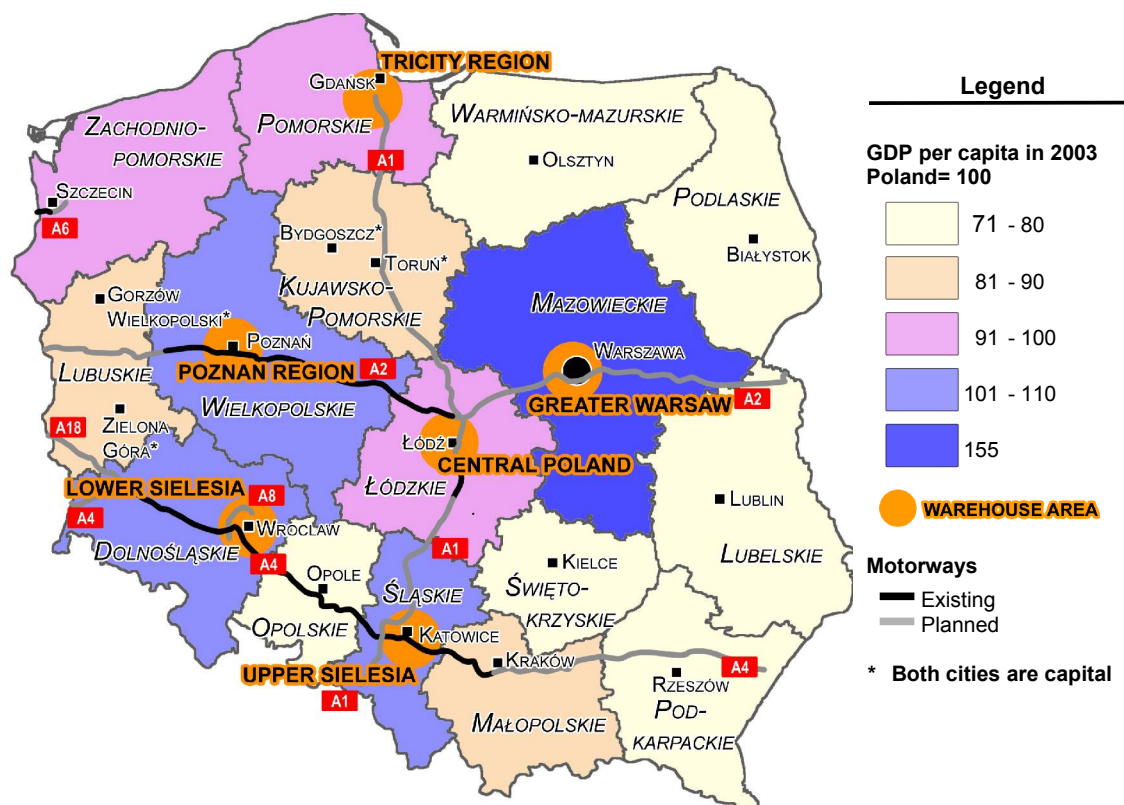
The before mentioned real estate advisers gather information on the real estate market and advise mainly smaller tenants, who rent warehouses directly from the developer and do not have the necessary knowledge of the real estate market. Logistic service providers usually know the market very well and do not turn to real estate advisers for help. They normally rent more space than the individual customers and can get quantity discounts from the developer.⁹⁶

3.2.1.1.3 Poland's Warehouse Regions

Currently warehouses exist in five regions of Poland and supply is still growing in all these regions. In the future there will be new warehouses in the Tricity Region around Gdańsk. As Figure 13 shows, warehouses are located in the regions with the highest economic activity, measured by GDP per capita. In addition, the availability of infrastructure and the central position within Poland can attract warehouses to a certain region. The following analyzes the six regions regarding their attractiveness for warehouses.

Figure 13: Warehousing Regions in Poland

Source of data: GUS (2006a), p.631; DTZ (2006a), p.3; GDDKiA (2006a)



The **Greater Warsaw Region** is centered in the voivodship Masovia, which has by far the highest GDP per capita. With 34,179 PLN per year, this figure is about 50% higher than the Polish average of 22,048 PLN per year.⁹⁷ Therefore, it was also the first place

⁹⁶ see Expert Talks Skalski (2006)

⁹⁷ Figures from 2003, see GUS (2006a), p.631

in Poland, attracting investments in warehouses.⁹⁸ The region is split into three zones, according to the closeness to the city center: Table 3 shows the general characteristics of warehouses in these zones. Zone 1 is within the town borders and therefore the most expensive. With rates above 5 EUR per sqm per month it is only suitable for high value goods. Prices in Zone 2 and 3, in contrast, are similar to other regions in Poland.⁹⁹

Table 3: Characteristics of Warsaw's Warehouse Zones

Source of data: Colliers (2005); Colliers (2006), p.102; DTZ (2004), p.8; DTZ (2006b); Cushman & Wakefield (2006a), p.6

	Zone 1 (In-Town)	Zone 2 (City Fringe)	Zone 3 (Outlying)
Prices/ sqm/ month in EUR	5.0-5.7	3.5-4.3	3.0-3.5
Distance from city center	to 15 km	15 – 30 km	more than 30 km
Share of office space	to 25%	10%	5%
Size of general tenants	500 – 3,000 sqm	5,000 – 15,000 sqm	10,000 – 25,000 sqm
Clear height	6 – 9 m	8 – 13 m	10 – 13 m
# of loading docks/ sqm	1/800 sqm	1/1,500 sqm	1/1,000 sqm
Tenants	High value goods, distributors, and local market suppliers (pharmacy, electronic, cosmetics, IT)	Supplying consumer market (logistics operators, FMCG producers and light productions companies)	Logistic parks operating in the national and international market, predominately linked to retail distribution

Central Poland is the area around Łódź. GDP per capita there is below average (see map), but still it is a highly attractive location for logistics because it is located in the center of Poland.¹⁰⁰ The distances to the borders are about 350 km in each direction: 363 km West (Gubin), 331 km South (Kudowa), 318 km East (Terespol) and 375 km North (Bezledy).¹⁰¹ And as Lodz is also located at the intersection of the two planned motorways A1 and A2, it will be well connected with the whole of Poland once the motorways are finished.

Upper Silesia is the region around Katowice, the capital of the voivodship Silesia. It is located at the intersection of the partly finished A1 and planned A4 motorway. Consequently, a good connection with the rest of Poland will exist. The motorway connection with Krakow is already finished. As no huge investments in warehouses in the Krakow area are planned, this area will be served from Upper Silesia as well.¹⁰² Also the proximity to Czech Republic and Slovakia are an advantage for the region.¹⁰³

Lower Silesia is the region in the equally named voivodship around Wrocław. It is located in close proximity to the German and Czech border which could make it attractive as a location for an international logistics hub.¹⁰⁴

⁹⁸ Till 2004 80% of warehouses space was located in this area (see Figure 16, page 33)

⁹⁹ see chapter 3.2.1.1.6 on page 34

¹⁰⁰ see Cushman & Wakefield (2006a), p.8

¹⁰¹ see PAliIZ (2006b)

¹⁰² see DTZ (2004), p.14

¹⁰³ see Cushman & Wakefield (2006a), p.10

¹⁰⁴ see DTZ (2004), p.1; Cushman & Wakefield (2006a), p.11

The **Poznan Region** is located around the equally named capital of the voivodship Greater Poland. The major advantage of this region is the good transport connection. The new A2 is already open for traffic between Poznan and Łódz.¹⁰⁵

In addition, warehouse space is planned in the **Tricity Region**, close to Gdansk. It is of interest due to the closeness to large port facilities.¹⁰⁶

3.2.1.1.4 Supply of Warehouse Space in Poland

The Polish economy has been growing in recent years, and with it the availability of warehouses, in order to meet the new demand. The warehouse market in Poland emerged in 1995, when the development of the first modern warehouses started,¹⁰⁷ and has been growing very fast until now. Figure 14 shows this development since 1997. While in 1997 nearly no modern warehouse space was available, it has been growing since then, reaching more than 2 million square meters in the 1st half of 2006. The estimation for future supply is based on the information on projects, currently planned by the developers (project pipeline). Even if only a part of these plans are realized, future growth will be significant.

Figure 14: Development of Supply of Warehouse Space

Source of data: DTZ (2004); DTZ (2006a), p.3; DTZ (2006b), p.1;
Project pipeline is based on plans of developers, with undefined time horizon.

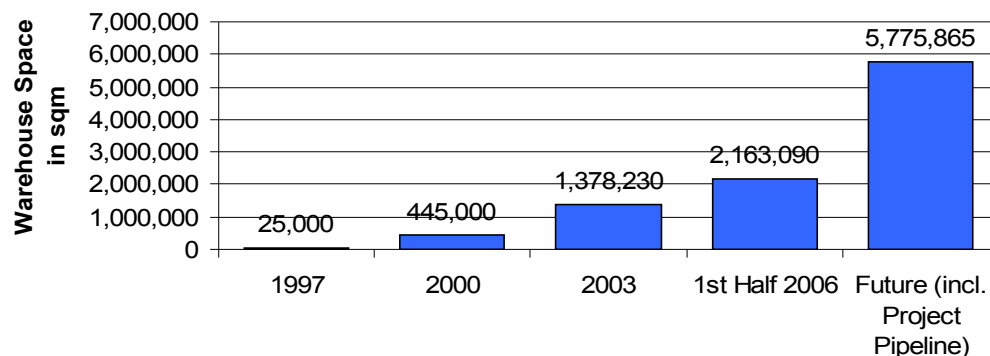


Table 4 shows the same data split by the different warehouse regions for the years 2003, 2006 and the future (incl. project pipeline¹⁰⁸). The emergence of the Tricity Region as a new warehouse location in Poland is just another example of the regionalization taking place at the moment. While first investments started in the Warsaw Region the majority of new investment is going into the new areas. The trend, which is taking place in all new members of the EU at the moment, gained momentum in 2005 and will continue in the future.¹⁰⁹ Figure 15 demonstrates this clearly: While in 2004 more than 80% of new supply was built in the region of Greater Warsaw, in 2005 and 1st half of 2006 this figure shrunk to 40% and 20% respectively.

¹⁰⁵ see DTZ (2004), p.14 and Figure 13 on page 29

¹⁰⁶ see DTZ (2004), p.18

¹⁰⁷ see chapter 3.2.1.1.1 on page 27

¹⁰⁸ Project pipeline is based on plans of developers, with undefined time horizon.

¹⁰⁹ see Tierney (2005)

Table 4: Past, Current and Future Supply of Warehouse Space in sqm

Source of data: DTZ (2004); DTZ (2006a), p.3; DTZ (2006b), p.1

(For more details see Table 18 and 19 in Appendix on page 80)

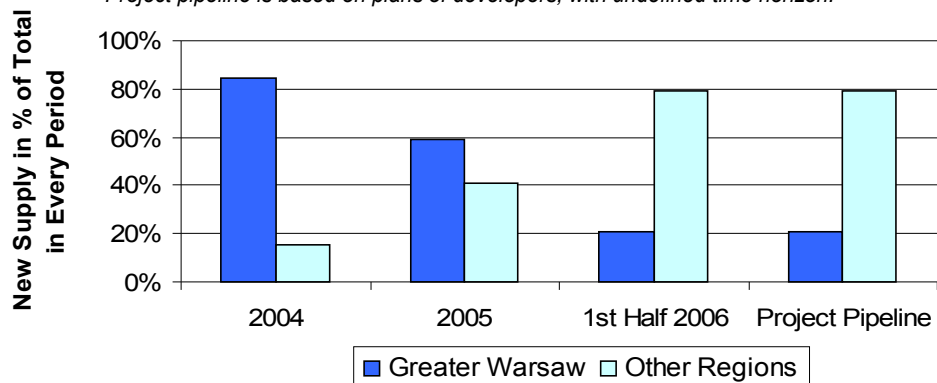
Project pipeline is based on plans of developers, with undefined time horizon.

Region	End 2003	End June 2006	Future (incl. Project Pipeline)	Current Prices (Eur/ sqm/ month)
Zone 1 (In-Town, 0-15 km)	410,000	527,170	583,405	5.0-5.7
Zone 2 (City Fringe, 15-30 km)	290,000	416,555	519,460	3.5-4.3
Zone 3 (Outlying, 30-50 km)	400,000	591,280	1,188,380	3.0-3.5
<u>Warsaw (All Zones)</u>	<u>1,100,000</u>	<u>1,535,005</u>	<u>2,291,245</u>	<u>3.0-5.7</u>
Central Poland (Łódź)	91,730	154,170	1,608,000	3.1
Upper Silesia (Katowice)	83,500	240,600	571,870	3.4
Lower Silesia (Wrocław)	53,000	88,110	583,870	3.2
Poznań Region (Poznań)	50,000	145,205	590,880	3.3
Tricity Region (Gdańsk)	0	0	130,000	3.3
<u>Total Other Regions</u>	<u>278,230</u>	<u>628,085</u>	<u>3,484,620</u>	<u>3.1-3.4</u>
Total Poland	1,378,230	2,163,090	5,775,865	3.0-5.7

Figure 15: New Supply of Warehouse Space

Source of data: DTZ (2004); DTZ (2006a), p.3; DTZ (2006b), p.1

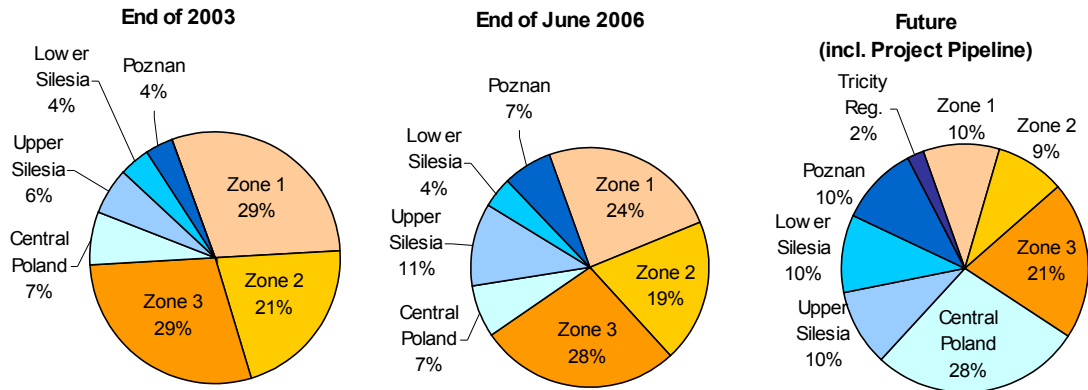
Project pipeline is based on plans of developers, with undefined time horizon.



Consequently, the total share of warehouses space in the different regions will change. As Figure 16 shows, at the end of 2003 around 80% of space was located in the region of Greater Warsaw. While at the end of June 2006 this share was still around 70%, in the future it will decrease significantly to 40%, provided that current plans of developers materialize. Especially high growth is expected in Central Poland, which might even host close to one third of Polish warehouse space.

Figure 16: The Region's Changing Share of Warehouse Space

Source of data: DTZ (2004); DTZ (2006a), p.3; DTZ (2006b), p.1
 Project pipeline is based on plans of developers, with undefined time horizon.



3.2.1.1.5 Tenants of Warehouses

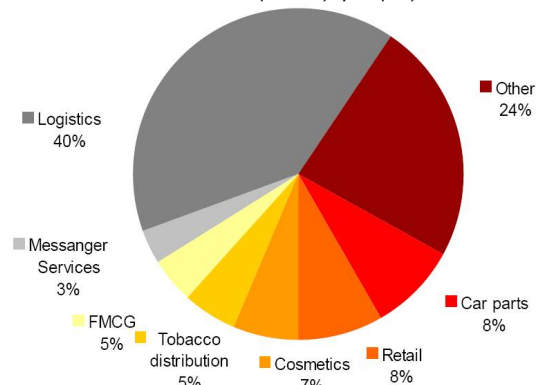
As already mentioned, the warehouse space, covered by the cited reports, takes only public warehouses into account. These can be used by all kinds of companies for different purposes. For this work though, mainly the warehouse space used for distribution activities is of interest.

Detailed data on the usage of warehouse space is not available. Reports only show the sectors of the major tenants for new rentals in certain periods. Figure 17, for example, shows the take up of warehouse space by sector for 2005. However, from this figure it is not possible to see whether goods stored are finished goods or raw materials.

Still, based on the following facts, it can be assumed that the majority of the reported warehouse space is used for distribution activities:

Figure 17: Take Up of Warehouse Space by Sector in 2005

Source: DTZ (2006a), p.6 (sic)



- According to Table 3 (page 30) warehouses in the Greater Warsaw area are mainly used for distribution activities. This means that more than 70% of space is dedicated to distribution.
- In the rest of Poland about 35% of warehouse space is occupied by logistics companies.¹¹⁰ As will be shown in the analysis of 3PL providers, the majority of their business is in distribution logistics.¹¹¹ This means that another 10% of space is used for distribution.

¹¹⁰ Estimation is based on major deals of 2005 and 1st half of 2006. see DTZ (2006a), p.5 and DTZ (2006b), p.2

¹¹¹ see chapter 4.4.2 on page 66

- The fact that only public warehouses are included, means that warehouse space in factories is not shown in the statistics.

Based on this it is estimated that around 80% of the analyzed warehouse space is used for distribution logistics.

3.2.1.1.6 Cost and Rental Conditions for Warehouse Space

The following analysis of the warehouse prices compares Poland with other European countries in this respect and shows how prices have developed over the past in Poland. Figure 18 shows the average prices from different cities per country. Here Poland is clearly among the cheaper places, with only 45 EUR per sqm per year. Also real estate prices for industrial space in Poland are among the lowest in Europe. However, this does not necessarily influence rental prices. Belgium can be used as an example. Belgium's real estate prices are six times higher than in Poland. Belgium's warehouse rents though, are lower.¹¹² This might indicate that prices depend mainly on the relationship between supply and demand or on the level of competition.

Figure 18: European Rental Levels for Warehouse Space

(Average of various cities per country)

Source of data: Cushman & Wakefield (2006b), p.4f

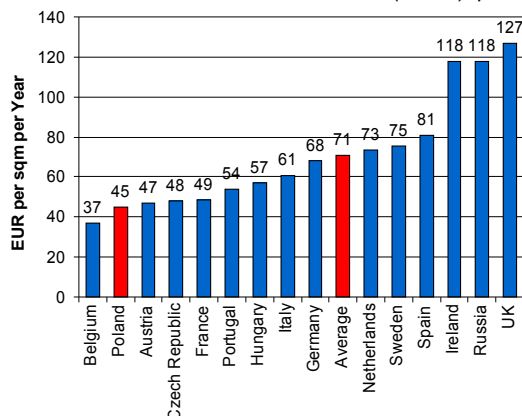
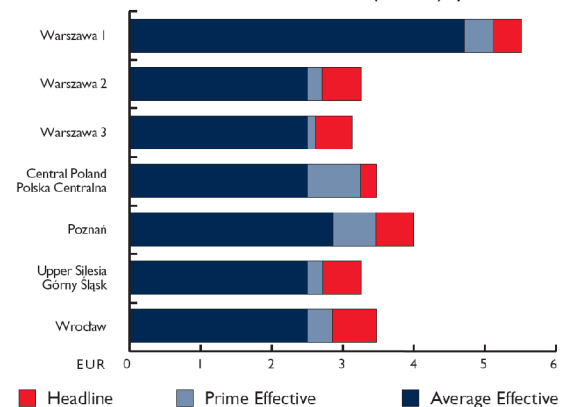


Figure 19: Current Rental Level by Location

Cost in EUR per sqm per month

Source: Cushman & Wakefield (2006a), p.4



Prices within Poland differ from region to region. But with the only exception of Warsaw Zone I, the differences are minor. Figure 19 shows that headline rates for all regions, except Warsaw Zone I, ranged between 3.1 and 4 EUR per sqm per month in 2005. Depending on the size of space leased and the length of the contract, major tenants receive special incentives like rent-free periods.¹¹³ The effective rates, which take these incentives into account, are around 2.5 EUR for regions other than Warsaw Zone I. Prices are usually quoted in EUR but payable in PLN.¹¹⁴

In addition, the tenant has to pay separately for things like property tax, property insurance and several services for keeping the warehouse area in shape. The cost for this amount to about 0.75 EUR per month and sqm (see Table 5 for example). Furthermore

¹¹² see King Sturge (2006), p.21; Cushman & Wakefield (2006b), p.4f

¹¹³ see Cushman & Wakefield (2006a), p.4

¹¹⁴ see DTZ (2004), p.11

the cost of 1.30 EUR for electricity, heating and water must be taken into account.¹¹⁵ These costs included, the warehouse space costs about 4 to 5 EUR per sqm and month. This still excludes the cost of warehouse staff.¹¹⁶

Finally, Figures 20 and 21 show the development of prices over the years for headline and effective rents. While in 1998 headline rates for Warsaw Zone III were at 10 EUR per month and sqm, warehouse space has been getting continuously cheaper since then, dropping to the currently prevailing level of about 3.5 EUR.

Projections for the future do not exist. As Figure 21 shows, vacancy levels do not have significant influence on rental levels. This might be an indicator for the importance of competition in determining the price of warehouse space. Assuming that growth of supply continues, and that competition between developers gets stronger, prices should not increase in the near future. On the other hand, as prices are already among the lowest in Europe, huge decreases are also unlikely.

Table 5: Warehouse Service Charges
Taken from example offer

	EUR per Month and sqm
Property tax	0.32
Property insurance	0.09
Cleaning/landscaping (snow removal)	0.01
Security guards (24h)	0.08
Maintenance and repairs	0.09
On-site personnel	0.02
Property management fee	0.14
Total :	0.75

Figure 20: Historical Headline Rental Levels of Warehouse Space in Poland

Source: DTZ (2006a), p.6

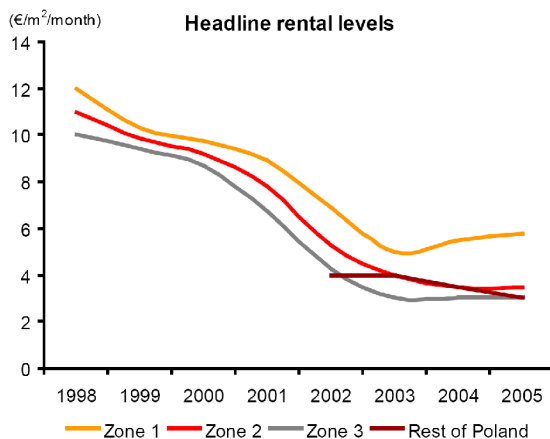
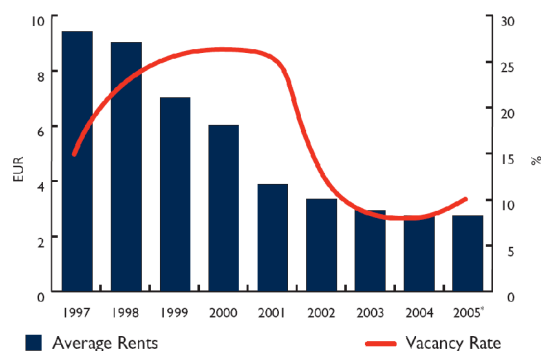


Figure 21: Vacancy and Average Effective Rents

Cost in EUR per sqm per month
Source: Cushman & Wakefield (2006a), p.5



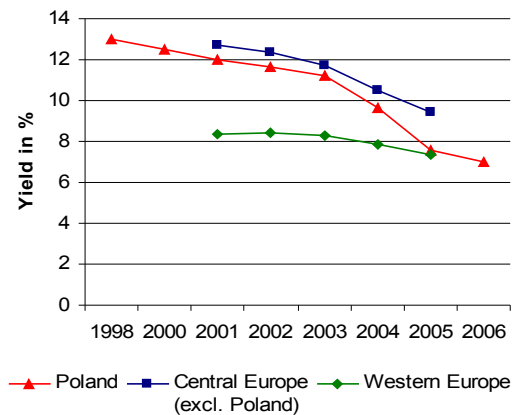
At the same time, the yields on investments in industrial space are getting lower. As Figure 22 shows, they are far down from the 13% in 1998. They are also lower than in other Central European Countries and have adapted to Western European levels by 2005.

¹¹⁵ see Expert Talks DHL (2006)

¹¹⁶ For further details on cost of warehouse operations see chapter 3.2.2.2 on page 43.

Figure 22: Yields on Industrial Space

Source of data: Cushman & Wakefield (2006b), p.3;
Cushman & Wakefield (2006c); DTZ (2006a), p.5



3.2.1.2 Analysis of Transport Infrastructure

While the primary function of warehousing is to fill the time gap between production and consumption, transport is mainly responsible for overcoming the distance between the place of production and consumption.¹¹⁷ Consumer goods and FMCG show high affinity to road transport, and in Poland they are probably solely transported by road.¹¹⁸ For this reason the analysis of the transport infrastructure is limited to the road networks. The following will show the numerous problems with the Polish road infrastructure.¹¹⁹

3.2.1.2.1 Transport Statistics

To estimate the demand for transport infrastructure, an analysis of the transport and traffic statistics is necessary. They again show that Poland is undergoing rapid transformation with road traffic growing quickly, while rail transport is decreasing. Figure 23 demonstrates this clearly. The number of tonne kilometers driven on road have more than doubled since 1995, while the same figure dropped for rail transport from 69 to 50. Figure 24 shows the amount of tons moved. For road transport this figures has been decreasing until 2004, but between 2004 to 2005, it also shows an increase.

These statistics show that the amount of goods transported is rather stable, while the average distances these goods are transported, is increasing. However, this is not necessarily causing an increase in traffic volumes, because if the utilization rate of trucks is increasing, the same number of trucks, could serve more tone kilometers.

This is why the traffic analysis should be considered as well. They are not available for different kinds of road vehicles, but they also show dramatic increases. Between 2000 and 2005 traffic volumes increased by 20%, and it is estimated that by 2020 there will be more than twice as much traffic on Polish roads, than in 2000.¹²⁰

¹¹⁷ see Ross (2004), p.89; Weber/Kummer (1998), p.29

¹¹⁸ see Expert Talk DHL (2006)

¹¹⁹ see for example EIU (2006c)

¹²⁰ see GDDKiA (2006f), p.9

Figure 23: Transport by Road and Rail in Tonne Kilometers

Source of data: GUS (2006a), p.354

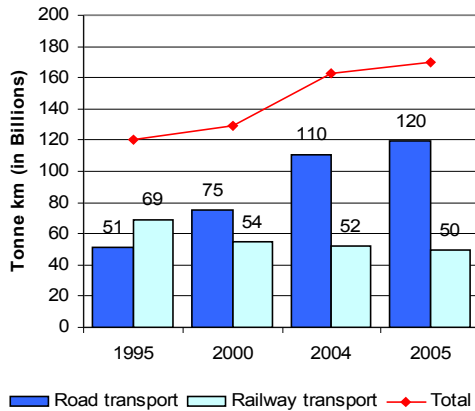
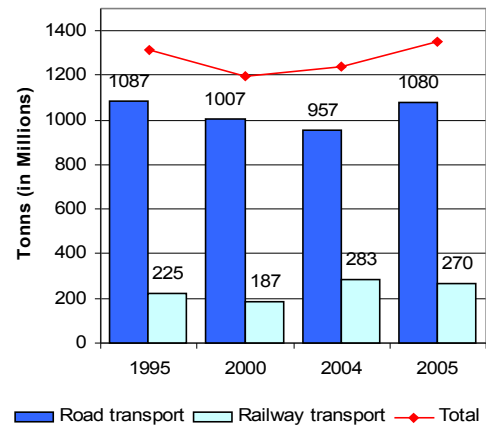


Figure 24: Transport by Road and Rail in Tonnes

Source of data: GUS (2006a), p.354



This increase in traffic will require suitable infrastructure as well. In contrast to the warehouse infrastructure, which is up to 100% developed by private companies, the road infrastructure is still mainly planned and financed by the public sector. This might be the main reason why the development of road infrastructure is lagging so far behind the growth of demand.

3.2.1.2.2 Road Infrastructure

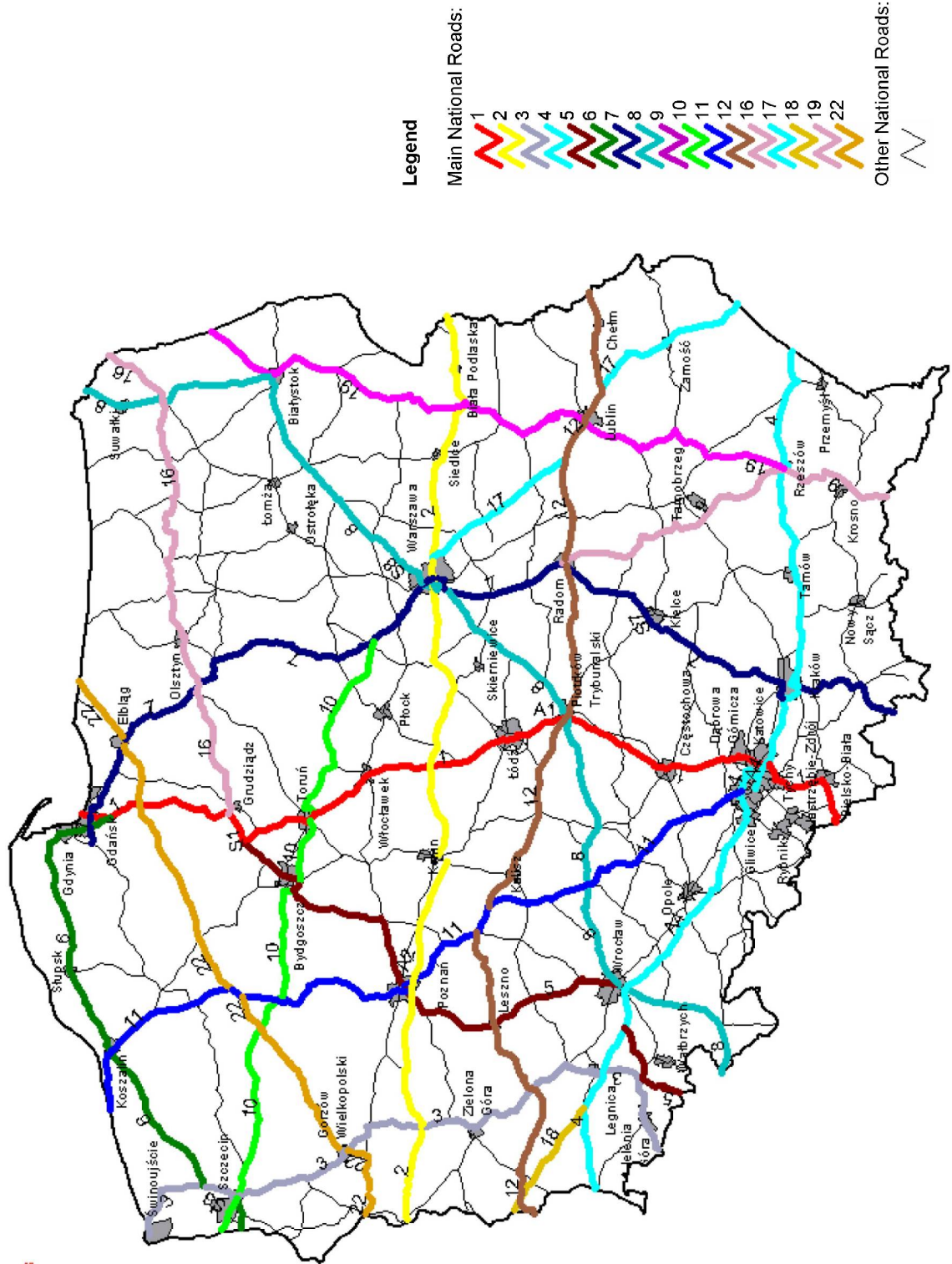
The road infrastructure is one of the weakest points in Poland's economy with two main problems: First, the existing road network was built according to rules set by the communist regime and therefore the roads do not meet EU standards. Second, the country has almost no motorway infrastructure.

3.2.1.2.2.1 National Roads

Poland has about 17,000 km of national roads which are shown in Figure 25. About 8,000 km of these are major connections, marked in color. Number 6 and 17 are the two roads which are in best shape (about 70% of road is in good condition). In contrast, the roads number 2, 7, 8, 9, 12 and 16 are in worst condition with 25-40% of the road in bad condition.¹²¹

¹²¹ see GDDKiA (2006c), p.19

Figure 25: Polish Road Network
Source: GDDKiA (2006c), p.18



Overall road conditions show the same picture: Of the 8,000 km of main national roads, only half are in good condition and the rest are either in bad or not satisfactory condition. For the whole national road network the percentage of bad or not satisfactory roads is even slightly higher (24.9% bad and 26.2% not satisfactory).¹²² However, Figure 26 shows a positive trend. While only five years ago, in 2001, the share of good roads was below 30%, now almost half are already in good condition.

Figure 26: Condition of National Roads

Source of data: GDDKiA (2006c), p.29



Figure 27: Polish Motorways as Part of the Trans European Networks

Based on: GDDKiA (2006a); European Commission (2006)



¹²² see GDDKiA (2006c), p.8

The biggest part of this road network was built during the 1970s. At this time the road standards, set by the government, were slightly different from the now prevailing EU standard. The standard axle weight during the communist era was 10 tons while in the EU it is 11.5 tons. The EU has established plans for Trans European Networks (TEN), ensuring that the free flow of goods across Europe is supported by an appropriate infrastructure. In Poland, this network covers 4,864 road km, shown in Figure 27, together with the planned motorway connections. By the end of 2005, only 1,000 km (22%) met the EU standard of 11.5 tons axle weight. Of the whole national road network only 13% met the standard.¹²³

3.2.1.2.2.2 Motorway Infrastructure

Apart from the national roads, there is a motorway network, which is to a great part still under construction. Figure 28 and Table 6 show in more detail the planned motorway network which consists of three main connections:

- The A1 is running from Gdansk down to the south via Łódź to Katowice and further to the border with the Czech Republic.
- The A2 is coming from Berlin in Germany going via Poznan, Łódź and Warsaw to the border with Belarus in the East.
- The A4 is the second West-East connection, further in the south, also coming from the German border and connecting the cities Wrocław, Opole, Katowice, Krakow and Rzeszów. This route is also planned to connect to the Ukrainian border.

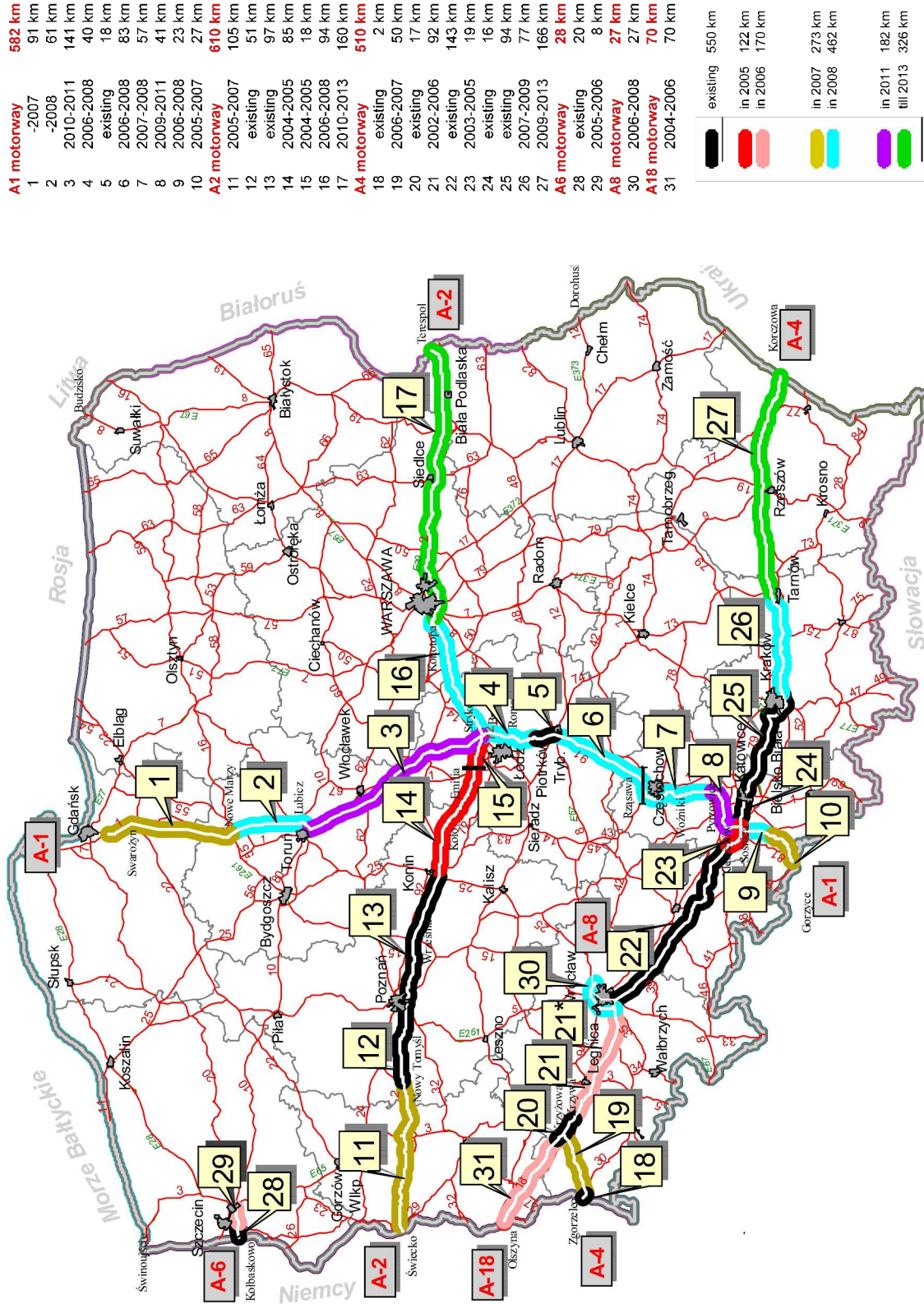
Table 6: Major Cities on Planned Motorways

Source of data: GDDKiA (2006e)

A1	S6/S7 (Gdańsk) — Toruń — Łódź — Piotrków Trybunalski — Częstochowa — Gliwice — Gorzyczki — state border (Ostrawa)
A2	(Berlin) state border — Świecko — Poznań — Łódź — Warsaw — Biała Podlaska — Kukuryki — state border (Mińsk)
A4	(Drezno) state border — Jędrzychowice — Krzyżowa — Legnica — Wrocław — Opole — Gliwice — Katowice — Kraków — Tarnów — Rzeszów — Korczowa — state border (Lwów)
A6	(Berlin) state border — Kołbaskowo — Szczecin (S3 — węzeł "Rzęśnica")
A8	Motorway bypassing Wrocławia from A4 to Psie Pole
A18	(Berlin) state border — Olszyna — A4 (Krzyżowa)

¹²³ see GDDKiA (2006c), p.19-20

Figure 28: Planned Polish Motorway Connections
 Source: GDDKiA (2005)



As can be seen in Figure 28, Łódź is at the intersection of the planned A1 and A2, so it will become a central place in Poland. This is probably the main reason, why Łódź will attract the biggest share of warehouse space in the future.¹²⁴

The time plan in Figure 28 is from June 2005 and projects that the planned motorway network will be finished by the end of 2013. However, current developments show that this plan might be too ambitious. In September 2006 section 21 with 92 km was opened for traffic as planned.¹²⁵ Section 14, in contrast, which was planned to be built until the end of 2005 was finished half a year later in June 2006.¹²⁶ And while the original plan was to build 273 km of motorways in 2007, according to the new plan, only 6 km will be finished in this year.¹²⁷ Consequently, it is not foreseeable when the plans will be realized.

3.2.2 Cost of Operations

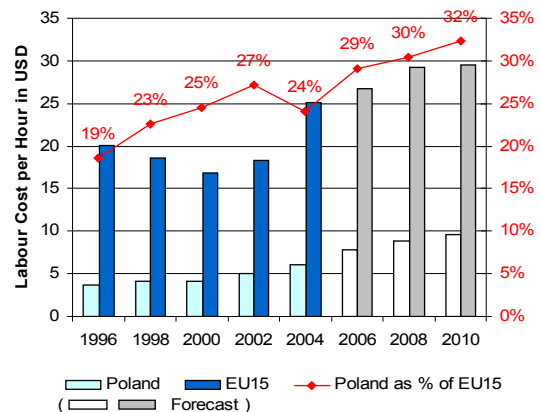
The cost of logistics operations is mainly driven by labor cost and the cost of power and industrial water supply. The following analysis starts with general information on the Polish labor market and shows then further details of warehouse and transport operations.

3.2.2.1 Supply and Cost of Labor

Low cost of labor is, together with the geographic location, the most important criteria for companies to invest in Poland.¹²⁸ Figure 29 shows the average cost of one hour labor in Poland and the EU15. The figures prove that labor cost in Poland is indeed considerably lower than in the EU15. But the development over the years shows that this gap is closing. While in 1996 Polish labor cost was less than 20% of the cost in the EU15 this figure will be above 30% in 2010. Increasing wages means that people become wealthier. However, it will also erode a major competitive advantage against the EU15 countries. In addition, the fact that labor cost in Poland is higher than in other new EU members, has caused companies to choose countries like the Czech Republic or Slovakia instead of Poland for their investment.¹²⁹

Figure 29: Labor Cost per Hour

Source of data : EIU (2006a)



¹²⁴ see chapter 3.2.1.1 on page 27

¹²⁵ see GDDKiA (2006d)

¹²⁶ see GDDKiA (2006e)

¹²⁷ see gazeta.pl (2006)

¹²⁸ see KPMG (2006), p.10

¹²⁹ see EIU (2006c); For a comparison of labor cost for warehouse staff in some new EU members see also Figure 30 on page 43.

Social attitudes in Poland seem to be rather the same as in other countries. According to a rating by the World Bank, Poland scores worst in "rigidity of hours" and "difficulty of firing". Nevertheless, this is only true, when comparing Poland with OECD average which includes for example the rather liberally mined United States. If compared with the region (covering Europe and Central Asia), Poland scores better or only slightly worst (Table 7).

Table 7: Social Attitudes

Each index assigns values between 0 and 100, with higher values representing more rigid regulations. Region covers Europe and Central Asia. Source of data: World Bank (2006)

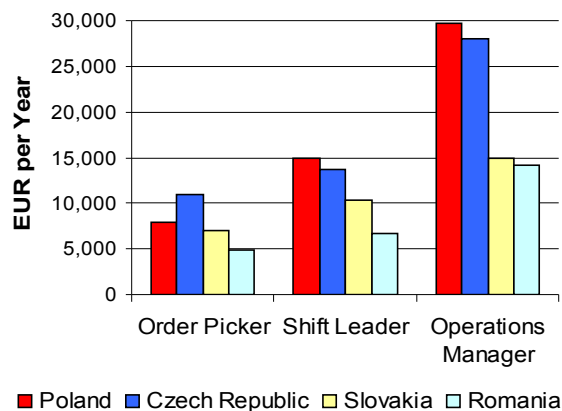
Indicator	Poland	Region	OECD
Difficulty of Hiring Index	11	34.5	30.1
Rigidity of Hours Index	60	56.9	49.6
Difficulty of Firing Index	40	41.5	27.4
Rigidity of Employment Index	37	44.3	35.8
Hiring cost (% of salary)	25.8	29.6	20.7
Firing costs (weeks of wages)	24.9	32.8	35.1

3.2.2.2 Cost of Warehouse Operations

Cost of warehouse staff gives a mixed picture. Figure 30 compares the cost for different warehouse staff in Poland, with the cost prevailing in four other CEE countries. Except for order pickers, which are most expensive in Czech Republic, Poland has the most expensive workers. Second is Czech Republic followed by Slovakia. Lowest cost can be found in Romania, where workers are about 50% cheaper than in Poland.

Figure 30: Cost for Warehouse Staff in Several CEE Countries

Source of data: Expert Talks DHL (2006)



The relatively low cost for order pickers and the higher cost for shift leaders and operations managers might reflect the lack of qualified labor in Poland. This problem can be seen better from the existing shortage of truck drivers in Poland, discussed further below.¹³⁰

3.2.2.3 Transport Operations

Conditions for running transport operations in Poland are difficult at the moment.¹³¹ As shown above, the infrastructure is in bad condition and capacity is not growing at the same speed as traffic. Due to continuous construction, it is not possible to give drive times for certain distances. While the new construction sites cause new delays, opening of new motorways allow trucks to go faster. But the average speed of trucks in Poland is around 50 km per hour, in contrast to Germany, where trucks go at 70 km per hour on average.

In addition, Poland is facing a driver shortage, as about 20% of truck drivers are working abroad. And the retailers have enormous problems in organizing their central distribution centers. This has the effect that trucks, arriving on time, have to wait up to 44 hours for unloading. In some cases trucks are unloaded swiftly, but are waiting eight hours afterwards until the documents are issued.

Table 8 shows the average transport prices for full truck loads, depending on the capacity and the kind of truck. A truck with a capacity of 33 palettes, for example, costs 2.40 PLN per km. Isotherm trucks are isolated, but without cooling aggregate, while the refrigerated container truck is equipped with such an aggregate. Prices include the truck driver but not the optional security equipment, like GPS monitoring which might be necessary for high value consumer goods. These figures are average prices prevailing in September 2006. Increasing traffic congestion and higher labor cost could cause prices to increase in the future.

Table 8: Average Transportation Prices per km for Full Truck Loads

*If distance is less than 100 km, back trip is charged as well.
Source of data: Expert Talks DHL (2006)*

Capacity of Truck (# of Euro Palettes)	Type of Truck		
	Tilt	Isotherm	Refrigerated Container Truck
20-33	2.40 PLN	2.50 PLN	2.60 PLN
15-20	1.40 PLN	1.60 PLN	1.80 PLN
10-15	1.20 PLN	1.30 PLN	1.50 PLN
8-10	1.10 PLN	1.10 PLN	1.30 PLN
	Box		
4	1.00 PLN		

3.2.3 Access to International Markets

The local market demand in Poland will be analyzed further below.¹³² However, many sources also discuss the possibility, of serving international markets from Poland. For this reason, the conditions for distribution to other countries from Poland should be discussed as well. The analysis will start with the pan-European distribution structure, and show then, what position Poland could take in this respect.

¹³⁰ see chapter 3.2.2.3 on page 44

¹³¹ The following analysis is based on Expert Talk Krzciuk (2006).

¹³² see chapter 4.1 on page 53

3.2.3.1 Europe's Future Distribution Structure

In order to make any forecasts for the future demand of international distribution from Poland, the whole European distribution structure has to be analyzed. Back in the 1980s, the highest concentration of economic activity was in the so called Blue Banana Region. It starts in Manchester (England) and stretches down to the northern part of the Italian peninsula, covering the Netherlands (Randstad Region), Belgium, Germany (Rhineland) and Switzerland.¹³³

Later, the Sunbelt, stretching from Milan to Valencia and the "Yellow Banana" running from Paris to Warsaw have been identified as future centers of growth in Europe.¹³⁴ One argument states that due to its diversified structure it can be expected that the blue banana area, rather than the Sunbelt or the Yellow Banana, has the best starting-position for economic growth in the next decades.¹³⁵ Nevertheless, a row of developments suggest that a major change in the map of industrial activities in Europe is taking place, which will also change the structure of distribution. The following are the three driving forces, shaping the future structure of European distribution:

- Increasing consumer demand in Central and Eastern Europe will create demand for distribution in this area.¹³⁶
- The high investments in FDI for manufacturing in Eastern Europe, will bring increasing industrial output. The fact that goods are not just produced for the local market, creates demand for international distribution of these goods.¹³⁷
- Open borders and the free flow of goods within Europe make cross-border trade much easier. This motivates companies to set up production facilities, serving the international or European market. The impact on the scope of distribution can be seen in Figure 31. It shows, where the goods, produced in European manufacturing plants, are distributed to. After the EU enlargement this is now also true for many CEE countries. Before EU enlargement, a truck had to wait up to a day to get across the border between Germany and Poland.¹³⁸ Now extensive customs controls are a thing of the past. Still, the borders are not completely open yet. Increasing border traffic, insufficient customs infrastructure, and slow procedures can still cause delays of up to eight hours in some cases.¹³⁹ Once these problems are solved, waiting times should be reduced further, to acceptable duration, in the future.

¹³³ see Huymans et al. (2003), p.90

¹³⁴ see Hospers (2003)

¹³⁵ see Hospers (2003)

¹³⁶ see EIU (2006c)

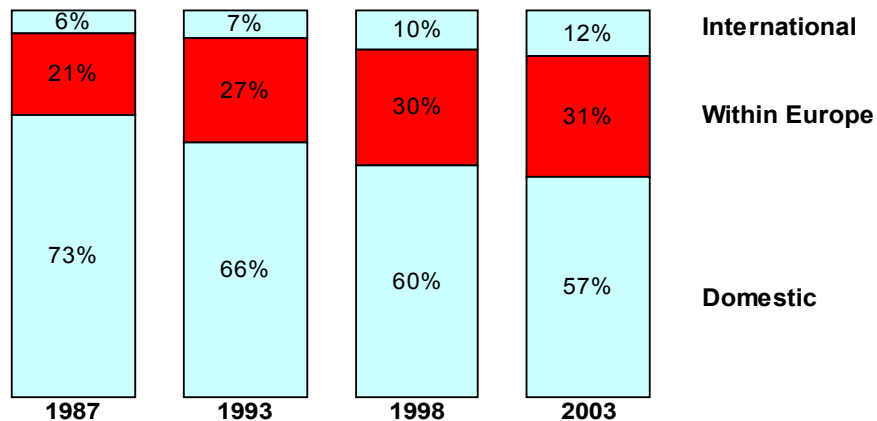
¹³⁷ see Lenders (2005)

¹³⁸ see Sowinski (2003)

¹³⁹ see Expert Talk Chazanow (2006)

Figure 31: Evolution of the Geographical Scope of Distribution in Europe

Based on: *European Logistics Association in: Huysmans et al. (2003), p.37*



The previously discussed developments will cause the center of gravity of whole Europe to move from West to East.¹⁴⁰ But there are still many different opinions, on how the flow of goods in Europe will be organized in the future. "The concept for a pan-European distribution strategy is like the Holy Grail-people have been seeking it, but nobody has found it."¹⁴¹ A reason for this could be the different labeling requirements, caused by legal and lingual differences of Europe's national markets. They make centralized distribution difficult.¹⁴² Other obstacles for centralized distribution in Europe are "rising fuel costs, worsening congestion and new EU regulations such as the working time directive and the directive on Waste Electronic and Electrical Equipment."¹⁴³ These developments might require goods to be stored closer to the customer, in order to achieve the required lead times.

Although centralized distribution in Europe faces many obstacles, "...there has been a continued move towards European/regional Distribution Centres (DCs), particularly for the new Central European markets, although national distribution centres are still the norm generally across Europe."¹⁴⁴ There are also good reasons to expect that there will be a two-tiered European distribution structure, consisting of a central European and several regional DCs: Due to the larger single market in the EU it will not be possible anymore to make deliveries from one DC to the whole EU as distances are too big, which would cause unacceptably long lead times.¹⁴⁵

3.2.3.2 Poland's Position in Europe

For Poland the development towards more centralized distribution systems means that it could become a host for international DCs. Looking at the map in Figure 32 suggests that Poland has an ideal position within Europe, for this purpose. However, in addition to the geographic position, also other factors are important. The following will first analyze Poland's trade relationship with other countries, which has a major influence on

¹⁴⁰ see Neale (2005)

¹⁴¹ Eeonard Sahling, Vice president of ProLogis in: Quinn (2005)

¹⁴² see Huymans et al. (2003), p.85

¹⁴³ Cushman & Wakefield (2006b), p.2

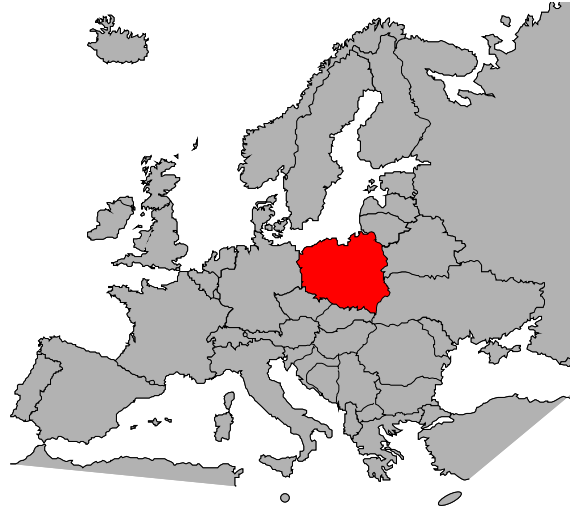
¹⁴⁴ Cushman & Wakefield (2006b), p.2

¹⁴⁵ see Lenders (2005)

the flow of goods. Then some location analyses for European distribution centers are discussed.

Figure 32: Poland's Position in Europe

Based on: PAIIZ (2006a)



3.2.3.2.1 Foreign Trade Relationships Between Poland and Other Countries

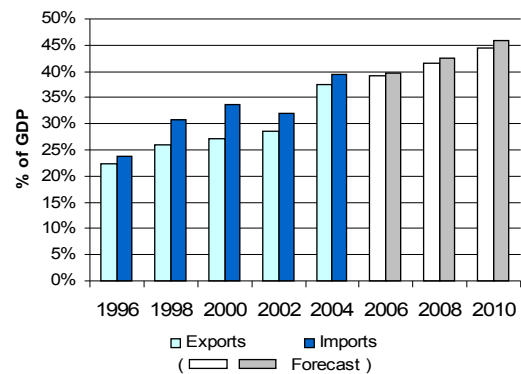
Official statistics show that Poland's economy is getting more and more integrated in international trade. From Figure 33 it can be seen that exports in 2006 will reach almost 40% of GDP while 1996 this figure was only 24%. The most important trade partners are shown in Table 9.

Germany is Poland's most important trade partner, absorbing about 30% of Poland's export value. Most of the other countries in this table belong to the EU15 absorbing together 56.4%¹⁴⁶ of Polish exports. This list further includes the Czech Republic, Russia and the Ukraine. In the future the five neighbor countries, which entered the EU together with Poland, might become of increasing importance as their economies grow.

The above shows that Poland's exports are increasing and that most of these exports go to the EU15. One main reason for this is the phenomenon called near shoring: Companies decide to locate their manufacturing facilities in CEE due to the proximity to Western European markets, ac-

Figure 33: Exports and Imports of Goods and Services as % of GDP

Source of data : EIU (2006a)



¹⁴⁶ Including Germany but excluding EU15 countries, which are not among the top ten export destinations.

cepting that labor costs are higher than in the Far East.¹⁴⁷ The consequence is that goods have to be distributed from Poland, where they are manufactured, to the Western European countries, where they are consumed. In addition, they might be distributed also to the countries in the East. However, consumption there will not increase significantly, as long as their economies do not grow faster.

Table 9: Main Export Partners of Poland 2005

Source of data: GUS (2006b)

	Country	Million PLN	Million USD	Million EUR	Share in %
1.	Germany	81,449.4	25,224.7	20,142.0	28.2
2.	France	17,939.9	5,558.5	4,438.4	6.2
3.	Italy	17,677.1	5,482.8	4,375.7	6.1
4.	Great Britain	16,127.6	4,995.6	3,989.6	5.6
5.	Czech Republic	13,195.9	4,076.9	3,266.3	4.6
6.	Russia	12,821.0	3,960.5	3,171.1	4.4
7.	Netherlands	12,009.0	3,721.4	2,970.2	4.2
8.	Sweden	8,889.0	2,749.8	2,198.2	3.1
9.	Belgium	8,591.7	2,665.2	2,122.8	3.0
10.	Ukraine	8,410.3	2,588.2	2,084.6	2.9

3.2.3.2.2 Attractiveness of Poland for Distribution Hubs

The idea of Poland becoming a major distribution hub for Europe is discussed by some authors. Suggestions range from serving Germany and Austria¹⁴⁸ to Ukraine, Belarus and Russia from this location.¹⁴⁹ In fact there is already an example demonstrating that this is possible: DHL consolidated two distribution centers of one of his clients, which were previously located in Vienna and Warsaw, to one DC, located now in Katowice.¹⁵⁰

However, the before mentioned problems of the transport infrastructure prevailing in Poland, will hinder such developments. Figures 34 and 35 analyze the attractiveness of European countries regarding two factors:

- Cost and supply of warehouses
- and accessibility of Europe's markets from these regions, depending on infrastructure availability and geographical location.

According to these factors, the countries are grouped into 3 regions:

- A: The Blue Banana countries, with traditional agglomeration of DCs but insufficient capacities.
- B: The Eastern European triangle, with high availability of warehouses and low prices, but insufficient road infrastructure.

¹⁴⁷ see Perry (2006)

¹⁴⁸ see Neale (2005)

¹⁴⁹ see Coia (2002)

¹⁵⁰ see Expert Talks DHL (2006)

- C: The Peripheral countries, which have bad access to the EU core and high rents for warehouses.

Figure 34: Relative Position of European Countries as DC Location for Eastern Europe

Based on: Huymans et al. (2003), p.89

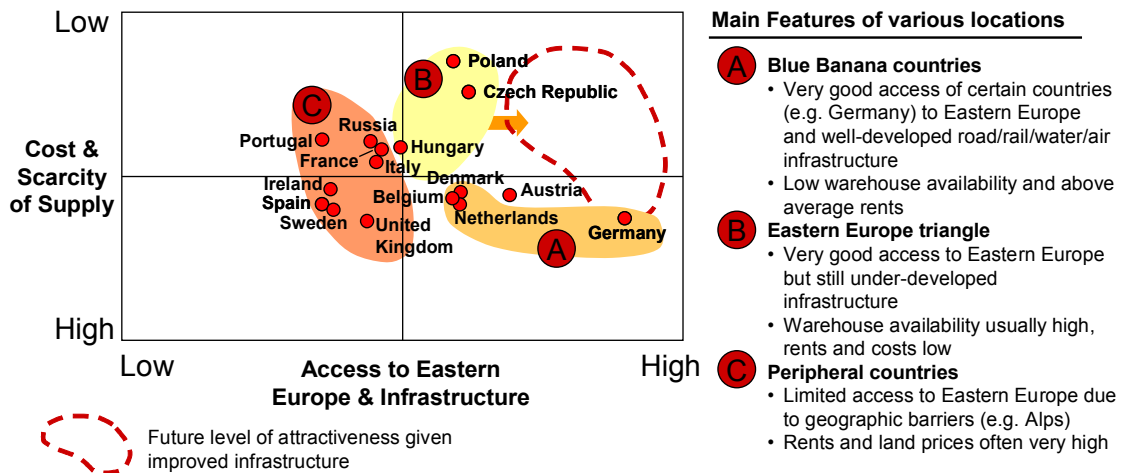


Figure 35: Relative Position of European Countries as DC Location for EU15

Based on: Huymans et al. (2003), p.88

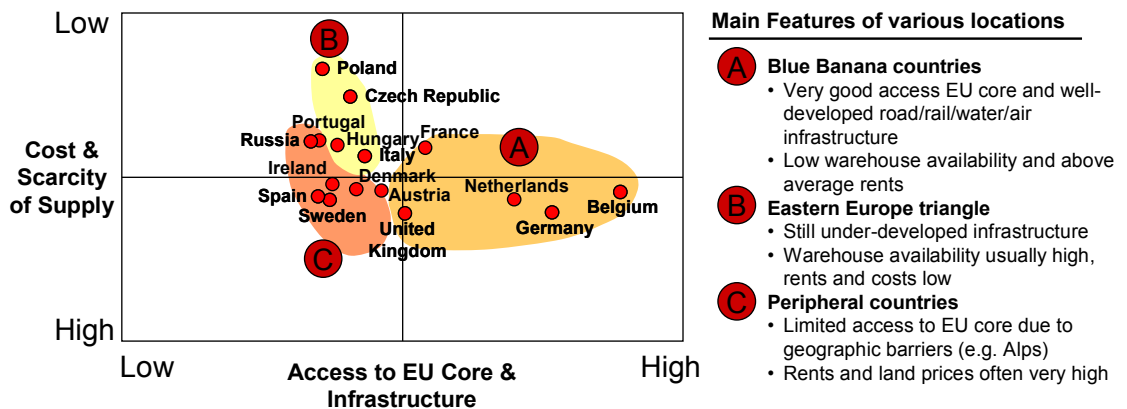


Figure 34 clearly shows that DCs serving Eastern Europe, should be located in one of the B countries, including Poland. Germany is also in a good location in this respect, because it has good infrastructure. In the future though, when the infrastructure of the B countries has improved, DCs in these countries will be in a much better position to serve Eastern Europe.

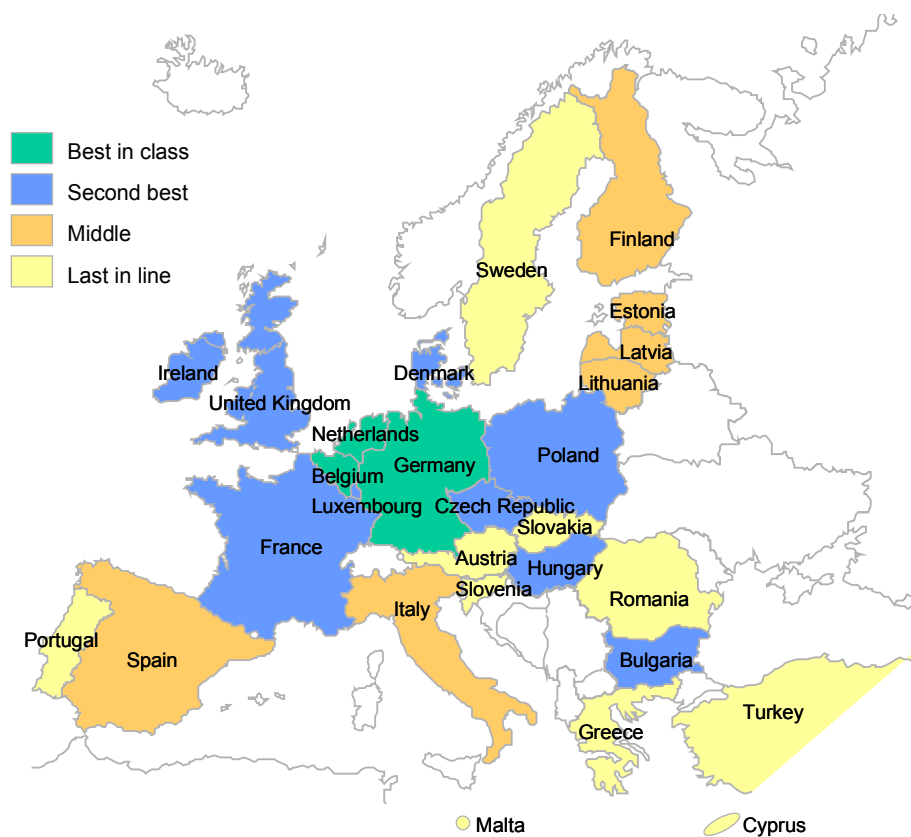
Figure 35, in contrast, indicates that the best locations for serving the EU15 are still Belgium, Germany and the Netherlands. Although not shown in the figures, the improvement of infrastructure in the B countries should also improve their attractiveness

for serving the EU15. In Poland, for example, there are currently several motorways under construction, which will connect Poland with its neighboring countries.¹⁵¹

Figure 36, which is based on a different analyses, including 15 decision factors,¹⁵² shows a very similar picture. According to this rating, the best locations for a European distribution center are in Belgium, Germany and the Netherlands. These are followed by many Eastern European countries, including Poland. The same analysis concludes that the three best locations for Eastern European regional distribution centers are Germany, Poland and Hungary,¹⁵³ which again partly confirms the previous diagrams.

Figure 36: Preferred European DC Locations

Based on: Duijvendijk et al. (2003), p.37f



While the above analysis are from the year 2003, Table 10 shows the results from three studies, carried out in 2001, 2003 and 2005. These results confirm the results and projections of the previous studies. While the attractiveness of Poland, Czech Republic, and Hungary was improving continuously, Germany and Austria fell back in the ranking. Belgium and the Netherlands kept their place among the top 3 of the list, while Germany was substituted by France. However, the higher rating of the Eastern Euro-

¹⁵¹ see chapter 3.2.1.2.2.2 on page 40

¹⁵² see Duijvendijk et al. (2003), p.15-35; The factors taken into account are: Transport infrastructure, wages and benefits, proximity to sea ports, general business environment, proximity to airports, proximity to rail hubs, labor availability, labor flexibility, proximity to customers, proximity to suppliers/sources, real estate costs, incentives, corporate taxes, multilingualism, congestion risk and utility infrastructure.

¹⁵³ see Duijvendijk et al. (2003), p.41; The full list includes: 1. Germany, 2. Poland, 3. Hungary, 4. Czech Republic, 5. Bulgaria, 6. Slovakia, 7. Romania, 8. Austria, 9. Slovenia.

pean countries is mainly due to higher maturity of the property markets, increased importance of the consumer markets and the low costs relative to other European destinations, and not due to improvements of the infrastructure.¹⁵⁴

Table 10: Ranking of European Countries by Attractiveness as Location for European Distribution Hubs (Top 15)

For 2001, rank 9 and 10 are equal. Source of data: Cushman & Wakefield (2006b), p.8

	Belgium	France	Netherlands	Czech Republic	Poland	Germany	Hungary	Italy	Austria	UK	Ireland	Portugal	Russia	Sweden	Spain
2001	1	4	2	5	7	3	10	6	8	10	13	11	12	14	15
2003	1	2	4	5	6	3	8	9	7	10	15	11	13	14	12
2005	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

3.2.4 Other Aspects

After analyzing the infrastructure, cost of operations and access to international markets, the following is a summary of the other relevant aspects impacting distribution operations.

Attitude of governments: According to surveys among foreign investors, government attitude towards foreign investment is not very good. The political environment and economic policy uncertainty was seen as a key risk for investments in Poland by many investors.¹⁵⁵ Bureaucracy is also a big problem, mentioned in many sources.¹⁵⁶ This is a problem inherited from the communist era that should be addressed by the government.

Tax rates and regulations: Tax rates are not a major problem while their administration presents a real obstacle. "The tax rates are not much higher than those of its post-communist neighbors, but their administration is hugely more bureaucratic. Whereas the Czech tax authorities deal with [...] value-added tax in just 60 days, in Poland getting VAT refunded on exports takes around six months."¹⁵⁷ Consequently, the main obstacle is again bureaucracy. The case study will show a further example of problems with tax regulations, affecting distribution operations.¹⁵⁸

Differences in languages, culture and law: The legal system is often criticized for its bad performance.¹⁵⁹ "The legal system is a wreck: even minor cases take years to be heard."¹⁶⁰ Also communication in foreign languages might present a problem. In a ranking regarding multilingualism, including 28 countries, Poland is in 22nd place.¹⁶¹

¹⁵⁴ see Cushman & Wakefield (2006b), p.8

¹⁵⁵ see EIU (2006c); KPMG (2006), p.13; KPMG (2006), p.11

¹⁵⁶ see EIU (2005); EIU (2006c)

¹⁵⁷ Economist (2006)

¹⁵⁸ see chapter on page

¹⁵⁹ KPMG (2006), p.11

¹⁶⁰ Economist (2003)

¹⁶¹ see Duijvendijk et al. (2003), p.33

Exchange rates: Poland still has its own currency, which makes investors vulnerable to the exchange rate risk. This will change, once the country joins the Euro zone. However, this will not be before 2009, which is the year that currently seems realistic for starting negotiations about joining the Euro zone.¹⁶² Until the introduction, investors have to accept the higher exchange rate risk. However, this is the same for other Central European countries as well. The question is just who will join the Euro zone earlier?

3.3 SWOT Analysis of Poland as Location for Distribution Operations

After the detailed analysis, the following SWOT Analysis will summarize the discussed conditions for distribution operations in Poland. While strengths and weaknesses refer to the current situation, opportunities and threats show possible developments in the future (Table 11).

Table 11: SWOT Analysis of Poland as Location for Distribution Operations

Strengths	Weaknesses
<ul style="list-style-type: none"> • Low cost of labor in comparison to the EU15 • Low cost and high supply of industrial real estate and warehouses • Big and growing internal market (analyzed in chapter 4.1) • Central location in Europe 	<ul style="list-style-type: none"> • Transport infrastructure not sufficient • Higher labor cost than other new EU members • Burdensome bureaucracy and bad government attitude • Inefficient legal system and complicated tax system • Low knowledge of foreign languages
Opportunities	Threats
<ul style="list-style-type: none"> • Joining the Euro zone • Further extension of the EU • Growth of consumption (analyzed in chapter 4.1) • International distribution from Poland 	<ul style="list-style-type: none"> • Delays during development of transport infrastructure combined with rapid traffic growth • Labor exodus and increase of labor costs • Delays in joining the Euro zone • Slowing reforms

¹⁶² see EIU (2006e)

4 ANALYSIS OF THE FMCG MARKET WITH FOCUS ON DISTRIBUTION LOGISTICS

The previous chapter gave an overview of the general market conditions in Poland, with special focus on the needs of distribution logistics operations. This chapter will analyze various aspects of the FMCG market, relevant for distribution logistics, including:

- Polish consumers, who ultimately buy the distributed products.
- Foreign investors, which, as the further analysis will show, play an important role in the distribution of FMCG in Poland. This is why the foreign direct investment inflows into Poland are analyzed before looking into the sectors in more detail.
- Wholesalers and retailers, which are bringing these goods to the market, and take over the main part of the distribution function.
- 3PL providers, which can also take over part of the distribution function from manufacturers to the retailers and wholesalers.

In order to get better insight into the strategies of manufacturers, the author tried, to conduct a survey among FMCG producers. Due to the restrictive information policy of companies, it was not possible to gather sufficient answers for making a useful statistic. However, the following case study in chapter 5 will provide detailed information on the strategy of a tobacco manufacturer.

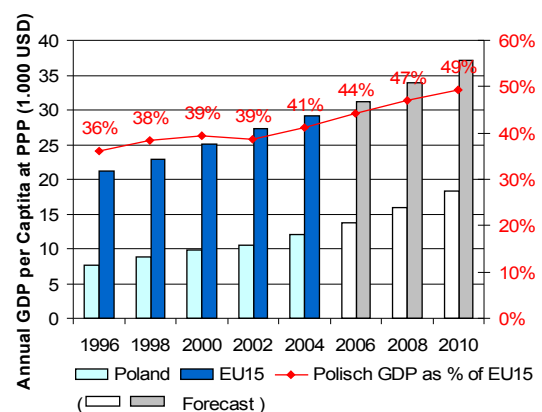
4.1 The Market for Consumer Goods

Poland offers a huge market with 38 million inhabitants, representing 8% of the European Union and 51% of the members that joined the EU during its last extension.¹⁶³ Consequently, Poland offers considerable market potential for companies, if the income of Polish consumers continues to increase. The Polish consumer is the primary factor in determining the volume of goods that need to be distributed. His purchasing behavior, and the amount of goods, he can buy, depend greatly on his income. Statistics show that Poland's population is becoming increasingly wealthy.

The development of Poland's economy can be seen from the evolution of GDP. GDP per capita shows the economic output of an average person. Relating GDP figures of Poland with those of the EU15 gives an idea of the development status compared to Western Europe.

Figure 37: GDP per Capita

Source of data: EIU (2006a)



¹⁶³ Calculated on the basis of figures from EIU (2006a)

The existing gap between Poland and Western Europe can show the development that lies ahead.

Figure 37 shows the development of Poland's GDP per person from 1996 until 2010, in comparison to the EU15 average. While GDP in 1996 reached only 36% of Western European average, this figure will increase by eight percentage points to 44% by the end of 2006. It is expected to increase further to almost 50% of Western European levels by 2010. Should current trends continue, the Polish economy might eventually catch up completely some time in the future.

GDP raises, and so does private consumption. From 1995 to 2005 personal private consumption rose by more than 50%.¹⁶⁴ This figure is of special interest when talking about distribution of FMCG, because private consumers are the main target market for these goods.

Figures 39 and 40 analyze in more detail the behavior of the Polish consumer. These statistics are based on the structure of the United Nations Classification of Individual Consumption by Purpose (COICOP) shown in Figure 38. It consists of 12 categories. Of these the first two are only containing FMCG, while category 5 and 12 partly also contain non FMCG.¹⁶⁵ Unfortunately the statistics only show the twelve main categories, hence an exact estimate of the market is not possible. Still, they show an important trend.

Figure 39, shows that spending on all kinds of goods, including FMCG, has been increasing continuously since 1995. However, it can also be seen that the FMCG segment is growing much slower than the rest. Figure 40 shows the total market for consumer goods for 2004. The market for food, beverages and tobacco makes up for 27% of the market and has a value of 149 billion PLN. Another 92 billion PLN is not directly attributable to the FMCG market, because these categories also contain non FMCG goods.

In light of the above, it can be concluded that the consumer market will continue to grow, approaching Western European levels. However, the FMCG market will not grow as fast as the rest. As FMCG are mainly goods of basic need (especially food), this market will be saturated sooner and additional income will be spent more and more on other goods.

Figure 38: FMCG in the United Nations Classification of Individual Consumption by Purpose (COICOP)

Source: United Nations Statistical Division (2006)
(FMCG relevant categories bold and underlined)

- 01 - Food and non-alcoholic beverages**
 - 01.01 - Food**
 - 01.02 - Non-alcoholic beverages**
- 02 - Alcoholic beverages, tobacco and narcotics**
 - 02.1 - Alcoholic beverages**
 - 02.2 - Tobacco**
 - 02.3 - Narcotics**
- 03 - Clothing and footwear
- 04 - Housing, water, electricity, gas and other fuels
- 05 - Furnishings, household equipment and routine household maintenance
 - 05.06 - Goods and services for routine household maintenance
 - 05.06.01 - Non-durable household goods**
- 06 - Health
- 07 - Transport
- 08 - Communication
- 09 - Recreation and culture
- 10 - Education
- 11 - Restaurants and hotels
- 12 - Miscellaneous goods and services
 - 12.01 - Personal care
 - 12.01.03 - Other appliances, articles and products for personal care**

¹⁶⁴ see EIU (2006a)

¹⁶⁵ The categories are selected, based on the definition of FMCG in chapter 2.1.2 on page 9.

Figure 39: Growth of Absolute Consumption in Poland

Source of data: GUS (2006b)

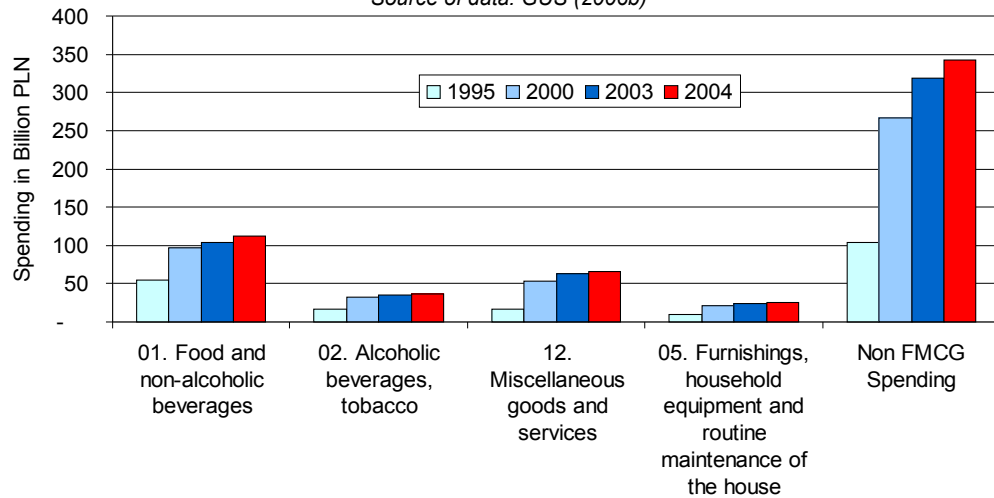
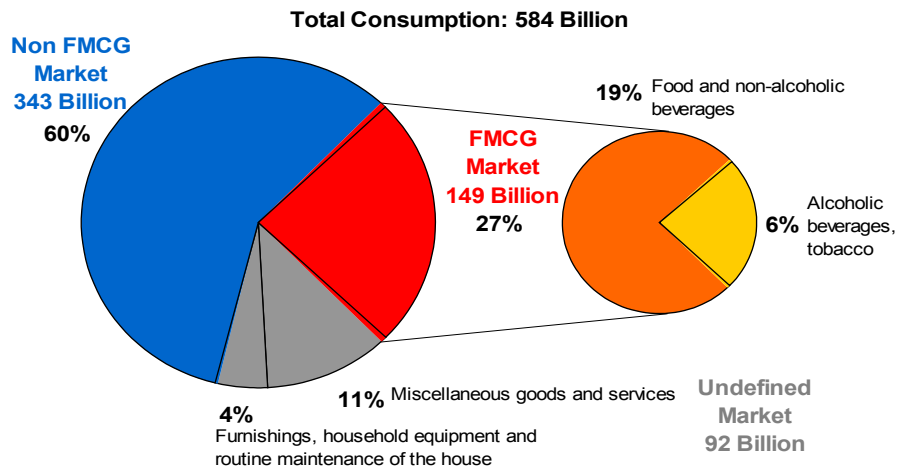


Figure 40: Expenditure on FMCG as Part of Total Consumption in Poland 2004

Source of data: GUS (2006b), Figures in PLN



4.2 The Role of Foreign Direct Investors in the Polish FMCG Market

The further analysis of the different industries involved in distribution will reveal that foreign investors play an important role or even dominate the market. It could be assumed that the size and the high growth rate of the Polish consumer market a very attractive for foreign investors. Therefore, the following statistics will provide background on FDI in Poland. Figure 41 shows FDI inflows from 1990 to 2005. Since 1990 capital investment was steadily increasing to reach a record high in 2000. After that, inflows decreased in order to jump again to higher levels in 2004, when Poland entered the EU.

Table 12 shows which industries receive the biggest share of these investments. Most (40%) of FDI goes into manufacturing. This means that it will also generate additional demand for national and international distribution of the manufactured goods. Invest-

ment in the retail and transport sectors, which are engaged in the distribution of these goods is also significant, receiving 12 and 10% respectively.

Figure 41: FDI Inflows into Poland from 1990 Until 2006

Source of Data: EIU (2006a)

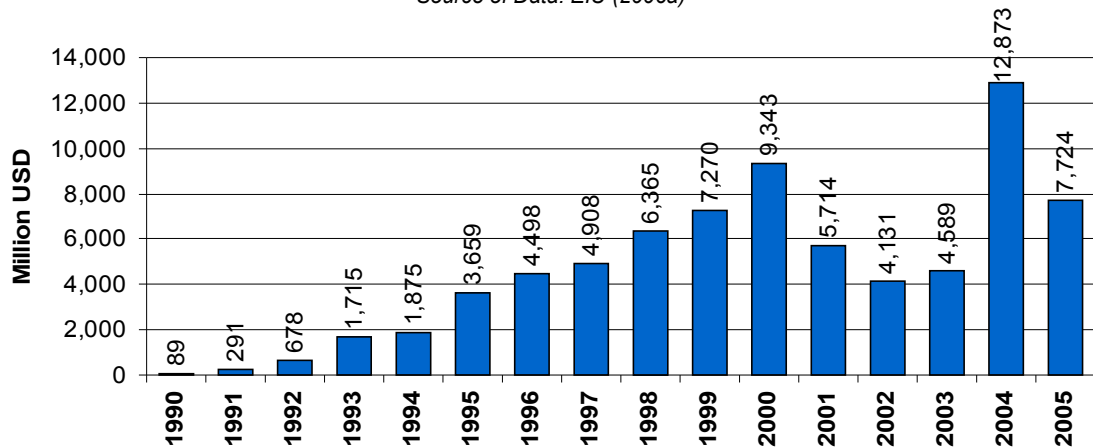


Table 12: Accumulated FDI in Poland by Industry in 2003

FDI Accumulated Value According to European Classification of Activities (ECA, this is based on the NACE Classification, which is the French abbreviation for International Standard Industrial Classification of all Economic Activities): Source of data: PALIIZ (2005), p.6

#	NACE Category	Cumulated FDI (in m USD)	%
1	Manufacturing	27,777	40.0%
2	Financial intermediation	16,191	23.3%
3	Trade and repairs	8,127	11.7%
4	Transport, storage and communication	7,089	10.2%
5	Construction	2,939	4.2%
6	Power, gas and water supply	2,566	3.7%
7	Community, social and personal services	2,061	3.0%
8	Real estate and business activities	1,571	2.3%
9	Hotels and restaurants	847	1.2%
10	Quarrying and mining	225	0.3%
11	Agriculture	50	0.1%
	Total	69,441	100.0%

4.3 The Retail and Wholesale Market

The development of the retail and wholesale market in Poland reflects the continuous change from a centrally planned economy to a market economy.

In the centrally planned economy almost 100% of trade was managed through public organizations. In the first half of the 1990s the number of private retailers grew rapidly

to about 430,000 private retailers. The fact that these retailers were independent from each other, led to inefficient distribution structures with high delivery cycles, high stock levels and low quality of customer service. This changed slowly with the international companies entering the market, building their own distribution channels with modern distribution centers and advanced distribution management methods.¹⁶⁶

4.3.1 Past Development of the Retail and Wholesale Market

The development of the wholesale market can be divided into 3 phases:¹⁶⁷

1990-1995: In this phase the wholesalers dominated the market for mass consumer goods. They were mainly family owned businesses and enjoyed high margins. The number of wholesale outlets was developing rapidly because the big number of independent retailers required this.

In this phase about 95% of turnover was made through the independent retailers, while hypermarkets, discounters and supermarkets¹⁶⁸ generated a meager 5% of turnover.

The strategy of manufacturers in this phase was to sell to preferred wholesalers.

1996-2000: In the second phase the competition from retail networks emerged. Although the wholesalers were still the strongest element of the distribution channel, a process of consolidation was going on in this industry. Horizontal integration was taking place among the wholesalers and vertical integration among wholesalers and independent retailers.

The number and turnover of independent retailers was shrinking continuously. By the year 2000 30% of revenues were already made by modern retailers (Table 13).

Manufacturers showed big interest in selling to wholesalers with capital connections to retailers. They worked closer together with preferred or exclusive wholesalers. In addition, they also started establishing direct connections with retail chains or cash and carry wholesalers.

2001-2005: During these years the trend of the previous phase continued. The wholesale industry undergoes further consolidation because manufacturers prefer to sell to a reduced number of wholesalers or directly to retail chains. In addition, there is strong price competition from the hypermarkets.

In this phase an additional player emerges: Now the logistics operators start to take over the functions of the wholesalers.

Table 13: Market Share of Modern Retailers (Retail Chains, Supermarkets, Hypermarkets)

Source of data: GfK Polonia (2004), quoted in Rutkowski (2005), p.51

Year	% of Revenues
1998	16
1999	22
2000	26
2001	29
2002	32
2003	36-38
2005	40-42
2008-2010	50

¹⁶⁶ see Rutkowski (2005), p.43-54

¹⁶⁷ see Rutkowski (2005), p.43-54

¹⁶⁸ For definition of hypermarket, discounter and supermarket see chapter 2.3.3.2.2 on page 19.

The independent retailers are integrated by wholesalers and the importance of modern retail outlets is increasing. By the end of 2005 about 40% of revenues were generated by modern retailers who now dominate the distribution channel.

The big changes in the distribution channel, led to the following concept of manufacturers:¹⁶⁹

- Strategic concept:
 - Concentration on key accounts.
 - Better cooperation with a selected group of wholesalers which includes the provision of consulting, training and financing.
 - Improved service quality offered to retailers.
- Tactical concept:
 - Segmentation of retailers according to their potential (ABC).
 - Regular cooperation with class A retailers (20% of clients realize 50% of sales)
- Organizational concept:
 - Hybrid distribution model: Sales to wholesalers and retail chains.
 - Development of strategy and tactics on regional level.

4.3.2 Current and Future Development of the Retail Market

The past developments led to a new picture of the retail market. But the process of transformation is still going on. Figure 42 shows the number of outlets split by the various distribution channels for the year 2004. The 393,000 outlets are split into five groups. It includes a relatively large group of other outlets, which are not further defined. The two groups of bazaars and pharmacies/drugstores play a minor role. The two remaining groups are the alternative channels and the grocery stores.

Alternative channels include kiosks, convenience stores¹⁷⁰ and the gastronomy. Polish kiosks do not sell only normal kiosk ranges like newspapers, tobacco products and confectionery, but also a range of health & beauty items which belong to the FMCG sector. Close to half of the kiosk market is controlled by the state owned company Ruch with operates 13,000 kiosk outlets.¹⁷¹

Finally there is the big number of grocery stores, which is again split into two sub-groups. By far the biggest group is still the traditional distribution channel, which counted 135,300 outlets in 2003, while the modern distribution channel contained a meager 2,557 outlets.

The total number of retail outlets is generally decreasing. This is mainly caused by the decrease in the relatively big number of small outlets. Of these only the number of gas stations grew between 2003 and 2004, while the small and specialist groceries, kiosks, hotels, restaurants, cafés, and pharmacies decreased in numbers. The outlets belong-

¹⁶⁹ see Rutkowski (2005), p.43-54

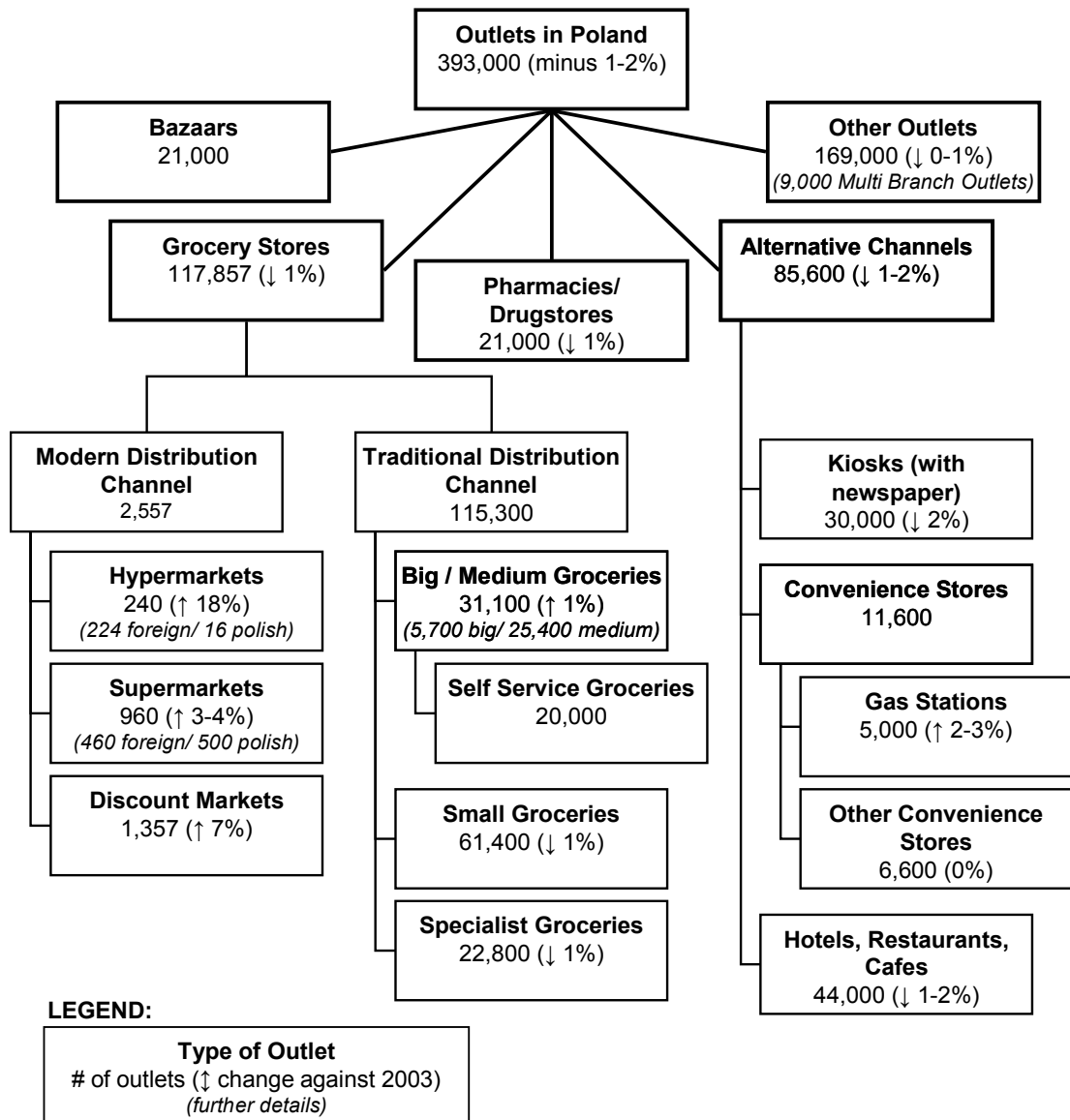
¹⁷⁰ For definition of convenience store see chapter 2.3.3.2.2 on page 19.

¹⁷¹ see PwC (2004), p.116

ing to the modern distribution channel, in contrast, show high growth rates with the highest growth rates prevailing in the hypermarket sector.

Figure 42: Retail Outlets in Poland 2004

Based on: GfK Polonia (2005), quote in Rutkowski (2005), p.49f



However, the decrease in the number of the smaller outlets is relatively small. This leads to the conclusion that the growth of the modern distribution channels is mainly based on the growth of the total FMCG market. Several figures suggest that this might change in the future:¹⁷²

- Hypermarket penetration, for example, is only half of the EU 15 average. This means that growth of the hypermarket sector can be expected to continue.

¹⁷² see Pasek (2006)

- The Polish retail market is not very concentrated in comparison to other countries. The top 10 Retailers in Poland own only 24% of the market, compared with 87% in France, 61% in Czech Republic, and 39% in Slovakia. Should the Polish market follow the international trend this would mean that many small retailers might get crowded out.
- Currently about 80% of hypermarkets and 50% of supermarkets are located in cities with more than 50,000 people. A forecast from PricewaterhouseCoopers says that future investments will mainly target smaller cities. This could bring direct competition for small retailers in these places.

On the other hand, political regulations might change if the ideas of some parties are realized. Suggested are a restriction on Sunday trading for bigger shops and a ban of supermarkets bigger than 1,000 sqm in cities with less than 50,000 inhabitants. This, however, might not keep the biggest players from expanding. Instead, they might just open smaller outlets and therefore create direct competition for the traditional retailers. Moreover, according to some opinions, such legislation is unconstitutional.¹⁷³

Whatever the future legislation might look like, the development of the modern retail sector will go on, and in the long term, the expansion of the modern retail sector into smaller cities might mean that many of the small shops from the traditional chain are either taken over or forced to close. The further consequence of that would be that wholesalers lose many of their customers.

The following will analyze the dynamic development in the modern retail channel in more detail. The highest growth rate can be observed in the hypermarket sector. Here the great majority is run by foreign operators. Figure 43 shows the development of the biggest hypermarkets between 2000 and 2006. The biggest chain by number of outlets is Kaufland with 83 hypermarkets. However, Real is outperforming all other chains, when it comes to sales. With 30 outlets Real is generating 11,700 million PLN in sales, twice as much as Tesco, the number 2 in the ranking (Table 14).

¹⁷³ see Pasek (2006)

Figure 43: Development of the Biggest Hypermarket Operators in Poland Between 2000 and 2006

Based on: Supermarket News (2006) (Total Number of Outlets for 2001 was showing discrepancies with drawing and were therefore corrected)

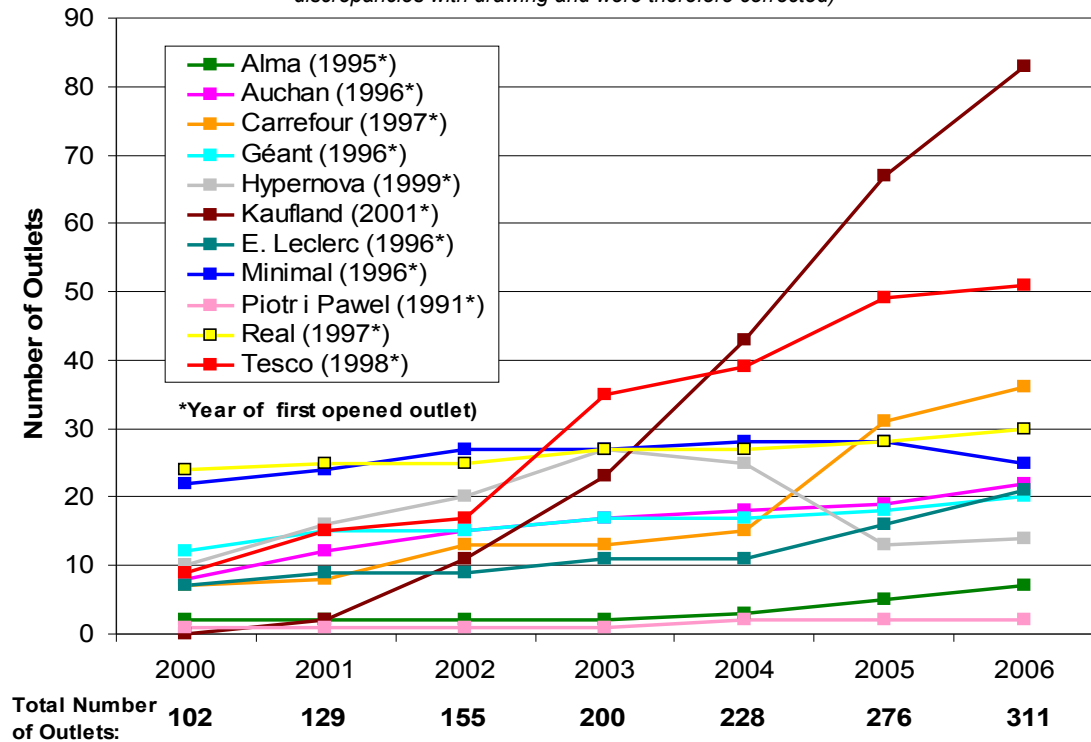


Table 14: Biggest Hypermarket Operators in Poland in 2005

Source of data: Supermarket News (2006)
Polish Companies marked with *

Name of Chain	Name of Operator (other chains owned by the same operator)	# of Outlets	Sales in 2005 (in million PLN)
Real	Metro Group (Real, Makro, Media Markt, Saturn)	30	11,700
Tesco	Tesco Polska (Tesco, Savia)	51	5,348
Carrefour	Carrefour Polska (Carrefour, Champion, Globi)	34	4,700
Auchan	Auchan Polska	21	4,180
Géant	Grupa Casino (Géant, Leader Price)	19	3,625
Hypernova	Ahold Polska (Hypernova, Albert)	14	3,050
E. Leclerc	Grupa E.Leclerc (E.Leclerc)	20	1,800
Kaufland	Kaufland Polska	83	1,800 (estimate)
Piotr i Paweł*	Piotra i Paweł	2	700
MiniMal	MiniMal	25	535
Alma*	Alma Market	7	373
Total		305	34,761

The discount market gives a similar picture. Here in fact all of the biggest chains are run by foreign operators, with Biedronka being the clear market leader, when ranked by number of outlets (Table 15). PricewaterhouseCoopers estimates that the discounters have good possibilities for expansion into smaller towns, where incomes are lower and consumers are therefore more price conscious.¹⁷⁴

Table 15: Biggest Discount Chains in Poland

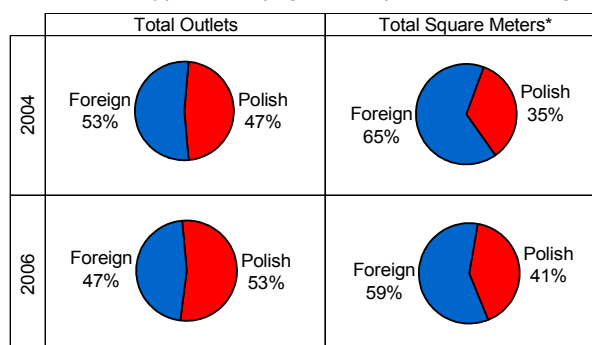
Source of data: Company Homepages, www.tradepress.com.pl, www.detaldzisiaj.com.pl, PwC (2004), p.115

Name of Chain	Name of Operator	Country of Operator	# of Outlets September 2006	Sales in 2004
Biedronka	Jeronimo Martins Dystrybucja S.A.	Portugal	820	4,730
Leader Price	Casino	France	206	n/a
Plus	Tengelmann	Germany	150	n/a
Netto	A.P. Møller - Mærsk A/S	Denmark	109	n/a
Lidl	Schwarz Group	Germany	70	n/a
Total			1355	n/a

In the supermarket sector the situation looks quite different. Here the local Polish operators have a strong foothold. The local chain Polomarket and the foreign chain Albert lead the ranking with 177 outlets each (see Table 20 in Appendix on page 81). Polish chains are operating 543 supermarket outlets, which represents more than 53% of the total. And Figure 44 shows that since 2004 the Polish operators have gained in market share. However, when measured by the total amount of square meters, the foreign operators have a bigger share, which can be attributed to the fact that foreign companies operate bigger stores.

Figure 44: Supermarkets: Foreign and Polish Market Shares by Outlets and Square Meters

Based on Table 20 in Appendix on page 81; * sqm based on average shop size



The above analysis shows that the modern retail sector is mainly controlled by foreign operators. This is especially true for the hypermarket and the discount sectors, which also show the highest growth rates. This means that foreign operators will play an increasingly important role in retailing in the future.

¹⁷⁴ see PwC (2004), p.115

4.3.3 Current Developments in the Wholesale Market

As in the past, the wholesale market is undergoing further concentration. Table 21 (see Appendix on page 82) shows the ranking of 25 wholesalers operating in the Polish market. For 22 of these the turnover figures for 2004 and 2005 are available. Total turnover of the eleven biggest wholesalers increased by 11%, while the 11 smaller companies lost 6%. For 2005, the top 20% of companies in this ranking generated 55% of sales while the bottom 48% of companies earned only 18% of the total.

The total turnover, however, is increasing. The average growth of turnover in the FMCG sector was 6.9% between 2004 and 2005, with biggest growth in the tobacco sector (13.2%).¹⁷⁵ Groceries, in contrast, grew by 6.7%. The drinks sector (alcoholic and nonalcoholic) as well as cosmetics and pharmaceutical market increased by only 3.8%.¹⁷⁶

According to Table 21 (see Appendix on page 82), the total wholesale market grew by 9% between 2004 and 2005. Should the growth of the modern retail sector take market share from the traditional retailers, this could cause a shrinking market for wholesalers, because big retailers might buy directly from manufacturers. Such a development could be enforced by 3PL providers, taking over functions from wholesalers.

4.4 Outsourcing Market and 3PL Players

4.4.1 General Aspects of Outsourcing in Poland

With the changes taking place in the retail and wholesale industry, 3PL service providers play an increasingly important role in the distribution of goods. They will take over part of the distribution function, as manufacturers and retailers start outsourcing their logistic operations.

In addition, the further increase in consumption will create even more demand for the distribution of goods. Consequently, the whole market for distribution logistics is growing which again means more business opportunities for 3PLs.

Consequently, 3PLs might profit from a growing market share in a growing market. However, data on the 3PL market in Poland is scarce. Still the following will try to analyze the market by looking at two different aspects:

- Based on statistics from different sources, the size of the market is estimated. However, statistics are only available for the whole contract logistics market. An estimation of the market for distribution logistics can only be done based on the split available for Western Europe.
- The second part gives an overview of the 3PL companies active in the Polish market. But they are also active in areas other than distribution logistics and again, a split of data is not available.

¹⁷⁵ The growth of the tobacco market is mainly due to increases in excise tax. see chapter on page

¹⁷⁶ see Detal Działaj (2006)

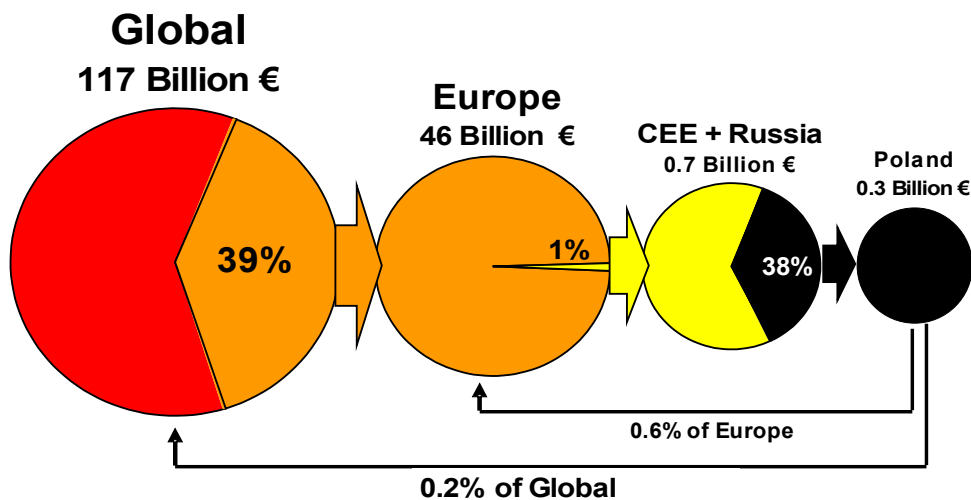
4.4.2 Size and Potential of the Outsourcing Market

In order to give an overview, the market volume for Poland is analyzed. Market estimations of the Polish market are not very detailed and data for the outsourcing market on a global, as well as on a regional level, varies from source to source. This is why the Polish market is first analyzed in a global context, showing the importance of this regional market in comparison to the global market.

Figure 45 represents data from Transport Intelligence about the market volume of contract logistics, based on revenues from logistics companies in 2005. According to these statistics, the global market for contract logistics amounted to 117 billion EUR, of which about 40% of revenues are generated in Europe. The market in Europe amounts to 46 billion EUR. The CEE market accounts for a meager 1% of the revenues generated in Europe. And although the Polish market makes up for 38% of the CEE region, it represents only 0.6% of the European and 0.2% of the global market.

Figure 45: Contract Logistics Market 2005: Global, Europe, CEE and Poland

Source of data: Transport Intelligence (2006), p.22; Transport Intelligence (2004), p.36/61



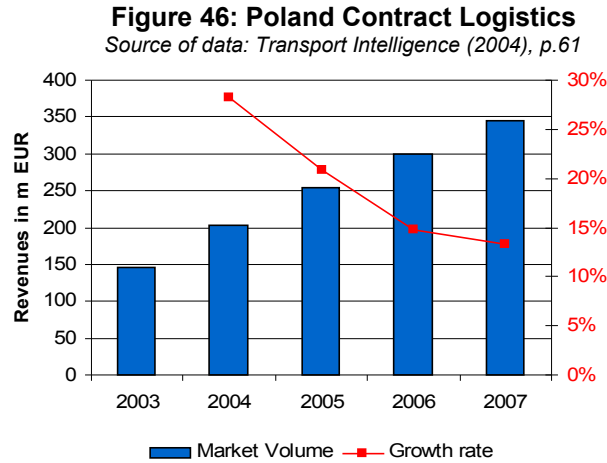
It must be noted though, that these figures are not exactly matched by other statistics. Datamonitor, for example, estimates the total market volume at 222 billion USD (about 186 billion EUR¹⁷⁷) and attributes 3% (5.6 billion EUR) of this to CEE and Russia.¹⁷⁸ An analysis by Deutsche Post World Net estimates the global market volume higher, at 146 billion EUR for 2002 and 206 billion for 2007. Therefore, the market for 2005 might be somewhere in the middle, close to the figure provided by Datamonitor. Deutsche Post World Net further estimates that the European market in 2007 will be at 74 billion EUR, of which 4 billion EUR (3.4%) are attributed to Eastern Europe and Russia.¹⁷⁹ Figure 46 displays again the estimates for the Polish contract logistics market by

¹⁷⁷ Exchange rate from 31st of December 2005 taken from www.economist.com: 1 USD = 0.84 EUR

¹⁷⁸ Datamonitor (2006), p.9

¹⁷⁹ DPWN (2006), p.69/70/75

Transport Intelligence between 2003 and 2007. It shows that the market is growing continuously. However, growth rates are shrinking at the same time.



Although figures vary, they all show that the market for contract logistics in the CEE region as well as in Poland is still very small. However, further statistics as well as opinions project future growth to be above European average in this area.

Figure 47 shows that logistics spending as well as outsourcing of logistics is increasing in Europe and Eastern Europe. In both areas the spending on outsourced logistics is increasing faster than on in-house logistics. Consequently, penetration of outsourcing (spending on outsourcing as a percentage of total logistics spending) is growing as well.

The figure also demonstrates that growth potential in Eastern Europe is bigger than in total Europe. First, the annual growth rate for outsourced logistics spending in Eastern Europe is with 12.5% twice as high as in total Europe. Second, the market penetration of 16% in 2007 is still far below the European average of 24%, which shows room for further growth.

Figure 47: Contract Logistics in Europe and Eastern Europe: Growth and Penetration (Figures in Billion EUR)
 Based on: *DPWN (2006), p.70*

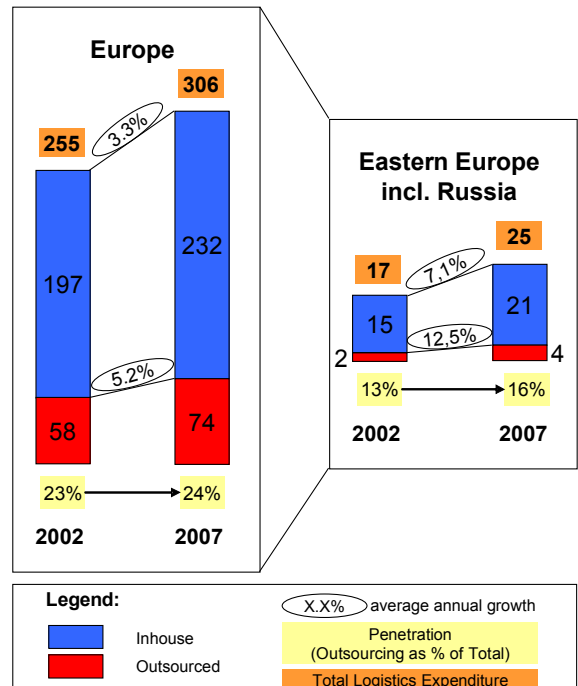


Figure 48 shows the results of a survey among several professionals with knowledge of the 3PL market. According to this survey, Eastern Europe and Russia are ranked third and fourth regarding their growth potential in 2006.

These developments in Eastern Europe reflect the economic growth and the increasing awareness of the advantages of outsourcing in these regions.

Detailed data on the Polish market is not available. Concerning growth potential it can only be assumed that it is similar to the rest of Eastern Europe.

The market for contract logistics, presented so far, is not solely covering distribution activities. Data on the exact source of revenues is not available for Eastern Europe and Poland. It can only be assumed that the revenue split is similar to that of the whole of Europe, which is shown in Figure 49. Only in the case of the retail industry, can the total revenues be attributed to distribution outsourcing. All other industries are manufacturers, who might also outsource inbound logistics, for example.

However, a global survey among 3PL users suggests that outbound transportation is the most frequently outsourced activity.¹⁸⁰ Hence also a great part of the spending of the other industries is attributable to distribution.

For Eastern Europe and Poland, these figures might be different. The tendency should be the same, though, meaning that distribution logistics represents an important source of income for 3PLs.

Figure 48: Rating of World's Regions by Growth Potential of 3PL Market in 2006

Source: eyefortransport (2006), p.7
Survey among consultants, warehouse operators, 3PL / logistics providers, manufacturers, retailers, technology providers, freight forwarders, ocean carriers and road carriers

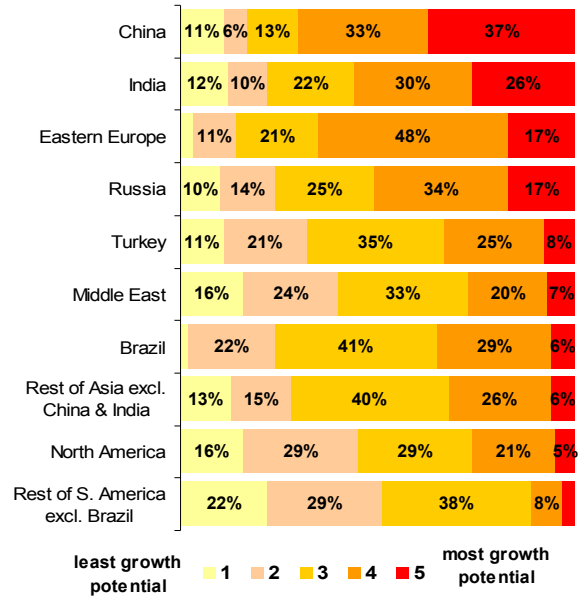
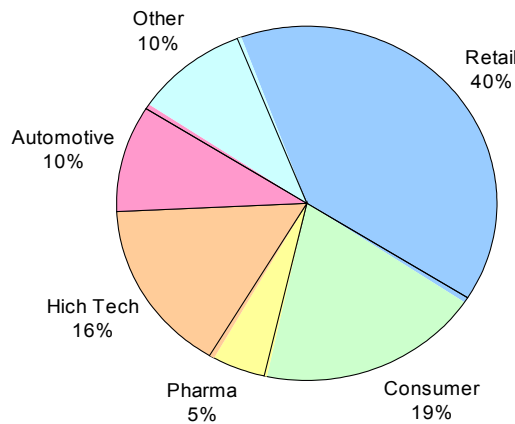


Figure 49: Split of European Contract Logistics Market by Industry (2004)

Source of data: DPWN (2006), p.75



¹⁸⁰ Langley et al. (2005), p.13

4.4.3 The Biggest 3PL Providers in Poland

The market size for contract logistics was already analyzed. The companies operating in this market are shown in Table 16 and 17. The first table shows a ranking of the biggest companies by their revenues generated from contract logistics, published by the business newspaper *Rzeczpospolita*. This ranking is not complete however, and might give a wrong picture of the competitors. First, the participation in this ranking is voluntary. This is why some big companies are not included. A further problem is that data regarding sales revenues are based on voluntary disclosure by companies. Some companies might want to be perceived as something other than what they are, in order to expand into new markets. Consequently, they attribute a bigger share of revenues to a certain market segment (e.g. contract logistics).

This is why Schenker, for example, is not included in Table 17, which is based on the estimates of Grzegorz Skalski, Business Development Manager of DHL Exel Supply Chain Poland.¹⁸¹ In his opinion, the main income of Schenker is coming from its logistics network, consisting of cross dock operations, but not from contract logistics. Fresh Logistics is in fact part of Grupa Raben and should therefore be included in this company. On the other hand he adds FM Logistics, Fiege, DHL Exel Supply Chain, Gefco, Kuehne + Nagel, and Rohlig. He estimates that the three biggest providers are FM Logistics, Grupa Raben and Wincanton. Gefco has only contracts with the automobile industry in Poland and is consequently not operating in the FMCG market.¹⁸²

The rankings again show the importance of foreign investors. All the listed companies are at least partly funded by foreign investors.¹⁸³ However, for the most part, it is not

Table 16: Ranking of 3PL Providers in Poland 1

Based on: Rzeczpospolita (2006)

#	Company Name	Revenues from Logistics Services in 1,000 PLN
1	Schenker Sp. z o.o.	722 151 (728,702)
2	Grupa Raben	676,257 (676,257)
3	Wincanton Trans European Polska Sp. z o.o.	188,000 (189,000)
4	Hellmann Worldwide Logistics Sp. z o.o.	98,481 (98,481)
5	Fresh Logistics Sp. z o.o.	96,482 (96,482)
6	Univeg Group of Companies	91,300 (129,630)
7	Rhenus Fastrack S.A.	39,600 (45,300)
8	Spedimex Sp. z o.o.	26,806 (26,806)

Table 17: Ranking of 3PL Providers in Poland 2

Based on: Expert Talks Skalski (2006)

Rank by Turnover (estimated)	Company Name
1	FM Logistics
2	Grupa Raben
3	Wincanton Trans European Polska
-	FIEGE
-	DHL Exel Supply Chain
-	Gefco
-	Kuehne + Nagel
-	Rohlig Poland

¹⁸¹ see Expert Talks Skalski (2006)

¹⁸² Information taken from company home pages and Expert Talks Skalski (2006).

¹⁸³ Information taken from *Rzeczpospolita* (2006) and company home pages.

possible to get a clear picture of their main source of income. Also, estimates about future developments can not be made from these rankings.

5 CASE STUDY: DISTRIBUTION STRATEGY OF A TOBACCO MANUFACTURER (EXCLUDED IN THIS VERSION)

6 CONCLUSION

The overall conclusion of this work is, that distribution logistics is strongly affected by the development of the Polish economy and Polish EU membership. The consequences can be seen in the changing conditions for distribution logistics as well as changing distribution channel structures and strategies.

The research on the Polish economy shows that the whole system has changed considerably since the fall of communism and is still under transformation. Entrance into the European Union especially has had a great impact, bringing several changes. The growth of the economy increases consumer demand for fast moving consumer goods (FMCG) which in consequence increases the demand for distribution of these goods. The membership in the European Union which also contributes to the economic development of the country brings stronger integration in international trade. This and the movement of manufacturing plants from Western Europe to Poland drives the demand for international distribution from Poland.

This work shows that conditions for distribution operations in Poland are on the one hand good, because operation costs are low and warehouse space is cheap and sufficient in supply. On the other hand, the slow development of the road infrastructure causes major problems. In addition, Poland is facing a labor shortage for certain professions like truck drivers. Burdensome bureaucracy, an inefficient legal system and a complicated tax system also pose difficulties for companies operating there. Regarding international distribution Poland's advantage lies in the central location in Eastern Europe. However, due to the mentioned problems it falls back in rankings regarding the attractiveness for European distribution centers.

In the future the country might profit from joining the Euro zone, further EU extension and further growth of consumption. These advantages, however, might be diminished by delays during development of transport infrastructure combined with rapid traffic growth, a labor exodus followed by an increase of labor costs and an overall slow reform process regarding the country's bureaucracy.

The work further shows that significant changes are also going on in the distribution channel. While the traditional outlets from independent retailers are slowly losing importance, the group of modern outlets, consisting of hypermarkets, supermarkets and discount stores, is growing rapidly. The market for modern outlets is dominated by foreign investors. The growth of modern outlets is currently mainly based on the growing consumer market and not so much on a process of crowding out independent retailers. In the future discounters might be in a good position to substitute the small retailers predominating in smaller towns, where supermarkets have less market share. These changes in the retail market influence the distribution strategies of manufacturers. They, for example, try to avoid the wholesaler by selling directly to retailers. Furthermore outsourcing of distribution operations to 3PL providers is practiced more and more.

The case study shows some interesting aspects of the strategy of a Polish tobacco manufacturer. However, the distribution strategies prevailing in other industries could be of interest as well. Therefore, the author tried to gather more data, by means of a survey. However, due to the concern regarding data confidentiality of many companies, it was not possible to get sufficient responses. In this area, some further research could provide more details on the strategies of producers.

7 ABSTRACT IN ENGLISH

This work analyzes the current situation of distribution logistics in Poland and tries to anticipate future developments in this area. It demonstrates, how the current economic growth and EU membership of Poland since 2004 influences these developments. The focus is on availability of infrastructure, cost of operations, the European distribution structure and distribution channel structures.

The research shows that conditions for distribution operations in Poland are on the one hand good, because operation costs are low and warehouse space is cheap and sufficient in supply. On the other hand, the slow development of the road infrastructure and other issues cause major problems. However, the growing Polish market, as well as the central location within Europe, shows that demand for distribution capacities in Poland exists.

The work further shows the changes in the distribution channel. While the traditional outlets from independent retailers is slowly losing importance, the group of modern outlets, consisting of hypermarkets, supermarkets and discount stores, is growing rapidly. Here the dominant companies are foreign investors. These changes in the retail market influence the distribution strategies of manufacturers. They for example try to avoid wholesalers by selling directly to retailers. Furthermore, outsourcing of distribution operations to 3PL providers is practiced more and more.

8 ABSTRACT IN GERMAN

Diese Arbeit analysiert die derzeitige Situation der Distributionslogistik in Polen und versucht, die zukünftige Entwicklung auf diesem Gebiet einzuschätzen. Es wird gezeigt, wie sich das derzeitige wirtschaftliche Wachstum und die EU Mitgliedschaft seit 2004 auf diese Entwicklung auswirken. Der Fokus liegt dabei auf der Verfügbarkeit von Infrastruktur, den Betriebskosten, der europäischen Distributionsstruktur und den Veränderungen in der Struktur der Distributionskanäle.

Die Untersuchungen zeigen, dass die Bedingungen für den Betrieb von Distributionsleistungen in Polen teilweise sehr gut sind. Die Betriebskosten sind niedrig, der Lagerraum ist günstig und das Angebot an Lagerfläche ist ausreichend. Dem steht unter anderem die langsame Entwicklung der Straßeninfrastruktur gegenüber. Der wachsende Markt für Konsumgüter in Polen, aber auch die zentrale Position in Europa zeigen jedoch, dass Nachfrage für Distributionskapazitäten vorhanden wäre.

Die Arbeit zeigt weiter die Veränderungen im Distributionskanal. Während die traditionellen Outlets von unabhängigen Einzelhändlern langsam an Bedeutung verlieren, wächst die Gruppe von modernen Outlets, bestehend aus Hypermärkten, Supermärkten und Discountern, sehr rasch. In diesem modernen Sektor herrschen ausländische Ketten vor. Die Veränderungen im Einzelhandel haben auch Auswirkungen auf die Distributionsstrategien von Produzenten. Sie versuchen beispielsweise Großhändler zu vermeiden, indem sie die zentralen Distributionslager der großen Einzelhandelsketten beliefern. Aber auch das Outsourcing des Distributionsbetriebes zu 3PL Dienstleistern wird immer öfter praktiziert.

BIBLIOGRAPHY

- Baumgartner/Darkow/Zadek (2004):** Supply Chain Steuerung und Services: Logistik-Dienstleister managen globale Netzwerke – Best Practices, Berlin/Heidelberg 2004
- Burridge (2005):** Burridge, E.: Exel takeover pact agreed, in: European Chemical News, Vol. 83, September/October 2005, p. 14
- Coia (2002):** Coia, A.: A new market emerges for Europe, in: Logistics Management and Distribution Report, Vol. 41, February 2002, p. E3-E7
- Colliers (2005):** Colliers International: Colliers Real Estate Review 2005 Poland, Warsaw 2005
- Colliers (2006):** Colliers International: Central & East Europe Real Estate Review, Warsaw 2006
- Cushman & Wakefield (2006a):** Cushman & Wakefield: Market Watch, Industrial Market Poland 2005, Warsaw 2006
- Cushman & Wakefield (2006b):** Cushman & Wakefield: European Distribution Report 2006, London 2006
- Cushman & Wakefield (2006c):** Cushman & Wakefield: Central European Industrial Market Report 2006/2007, Paris 2006
- Datamonitor (2006):** Datamonitor Europe: Logistics Global Outlook 2006, London 2006
- Davis (2004):** Davies, N.: Złote Ogniwa, Warsaw 2004
- Detal Dzisiaj (2006):** Detal Dzisiaj: Handel hurtowy - Ucieczka w koncentrację, in: <http://www.detaldzisiaj.com.pl/default.asp?show=page&id=9008> (10-09-2006)
- DPWN (2006):** Deutsche Post World Net: Economic Data Pack 2007 – 2009, Bonn 2006
- DTZ (2004):** DTZ Holdings plc: Logistics Market Survey Poland, Warsaw 2004
- DTZ (2006a):** DTZ Holdings plc: Industrial & Logistics Market Update 2005 Poland, Warsaw 2006
- DTZ (2006b):** DTZ Holdings plc: Industrial & Logistics Market Update Poland, Warsaw 2006
- DTZ (2006c):** DTZ Holdings plc: Warehouse Classification for Internal Use, received by Email on request.
- Duijvendijk et al. (2003):** Duijvendijk, P.T./Hitema, F.W./Lenders R.J.G.M./Pronk, D.G.J./Plante, M.C.: EU Enlargement: European Distribution Centers on the move?, Utrecht 2003

- Economist (2003):** The Economist: Europe: A bad patch; Poland's government, in: The Economist, Vol.366, 1 May 2003 p. 35
- Economist (2006):** The Economist: Cheer up, Survey: Poland, in: The Economist, 11 May 2006
- EIU (2005):** Economist Intelligence Unit: At a crossroads in: Business Europe, Vol. 45, 1-15 October 2005, p. 8
- EIU (2006a):** Economist Intelligence Unit, database request, in: www.eiu.com (30-06-2006)
- EIU (2006b):** EIU ViewsWire: Poland: Population, 13 July 2006, New York 2006
- EIU (2006c):** EIU ViewsWire: Poland economy: So much to do, 12 May 2006, New York 2006
- EIU (2006d):** EIU ViewsWire: Poland politics: Twin trouble, 10 July 2006, New York 2006
- EIU (2006e):** EIU ViewsWire: Poland economy: Poland set to start talks in 2009 on joining eurozone, 16 May 2006, New York 2006
- EU (2006):** European Union: Waste electrical and electronic equipment, in: <http://europa.eu/scadplus/leg/en/lvb/l21210.htm> (18-07-2006)
- Euromonitor (2005):** Euromonitor Plc: Tobacco in Poland, London 2005
- European Commission (2006):** European Commission: Trans-European Network Outline Plan (2020 horizon), in: http://ec.europa.eu/ten/transport/maps/doc/schema/road/2004_guidelines_roads_eu_en.pdf
- Eurostat (2006):** Statistical Office of the European Communities (Eurostat): Database request for indicator "DEMO_PJAN", Population by sex and age on 1. January 2005 (10-08-2006)
- eyefortransport (2006):** FC Group/eyefortransport: The European 3PL Market, A brief analysis of eyefortransport's recent survey, London 2006
- gazeta.pl (2006):** gazeta.pl: Tylko sześć kilometrów autostrad w 2007 roku, in: <http://auto.gazeta.pl/auto/1,48316,3578233.html?skad=rss> (30-09-2006)
- GDDKiA (2005):** Generalna Dyrekcja Dróg Krajowych i Autostrad: Harmonogram budowy autostrad i dróg ekspresowych na lata 2007-2013, Warsaw 2005
- GDDKiA (2006a):** Generalna Dyrekcja Dróg Krajowych i Autostrad: without title, in: <http://www.gddkia.gov.pl/viewattach.php/id/b2dea1a0a707dc12499846bb8fc57b6a> (30-09-2006)

- GDDKiA (2006b):** Generalna Dyrekcja Dróg Krajowych i Autostrad: Zasady Prognozowania Ruchu Drogowego, in:
<http://www.gddkia.gov.pl/viewattach.php/id/b38d7f76afca1617dbb785cfd286943>
(30-09-2006)
- GDDKiA (2006c):** Generalna Dyrekcja Dróg Krajowych i Autostrad: Raport o stanie technicznym nawierzchni sieci dróg krajowych na koniec 2005 rok, Warsaw 2006
- GDDKiA (2006d):** Generalna Dyrekcja Dróg Krajowych i Autostrad: Docelowy układ autostrad, in:
http://www.gddkia.gov.pl/article/informacje/aktualnosci/article.php/id_item_tree/5b17b92ffc316ed672bcd5a223c53944/id_art/fd2caf3ec8fe2191ec8d8ba63b1dd033
(30-09-2006)
- GDDKiA (2006e):** Generalna Dyrekcja Dróg Krajowych i Autostrad: Docelowy układ autostrad, in:
http://www.gddkia.gov.pl/article/oddzialy/gddkia_poznan/informacje/aktualnosci/article.php/id_item_tree/0063e6c2aaa93d972e30597914ba04cb/id_art/5f1b0dc847e735b15040e3a610a2f894 (30-09-2006)
- GDDKiA (2006f):** Generalna Dyrekcja Dróg Krajowych i Autostrad: Zasady Prognozowania Ruchu Drogowego, in:
<http://www.gddkia.gov.pl/viewattach.php/id/b38d7f76afca1617dbb785cfd286943>
(30-09-2006)
- GfK Polonia (2004):** Raport strategiczny. Dystrybucja FMCG w Polsce, 2004
- GfK Polonia (2005):** GfK Polonia: Rynek sieci detalicznych w Polsce, Warsaw 2005
- Gleißner (2000):** Gleißner, H.: Logistikkoperation zwischen Industrie und Handel, Göttingen 2000
- GUS (2006a):** Główny Urząd Statystyczny w Warszawie: Mały Ruchnik Statystyczny Polski 2006, Warsaw 2006
- GUS (2006b):** Główny Urząd Statystyczny w Warszawie: Obroty handlu zagranicznego ogółem i według krajów I - XII 2005 r., in: http://www.stat.gov.pl/dane_spolgosp/ceny_handel_uslugi/obroty_handl_zagr/2006/01-12_2005.htm (20-07-2006)
- Hoffman (2005):** Hoffman, W.: Is Bigger Better?, in: Traffic World, 10 October 2005, p 1
- Hospers (2003):** Hospers, G.: Beyond the blue banana?: Structural change in Europe's geo-economy, in: Intereconomics, Vol. 38, March/April 2003, p. 76-86
- Huysmans et al. (2003):** Huysmans, E./Peeters, D./Albrecht, D./Thill, M./Van Gorp, N.: Mastering the Challenges in the Supply Chain: Trends and Visions for European Logistics, October 2003

- King Sturge (2006):** King Sturge LLP: Global Industrial and Office Rents Survey, 4th Quarter 2005, London 2006
- Klein-Blenkers (1947):** Kleinblenkers, F.: Distribution, in: Tietz (1947): Tietz, B. (editor): Handwörterbuch der Absatzwirtschaft, Stuttgart 1974, Sp. 918-938
- Koschnick (1995):** Koschnick, W. J.: Encyclopedic dictionary marketing = Enzyklopädisches Wörterbuch Marketing, München 1995
- Kotler (2003):** Kotler, P.: Marketing Management, 11th Edition, New Jersey 2003
- KPMG (2006):** KPMG Sp. z o.o.: Why Poland? Strengths and weaknesses of running a business in Poland, from the perspective of foreign investors, Warsaw 2006
- Langley et al. (2005):** Langley, C. J./van Dort, E./Ang, A./Sykes, S. R.: 2005 Third-Party Logistics: Results and Findings of the 10th Annual Study, in: http://www.de.capgemini.com/m/de/tl/Third-Party_Logistics_2005.pdf (14-07-2005)
- Lenders (2005):** Lenders, R.: European DCs On The Move, in: World Trade, Vol. 18, November 2005, p. 22-25
- McCall (2005):** McCall, M.: Kuehne + Nagel Acquires Logistics Player, in: Tradeshow Week, .Vol. 35, 31 October 2005, p. T6
- Müller-Daupert (2005):** Müller-Daupert, B. (editor): Logistik Outsourcing, München 2005
- Neale (2005):** Neale, J.: Investor caravan heads eastwards, in: The Estates Gazette, 23 April 2005, p. 11-12
- Nielsen (2006):** AC Nielsen: in: <http://www.bat.com.pl> (09-09-2006)
- Nowlan (2004):** Nowlan, J.: The enemy of distribution?, in: Industrial Distribution, Vol. 93, October 2004, p. 53-55
- PAIilZ (2005):** Polish Information and Foreign Investment Agency: Poland in Brief, in: http://www.paiz.gov.pl/files/?id_plik=7174 (19-07-2006)
- PAIilZ (2006a):** Polish Information and Foreign Investment Agency: Why Poland?, in: <http://paiz.gov.pl/index/?id=14491b756b3a51daac41c24863285549> (20-07-2006)
- PAIilZ (2006b):** Polish Information and Foreign Investment Agency: Voivodships, in: <http://www.paiz.gov.pl/index/?id=6ee69d3769e832ec77c9584e0b7ba112> (18-08-2006)
- Pasek (2006):** Pasek, B.: Poland retail: Back to basics, in: EIU ViewsWire, 29 March 2006, New York 2006
- Perry (2006):** Perry, D.: Delivering the facts on EU distribution, in: Commercial Motor, Vol. 203, 13 April 2006, p. 31

- Pfeiffer/Bischof (1947):** Pfeiffer, W., Bischof, K.: Investitionsgüterabsatz, in: Tietz (1947): Tietz, B. (editor): Handwörterbuch der Absatzwirtschaft, Stuttgart 1974, Sp. 918-938
- Pfohl (2004a):** Pfohl, H.-C.: Logistiksysteme, 6th Edition, Heidelberg 2004
- Pfohl (2004b):** Pfohl, H.-C. (editor): Erfolgsfaktor Kooperation in der Logistik: Outsourcing – Beziehungsmanagement – Finanzielle Performance, Berlin 2004
- PwC (2004):** PricewaterhouseCoopers: 2004/2005 Global Retail & Consumer Study from Beijing to Budapest, 2004
- Quinn (2005):** Quinn, J. P.: Continental Drift: Warehousing Moves East in the New Europe, in : Logistics Management (2002), Vol. 44, March 2005, p. E63-64
- Ross (2004):** Ross D. F.: Distribution, planning and control: managing in the Era of Supply Chain Management, 2nd Edition Norwell 2004
- Rutkowski (2005):** Rutkowski, K.(editor): Logistyka Dystrybucji, Warsaw 2005
- Rzeczpospolita (2006):** Rzeczpospolita: Ranking firm TSL, in: LTS (Logistyka Transport Spedycja), 19 June 2006, p. 38-58
- Schäfer (1966):** Schäfer, E.: Grundlagen der Marktforschung, 4th Edition, Köln, Opladen 1966
- Sowinski (2003):** Sowinski, L.: The two faces of Eastern Europe, in World Trade, Vol 16, November 2003, p. 54
- Specht/Fritz (2005):** Specht G./Fritz, W.: Distributionsmanagement, 4th Edition, Stuttgart 2005
- Supermarket News (2006):** Gordon, B.: The Coming Wave of Supply Chain Convergence, in: Supermarket News, Vol. 13 (153), 03 August 2006
- Tierney (2005):** Tierney, S.: Second cities' strong attraction, in: Supply Chain Europe, Vol. 14, May/June 2006, p. 31-32
- Transport Intelligence (2004):** Transport Intelligence: Central and Eastern Europe Logistics Report, Cambridge 2004
- Transport Intelligence (2006):** Transport Intelligence: Global Contract Logistics 2006: Outsourcing and Collaboration, Cambridge 2006
- United Nations Statistical Division (2006):** United Nations Statistical Division: COICOP <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=5> (22-09-2006)
- Vitasek (2005):** Vitasek, K.: Supply Chain and Logistics Terms and Glossary, in: <http://www.cscmp.org/Downloads/Resources/glossary03.pdf> (10-07-2005), Bellevue, 2005
- Waters (2003):** Waters, D.: Logistics: an introduction to supply chain management, New York 2003

Weber/Kummer (1998): Weber, J./ Kummer, S.: Logistikmanagement, 2nd Edition, Stuttgart 1998

World Bank (2006): The World Bank Group: Doing Business in Poland, in: <http://www.doingbusiness.org/ExploreEconomies/Default.aspx?economyid=154> (29-08-2006)

Expert Talks:

Expert Talk Chazanow (2006): Adam Chazanow: Managing Director of DHL Exel Supply Chain Poland, on 11 September 2006

Expert Talks DHL (2006): Expert Talks with Managers at DHL Exel Supply Chain Poland, between 1. July and 30 October 2006

Expert Talk Krzciuk (2006): Marcin Krzciuk: Transport Manager at DHL Exel Supply Chain Poland, on 15 September 2006

Expert Talk Rutkowski (2006): Prof. Krzysztof Rutkowski: Kierownik Katedra Logistyki Professor Szkoła Główna Handlowa (Logistics Department at Warsaw School of Economics), on 7 July 2006

Expert Talks Skalski (2006): Grzegorz Skalski: Business Development Manager of DHL Exel Supply Chain Poland, between 1 September and 30. October 2006

APPENDIX

Table 18: Past Supply of Warehouse Space in sqm

*Based on iDTZ (2004) and DTZ (2006a), p.3
Project pipeline is based on plans of developers, with undefined time horizon.*

Region	End 2003	Completions 2004	End 2004	Completions 2005	End 2005
Zone 1 (In-Town, 0-15 km)	410,000	72,670	482,670	44,500	527,170
Zone 2 (City Fringe, 15-30 km)	290,000	46,560	336,560	69,000	405,560
Zone 3 (Outlying, 30-50 km)	400,000	28,730	428,730	134,150	562,880
Warsaw (All Zones)	1,100,000	147,960	1,247,960	247,650	1,495,610
Central Poland (Łódź)	91,730	0	91,730	41,440	133,170
Upper Silesia (Katowice)	83,500	0	83,500	66,600	150,100
Lower Silesia (Wrocław)	53,000	0	53,000	16,790	69,790
Poznań Region (Poznań)	50,000	27,510	77,510	45,900	123,410
Tricity Region (Gdańsk)	0	0	0	0	0
Total Other Regions	278,230	27,510	305,740	170,730	476,470
Total Poland	1,378,230	175,470	1,553,700	418,380	1,972,080

Table 19: Current and Future Supply of Warehouse Space in sqm

Based on information from DTZ (2006a), p.3 and DTZ (2006b), p.1

Region	Completions 1st Half 2006	End June 2006	Project Pipeline	Future (incl. Project Pipeline)
Zone 1 (In-Town, 0-15 km)	0	527,170	56,235	583,405
Zone 2 (City Fringe, 15-30 km)	10,995	416,555	102,905	519,460
Zone 3 (Outlying, 30-50 km)	28,400	591,280	597,100	1,188,380
Warsaw (All Zones)	39,395	1,535,005	756,240	2,291,245
Central Poland (Łódź)	21,000	154,170	1,453,830	1,608,000
Upper Silesia (Katowice)	90,500	240,600	331,270	571,870
Lower Silesia (Wrocław)	18,320	88,110	495,760	583,870
Poznań Region (Poznań)	21,795	145,205	445,675	590,880
Tricity Region (Gdańsk)	0	0	130,000	130,000
Total Other Regions	151,615	628,085	2,856,535	3,484,620
Total Poland	191,010	2,163,090	3,612,775	5,775,865

Table 20: Biggest Supermarket Chains in Poland Ranked by Number of Outlets*Based on List from Rutkowski (2005), p.52f (without Leaderprice, which is included in Discounters),**Updated based on Company Homepages*** Polish Companies; ** Figure from 2004*

Name of chain	Name of Operator	# of Outlets 2004	# of Outlets September 2006	Average Size of Outlet	Geographic Areas of Activity (in 2004)
Polomarket*	Polomarket Sp. z o.o.	123	177	400-600	Kujawsko-Pomorskie, Greater Poland, Mazowieckie, Łódzkie, Pomorskie
Albert	Ahold Polska Sp. z o.o.	170	177	800	Total Poland
Eko*	Eko Sp. z o.o.	124	170	400	Dolnośląskie, Opolskie, Wielkopolskie, Lubuskie
Intermarche	ITM Polska Sp. z o.o.	95	114	1200	Total Poland
Champion and Globi	Carrefour Polska Sp. z o.o.	70	73	800-1500	Total Poland
Stokrotka*	Stokrotka Sp. z o.o.(owned by Eldorado SA)	35	60	500-750	East and Central Poland
SPAR	SPAR Polska Sp. z o.o.	31	51	460-600	South and West Poland
Marcpol*	Marcpol SA	39	45	200-1500	Warsaw, Łominki, Częstochowa, Białystok
Savia	PH Savia SA (owned by Tesco)	31	31	650-1000	Region Bielsko-bialski, and region Wałbrzyski
Piotr i Paweł*	Piotr i Paweł s.c.	21	28	800-1000	West and Central Poland
Aldik*	Aldik Sp. z o.o.	20	21	500	Lubelskie, Podkarpackie
Berti*	Berti Sp. z o.o.	20	19	900	Zachodniopomorskie, Wielkopolskie, Lubuskie, Kujawsko-Pomorskie
Bomi*	PPH Bomi SA.	1	15	2300	Pomorskie, Mazowieckie, Lubelskie
miniMAL	miniMAL Sp. z o.o. (owned by REWE)	28	15	2000-2400	Total Poland
Elea Supermarket	Elea Polska Sp. z o.o.	12	12**	1400	Total Poland
Minieuropa*	not available	8	8	800	Warsaw
Julius Meinl	Julius Meinl SA	10	taken over by tesco	1100	Małopolskie, Podkarpackie, Śląskie, Świętokrzyskie
Total		849	1016		
Polish		402	543		
Foreign		447	473		

Table 21: Ranking of Wholesalers in Poland by Sales in 2005Source: *Detal Dzisiaj (2006)*

*based on estimation, ** total income including also activities other than wholesales,

***including Marspol Grups Sp. z o.o. 130 million PLN

#	Name	turnover 2005	turnover 2004	Growth 2004-2005	# of Locations	# of DCs	Regularly served delivery points	# of goods offered
1	Makro Cash&Carry Polska SA, Warszawa	7,196.7	6,374.4*	12.9%	23	n/a	3,300 (ARO), 15 000 (others)	30,000
2	Milo SA, Warszawa (Lekkerland Polska)	2,733.5	2,527.4	8.2%	14	13	15,000	3,500
3	Selgros Cash & Carry Sp. z o.o., Poznań	2,328.1*	2,217.2	5.0%	n/a	n/a	n/a	n/a
4	Central European Distribution Corporation GK	2,440.1**	2,122.6	15.0%	15*	79*	37,000*	900*
5	BOS S.A., Choroszcz k/ Białegostoku	2,400	-	-	48		25,000	10,000
6	Sobieski Sp. z o.o., Warszawa	1,873.6**	1,692.4	10.7%	n/a	n/a	n/a	n/a
7	Eurocash SA, Poznań	1,687.1	1,607.8	4.9%	94	2	60,000	3,500
8	Konsorcjum Dystrybucyjny Wyrobów Tytoniowych SA, Luboń	1,570	1,418	10.7%	36	3	14,000	2,000
9	Eldorado SA, Lublin	1,068.3	985.5	8.4%	15	1	9,000	14,000
10	McLane Polska Sp. z o.o., Błonie	1,029	952	8.1%	15 (Cross Docks)	3	5,600	13,500
11	PSH Unia S.A., Rzeszów	1,000	714	45.0%	16	29	20,000	12,000
12	Grupa MPT Sp. z o.o., Warszawa	850	717	18.6%	10	14	13,000	9,000
13	Żywiec Trade Sp. z o.o., Kraków (Grupa Żywiec)	668.8	696.9	-4.0%	n/a	n/a	n/a	n/a
14	PHUP Andrzej Szeszycki, Gniezno	451	390.2	15.6%	1	1	1 700	6,300
15	Arko Sp. z o.o. Centrum Dystrybucji, Komorniki k. Poznania	436.8	374.9	16.5%	11	1	3 000	4,210
16	Spółdzielnia Obrotu Towarowego Przemysłu Mleczarskiego, Białystok	429	418.7	2.5%	6	7	6,000	5,000
17	PHZ Elmar Marian Glita, Jędrzejów	389.3	373	4.4%	n/a	n/a	n/a	1,000
18	Żywiec Trade sp. z o.o., Katowice (grupa Żywiec)	374.9	389	-3.6%	n/a	n/a	n/a	n/a
19	Ambra S.A., Warszawa	370.1	523.8	-29.3%	70	1	n/a	103
20	Polska Grupa Handlowa Alfa, Gorlice	360	-	-	9	-	4,950	6,000
21	Bań-Pol Sp. z o.o., Rzeszów	346.6***	360.6	-3.9%	9	1	4,000	10,000
22	Mar-Ol Sp. z o.o., Poznań	300	290	3.5%	8	4	4,500	4,500
23	Diageo Polska Sp. z o.o., Warszawa	291.4	309.3	-5.6%	n/a	n/a	n/a	77
24	Centrum Dystrybucyjne Polbita Sp. z o.o., Błonie k. Warszawy	260.5*	278.8*	-6.6%	15	n/a	-	7,000
25	Polska Organizacja Handlowa Sp. z o.o., Katowice	200	-	-	9	-	10,000	6,000