



School of Business,  
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**THE ENLARGEMENT OF THE EUROPEAN  
UNION: NEW POSSIBILITIES FOR  
REGIONAL DISTRIBUTION**

The case of Brightpoint Inc. in Bulgaria

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## **Abstract**

The globalization of business lead not only to accessibility to bigger markets for the companies, but also increased competition and imposed high requirements on their performance. Thus, many firms implemented outsourcing as a strategy for their international expansion. However, decisions on outsourcing locations are quite complex. The accession of Bulgaria and Romania into the European Union, presents new opportunities for firms to move operations to stable and yet low-cost countries. The purpose of this thesis is to explore the conditions which make Bulgaria a suitable location of a regional distribution centre for a handset distributor.

Porter's Five Forces model was used to describe the market situation in the region and in the country. Other theoretical concepts were utilized to determine the factors measuring the attractiveness of prospect locations for distribution facilities. The empirical results show that there is a significant market potential in the region. Further assessment of Bulgaria as a host country proved that it rates high as an outsourcing destination and fulfils the logistics criteria for location of a facility. Cost calculations on the prospect distribution centre revealed that such a facility is needed only if the company considers increasing its market share in the region and close attention should be paid to the sourcing options.

**Key words:** business process outsourcing, regional distribution centre, market, supply chain members, logistics location, gravity point, logistics costs, mobile phones

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## **Abbreviations:**

<b>ADN:</b>	Access point dealer network
<b>BPO:</b>	Business Process Outsourcing
<b>B2B:</b>	Business to business
<b>CEE:</b>	Central and Eastern Europe
<b>EDI:</b>	Electronic data interchange
<b>EMS:</b>	Electronic manufacturing service provider
<b>ERP:</b>	Enterprise resource planning
<b>EU:</b>	European Union
<b>EUR:</b>	Euro
<b>GDP:</b>	Gross domestic product
<b>MNC:</b>	Multinational company
<b>MVNO:</b>	Mobile virtual network operator
<b>OEM:</b>	Original Equipment Manufacturer
<b>PLC:</b>	Product life cycle
<b>(R)DC:</b>	(Regional) distribution centre
<b>R&amp;D :</b>	Research and development
<b>VAT:</b>	Value added tax
<b>VMI:</b>	Vendor Managed Inventory
<b>WTO:</b>	World Trade Organization
<b>3G:</b>	Third generation
<b>3PL:</b>	Third party logistics provider



*"The dictionary is the only place that success comes before work. "*  
*Vince Lombardi*

## PART ONE

### 1 INTRODUCTION

*This chapter presents a general background of the problem area. It further defines the main research question and its sub-problems, which are incorporated in the purpose of this thesis. Attention is also paid to the main limitations and uncertainties of the work. Finally, a schematic outlay of the thesis is given.*

#### 1.1 BACKGROUND

Nowadays, business operates in a global context, which has brought significant changes in the global marketplace. Among the effects of globalization are increased competitive pressure and accessibility to world markets, both pushing multinational companies to internationalize their operations and market presence (Fawcett & Closs, 1993). Cost factors such as wages, material prices, energy prices, interest rates, and transportation tariffs; as well as productivity levels in manufacturing processes, differ greatly in different countries (Brush et al, 1999). That is why many firms' international expansions are carried out not solely through exports, but through establishment of foreign manufacturing and/or distribution facilities.

One effective strategy for companies to achieve global success is through deepening their value chain in foreign locations (Choi, 1999). Logistics becomes an area of strategic importance and a source of competitive advantage because of its great value-added potential and ability to provide supply chain optimization in the international transaction process (Cooke, 1999). However, the question where to locate distribution facilities is one of the most complex problems in the logistics field. This task becomes even more difficult when operating in a dynamic business environment with evolving parameters such as uncertain demand (Gassin & Al-Iryani, 2005). Furthermore, some high-technology businesses, as the wireless industry, present even greater challenge for managing a seamless supply chain. The incredible velocity at which the mobile phone market grows is combined with hardly predictable demand, high development costs and short product life cycle, leaving the 'window of revenue opportunity' very short (Catalan & Kotzab, 2003). Companies working in the industry have to balance on one hand the substantial and costly risk of obsolescence, and on the other hand prevent from stock-outs, which lead to immediate loss of sales and customers. All these impose high requirements of efficient performance of all actors of the mobile phone supply chain.

The marketplace has changed both in respects to its operating specifics, and its geographical characteristics. It is a fact that the growing economies of China and India became popular not only as destinations for outsourcing production, but also as vast consumer markets. Although the European market is smaller in volume, it is greater in value due to its significant purchasing power. Thus it remains one of the most attractive for the business. Presently, it is characterised by continuous expansion. The latest enlargement of the European Union was January 1<sup>st</sup>, 2007, when Bulgaria and Romania were accepted as member countries. This will facilitate trade and generate more competitive business environment, because of the substantial difference of the production factors' prices, on one hand, and the growing wealth of the consumers, on the other. It also reveals new opportunities for the multinational companies to increase market share and improve operations at lower costs. However, the enlarged union also imposes

challenges, on both new and existing players. Those should build an efficient distribution network and increase effectiveness in performing their logistics function in order to survive the increasing competition in this fast growing market (Gassin & Al-Iryani, 2005). Decisions on parameters such as transportation facilities and warehouse localization should incorporate customer demand and requirements, so that cost efficiency does not compromise supply chain flexibility. This imposes two main prerequisites while choosing appropriate location. First, to have stable business environment, so that logistics performance is predictable. Secondly, to have some cost advantage over other locations, so that revenues are increased.

## 1.2 PROBLEM DEFINITION AND RESEARCH QUESTIONS

The new members of the EU , Romania and Bulgaria, are attracting the interest of many investors because of these two conditions. To be part of such alliance is an evidence of stable political and economic environment. In the same time, the difference in the lifestyle standards, and prices and costs of living respectively, between these two countries and the founding countries are still substantial. That is why this study will focus on the opportunity for a major distributor of mobile phones to locate a new logistics facility in Bulgaria.

The principle company is called Brightpoint Inc., a global leader in the distribution of wireless devices and accessories and provision of customized logistic services to the wireless industry. The company is headquartered in USA but it has operations centres and/or sales offices in Russia, Scandinavia, West and Central Europe, Asia and Australia, as well as North and South America (Datamonitor , 2005). Always striving for increasing stakeholders' value, it grabbed the opportunity presented by the previous EU enlargement and established a distribution centre in Slovakia in 2004, to better serve the European market. Now, the recent changes in the European business environment give another chance to the company to gain new market share, while lowering costs. The Slovakian branch of Brightpoint Inc. is interested in establishing effective and efficient distribution network so that it could broad its market presence and improve its service in the Balkans and Turkey. Bulgaria is attractive with lower production and operating costs and in the same time skilled labour force, while its proximity to Turkey opens the doors to a huge consumer market. This leads us to the main research question of this study:

**Which are the conditions that make Bulgaria a suitable location for establishing new regional distribution centre?**

To explore deeper this business opportunity the following sub- questions shall be answered:

***Sub-problem 1: Is there a market potential for Brightpoint Inc. in the Balkan region and Turkey?***

Brightpoint Inc. has a corporate strategy to gain new market shares everywhere it establishes a facility. First on a national level the company should have strong domestic presence and then on a regional level it should be able to become an influential regional player. Presently, the warehouse in Slovakia serves well the Western and Central European region and part of the Eastern European markets. Its geographical proximity to Eastern Europe questions the need of an additional DC, if it is to supply to the same countries. That is why to reason an investment in operations in Bulgaria, its market

presence in the Balkan countries and Turkey should grow. Thus, the initial step in this research is concerned with the market potential of the region:

- What are the market size and growth potential, of each country?
- How is the supply chain of the wireless handsets organized in these countries?

***Sub-problem 2: Does Bulgaria fulfil the criteria for localization of a regional distribution centre?***

The attractiveness of a location might be determined according to various criteria. To answer this question from a broader economical perspective, then emphasize on the logistics implications, while integrating the specific corporate requirements, will reveal the suitability of Bulgaria as a future location.

- What are the factors according to which countries are rated as outsourcing destinations?
- What are the specific factors determining location of a logistic facility?
- What is the prospect influence on costs and expenditures of operating the new facility?

### 1.3 PURPOSE

The ultimate purpose of this thesis is: *to assess the business opportunity for Brightpoint Inc. to establish new regional distribution facility in Bulgaria.* It has two main levels. The corporate level is considering the characteristics of the business and how it is run by the company. The country level is measuring the suitability of the country, specifically for distribution of their products, exactly to that geographical region.

### 1.4 SCOPE & LIMITATIONS

The first source of limitation stems from the multi-product, multi-service corporate portfolio. Brightpoint Inc. operations range: from procurement and inventory management of wireless devices to web- hosting. That is why a single market analysis could not reveal insights for all these different areas. The scope of this work will be limited to one product class: handset devices, because this is the product with which the company intends to develop further in the new markets.

The scope of the research is also narrowed geographically to the Balkans, including: Bulgaria, Romania, Greece, Serbia, Macedonia, and Turkey. Croatia, Bosnia and Herzegovina and Albania are excluded from the study. The geographical scope is determined to help with more accurate assessment of the markets and the effect on costs, which is more precise with the immediate neighbouring to Bulgaria countries.

Marketing data on sales, markets shares and distribution of power among the actors of the mobile phone supply chain is also a source of limitation. Despite of, basing the analysis on various sources of information, still it could not be regarded as completely objective. This is so because of the PR campaigns lead by OEMs and mobile operators and the level of confidentiality which those try to maintain regarding some market figures. However, the overall distribution of power in the market place should be accurate.

The aggregation level in the corporate information, regarding deliveries to clients in the markets of interest, also brings some inaccuracy. The aim to map the shipments of Brightpoint only of handsets, is could not be achieved with the presented information. Instead all the shipments regardless of the product are considered as loads with mobile phones, which is not true. It further impacts the calculations on the alternative transportation costs from a facility in Bulgaria.

Finally, limitation while comparing present to future costs and savings is inevitable. Even when the data and figures are exact, still it is impossible to incorporate all the factors which might incur expenses or benefits while actually operating. In this thesis the focus is put on the overall assessment of the country as a prospect location, while the financial aspects of that are just assets to it. That is why the cost comparison is not striving for accuracy but for being an indicator of what expenses are likely to be associated with the RDC.

1.5 THESIS DISPOSITION

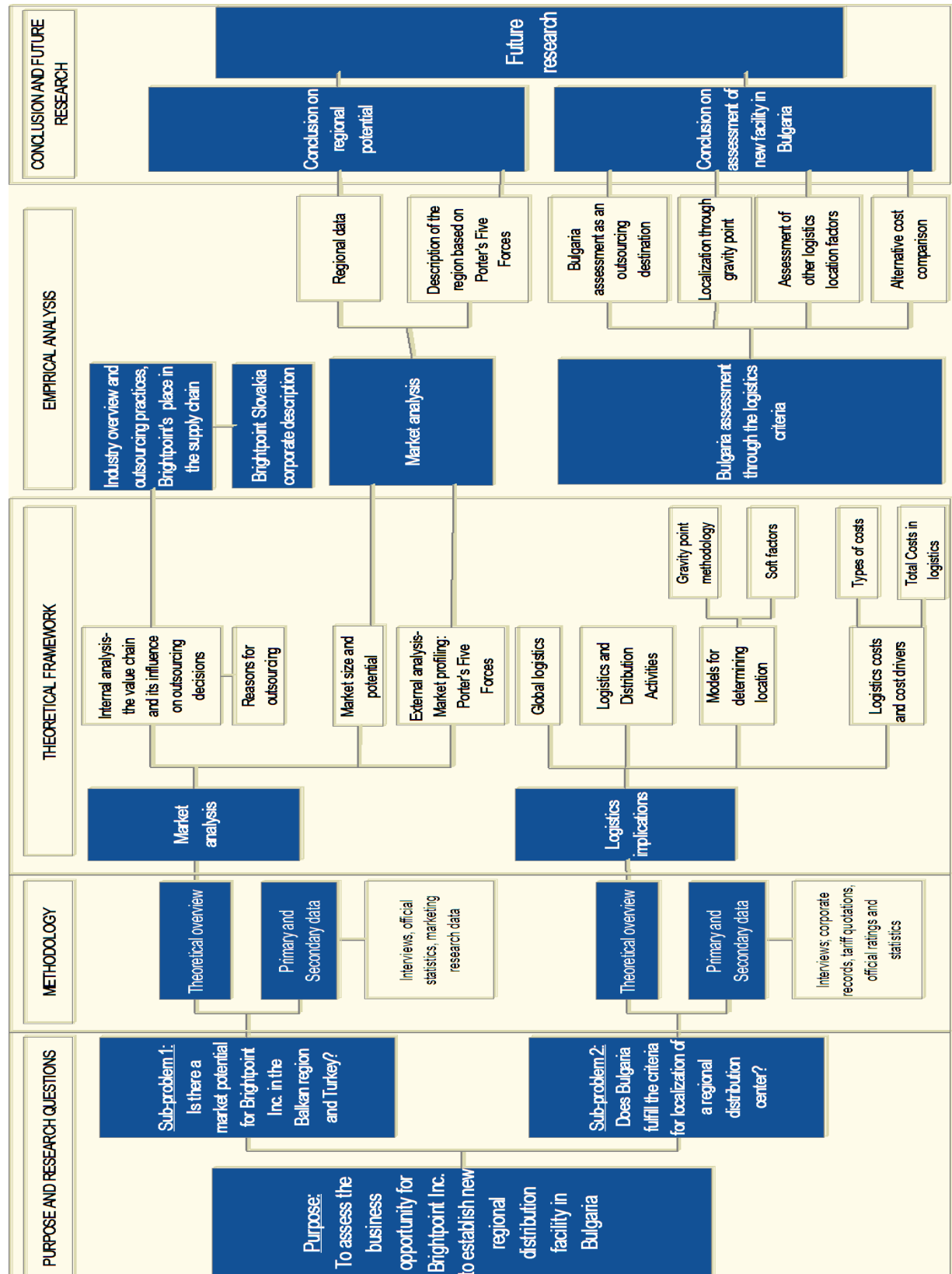


Figure 1: Thesis outlay

Source: Own

## **2 METHODOLOGY**

*In this part of the thesis the methodological approaches that were used to carry out the work will be presented. The aim is to reveal how the process of completing the research was conducted and what were the shortcomings associated with it. Also motivation on the chosen methods is given.*

### **2.1 RESEARCH DESIGN**

To define what a research design is we have to consider its goal. The aim being to determine the tools which will be employed to conduct a certain study brings it closely to an operational framework of the thesis. Contrary to the theoretical framework, the methodological framework does not answer the question what is it but rather how it will be done. It defines what type of information is needed, where to get it from, and most of all how to obtain it. This is a practical tool which also reveals the uncertainties and limitations of the work. There are no universal practices suitable for all studies, but rather the intrinsic nature of the research questions determines the most appropriate methods (Gill & Johnson, 1997).

### **2.2 RESEARCH QUESTION**

The research question might explore real-case business problems in attempt to find new solutions or improve existing situation. It could also aim at gaining new theoretical insights in the abstract field of knowledge (Brannick & Roche, 1997). The research problem determines the type of study to be carried out:

#### **2.2.1 Exploratory research**

Its aim is to gain general understanding to a question. It might be a totally new hypothesis, where prior knowledge does not exist, or a broad overview of the nature of an existing problem so that it is clarified for further deeper investigation. It can also be associated with the clarifying of concepts, so that subtle differences are revealed (Jensen, 2007).

#### **2.2.2 Descriptive research**

This type of research focuses on better understanding of a certain problem, where the relationships and behaviour of the variables are unclear. Most of the studies on business problems are descriptive in nature, since they try to map the activity and gain deeper understanding of it, so that performance is improved. One type is the cross-sectional descriptive study, where we test the same objectives on different population samples, in a certain point of time and try to find out variables that influence on the population. A marketing study on customer satisfaction of a company's services is an example of this. The second option is the longitudinal study, where the development of the variables due to introducing or removing other variables along a time period is explored (Jensen, 2007). In the first case we try to find out what are the factors that are important, while in the second one we know the factors and try to understand their behaviour.

### **2.2.3 Explanatory/Causal research**

As evident from the name, the main objective of the research is to find out cause and effect relationship. It explains how the different variables relate to each other and why it is so. It is important to reveal the impact that certain factors have on others and on the whole behaviour of the system so that incidental events are discerned from persistent causes of shortcomings. When we search for causality we could find the following three types of relations between the variables: co-relation, when variables occur together, time-sequence-when they occur in certain order, and elimination of other influential factors (Jensen, 2007). Here the researcher tries to draw conclusions on a preliminary knowledge of a pattern by tracing the reasons for its behaviour.

The research at hand could be classified as both descriptive and analytical. There certainly is prior theoretical and practical knowledge of the studied area. That is why it could not be attributed to the exploratory type. The description of the markets, the business practices, the logistics activities and the cost calculations, are all based on substantial theoretical background in the fields of marketing, logistics and finance. The second phase after revealing what academic knowledge in terms of models and calculation methods will be employed is bringing the research on an analytical level. In that respect, it is not only mapping current country markets or corporate activities, what has been done, but rather analysing the available data to create those profiles. Further, the logistics analysis on location of RDC and the potential for savings calculations are heavily analytical in nature.

## **2.3 QUALITATIVE AND QUANTITATIVE METHODS**

The research design falls into one of these two types: qualitative or quantitative. Yet on some occasions both approaches are interrelated which means that some quantitative adjustments are done to assess the qualitative data and visa versa.

### **2.3.1 Qualitative research**

It involves gathering information that is not based on empirical data accumulation. The focus here is on the expert opinion of people who are knowledgeable about the explored question and can give insights about the area. It relies more on the authentic opinion of fewer subjects, and is hardly presented in the form of numerical data. In-depth analysis can be carried out on the base of this type of research. On the other hand, to some extent it suffers from subjectivity and bias, because it relies on the expert who provides the information, thus objectivity can be blurred because of factors such as corporate loyalty, personal views, etc. Also qualitative research is often inductive, just few cases or interviews are made, and out of those general themes and conclusions are drawn.

### **2.3.2 Quantitative research**

Quantitative research involves gathering a lot of empirical evidence, where data is numerical and independent of personal bias and environmental context. It focuses on variables and the relationship among them (Neuman, 1997). To meet its purpose of objective measuring of facts it involves the exploration of many cases, thus statistical analysis, tables and charts are commonly used methods for carrying out quantitative research. Here generalized conclusions are based on large number of pre-studied cases it is fare to categorise this type of research to be deductive in nature.



The present study employed both qualitative and quantitative research methods. The interviews with corporate representatives and professionals from Bulgarian business were focused on getting deeper understanding on the state-of-the art situation both in the company and in the country. However these interviews were not used to draw general conclusions, rather than to get better understanding about the ways business is actually conducted and organized. Mainly the overall assessment was made through the deductive method using quantitative research. Conducting the marketing research and the cost calculations required a thorough analysis of a great amount of statistical data and corporate records. Thus the present work relies largely on quantitative methods, but implemented qualitative ones, as well, to get a more realistic perception of the situation.

## 2.4 METHODS FOR COLLECTING DATA

The approach to data collection is critical to the study, since it determines its accuracy and applicability. It is heavily dependent on the nature of the research question and availability of information (Brannick & Roche, 1997). Data can be categorised according to the source as:

### 2.4.1 Primary data

Primary data is self-collected data for a specific purpose. The researcher devises the data collection methods on his own and controls the process of physically collecting the data (Ghauri & Gronhaug, 2002). This is mainly done in two ways, through experiments or via non-experimental approach.

The *experimental methods* always involve intervening with reality. Hence, natural experiments are those which are created by reality, e.g. when a strike occurs. While true experiments are conducted in reality but are set by the researcher. Regardless of the differences, the aim of the experiment is to detect and/or confirm some phenomenon or relationship among factors.

*Non-experimental* primary data collection methods include quasi experiment, simulations and use of models, observations, interviews and case studies (Jensen, 2007).

- **Quasi experiments** possess just some elements of reality.
- **Simulations and models** try to incorporate the real world situation and yet it is very hard to build an accurate model to present future development in situations with high levels of uncertainty.
- **Observation** as the experiment requires either natural or laboratory set but contrary to the experiment it does not intervene with the reality.
- **Interviews/ Surveys** might be conducted in various ways. They can be personal or send out by mail, e-mail, etc. Usually interviews are conducted through some form of questioners, when the researcher knows exactly what type of information is needed and how to measure the variable of interest. Questioners are two types: structured and unstructured (Brannick & Roche, 1997).

The *structured questionnaire* has three formats:

- *Open-ended format*. No predetermined answer is given; the interviewed person might reply whatever seems appropriate.

- *Multiple-choice response*. Predetermined number of options (more than two) is given, and the respondent must choose from them.
- *Dichotomous response*. The allowed answers are only 'yes' or 'no'.

The types of *unstructured questionnaires* are:

- *The individual in-depth interviews*: The aim of this interview is to obtain insights from the knowledge of the respondent. The skill of the interviewer is of critical importance, because the inspiration for new ideas, questioning the concepts proposed by the respondent or their validity and accuracy, should come from the interviewer.
- *Focus group interviews*: Although, the chance to gain detailed information on the topic is less than in the previous format, still valuable ideas are gained through interaction among the participants in the group. The group facilitator has a central role in conducting effective discussion.

### 2.4.2 Secondary data

It is neither specifically collected for the study at hand, nor personally gathered by the researcher. It is already existent and the one who works with it should carefully assess how relevant it is for the purposes of the research (Jensen, 2007). Examples of secondary data are official statistics, corporate reports and documentation, marketing surveys. It might be obtained through data mining, investigation of data warehouses, data banks, published materials, documents etc. If the data is relevant, even though not designed for the topic of interest, this data is quite valuable in providing rigid and objective base for conclusions.

Another methodological strategy is the **Case Based Research**, otherwise known as a case study. It aims to investigate a contemporary phenomenon from reality, where the boundaries with the environment or with other phenomena are not clearly comprehended. This is usually an empirical research and as such evidences are collected from multiple sources such as statistics and documentation (Brannick & Roche, 1997). The same authors categorise the case study in three types: *ethnography*, *action research* and *hypothetic-deductive study*. In business the action research is mainly conducted to solve specific managerial problems. In general, the aim is to relate the case study to a wider theoretical framework. This way, it enriches existing knowledge by proving or disproving the concept's assumptions. Yet, generalizations are unlikely to be drawn on case study results since a single case might be an exception and not a pattern, or the results might have been subjectively influenced and distorted. On the other hand, Yin (1994) states that the strength of a case study is its ability to deal with a full variety of evidence such as documentation, archival records, interviews, direct observation, participant observation, and physical facts. For instance, documentation is a rigid source since it has broad coverage, can be re-examined and is created for purposes independent from the case study. Corporate archival records provide quantitative and precise data, relevant to the company. Interviews with professionals within the company and outside consultants might augment the quality of the quantitative data.

This study is based on both primary and secondary data. The primary data was collected through in-depth, as well as open-ended interviews and multiple-choice questioners. The aim was to give the respondents chance to answer according to their own preferences, thus gathering insights from their professional experience. Secondary data was the obtained through government statistics, international statistics, marketing reports,

corporate records of the principle and quotations on price offers from logistics providers. This work could also be related to an action research case study following the above stated description. It uses the specific theoretical base of outsourcing and regional distribution to relate it to the needs of the company. The variety of the data collection methods: official documentation and statistics, corporate archival records and interviews, were all used in the course of the work.

## 2.5 RELIABILITY AND VALIDITY

To collect and analyse data so that it becomes credible information is the aim of any study and yet its trustworthiness is dependent precisely on the sources of data and the way it is collected. The discussion on reliability and validity is critical to the outcome of any investigation.

### 2.5.1 Reliability

Reliability of gathered data deals with its consistency and dependability. In other words should we replicate the same study, the same outcome is expected. It describes how well the object of research is measured. It also means that the results should be independent of the measuring tool used for obtaining them (Neuman, 1997). Thus reliability is concerned with the dependability of the measuring instrument itself. According to Gill and Johnson (1997), there are four principles to increase the reliability:

- Use clear theoretical definitions.
- Use a precise measurement.
- Use multiple tools for the same measurement.
- Use pilot tests if possible.

Following the above definition, to have good reliability of the results we have to be convinced that the measuring instruments are the appropriate ones. In this work the measuring instruments are defined by the theory. All calculations are based on the methods approved for such cases from the academic world. Thus the reliability of the measuring tools is considered high.

Having the right measuring method is not enough to achieve good reliability level, if the data used for these measurements is not rigid and consistent. In that respect, the secondary data collected from official government statistics and international organizations is considered accurate and trustworthy, thus providing high level of reliability. However, in the marketing research part, where the mapping of competitive situation among players of the industry is done, the secondary data is gathered from the official document releases of these companies. This questions their ultimate objectivity, because there is always some level of bias as it comes to the corporate views what to present to the general public as a business result. In an attempt to increase the reliability of this data, the author checked various sources regarding the same information trying to overcome the level of distortion of the data. Still the ways how the data is gathered before the publishing of these marketing researches, is impossible to control and assess. Yet, the trustworthiness and the good reputation of its publishers make it unlikely that the released figures are inaccurate and the author believes that even here the reliability of the work is high. Another source of information was the corporate records on the flow of goods and finances. This is considered consistent and accurate because the information is gathered at the principle itself and is based on work and expenses objectively done in the past. However, the

transportation tariffs provided by the logistics partner are likely to change. This means that the results that we will receive if we have the same amounts of goods transported but in another point in time will be different. The same applies for quotations on prices used to assess the alternative distribution expenses. There is no way to overcome the weakness that prices change overtime.

The primary data gathered through personal interviews was not used directly for any of the mappings or calculations, thus it has a modifying and not central role in the work. Mostly those interviews helped the author to get better perception of the business realities in the industry and in the country. Further there was no contradiction between the goal of this thesis and the personal views of the interviewees, so it is believed that all statements were accurate and honest. Thus the reliability of the primary data is also high, although it does not influence to that great extent the reliability of the whole work.

### 2.5.2 Validity

If reliability answers the question how well the investigated problems are measured, validity deals with do we actually measure the right problems. It shows the conformity of the measuring instrument to its purpose. According to Neuman (1997) the better the chosen conceptual framework fits the operational environment, the greater the measurement validity. Furthermore, Gill and Johnson (1997), define criteria of evaluation validity, such as internal validity, referring to *'whether or not what is identified as the causes or stimuli actually produced what have been interpreted as the effect or responses'* and external validity *'the extent to which any research findings can be generalized or extrapolated beyond the immediate research sample or setting in which the research took place.'*

The internal validity of the thesis is also high, because what is measured to answer the main question is what is suggested by the theory and reality as relevant and important. Moreover, the cause and effect relation in costs and costs drivers in logistics is clear and valid, thus applicable for this study. However, no overall generalization could be built on the findings of the study, because of the specific industrial and country parameters, which are explored, at this specific point in time. This means that the external validity of the thesis is moderate.

## 2.6 RESEARCH PROCESS AND RESEARCH DESIGN

The main objective of this work is to find is there a real business opportunity for the company to start business in Bulgaria. The methodological steps to answer this question, involve extensive theoretical overview and choice of theoretical tools applicable for the study and then implementation of these theories in the empirical part. The aim requires first to start at a broad regional perspective, for which data about the different national markets in the Balkan region has to be collected and analysed. The type of data is secondary and it is provided by international statistics and marketing research reports. The outcome of this analysis should reveal whether there is a market potential for the company to enlarge its market share. Secondly, it is needed to narrow the investigation to the attractiveness of the country as a prospect location. This involves again two levels of assessment. The broader one involves processing secondary data from renowned international sources about the economic state of Bulgaria and its suitability for

outsourcing. The more specific analysis is carried on the base of the company's specific needs. It requires market and most of all logistics assessment of the country's position in the region. The informational needs here should be satisfied not only by official marketing data, but mostly by the corporate records revealing the market position of Brightpoint Slovakia in the region and the present expenses related to that. Finally, using secondary data from other logistics companies will provide grounds for cost comparison and reveal potential savings of the new RDC in Bulgaria.

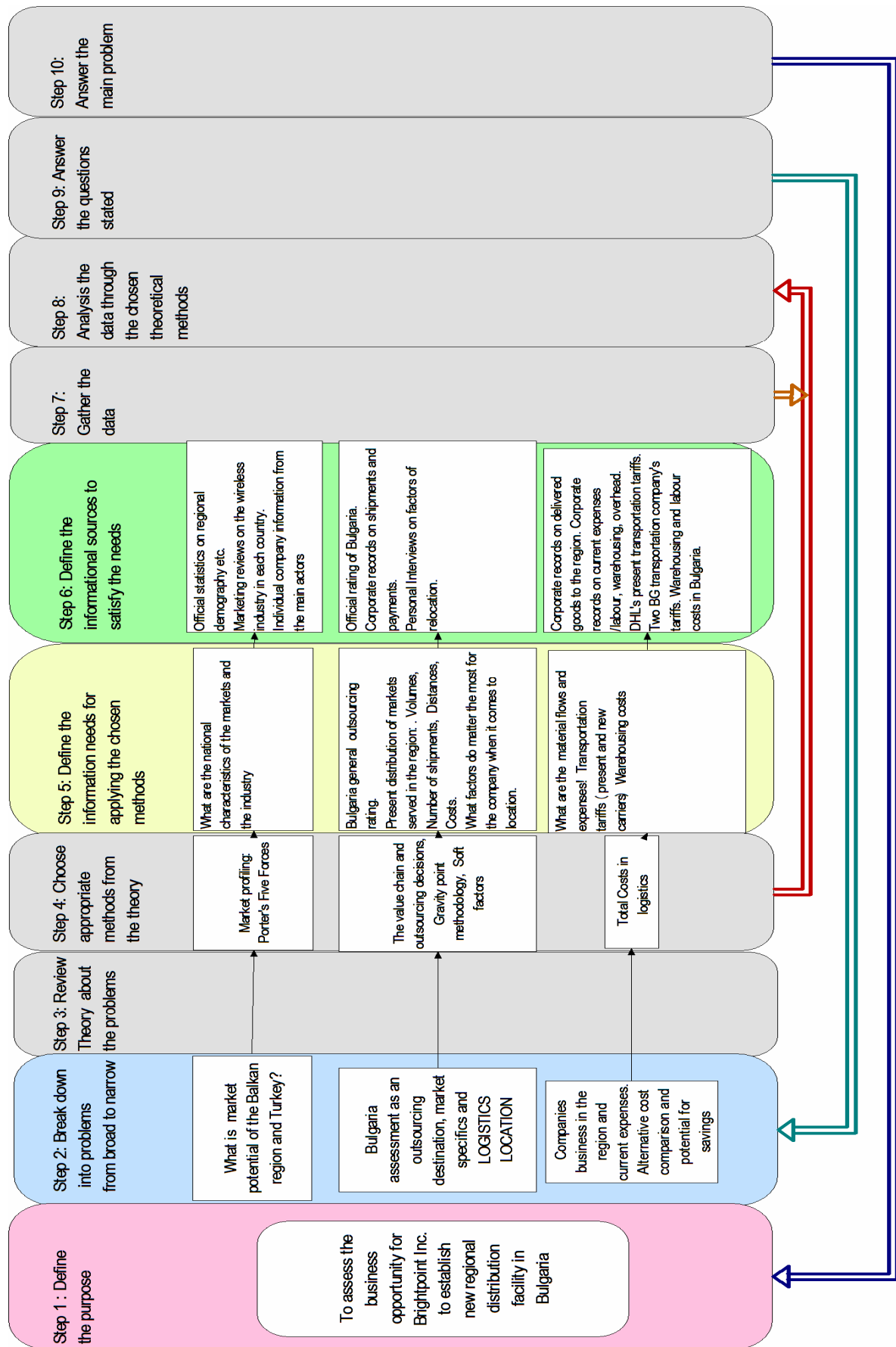


Figure 2: Research design and information sources

Source: Own

### 3 THEORETICAL FRAMEWORK

*The main objective of this chapter is to present the theories which served as a base for the conduct of the empirical investigation. It covers several areas. First are described marketing implications, logically connected to the localization issues, which are discussed next. Finally, attention is paid to costs in logistics.*

#### 3.1 MARKET ANALYSIS

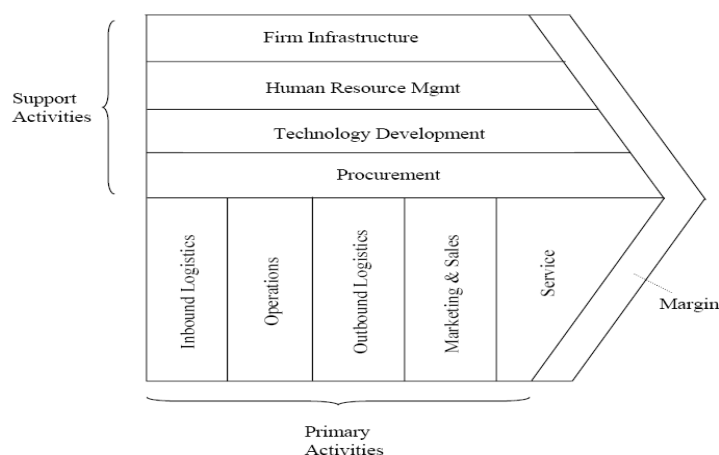
Companies are always focused on understanding the markets they operate on or/and would like to penetrate. Market analysis is critical, not only in terms of having the right approach to the customers but also getting to know the overall organization of all the players on the market. Thus marketing research is conducted to segment the market, to understand its dynamics and driving forces, its dimensions and growth potential and finally to determine its attractiveness to the company. This is known as external market analysis. However, to effectively act in the business environment, firms need first to do what is known as internal analysis. This is done to define the core competence of the companies so that these are fully utilized in reality and resources are spent only for what is important.

##### 3.1.1 Internal analysis- the value chain and its influence on outsourcing decisions

It is important for the company to understand the external factors that govern the marketplace and the organization of the industry it is part of, so that it could determine its position there. However, an external analysis is incapable of giving an answer where the sources of competitiveness lay within the company. A fundamental tool for revealing corporate inner competitive advantages is Porter's ( 1985 ) value chain analysis. He defines a value chain as:

*The value chain desegregates a firm into its strategically relevant activities in order to understand the behaviour of costs and the existing and potential sources of differentiation. A firm gains competitive advantage by performing these strategically important activities more cheaply or better than its competitors."*

Thus the various activities are put into two major categories: primary and support, as illustrated on fig. 3 below:



**Figure 3: Value Chain**

Source: Porter, M. (1985)

Corporate activities which have major share of the costs and revenues are called activities with primary role, while the rest are regarded as supportive ones. However, this is not enough to find firm's source of competitive advantage. Sometimes it is the linkages among those activities within the firm that is a source of uniqueness and makes the company a leader. In other occasions, it is the way the firm interacts with its partners and vertically integrates within the supply chain of the industry that gives its business strength. Overall having deeper understanding of corporate value chain structure gives insights about the value chain scope that the firm might consider in four directions (Porter, 1985):

1. Segment scope: Knowing firms core activities, helps in determining on which markets and with which products the company will compete.
2. Vertical scope: Value chain analysis identify which activities could be performed internally or externally, thus making it easier to spot components of the business that may be eligible candidates for outsourcing (Rothery & Robertson, 1996). However, the linkages between these functions and the core activities should be carefully scrutinized before deciding on outsourcing, since this could influence the performance of the company.
3. Geographic scope: The geographic dimensions of the markets the company could cover and from where it could source and obtain synergies.
4. Industry scope: The range of products and services, determine the industries in which the company is involved, and thus affecting the potential for shared resources.

After performing such assessment many companies consider optimization through outsourcing. It is associated with relenting certain activities that has been carried out internally to an organization outside the company or as the definition of Business Process Outsourcing (BPO) states '*the movement of business processes from inside the organization to external service providers*'. Furthermore, outsourcing in terms of operations outsourcing is associated with '*moving manufacturing related jobs as well as setting up manufacturing outlets and factories in countries with lower costs for production*' ( Click & Duening, 2004). The main difference between these two types of outsourcing is that in the first case the company ceases to perform the activity and it is carried out externally, while in the second case the activity stays in the company but is performed for lower costs in a facility that is abroad. This means that companies outsource in the form of BPO support activities, speaking in term of the firm's value chain, while they might also outsource primary activities by carrying those out internally, following strict corporate standards, but in a country where the economic conditions lead to lower operating and production costs.

Bragg (1998) summarizes the most common reasons for outsourcing as: converting fixed to variable costs, balancing workflow and workforce, investments in assets but capturing technological innovations, focusing on core competences and strategy, having less tied up capital in assets and inventory, and last but not least managing to deliver the product at a lower price and for a shorter time, being flexible and responsive to customers needs.

Hence, there are many risks associated with outsourcing which stem from the same origin as its potential benefits. It might lead to loosing competence in core activities, loosing key personnel, lagging behind in technological adaptation, opportunism and contractual entrapments, worsening the time-to market and the customer service level, all ending up in actual escalation of costs and loss of market share. Despite the risks associated with



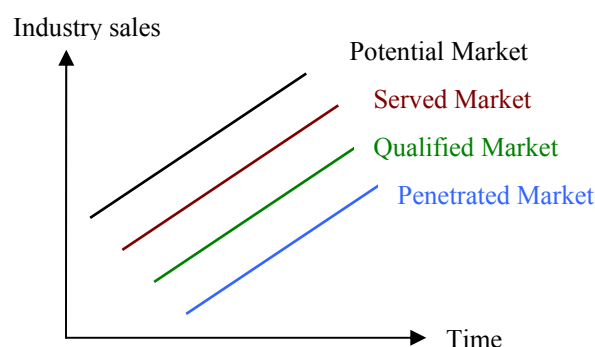
outsourcing practice shows that the trend towards it continues both in terms of functions and location.

In summary, the value chain analysis explains the vertical integration in the supply chain of mobile phones and the outsourcing of some business processes. In this case manufacturers and operators outsource software loading, manual printing, customization to the market and warehouse management to the distributors. Further, the distributors themselves seek to improve their ratios through outsourcing to lower cost countries. On what criteria they decide their future locations, will be analyzed further in the theoretical part, where localization implications in logistics are described.

### 3.1.2 External analysis- Market size and potential

The most tangible dimension besides the geography of a certain market is its size. Yet, determining market size could be viewed from various angles. A broad understanding of market size might be given by its volume being all shipments to end-users, while its value being given by its volume at retail selling price (Datamonitor, 2005). Hence, this presents only a snapshot of the captured market by all the companies, but does not reveal the market potential and the needs that have been left unmet by the industry. Estimating *market potential* requires accurate data, reasonable estimations and realistic judgement. From company's point of view the *sales potential* of its own product is more interesting than the market potential. The difference is in the prospective, the market potential reveals the maximum possible sales of all the sellers on the market for a certain period, while sales potential gives the maximum sales of a certain product that a single company could achieve on that market (Hutt & Speh, 2004).

Although, it seems that the individual firm will then be interested not in the market potential but in the sales potential of a market, when market analysis is conducted it is common that it presents the market potential. This is so, because when looking at the market potential and the elements that comprise it, the company can find insights about its competitive position and its growth opportunities. The components of the market size are: potential market, qualified market, served market and penetrated market as presented in fig. 4 (Hayes et al., 1996).



**Figure 4: Market size**

Source: Hayes et al., (1996)

As defined above the potential markets constitutes of all prospect customers of a product, and yet given a certain timeframe it is hardly possible, that all of them will actually purchase in this moment, so those who are about to actually make the purchase comprise the qualified market. However, companies usually segment the qualified market and

decide on which target sub-markets to operate, thus forming the served market. By incorporating the share of competitors on the same served market, firms determine their penetrated market. It is common that companies in their expansion strategies not only struggle for getting a bigger share of the served market but also try to establish new served markets which to penetrate.

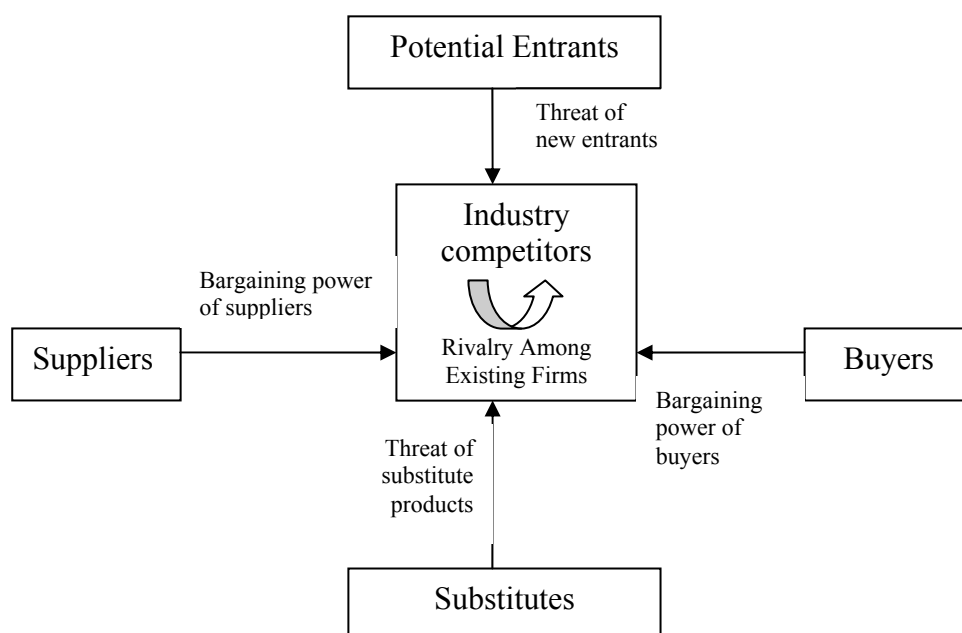
For the purpose of this study the market size will be looked from the broadest perspective: potential market size because it is an initial indicator determining whether the new markets are big enough, so that they are attractive for further expansion.

### 3.1.3 Market profiling

The aim of an external analysis is to depict the elements of the chosen market which are external to the organization, such as opportunities, trends, trends and uncertainties, which could influence its strategic choices (Aaker, 2005). The present case though, regards assessing a future initiative, so emphasis would be put on the trends and uncertainties of these new markets, rather than on suggestions on competitive strategies and scenario analysis. A good tool for performing such analysis is the Five Forces model of Michael Porter (1998).

#### *Porter's Five Forces*

The fundament of the market economy is competition. To understand the market we should understand the competitive forces that regulate it. Yet, just a snapshot of current competitors and market structure would be inaccurate. That is why Porter (1998) sets five forces that comprise the rules of competition in any market at any time: the threat of substitution, the threat of new entrants, the power of buyers, the power of suppliers and the rivalry among existing competitors. They affect the whole structural base of competition, and thus influence the profitability of the players and the overall attractiveness of the market.



**Figure 5: Porter's Five Forces model**

*Source: Porter, M., (1998)*

**Threats of substitute products and new entrants**

Both threats, if existent, will result in decreasing the returns of the firm, thus should be carefully considered. Normally, substitute products compete with less intensity than the regular ones, and yet they could limit the pricing of the ordinary products. The new entrants as source of further competitive pressure, take from the potential market share of the company, by limiting its current or/and future share of the market. Also they press down the prices, thus affect profitability. To counteract existing players might put barriers to entry, such as access to distribution networks, customers' loyalty programs, economies of scale and high switching costs or capital requirements (Porter, 1998).

**Power of buyers and suppliers**

Both bargaining powers show how the whole industry works, determining the scope to which the firm can actually influence any of them or should internally reorganize to fit in the established industrial structure. The customers are always a major factor but whether they can pressure down prices or impose service standards depends on their size and concentration. Also it is important, how significant sales and product price are for the firm's expenditures and revenues. From the suppliers end, size and concentration are significant for their power position, as well as their access to various markets and other customers and how specific and important are the materials/components they sell. The bargaining power of suppliers is very strong when the switching costs for the firms are high (Porter, 1998). Furthermore, vertical integration plays significant role in determining the power position among all players in the supply chain. Sometimes having power does not necessarily mean earning more or pressing the downstream partner, but rather having more obligations and being more easily influenced by the rest.

**Rivalry within the business**

If the market is deregulated, meaning no monopolistic structures existent, then the relation among competitors is mainly marked by action and reaction pattern. This is true for rivalries with almost equal market presence. They utilize different price and/or differentiation and diversification strategies to answer each others initiatives.

If the market analysis of Porter's five forces is further incorporated with external to the industry drivers such as technological, socio-economic, regulatory etc. , then the path of industrial development could be foreseen ( de Wit & Meyer, 2004). For instance, if technological innovations become critical and one of the manufacturers becomes a market leader, then all the competitive landscape for, buyers, suppliers and competitors will change, leading to new organization of the whole industry.

Every industry is characterised by the so called 'rules of the industry' which determine its organization, but how susceptible those rules are to change determine the rigidity of the industry. Some structural factors such as economies of scale or customer concentration of industrial markets make the industries very unsusceptible to changes. Other external pressures such as regulations, professional unions and associations' pressure facilitate shifts in power distribution amongst incumbents. Hence, industries with locked structure with predominant power of some of the partners seldom surrender to such pressure if challenges their power position (de Wit & Meyer, 2004).

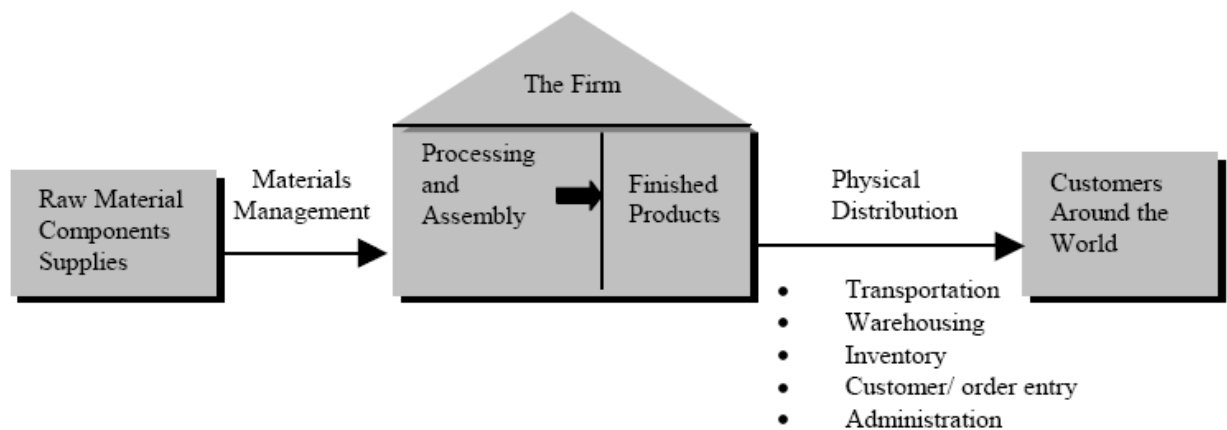
## 3.2 LOGISTICS IMPLICATIONS

This part of the theoretical framework focuses on logistics but with relation to outsourcing. The starting point is introduction to the phenomenon of global logistics. Then main activities in distribution are presented, as well as the main distribution structures from an international perspective. Then an answer to the question where is a suitable place for internationalizing the business is sought through a model used to rank countries' outsourcing attractiveness. Consequently, the problem for logistics location decisions is brought from pure transportation perspective to a broader one, incorporating the so called 'soft factors'.

### 3.2.1 Logistics and Distribution

#### 3.2.1.1 Global Logistics Definition

Current trends of internalization of business and globalization of both market place and manufacturing have led to the development of the phenomenon global distribution and logistics (Cooper, 1993). The choice of appropriate distribution channels becomes critical for corporate success. Wood et al (1995) define global logistics as the design and management of a system that directs and controls the flows of materials into, through and out of the firm across national boundaries to achieve its corporate objectives at a minimum total cost. As seen from the figure 6 below, global logistics also encompasses the processes of inbound logistics: inflow of raw materials, parts, and supplies through the firm and outbound logistics: the movement of the firm's finished products to its customers, consisting of transportation, warehousing, inventory, customer service/order entry, and administration (Barbalho et al, 1998). Here both sourcing and distribution go beyond national boundaries and are done on the bases of corporate strategic alliances, costs or other determinants of economic nature.



**Figure 6: Global logistics**

Source: Wood et al. (1995)

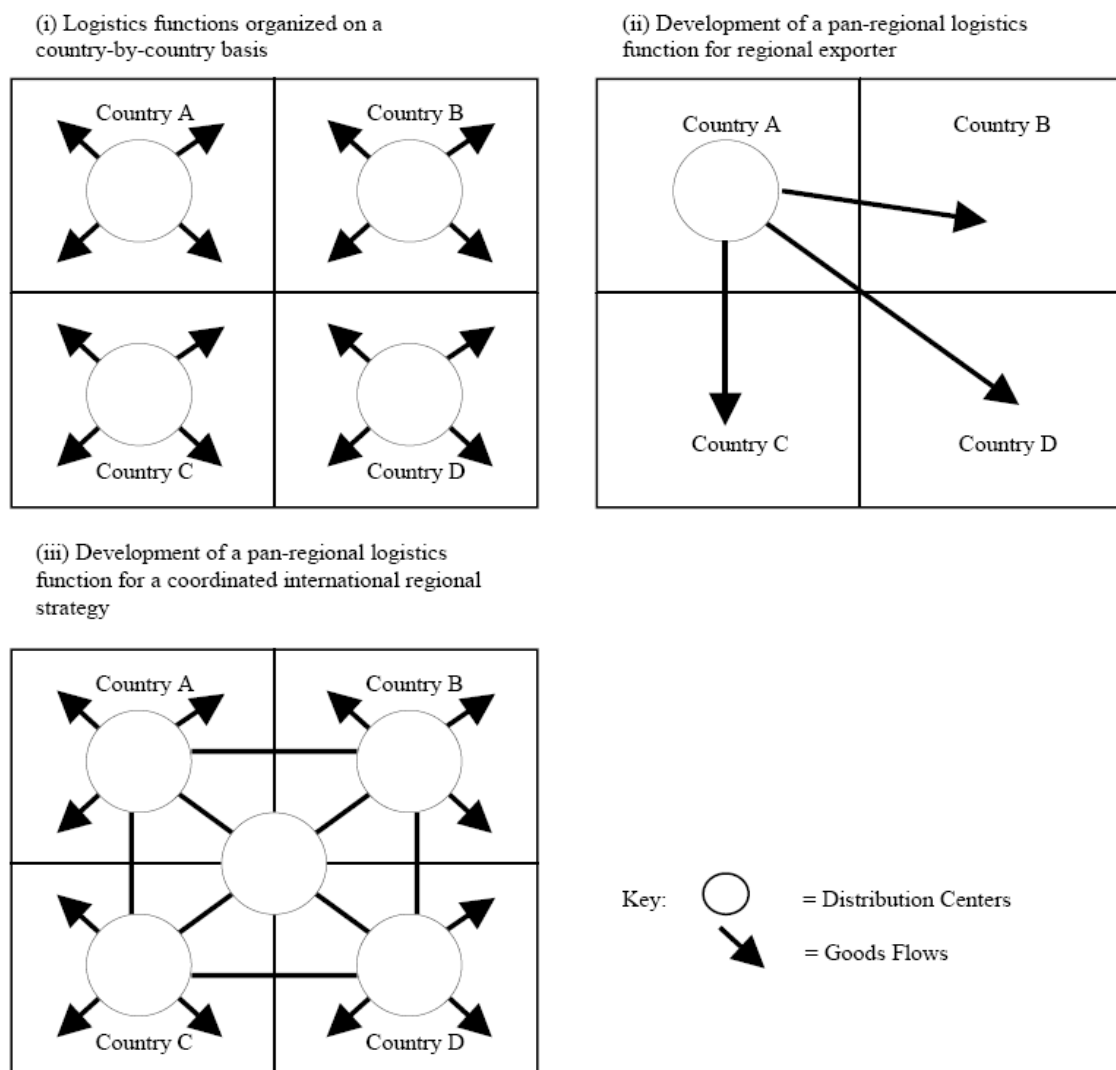
#### 3.2.1.2 Main Activities in the Distribution Process

Since this thesis deals with the core business of a distributor, from all the logistics implications, further attention will be paid to the main activities in the distribution process on an international level. Those include: transportation, handling-in, handling-out, storage, and reconditioning (Ploos van Amstel, 1985 & Vos, 1997). Transportation of the products from the manufacturer to distribution centres or directly to customers is a critical function, so the choice of mode of transportation plays a major role in designing firm's logistics strategy

(Vos, 1997). Handling-in and handling-out activities concern both the physical and the administrative receiving of goods to and from storage facilities respectively, thus not only technical equipment is important but also the technological levels of information flow controlling the administrative functions. Once in the distribution facility the products might either being stored, or if there is a reconditioning function carried out- some value-adding services such as repackaging and break bulk are performed. Especially in regard to storage, companies should be very considerate, since inventory is capital tied up and the longer it stands still, the higher the costs. Furthermore, longer storage involves the risks of obsolescence and price erosion.

### 3.2.1.3 Basic Types of International Distribution Structure

Designing efficient and effective distribution structure means both logistics costs and the quality of delivery service to be balanced (Van Goor et al 1992). These two elements are contradictory to each other: slower transportation is cheaper but prolongs lead-time, thus trade-offs are inevitable. Although a complex task, appropriate location of distribution facilities is an important tool for cost reduction and improved customer service, thus a source of gaining competitive edge (Choi, 1999). Furthermore, Ellis & Williams (1995) propose that product characteristics should be incorporated in the analysis of the distribution design and present three types of international distribution structures that can be used by MNCs ( fig.7).



**Figure 7: Changing pattern for distribution for international regions**

Source: ( Ellis & Williams ,1995, pg.291, figure 7.7 )

The tendency is clear, companies which are internationally presented move from decentralized distribution on a national level, to centralization strategies on a regional level. This is so because of certain economies of scale provided by centralized distribution. The effect of centralized distribution on reducing inventory costs is explored by many researchers (Schipper, 2000). However, proof of scale effects in reality is found to be inconclusive and Pfohl et al (1992) argue that an increase in the annual capacity contributed to a modest reduction in handling and storage costs per unit of output. Despite this, many multinational companies established centralized distribution facilities in different regions in Europe, not only with the aim of cutting cost, but rather to maintain desirable service level.

### 3.2.2 Models for determining location

While choosing appropriate country to outsource a function, or to set up a new outlet, it is common that attention is paid to at least three major parameters: costs (labour, taxation), environment (political stability, economic conditions, infrastructure, available financial capital) and people (education level, age structure, attitudes to work, size and quality of the labour market). That is why the ranking of countries when it comes to outsourcing is done through assessing these conditions. Yet, this just presents an initial step when it comes to location decisions.

#### 3.2.2.1 Gravity point methodology

On the other hand, when considering location of a distribution facility and planning network design, the methods which should be employed are a bit different. In this respect localization issues try to incorporate the idea of minimum transport costs and if possible transport work, while maintaining a high service level. The pitfall in that type of calculations is that they cannot incorporate immeasurable factors, otherwise known as 'soft factors', and are inflexible in respect to introducing new nodes in the system or losing old partners. Despite its weaknesses, the 'gravity point' method will be presented below, to show the fundamental relations between location and transportation.

The case assumptions are:

- Purpose: find the localization of a warehouse that will distribute to N customers.
- Customers demand:  $D_{ci}$ , expressed in volume, in kilograms, or in other units.
- The customers should be localized on a coordinated system  $(X_{ci}, Y_{ci})$ .

Using this as a base for calculations, still questions arise as to what should be the goal-to find the minimum transportation work or to achieve the lowest cost for transport (Lumsden, 2003). To deal with the first parameter is easier. Demand is expressed in tonkm (ton x kilometers) or in  $m^3 km$  (cubic meter kilometer). Transportation cost calculations require expressing it in currency unit per ton (or cubic meter) and kilometres, simultaneously, which is more complex to convert.

#### *Transportation work*

##### One supplier – one terminal – several customers:

The supplier is located on the axes by  $(X_s, Y_s)$ . The supplier is delivering the quantity S to the terminal. The quantity S should be expressed in the same units as the demand.

There are N customers – located on the axes by the  $(X_{ci}, Y_{ci})$ .

The customer demand is still  $D_i$ .

The terminal is located at the coordinated (X, Y).

According to the assumption that the goods flow that gets into the terminal goes out, we have:

$$S = \sum_{i=1}^N D_i$$

**Formula 1: Supply equals Demand**

Then the localization of the terminal that minimizes the transportation work is given by the following formula:

$$X = \frac{X_S \times S + \sum_{i=1}^N X_{ci} \times D_{ci}}{(S + \sum_{i=1}^N D_{ci})} \quad \text{and} \quad Y = \frac{Y_S \times S + \sum_{i=1}^N Y_{ci} \times D_{ci}}{(S + \sum_{i=1}^N D_{ci})}$$

**Formula 2: Coordinates minimizing transportation work**

*Transportation costs*

To make the computations more realistic and applicable, the method should aim at discovering the lowest transportation cost. It is imperative to express the cost and the demand in the same units.

Demand	Transportation cost
Cubic meters (m <sup>3</sup> km)	Currency/ m <sup>3</sup> km
Tons	Currency/tonkm

**Table 1: Demand and cost unit expression**

One supplier – one terminal – several customers:

The supplier is located on the axes by (X<sub>S</sub>, Y<sub>S</sub>), delivering the quantity S ( same units as the demand) to the terminal.

T<sub>S</sub> is the transportation cost to deliver products from the supplier to the terminal.

There are N customers – located on the axes by the (X<sub>ci</sub>, Y<sub>ci</sub>).

The customer demand is still D<sub>i</sub>.

T<sub>Ti</sub> is the transportation cost to deliver goods from the terminal to the customer i.

The terminal is located at the coordinated (X, Y).

Assumption about supply and demand is the same as in previous case (see formula1)

Then the localization of the terminal that minimizes the transportation cost is given by the following formula:

$$X = \frac{X_S \times T_S \times S + \sum_{i=1}^N X_{ci} \times T_{Ti} \times D_{ci}}{(T_S \times S + \sum_{i=1}^N T_{Ti} \times D_{ci})} \quad \text{and} \quad Y = \frac{Y_S \times T_S \times S + \sum_{i=1}^N Y_{ci} \times T_{Ti} \times D_{ci}}{(T_S \times S + \sum_{i=1}^N T_{Ti} \times D_{ci})}$$

**Formula 3: Coordinates minimizing transportation cost**

### 3.2.2.3 Integration of soft factors while deciding location of facilities

The development of localization theory presents a trend towards moving from purely cost related factors , such as optimal size, number and location of warehouses, to taking into account more intangible aspects , such as the environment (see table 2):

Determinants	Von Thunen (1875) (Gravity point method)	Weber (1929)	Hoover (1948)	Greenhut (1956)
Transportation	X	X	X	X
Production cost		X	X	X
Institutional factors			X	
Demand				X
Purely personal				X

**Table 2: Determinants considered by classic location theories**

Source: Li Li, E. (2004)

In his work Li Li (2004), explores what determines the location decisions of MNCs' logistics facilities. He examines 57 factors, correlates them and groups them in 13 groups and 13 original variables that couldn't be associated with a group. Similar investigation is made by Brush et al (1999) regarding the location determinants of a manufacturing facility but this is also relevant to distribution centres, because of the greater emphasis on networking along the supply chain. The insights of these two studies are similar and are combined in table 3.



Variable group	Factors	Determinant of location	Mean rating	Group average rank
Network nodes	Proximity of downstream nodes	Proximity to important markets	4.86	4.12
		Proximity to key customers		
		Proximity of upstream nodes	Proximity to key suppliers	
	Proximity of upstream nodes	Presence of distributors	4.11	
		Related to the existing production plants	4.54	
		Proximity to competitors	3.09	
Logistics and transportation	Logistics and transportation		5.03	4.03
		Good logistics services		
		Good logistics infrastructure		
		Efficient transport links		
		Quality of carriers		
		Proximity to major highway		
		Variety of carriers		
		Proximity to major airport	3.90	
		Proximity to major seaport	3.65	
Proximity to major railway	3.54			
National and regional characteristics	Government policies and regulations		4.05	4.01
		Access to protected markets /Regional trade barriers		
		Tax conditions		
		Government subsidies		
		Exchange rate risk		
		Customs duty		
		Environment regulation		
	Exit Strategy	3.55		
	Integrity of corporate books	4.21		
	Societal characteristics	Language, culture, quality of life	4.14	
Business attitudes		4.72		
Population density		3.41		
Access to factors of production	Access to capital and local technology		3.69	4.00
		Availability of capital financing		
		Banking services		
		Investment incentives		
		Insurance services		
			3.43	
	Access to skilled labour	Availability of industrial parks		
		Industrial cluster of the company's industry sector		
		Access to local technology		
			4.61	
	Cost of construction and land	Access to qualified technical personnel		
		Availability of qualified managerial personnel		
		Labor productivity	4.94	
Labor rate		3.92		
		3.75		
Prices of construction				
Availability of low-cost land				
Availability of industrial zoned land				
Cost of housing				
Availability of existing buildings for business	3.67			

**Table 3: Location determinants**

Source: Adapted from Li Li, E., 2004 and Brush et al (1999)

Bursh et al. (1999) original grouping was complemented with additional cluster of logistics factors. All factors were attributed to one of the four groups of variables, but some of the determinants are clustered and ranked together, while others are ranked independently, following the study of Li Li ,(2004).

*Proximity to Network Nodes.*

This cluster of variables is quite significant for locating a distribution centre since it emphasises on the relations with supply-chain partners. This is why the average rank of this group is the highest of the four clusters of variables. Though, it is evident that the proximity to downstream members is of primary importance.

*Logistics and Transportation*

When deciding on a logistics facility location, it is critical to take into consideration the transportation implications related to it. No wonder then that quality and availability of carriers and good logistics and transportation infrastructure are determinants have the highest ranking among all variables.

*National or Regional Characteristics*

The political and economic characteristics should be always considered, regardless of the outsourced activity, since they give the base frame of how the outlet will work and profit. Risks should be carefully assessed and cultural differences should not be neglected.

*Access to Factors of Production*

These factors seem more relevant when localizing a manufacturing facility, rather than a distribution one. Yet, factors of production such as lower cost of skilled labour and lower prices of real estate are of great importance to the later as well.

In conclusion, from this part of the theoretical framework becomes evident that the globalization of the market place has influenced the logistics field as well. Distribution centres are designed to serve regional markets, and yet tendency to outsource those to the most suitable locations is inevitable. Location decisions have always been complex, but nowadays they have to incorporate more and more factors to actually achieve their goals.

### 3.3 LOGISTICS COST AND COST DRIVERS

This part of the chapter will present the main costs associated with logistics and transportation activities and their drivers. They will serve as a base for the calculations in the empirical analysis.

#### **3.3.1 Types of costs**

Costs are classified according to many different criteria, for the purpose of this thesis attention will be paid solely to costs associated with logistics: transportation, warehousing, carrying costs, which will be categorized by one criteria, do they depend on the volume of the activity or not (Harrison & Remko, 2002). This divides them in:

##### *3.3.1.1 Fixed Costs*

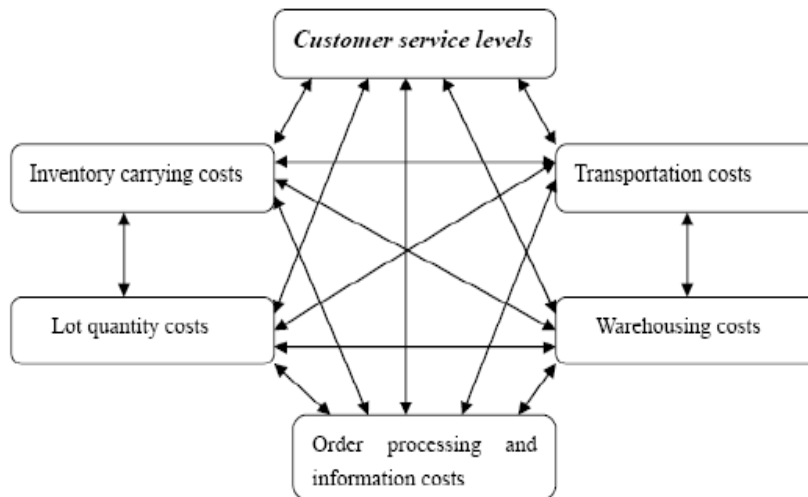
These costs do not change according to the volume of the activity that incurs them. They are constant for a long period of time, so that the cost is distributed over a greater volume. For instance, renting a warehouse space is usually a fixed cost, so it is better to utilize the whole space.

##### *3.3.1.2 Variable Costs*

Here expenses are based on the volume of the activity. Thus if we can decrease consumption of that activity, we will decrease the cost as well. An obvious example is the cost for fuel in transportation.

### 3.3.2 Total Costs in logistics

According to Stock et al. (2001) , the total cost integration, regarding logistics , includes five components: transportation costs, warehousing costs, order processing cost , lot quantity and inventory carrying expense.



**Figure 8: Cost trade offs in logistics**

Source: (Stock et al, 2001)

According to Earnest and Whinney (1985) the order processing costs might be included into the warehousing costs. Additionally, the lot quantity has an impact on the transportation expense and the inventory carrying expense, thus it is hard to take it into consideration separately, especially if the company is heavily dependent on its customers' specific requests and cannot afford to consolidate goods. That is why emphasis will be put on the three basic cost components: transportation, warehousing, inventory carrying expense.

#### 3.3.2.1 Transportation costs

These costs are variable in nature, because the common practise in transportation pricing is to base the cost for transportation on:

- Volume or /and weight of goods carried
- Travelled distance
- Number of deliveries

The distance that should be travelled is a parameter that could not be changed due to the specific geographical locations of suppliers, manufacturers, distributors and customers. So the tool to be used to decrease transportation expenses is the consolidation of goods, leading to fewer deliveries. This of course, has a substantial impact on customer service quality because clients should wait for their orders first to be consolidated and then shipped. That is why distributors and other 3PL service providers exist: they might efficiently collect goods from many suppliers, thus being able to reach faster full utilization of trucks' capacity.

#### 3.3.2.2 Inventory carrying costs

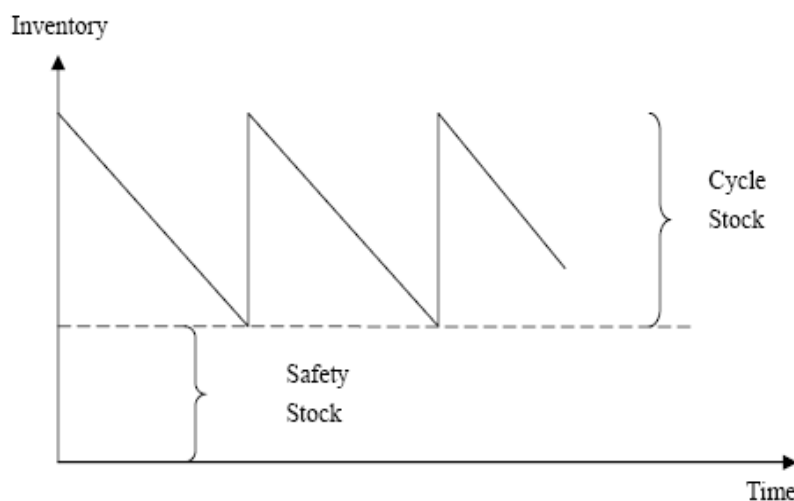
The compute the value of the capital tied-up in inventory , otherwise known as inventory carrying expense we need to multiply the annual inventory carrying percentage and the average inventory value (Bowersox, 2004) . As simple as it sounds, it is in fact quite tricky

to determine both parameters. First, to get the correct inventory cost percentage we should incorporate not only the alternative cost of capital and insurance, but also considerations as country taxation, risk of obsolescence of the goods, and others which are relevant to the specific product and its location. Regarding, the other parameter: the inventory value, the first question that comes naturally is which the product value is: the selling price, the manufacturing price, the purchasing price, or any other price. Usually inventory value is based on purchasing price rather than on selling one. Second question that has to be solved is what actually comprises the inventory itself. This leads us to the different types and conditions of the inventory along the distribution chain.

*Types of inventory and their costs:*

It is a common notion that goods are regarded as inventory only when stored in the warehouse. However, while goods are transported they are still regarded as inventory but are stored in the vehicle for the time of transportation. This leads us to the first major classification warehouse inventory and in-transit inventory. The average inventory then is a sum of those two types.

The inventory in the warehouse is comprised by another two elements: cycle stock and safety stock. Figure 9 shows that the safety stock is a constant, given the company has set certain service level, while the cycle inventory is constantly depleted and is also dependent on the lead-time.



**Figure 9: Average inventory**

Source: Jensen, A., (2007)

The cycle inventory that a company holds is the quantity that it uses to meet demand for a certain period (a cycle). Thus when the firm places an order knowing that it will take certain time till it is received and bases the order quantity on both demands forecast and order lead-time. So the average cycle inventory is half the order quantity ( $Q/2$ ). To get its holding cost we incorporate the alternative cost of capital and insurance and the unit cost of the goods:

$$\text{Holding cost for cycle stock} = Q/2 * I * C$$

Q-order quantity

I-interest rate+ insurance

C-unit cost

**Formula 4**

The cost elements reveal the potential for savings- decreasing any of them will lead to decrease in the total holding cost. Countries vary in the price of capital (interest rate), risk, and the manufacturing expenses of the product, which comprise the unit cost (C). Outsourcing to a location with local low capital rate and insurance rate helps to reduce costs of tied-up capital (I), while low cost of production factors lead to low operation costs and decreases the unit cost(C).

The other element seen on figure 9 is the safety stock that is maintained in the warehouse. Companies keep certain constant amount of good besides the orders they place, so that they can meet unexpected peaks of customers demand. It also depends on the interest rate, insurance and unit price , and yet the main determinant here is the decided stock availability level or fill rate (V): *'fill rate is the percentage of units that can be filled when requested from available inventory.'* (Bowersox, 2007). Another component is the combined standard deviation of lead-time and demand ( see formula 5 below):

<p>Holding cost for safety stock= <math>I * C * k * \sigma_{L,D}</math>  <math>E(k) = (Q / \sigma_{L,D}) * (1 - V)</math>  E(k)-probability density function of the normal distribution  k-service factor  <math>\sigma_{L,D}</math> -combined standard deviation of lead time and demand  V- fill rate  Q-order quantity  I-interest rate+ insurance  C-unit cost</p>
--

**Formula 5**

This shows that if the company wants to maintain higher availability level (V) or/and there is high uncertainty in customers demand of order lead-time ( $\sigma_{L,D}$ ), the holding cost for the safety stock will increase. Consequently, in an outsourcing situation the benefits of lower unit value and cost of tied -up capital, could be outperformed by the higher uncertainty of demand and lead-time.

Inventory does not incur cost only while stored in the warehouse. Its value as a tied-up capital should also be considered when it is 'stored' in the vehicles, while transported. In this condition it is known as transit inventory and its cost is dependent again on the unit cost, but foremost on the time for transportation –the transit time (T). Since all goods were brought to the warehouse then the annual costs for the transit inventory is based on the total inventory brought to the warehouse during the year, as expresses in formula 6:

<p>Holding cost for stock in- transit: <math>S * D * I * C</math>  S-goods delivered to the warehouse  T-average transit time  I-interest rate without insurance, if taken by the carrier  C-unit cost</p>
--

**Formula 6**

The cost driver that could be influenced the most here is the time which goods are transported, yet faster transportation means also more expensive transportation and the trade off between carrying expense and transportation cost is likely to be in favour of the transportation expense then the other way around.

### 3.3.2.3 Warehousing costs

One of the elements, though which has a heavy impact on firm's operations are the expenses spend on the warehousing activities. Costs of warehousing are incurred from the activities carried out there. As shown in table 4 these are:

ACTIVITY	Description
RECEIVING	Unload the vehicle. Check that products are not damaged.
PUT-AWAY	Location for product is identified and inventory records are updated.
STORAGE	Products are physically stored.
ORDER PICKING	Products are retrieved from storage. Inventory records are updated.
PACKING, MAKING AND STAGING	Products are appropriately packaged, labeled, and placed on loading docks for shipment.
SHIPPING	Load vehicle. Bill of lading and notification of shipment prepared.

**Table 4: Warehousing activities**

Source: Roth & Sims, ( 1991)

The receiving and put-away functions comprise handling-in function, the product retrieving, picking and shipping are known as handling-out. The information update on goods received, stored, and the implemented orders comprise the order processing cost. Activities related such as labelling and repacking are known as value-adding activities and are normally charged separately. The handling-in and -out costs determine how efficiently the warehouse works and normally they are included in the charge that is paid by the customer of the warehouse, as a monthly fee but they could also be variable if the contract terms are based on volume of goods processed. The value-adding services are commonly charged based on work done, so they are variable in nature as well. The renting of a certain amount of storage per a period of time is usually a fixed cost, since it is dependent on space and period and not on the utilization of that space, but there are cases when this cost is variable and warehouses charge customer per pallet place actually taken. The above mentioned costs presented what the client is charged for.

On the other hand the perspective of a warehouse owner/manager is quite different. The heaviest investment is comprised by the start-up costs for establishing the facility and the costs for information system and other technical equipment. Operating costs are the next component, where the most substantial ones are the labour costs, including some additional training costs.

In summary, total cost integration in establishing and operating distribution facilities should at least incorporate the three basic sources of expenditure: transportation, inventory carrying costs and warehouse expenses. The contradictory nature of movement and storage, means that influencing on any one of these costs, impacts the other. To decrease inventory carrying cost and warehousing costs, will require transporting more often small quantities which will increase transportation costs. The extreme of this is just-in-time delivery, with produce-to-order strategy, where the supplier produces on predetermined plan and goods are not stored at all in a warehouse but are shipped directly to the manufacturer. Thus only transportation and in-transit inventory expense are incurred. However, this is quite fictional situation so often companies should consider the trade-off between transportation and carrying and warehousing costs. Yet, in reality not only cost parameters should considered, but many other

elements, such as backorders, customer service, uncertainties in the countries where the warehouses are located, transport infrastructure and its future development. When companies are too focused on juggling with cost savings and let their customer service drop, the result is more likely to be bankruptcy than higher profit.

## PART TWO

*The second part of this paper will present the case at hand. In the beginning the mobile phone industry will be presented in order to introduce the business environment and reveal the position of the company along the supply chain. Then follows the description of Brightpoint Inc. and more specifically its Slovakian distribution centre and the way it operates. The market analysis of the countries from the Balkan region is carried out next. Further, the outsourcing and the logistics attractiveness of Bulgaria are explored. As part of this assessment, some cost implications are analyzed. The work is completed with a final chapter summarizing the results and conclusions obtained throughout the investigation and some suggestions for future research.*

### 4 INDUSTRY PROFILE

There is hardly another industry but the mobile phone one that is characterized with so substantial and yet continuous annual growth. Two parallel factors contribute to that. The fast technological development in the wireless industry accelerates the supply of new models, while in the same time the handset ceases to be regarded as a sophisticated engineering product and turns into popular electronic consumer good. This trend puts extra pressure on all of the actors in the supply chain of mobile phones in the attempted to provide the end-user with the right product, at the right place and time, at the right price. However, evidence shows that the industry does not function quite supply-chain like and inefficiencies exist almost at every participant (Catalan, 2002). This problem is related to the specifics of the product and its demand, on the one hand, and the complexity of the supply chain and the power relations among the players, on the other.

#### 4.1 PRODUCT TYPE AND DEMAND CHARACTERISTICS

Some authors, among whom Lehtinen (2001) and Fisher (1997), believe that various product characteristics, e.g. product technology, level of standardization and product life cycle (PLC), determine the optimal structure of supply chains. For instance, when discussing the level of technology, product complexity, regarding the number of components, affects the structure of the network and the management requirements to the supply chain members. Arlbjørn's (2000) analysis of these factors is presented in table 5, below:

<i>Factors</i>	<i>Characteristics</i>
Mobile phone construction	Complex microelectronics due to many electronics, mechanical and electro-mechanical components. Huge research and development ( R&D) costs, global production and logistics issues in managing component capacity. Several post workloads towards 'box build' throughout the supply chain ( e.g. SIM card , manuals, etc.)
Technology level	Mobile phones have a high level of technology characterized by advanced R&D due to constant new mobile technologies
Product lifecycle	'Life-cycle-development-paradox': total lifetime including R&D is typically five years but often product lifecycle (PLC) is only six to eighteen months! High innovation in technology, development and replacement level means short PLC.



High volume production	OEMs make most of the profit by introducing ‘big product hits’ like Nokia 3310 compared with the problem that high innovation means possibility of high earnings. However, at the same time the huge investments in R&D requires that mobile phones are sold in high volumes with few months of high volume sales opportunity ( in the first months the rate of return is three to five times higher than at the end of the PLC). Therefore production has to be very streamlined. It is very costly to set up sales campaigns and price reductions to get rid of obsolete goods.
Mass customization	The mobile phone is a fashion product orientated towards ‘killer’ segments e.g. youth or businessmen, B2B customers have very heterogeneous preferences with specific requirements to design.
General demand	End-user demand is very uncertain.
Seasonality	Besides the general demand with high season in Christmas time there is an active diverted demand based on campaigns typically every six to eight weeks.

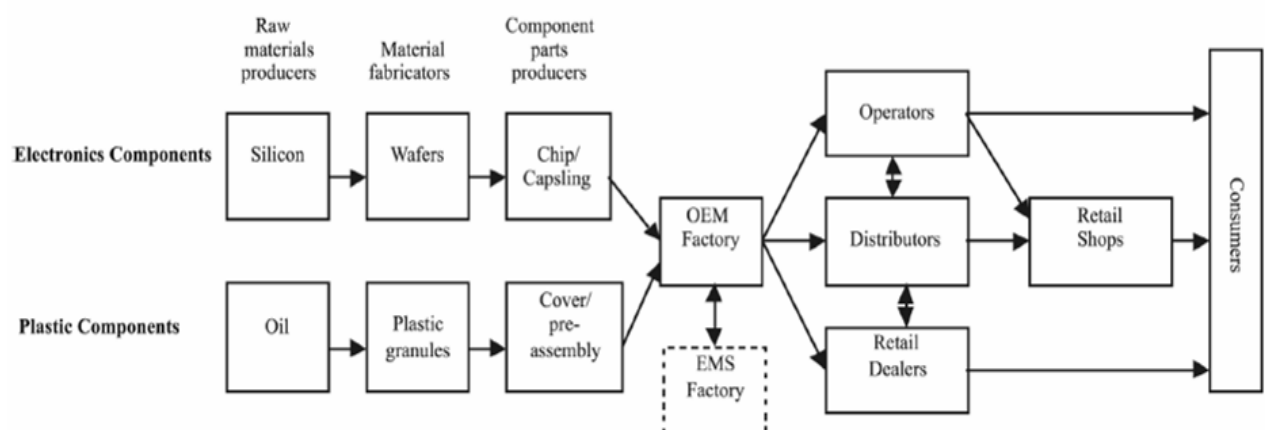
**Table 5: Dimension of mobile phone supply chain products complexity**

Source: Arlbjørn, (2002)

To sum up the characteristics for mobile phones are high design and manufacturing complexity; high R&D costs combined with short product development cycles leading to high risk because product obsolescence occurs quickly; volatile, unpredictable demand, and a multi cultural, global market ( Bechtel , 2001). Additionally, the handset has become a mass-oriented fashion product where design plays a critical role, leading to accelerated launch of new models ,further shortening of the PLC and the ‘window of revenue opportunity’ ( Fisher, 1997). Finally, the high level of customization of the product makes it hard to handle logistically and imposes further efficiency requirement on the supply chain performance.

#### 4.2 THE SUPPLY CHAIN

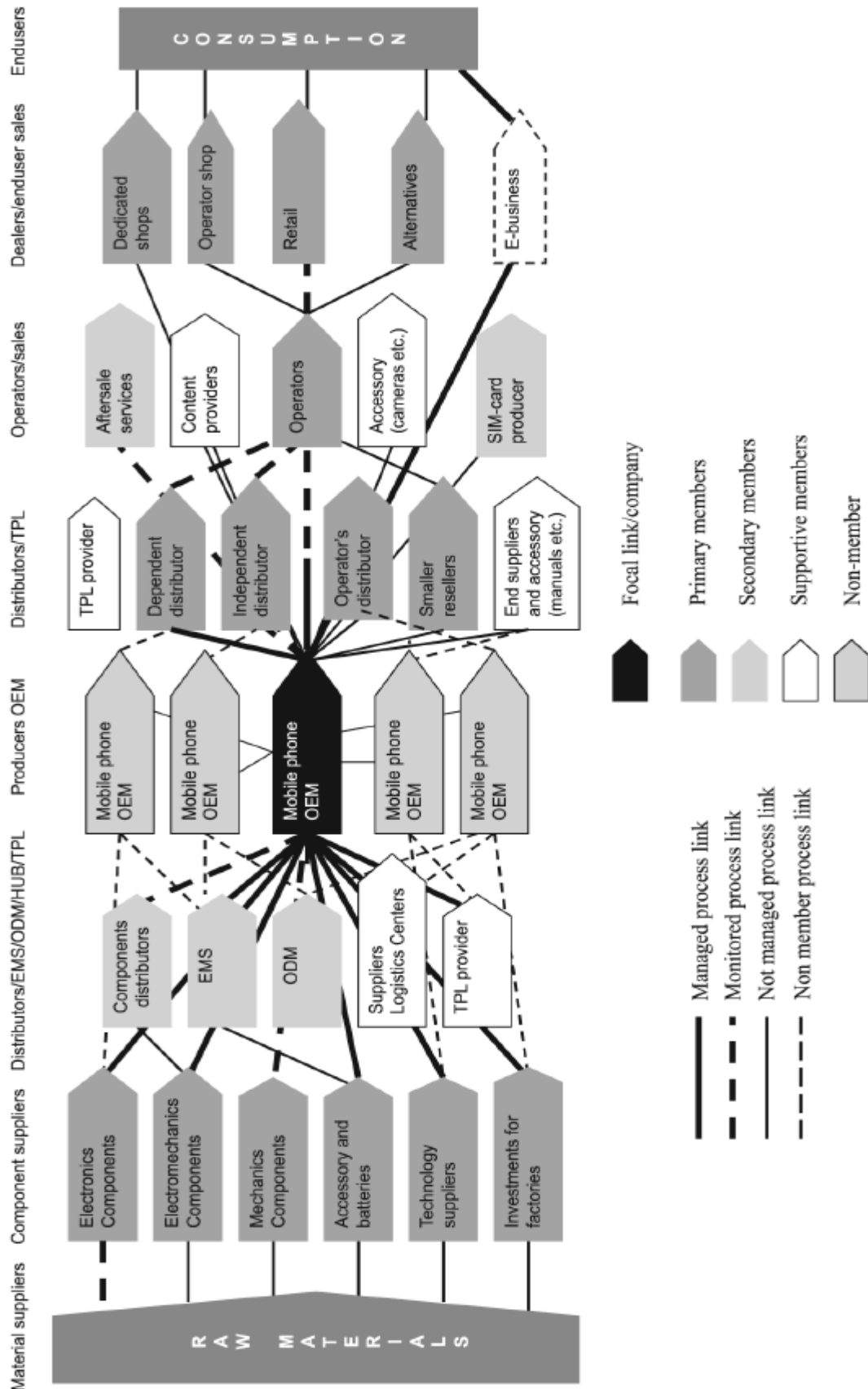
The supply chain of mobile phones has the basic outlay as presented by Olhager et al. (2002) in figure 10. The upstream members are the producers of raw materials and components supplying the original equipment manufacturers (OEMs) , while the downstream partners are the operators, distributors and dealers to which the OEMs mass sale their products, and finally the retail shops as the most common meet point with the end-users.



**Figure 10: Basic structure of mobile phone supply chain**

Source: Olhager et al. (2002)

However the reality is not that simple and the relations among the members of the SC are quite more complex as you can see in figure 11.



**Figure 11: The mobile phone supply chain**  
 Source: Catalan, M. & Kotzab, H. (2003)

The raw materials and component suppliers rely mainly on OEM's orders to plan production. There is hardly any point of sale data or finished product demand forecasts used to determine capacity upstream the chain which reveals poor flow of information along the chain.

The OEM's base their component procurement mostly on forecasts and not that much on sales data. When planning production, on the contrary, OEMs meet with distributors, operators and dealers, to discuss their point of sale data and future actions, and hold these to support their own market forecasts. Since manufacturers source not only on a local and regional level, but also globally, the flow of information between them and all other actors is through order management and daily operation management (sales data) information systems and forecast data exchange via phone and Internet/ intranet. The production process itself is broadly comprised of three stages:

- (1) surfaced mounted assembly of printed wiring cards/boards;
- (2) automatically or manually mobile phone assembly; and
- (3) finally packaging followed by shipment.

The first two phases are usually carried out in a producer's country representative plant or distribution centre depending on capacity and model etc. Sometimes that factory does not manufacture the complete product but uses the so called electronics manufacturing service (EMS) providers to finish the product. Stage three refers to packaging and shipment of the goods in their hardware form and not the customised product that is sold to the end-users.

What follows next is a pretty complex plethora of activities carried out by operators, distributors, dealers and retailers. It is not really well defined what scope of activities should solely belong to each member group, so as much as they cooperate they also compete amongst each other. It is common that operators contract distributors to carry out the final customization of the product, with all the necessary software loading, manuals, packaging and accessories needed. Sometimes, though operators procure mobile phones directly from the manufacturers and sell them together with the subscriptions to the dealers or retailers. Distributors apart from carrying such value –adding activities usually also take care of inventory management and other logistic activities with the physical of goods, on the behalf of the operators and retailers, so even when ordered through operators, mobile phones are delivered and replenished by distributors. Finally, dealers might be either independent or influenced by the operators, due to the high subsidies for selling operator's subscriptions. That is why they source the handsets through their headquarters from operators or distributors. Dealers share their point of sale data with their partners upstream, so that they could have relevant view on demand and collaboration goes only as far. While component suppliers and raw material suppliers are totally disintegrated from the market end of the supply chain, which only comes as an evidence for a quite fragmented chain.

#### 4.3 ACTORS AND THEIR RELATIONSHIPS

It is interesting to explore what relationships exist among the partners and how they are managed. As mentioned before the level of partnership is quite limited. Maybe the closest level of commitment is joint planning performance measures on concurrent engineering projects in sourcing between OEMs and suppliers. Yet, the project character of the relation indicates its short term nature. The strongest constant collaboration in the form of vendor-management-inventory systems (VMI) exists between OEM and EMS/logistics service

providers. Since such partnership with component suppliers is sporadic, high inventory holdings of components and unfinished products are stored in many stock locations.

Downstream information about campaigns of operators and dealers is shared with country OEMs representatives rather to prevent from stock-outs than from piling up of inventory, which indicates the unstable character of the relationship and lack of trust. Another indication of low commitment among partners is that just the teams which are involved in the inter-organizational relations tend to work together, mainly the sourcing teams of the producers with the suppliers, while shared policies, philosophies and managerial practices among the members do not exist. Integrated information systems and information sharing through electronic data interchange (EDI) and automated data exchange is common between OEM and EMS but further downstream that integration is on a lower level mainly low EDI-integration or by line systems from operators.

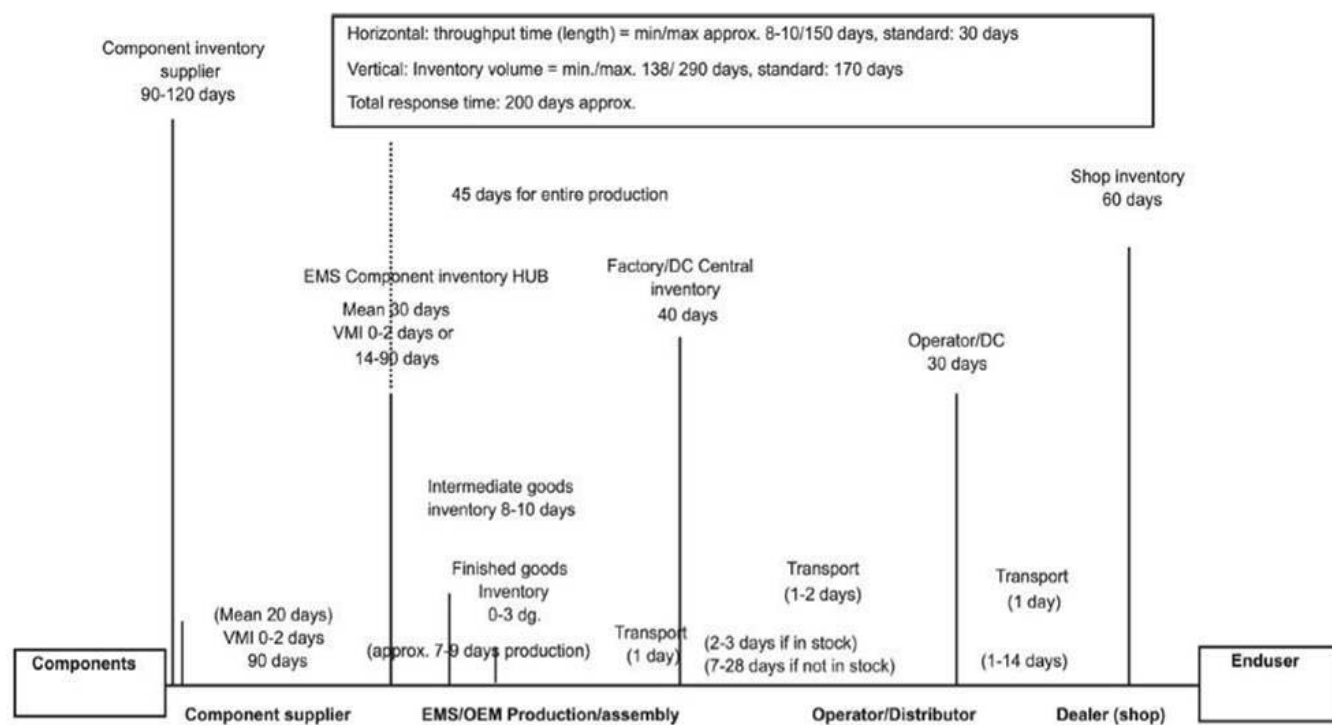
Another indicator of poor integration of the supply chain is the lack of sharing risks and rewards. Every member tries to limit its own risk of piling up with obsolete stock. Thus inventory management is largely outsourced to distributors and EMS. Rewards, on the other hand are shared between OEM and contract developing companies, only when specific campaigns have been successfully carried out. As seen from the supply chain organization and its members' behaviour, OEMs and the mobile operators hold dominant power in the chain, especially the operators because of the heavy end-user subsidies. All participants are bonded through volume contracts, and yet information exchange about new models from the OEMs and future campaigns from the operators marks the deeper level of commitment between those two.

The management of the external and internal relationships within and out of the supply chain can also give insights of its performance and responsiveness. First, the customer relationship management, regarding key markets and customers again indicates the power of the operators. End-users are segmented by the OEMs and the operators, but mainly B2B customers are in the focus. Those are evaluated on volume, market shares, assortment and loyalty. Furthermore, dealers although managing end-user sales are still depended by the operators which hold the end-users subscriptions, and for the same reason OEMs do not interact directly with the business clients. Each member is a customer to its upstream partner, so the level of customer service is mainly through direct orders from intra and internet on-line access. While again higher customer service through personal contacts, and monthly meetings are common for OEMs and operators. Retailers, on the other hand use shop campaigns with 'roadshows' to meet their private clients. Good indicator for better responsiveness of the supply chain to its end-users, though, is that now it takes few hours to return a mobile phone, compared to the 14-day period to get the device back to the factory as it was before. Presenting new products is tricky not only for dealers and retailers but also for the OEMs, which try to carefully align new releases with existing demand. Retailers, dealers operators, all provide available point of sale data and six to twelve months demand forecasts to the OEMs to avoid stock-outs. Since manufacturing is high volume, a standard product is produced to stock, approximately 70% and a customized variant is build to order -30%. Production is automated but optimal production line structure is not always possible because of high requirements to capacity flexibility by handling specific lines in high volumes. Orders come mainly from operators (95%) with  $\frac{1}{4}$  of their orders being from distributors which will later sell it to the operators, and there are just some large dealers which are able to order directly from OEMs. However, the ordering process is time consuming because of poor ERP systems. As for ordering upstream from OEMs to their suppliers, there to ensure capacity the manufacturers source years before actual production and develop strategic plans with core suppliers, regarding both materials to be supplied and facilities responsible for that.

This is so because product development comprises the greatest part 70-80% of the product price, involving five years of basic research, two of product design and development and just after that mass production manages to cut costs, so that ensuring high volume production with supplies is critical.

#### 4.4 LOGISTICS CHARACTERISTICS OF THE SUPPLY CHAIN

From logistics perspective it is important to assess the inventory levels and delivery time efficiencies along the supply chain. Starting with the sourcing of components, the best case scenario is when there are VMI agreements, so delivery takes maximum two days, and yet this applies only for certain components. Delivery of parts not subject to such arrangements might take as long as 80-90 days, depending on whether they are ordered directly from suppliers, hubs or distributors. On average components are on the way for about three weeks. The worst case scenario of the throughput time for manufacturing a finished product from the point of ordering components is approximately 130 days, the most optimistic one is 8 days, while the most common one is 30 days. There many inventory buffers throughout the supply chain. The highest levels are at the component suppliers and the retailer, while manufacturers also keep stock but much less and even lesser is the inventory at EMS, since they work with the OEMs on VMI bases. Due to inefficiencies with delivery the total order cycle time for the product to reach the market is 200 days, whereas inventory levels along the chain sum up to a mean of 170 days. Sometimes although orders are simultaneously received by the country representatives and the OEMs factories, delivery takes longer because the ERP systems of those two take up to five days to get it into the order fulfilment systems at the factory. This is a clear evidence for disintegrated supply chain with lack of information exchange and visibility, resulting in long order cycle times and high inventory levels. Figure 12 presents the results on pipeline map suggested by Scott and Westbrook (1991).



**Figure 12: Pipeline map for the mobile phone supply chain**

Source: Scott & Westbrook, (1991)

Finally as discussed before from the point of initial research, through product development and finally to market it takes five years. The time to market of a model, if considered from specific model development is two years, but some manufacturers managed to shrink it to under a year. Nevertheless, the time to market process is often delayed by test run by the operators before launching the model to an operator's network. Furthermore, all the accessories are often delayed as well, which influences total sales. Keeping in mind the short PLC and opportunity for revenue, it is evident that the supply chain of mobile phones suffers from its disintegration, having large inventories and being inflexible and slow in responding to the market needs.

## 5 CORPORATE PROFILE

### 5.1 BUSINESS DESCRIPTION <sup>1</sup>

Brightpoint Inc. is a global leader in the distribution of wireless devices and accessories and provision of customized logistic services to the wireless industry including wireless network operators and Mobile Virtual Network Operators (MVNOs).

The firm's operations are managed through two divisions: distribution and logistic services. Brightpoint's distribution division purchases a variety of wireless voice and data products from leading OEMs. The company frequently reviews and evaluates wireless voice and data products in determining the mix of products purchased for distribution. Major products are wireless phones, PDAs and handheld devices, integrated devices, modems, accessories, such as batteries, chargers, memory cards, car-kits, cases and hands-free products and software. There are three core service areas: logistics, activation services and advanced wireless services. Generally, logistic services are fee-based services, including procurement, inventory management, software loading, kitting and customized packaging and e-fulfilment. In Brightpoint's activation services business, the company provides a cost-effective channel for mobile operators and MVNOs to add new subscribers. This is done by establishing and managing a network of independent authorized retailers Access point Dealer Network (ADN). Brightpoint ADNs access to products and support them through commission's management, sales and marketing programs, merchandising programs, training programs, incentive programs and cooperative advertising. As these retailers activate or upgrade subscribers, they earn commissions from mobile operators. Brightpoint collects these commissions from the mobile operators and pays the retailers their pro-rata portion of the commissions after deducting fees. The advanced wireless services include accessory packaging services provide mobile operators and retail chains with custom packaged and/or branded accessories based on the specific requirements of those customers.

### 5.2 PURCHASING AND SUPPLIERS

The wireless devices distributed by the company include a variety of devices designed to work on various operating platforms and feature brand names such as Audiovox, Kyocera, LG Electronics, Motorola, Nokia, Qtek (a product of High Tech Computer Corp.), Samsung, Siemens and Sony Ericsson. Most of the company's prepaid airtime business model is in Europe and Asia Pacific divisions, done on behalf of mobile operators and MVNOs such as: Virgin Mobile (United States), Vodafone (Australia and New Zealand), Sonofon (Denmark), Tele2 (Sweden) and TelliaSonera (Sweden).

### 5.3 MARKETS AND SALES

The company has operations centres and/or sales offices in various countries including Australia, Colombia, Finland, Germany, India, New Zealand, Norway, the Philippines, the Slovak Republic, Sweden, United Arab Emirates and the US. The company markets and sells these products to approximately 20,000 customers located worldwide. Product distribution revenue includes the value of the product sold and generates higher revenue per unit, as compared to logistic services revenue, which does not include the value of the product. In many of Brightpoint's markets, the company has contracts with mobile operators and wireless equipment manufacturers to provide logistic services. These customers include Sprint Nextel (US), Virgin Mobile (US), TracFone (US), ALLTEL (US), MetroPCS (US),

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<sup>1</sup> Information is based on corporate official website, and Datamonitor report for 2007

Cricket Communications (US), COMCEL (Colombia), T-Mobile Slovensko (Slovak Republic) and Vodafone (Australia). Brightpoint also services prepaid subscribers through its prepaid airtime business model. The company purchases physical scratch cards or electronic activation codes from mobile operators and MVNOs and distributes them to retail channels.

The company recorded revenues of \$2,425.4 million during the fiscal year ended December 2006, an increase of 13.3% over 2005. Brightpoint identifies its reportable segment based on its geographic division. The company generates revenues through three business divisions: Asia Pacific (46% of the total revenues during fiscal year 2006), Americas (33.6%), and Europe (20.4%). During the fiscal year 2006, the Asia Pacific division recorded revenues of \$1,115.7 million an increase of 3.2% over 2005. The Americas division recorded revenues of \$814.6 million in fiscal year 2006, an increase of 20.7% over 2005. The Europe division recorded revenues of \$495.1 million in fiscal year 2006, an increase of 29.1% over 2005.

The company's strong customer base has helped it to attain a strong foothold in the industry. Opportunities are seen in the increasing mobile phone sales and the rising number of MVNOs but the threat of technological obsolescence and consolidation of mobile operators will reduce the number of potential contracts available to Brightpoint and other providers of logistic services, thus, effecting its revenues and margin. The company should also maintain its strong position towards its major competitors: Ingram Micro Inc., Aftermarket Technology Corp., Tescos Technologies Inc, InfoSonics Corporation.

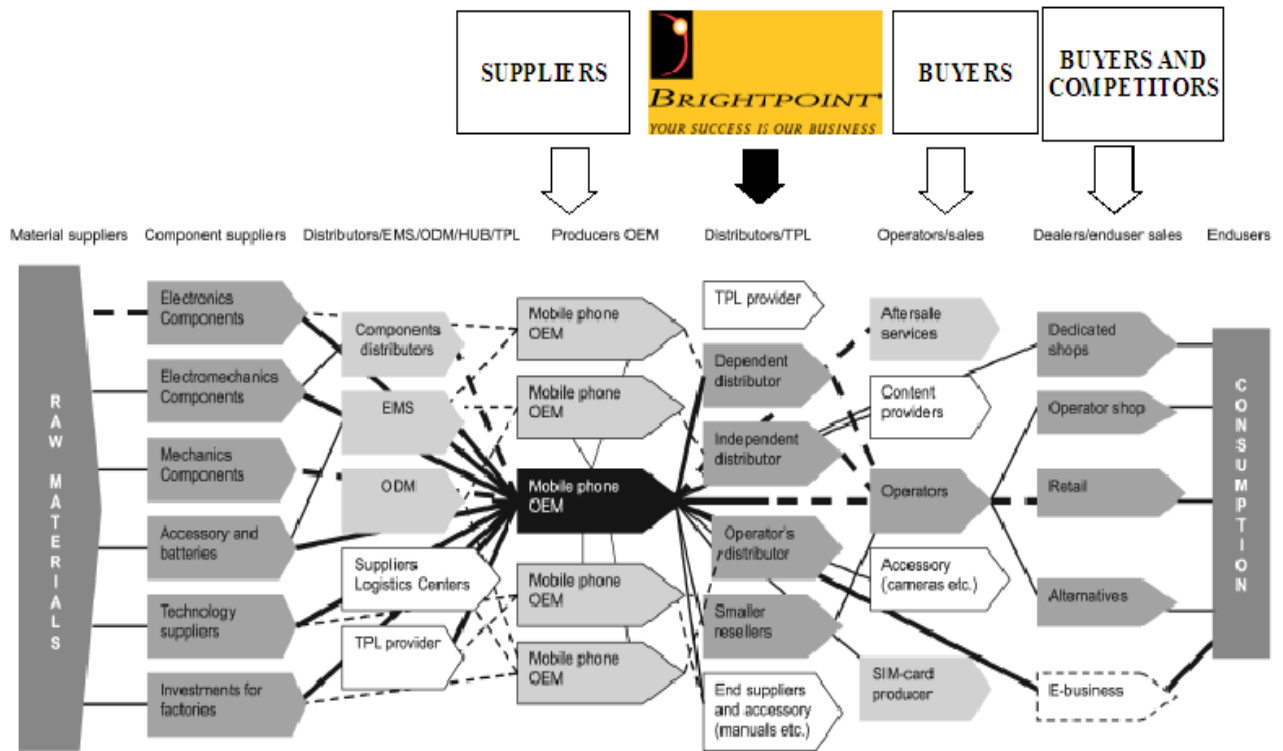
#### 5.4 BRIGHTPOINT SLOVAKIA (CASE DESCRIPTION)

Brightpoint Inc. started its business in Slovakia in 2004 and currently employs 130 people. The facility in Slovakia serves clients all around Europe and on rare occasions it ships to USA, Asia and Latin America.

##### 5.4.1 Business activities

The company is a major distributor of mobile phones, accessories and personal computers. It is a major Supply chain integrator for Intel and became a Master Agent Distributor for Motorola for CEE in 2006 ( Brightpoint Magazine, vol. 5, 2007). It does not only distribute them, but one of its main businesses is to customize the items to the national markets that they will be sold on. As described in chapter four, the company is responsible for making from the generic product what is called a start kit. This means that Brightpoint takes care of all the packing, software loading, adding chargers, accessories and manuals, so that the product is ready to be sold on the market. There are two main products that the company deals with: mobile handsets and notebook computers. Another major line of business is that Brightpoint Slovakia carries out all the back office activities of a major mobile operator in Slovakia T-Mobile. This includes inventory warehousing, order management, distribution logistics, return management, custom fulfilment, contract invoicing and collection. On the laptop segment Brightpoint is a channel integrator of bare-bone notebooks, which carry Intel chipsets. It receives them from the ODM manufacturers and after kitting ships to Intel's EMEA distributor and reseller channels. This includes the following services: order management, centralized procurement, inbound logistics, custom fulfilment, distribution logistics, return management, channel invoicing and collection. The overall position of Brightpoint along the supply chain of mobile phones is shown on figure below:



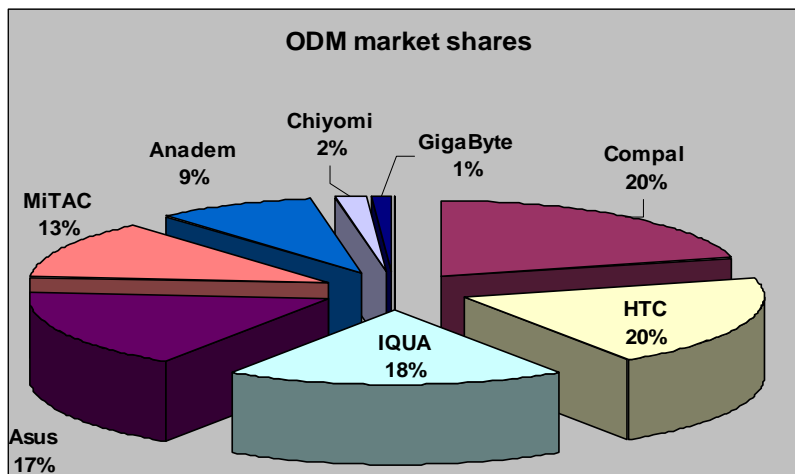


**Figure 13: The position of Brightpoint in the supply chain**  
 Source: Adapted from Catalan ,M. & Kotzab, H. ( 2003)

**5.4.2 Description of the material flow**

Sourcing

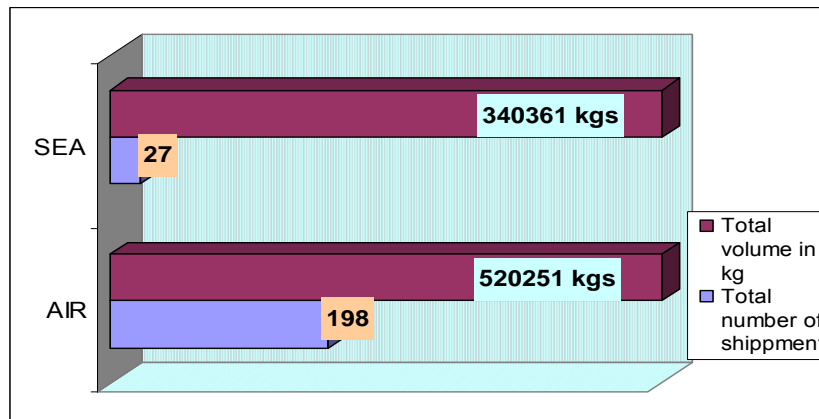
Sourcing is done mainly from Asia. The main suppliers of Brightpoint are: Compal, HTC, IQUA, Asus, Mi TAC, Andem, Chiyomi and GigaByte. The market shares of the main suppliers are shown on the figure 14 below:



**Figure 14: Brightpoint's suppliers**  
 Source: Based on corporate records

Most of the shipments of mobile phones or components related to them are smaller and urgent, that is why they are shipped by air from Asia to Europe. The PC segment is under the agreement with Intel. Most of the shipments come by sea transport. These are loads from

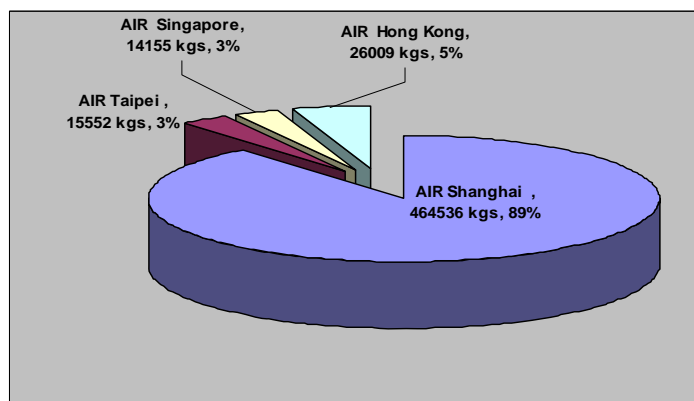
Asus, Compal and Mi TAC. The maritime transport is also from Shanghai. The total volume of shipments by air is: 520 251 kgs. Up to November 2007, 340 361 kgs came by sea transport. It is just natural that the volume transported is almost as much by both means of transport, regardless of the great difference between the number of shipments made by each ( see figure 15 below)



**Figure 15: Shipments by number and volume made by sea and air**

Source: Based on corporate records

The main origin points that the products shipped by air come from are: Shanghai, Taipei, Singapore and Hong Kong , with the leader being China (see figure 16 below). They are received at Vienna Airport in DHL's terminal and then are truck hauled to Bratislava.



**Figure 16: Volumes sourced by origin point**

Source: Based on corporate records

From Shanghai the company sources Compal, Asus , Mi TAC, HTC, Anadem, Quanta, IQUA. From Taipei come the products of HTC, Chiyomi , Andem, Asus, Gigabyte and Mi TAC. IQUA are sourced from Hong Kong and Singapore. The transportation of shipments from Singapore is not paid by the company.

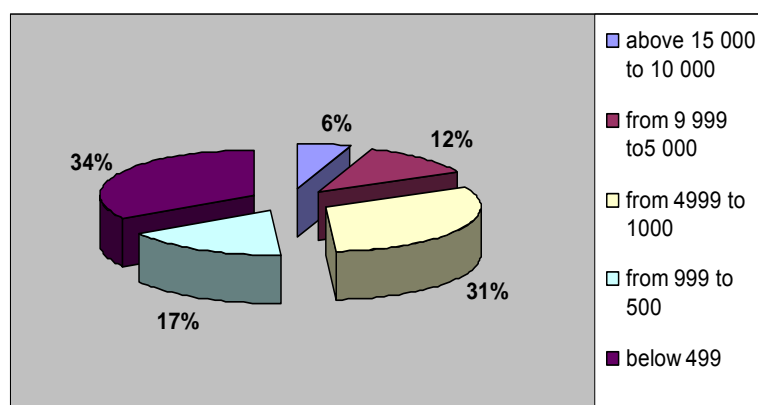
Further when we look at the expenses comparing sea and airfreight, it is common logic that shipping more goods at once by slower transport is much cheaper. In Brightpoint's case its 3 times cheaper 1 euro per kilogram by sea compared to 3 euros per kilogram by air transport.

Country	AIR Shanghai	AIR Taipei	AIR Singapore	AIR Hong Kong	Total AIR	SEA
Total volume in kg	464536 kgs	15552 kgs	14155 kgs	26009 kgs	520251 kgs	340361 kgs
Average volume per shipment	3366 kgs	518 kgs	2831 kgs	1084 kgs	1950 kgs	5752kgs
above 15 000 to 10 000	11	0	0	0	11	
from 9 999 to 5 000	23	0	1	0	24	
from 4999 to 1000	48	3	3	8	62	
from 999 to 500	14	13	1	6	34	
below 499	42	15	0	10	67	
Total number of shipment	138	31	5	24	198	27
Total payed for inbound	€ 1,474,935	€ 42,022		€ 95,334	€ 1,612,291	€ 184,347
Average cost per shipment					€ 3	€ 1

**Table 6: Sourcing summary**

Source: Based on corporate records

However it is almost impossible to sell such sensitive product as the mobile phone and wait for goods to be consolidated and then travel for such a long time. These goods are light and small, that is why the shipments could not be big in volume. 34 % are shipments below 500 kg, and together with the next class shipments below 1 ton these comprise more than half of the overall shipments by air. In figure 17 are shown the shares of shipments by weight class.



**Figure 17 : Shares of shipments by weight class**

Source: Based on corporate records

The shipments by sea come in 20ft and 40ft containers, with the average weight being about 6 tons. The ports that DHL is using for receiving the cargo are Rotterdam, Hamburg or Antwerp, and then the containers are loaded on a train and transported to Vienna. Finally, they are brought to the warehouse by truck.

#### The warehouse:

The facility is situated near Bratislava over an area of 9 000 sq.m. Warehousing space is rented from the owner of the warehouse and there is a plan for further expansion and rental of an additional 6 000 sq.m . It has 6 shipping decks on each side, each side being used solely for shipping or receiving. The goods come in bulk, packed in carton boxes and are stored in a zone known as “goods unshipable”. The same applies for all the other materials, such as paper for packaging, manuals, promotional items which are to be packed together with the handsets. These are stored on standard racks, on four levels near the receiving area. Then in the middle is the 1 500 sq.m kitting area, with conveyor belts, where the employees consolidate the handsets with chargers, manuals and pack them in boxes so that they are

ready to be sold on the market. Then the ready products are distributed according to the received orders from clients and are stored on smaller racks in the final area “goods shippable” near the 6 shipping gates. There are 65 people on average working in the warehouse, however in peak times this number could double, with the help of temporary hired employees.

The company does not calculate handling-in and handling-out expense on a unit level. The average inventory level is calculated regardless of the units and it is 136 000 items. However mostly what is stored are the materials for kitting the devices rather than the devices themselves. Evidence of this is the very low average unit value only 59 euros. The inventory carrying percentage is set at 6%. Thus calculating the average inventory carrying expense as shown on pg. ...., amounts to 480 000 euros. The fixed cost for renting warehouse space for the year is 432 000 euros and the annual overhead costs are 129 600 euros.

#### Transportation:

The domestic transportation is carried out by UPS, and to a little extent by some other local carriers. The service level provided by UPS on the territory of Slovakia is extremely good. Shipments always arrive at their destination within the agreed time. However, the international transportation service is mainly outsourced to DHL. This is because DHL is the only parcel-company in Central Europe with a huge terminal at an airport, which could take care of shipments coming from China. They are responsible for the whole sourcing, regardless by which means of transport it is done. DHL works with Brightpoint at set price tariff from the country of origin to the warehouse in Bratislava in which are included the air or sea freight, the handling expenses at the reception port or airport, the customs clearance and finally the truck and/or rail haul to the warehouse. The arriving airport is usually Vienna from where the goods are hauled by truck. When the products arrive by maritime transport, they arrive at any of these ports: Rotterdam, Antwerp, or Hamburg. From there, they are usually transported by rail transport to Vienna. Distribution to customers in Europe is entirely by DHL. However to some destinations in Europe DHL uses airfreight- Turkey and Greece, while for others like Croatia, Bosnia and the rest of the Balkans, road haulage takes quite long lead time 6 to 7 days due to security reasons. The price tariff for the carriage is confidential. The total expense on in bound transport is 1 796 638 euros. The cost for out bound is 751 110 euros.

### 5.4.3 Markets

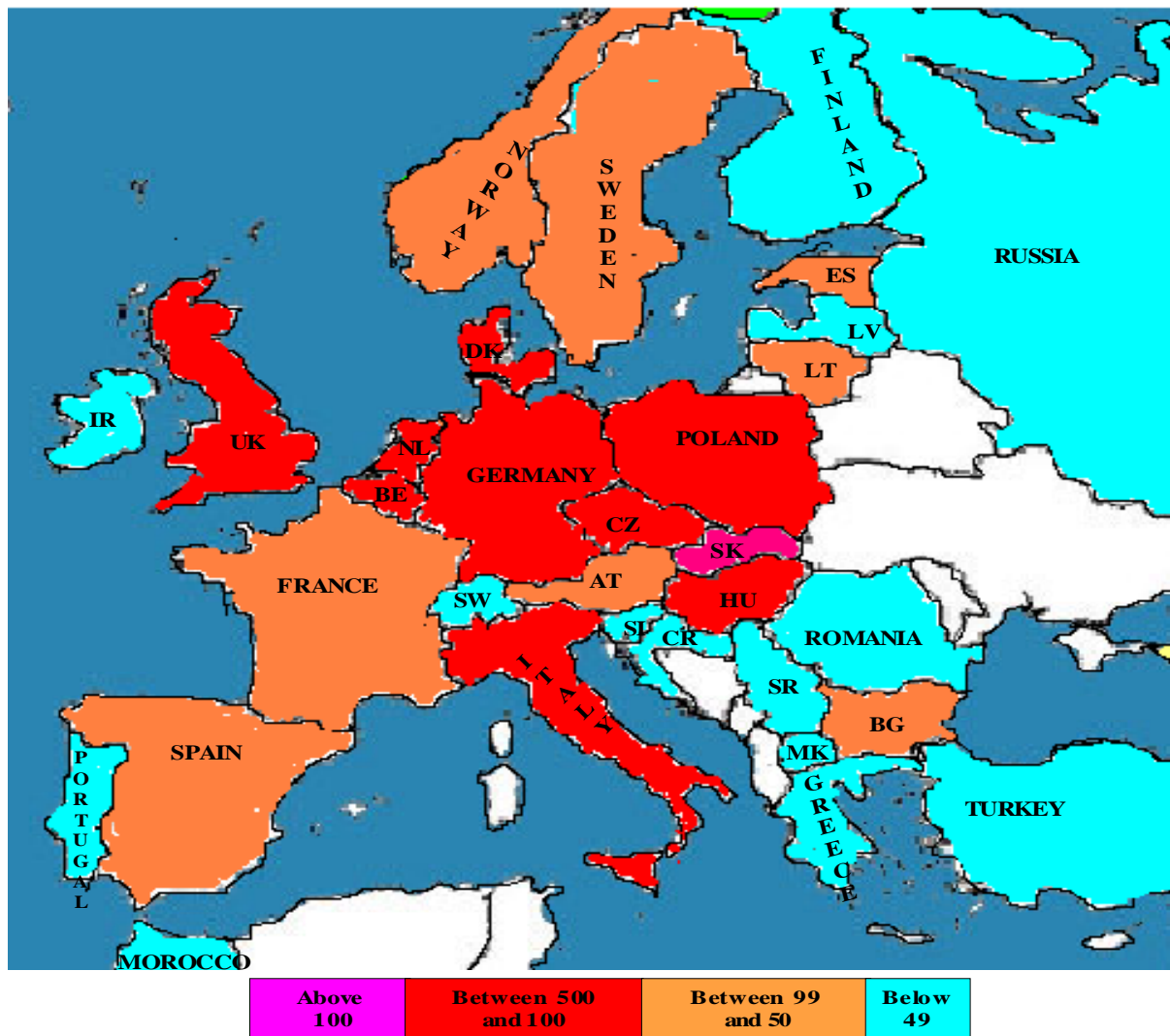
Until November this year the company has shipped products to 37 countries all over the world. However some destinations are sporadic with less than 15 shipments, such as USA, Canada, Hong Kong, Argentina and Israel. Mostly such shipments are internal, from one Brightpoint division to another or returns to manufacturers. The classification of countries by number of shipments could be seen in the table 7 below:

Category by N of orders	No	Country groups by number of shipments
over 1000	1	Slovakia
between 500 and 100	9	Czech Republic, Poland, Germany, Belgium, Italy, Netherlands, Hungary, UK, Denmark
from 99 to 50	9	Spain, France, Lithuania, Estonia, Austria, Norway, United States, Bulgaria, Sweden
from 49 to 1	18	Romania, Croatia, Finland, Portugal, Latvia, Greece, Slovenia, Serbia and Montenegro, Turkey, Switzerland, United Arab Emirates, Cyprus, Ireland, Canada, Israel, Macedonia, Argentina, Hong Kong

**Table 7: Markets by number of shipments**

*Source: Based on corporate records*

The greatest market of Brightpoint Slovakia is Slovakia itself, mainly because of the deeper cooperation with T-Mobile. Next follow the neighbouring markets of the Czech Republic, Poland and Hungary, together with the developed Western European markets of Germany, Belgium, Italy, United Kingdom and Denmark. The markets of Scandinavia and the Baltic countries come third. Finally the Balkans, Turkey and countries from the other continents are the weakest markets. However, when we observe the volume carried the situation is a bit different. Besides Germany and Poland, which are once again among the biggest consumers, the neighbouring Hungary and Austria lag behind, while Turkey, Russia and Bulgaria receive greater volumes.



**Figure 18: Markets by number of shipments**

*Source: Based on corporate records*

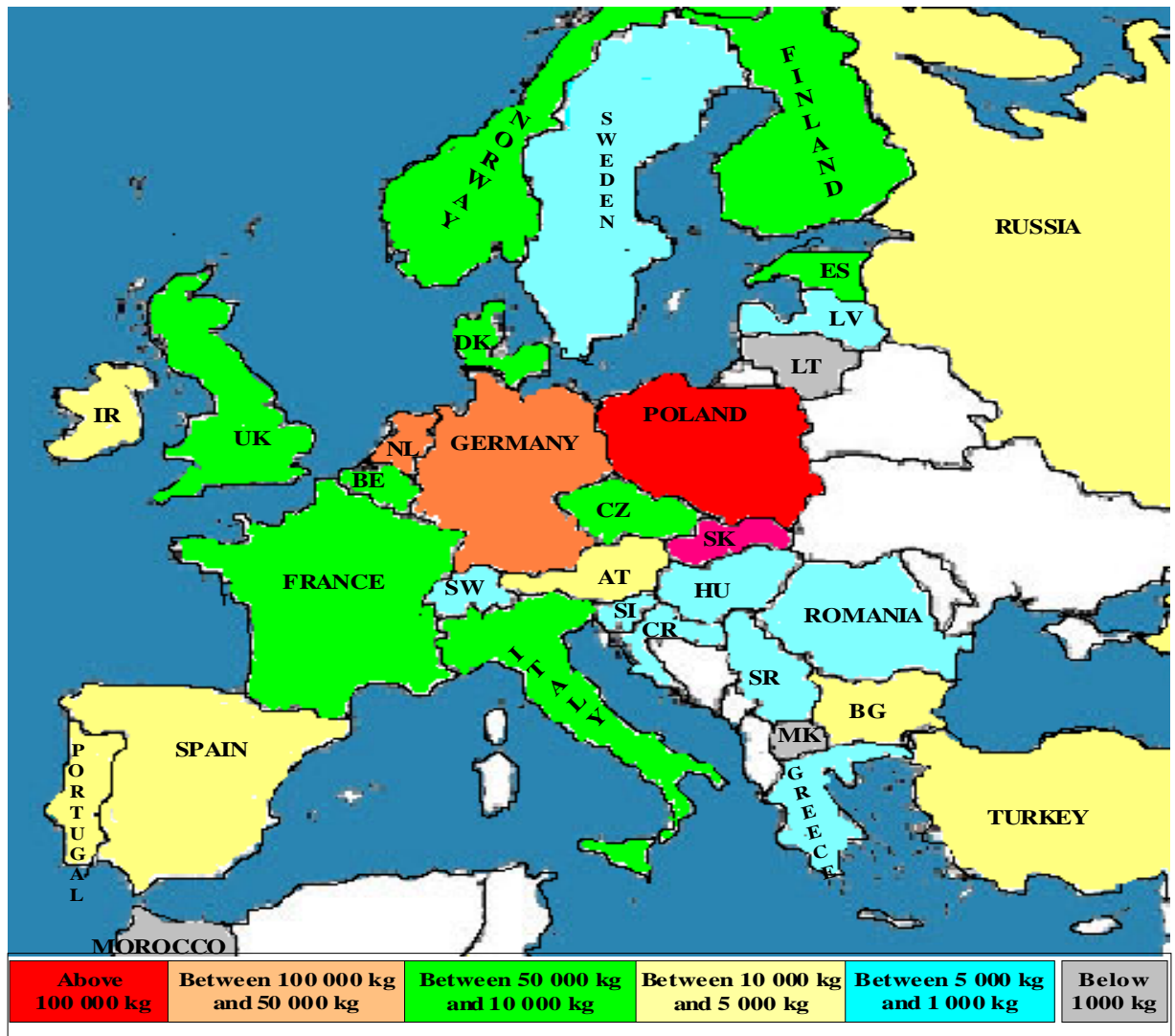


Figure 19: Markets by volume transported  
 Source: Based on corporate records

The overall organization of the supply chain for Brightpoint Slovakia, is shown below:

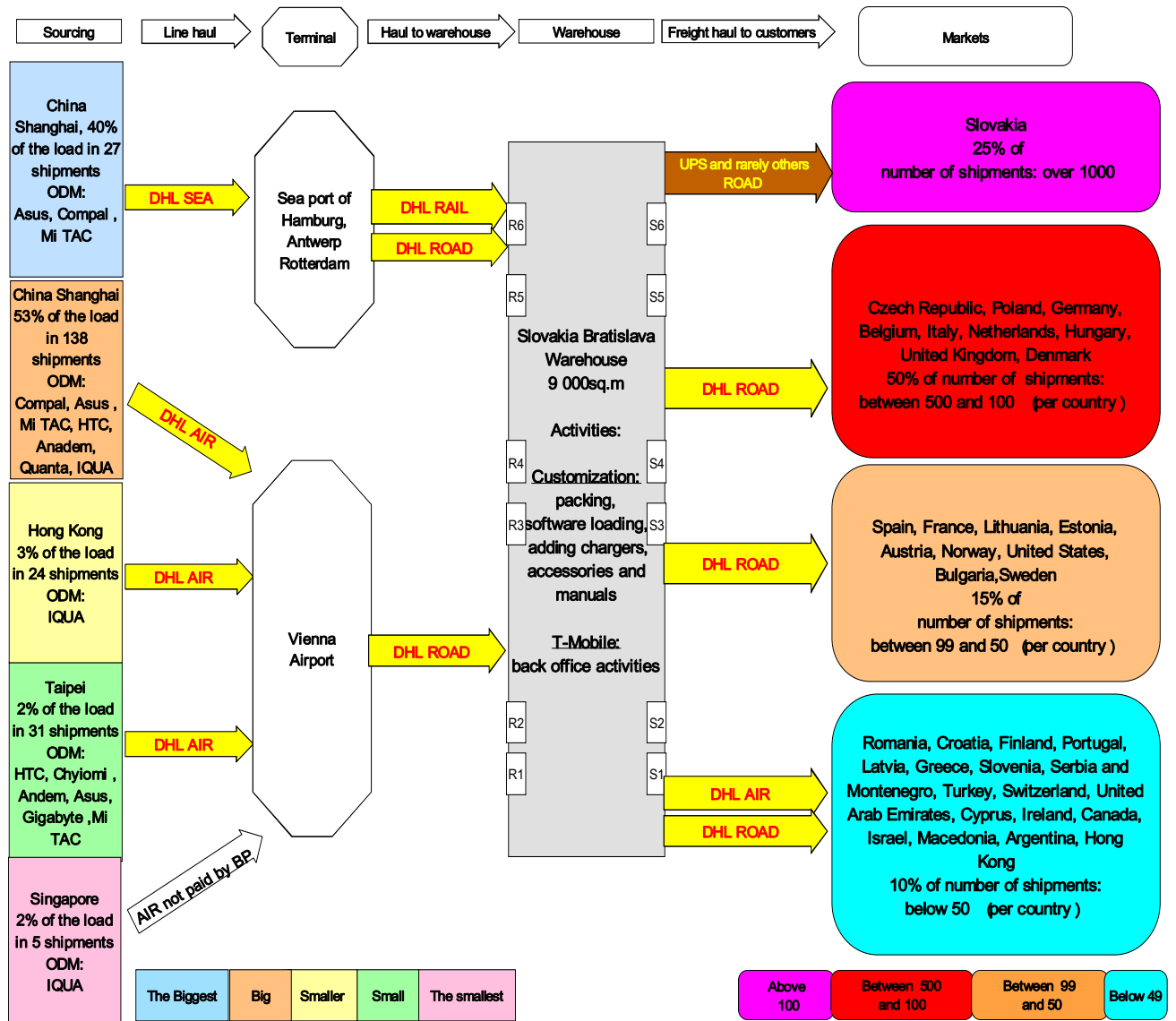


Figure 20: Brightpoint Slovakia: The Supply Chain

Source: Based on corporate records

## 6 MARKET ANALYSIS

*The aim of this part of the empirical analysis is to describe the regional market, through the Five Forces model of Michel Porter. In the mobile phone industry these forces are represented by the different actors along the supply chain. The upstream partners have the power of the supplier, the downstream ones, that of the buyer, while the existing competition is presented by the importers and retailers. The other two forces are not typical for the industry and will not be analysed in detail. Substitute products are not present. New entrants in distribution and wholesaling are not obstructed by any protection law, though the industry is much consolidated and to fit-in newcomers should first establish partnership with the operators.*

### 6.1 MARKET SIZE AND POTENTIAL OF THE REGION

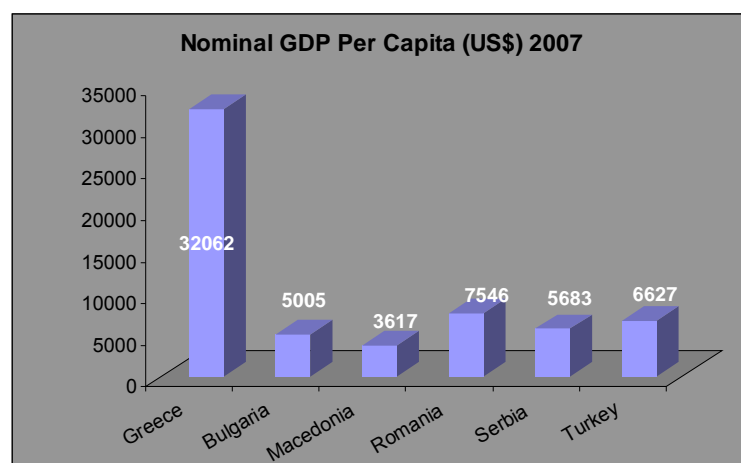
The overall market of the countries has several macroeconomic and demographic parameters. The market potential of the regions is determined by the total number of the population, and its wealth expressed by the GDP per capita. Additionally two specific for the mobile phone industry parameters are the mobile penetration rate and its growth rate.

In table 8 below are presented the key macro economic data for the six countries for the last two years. Although in nominal expression the GDP of Turkey is higher than that of Greece, the Greeks are without a doubt the wealthiest in the region ( see figure 21):

Country	Greece		Bulgaria		Macedonia		Romania		Serbia		Turkey	
	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007	2006	2007
Real GDP (% change)	4.3	3.8	6.1	6.3	3.7	3.9	7.7	6	5.7	7	6.1	4.8
Nominal GDP (US\$ bil.)	308.8	359.6	31.5	38.2	6.3	7.4	121.9	161.8	31.8	41.9	401.7	497.9
Nominal GDP Per Capita (US\$)	27355	32062	4092	5005	3112	3617	5661	7546	4296	5683	5416	6627
Consumer Price Index (% change)	3.2	2.7	7.3	8.2	3.2	2.2	6.6	4.9	12.7	6.4	9.6	8.7
Wholesale-Producer Price Index (% change)	6.9	2.4	12	7.8	4.5	4	11.6	7.4	13.3	5.7	7.8	8.9

**Table 8: Macro economic data**

Source : Global Insight



**Figure 21: Nominal GDP per Capita**

Source : Global Insight



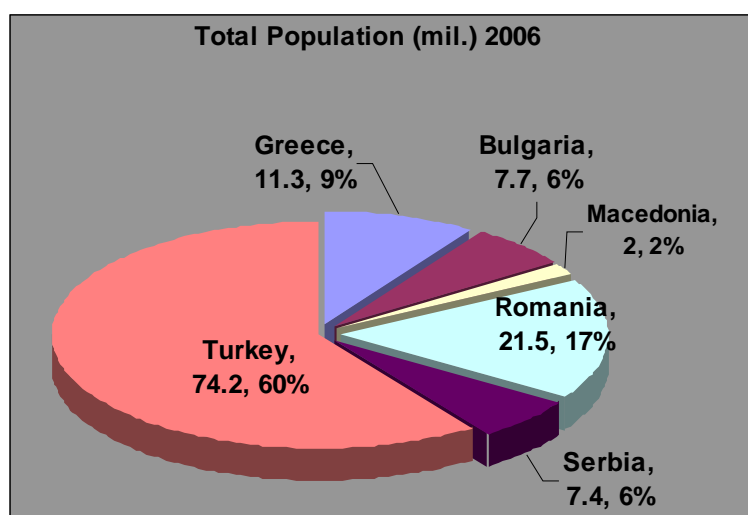
The regional market is not a small one. It totals 124.1 million people (table 9). If we compare it to the rest of the EU, excluding the EU members from the region, the population of these six countries is about 45% of that of the rest of the EU. Moreover, the average growth rate of the population in the EU is 0.40, while in the region it is about 1, indicating a faster growing consumer base.

Country	Greece		Bulgaria		Macedonia		Romania		Serbia		Turkey		Region	
	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006	2005	2006
Total Population (mil.)	11.2	11.3	7.7	7.7	2	2	21.6	21.5	7.4	7.4	73.2	74.2	123.1	124.1
Population Growth (%)	0.43	0.36	-0.55	-0.33	0.03	0.1	-0.16	-0.42	-0.3	-0.65	1.35	1.34		1.01

**Table 9: Population**

Source : Global Insight

The biggest part of the population is situated in Turkey, about 60% ( see figure 22). The three EU member states together comprise 33% of the regional residents, of which Romania is by far the leader with its population of more than 21 million people.



**Figure 22: Population distribution of the region**

Source : Global Insight

Turkey is particularly attractive with its vast population and good GDP per capita. Greece as the wealthiest nation in the region is also of interest, although the competition there is tougher. Romania is also quite attractive market with its second largest population and its second highest GDP per capita indicator. Overall assessment shows that the region possesses good growth potential with large consumer base.

## 6.2 MARKET PROFILING OF THE REGION

As explained in the description of the industry in chapter four, the most influential players along the mobile phone supply chain are the operators, then the second most powerful are the OEMs and just after these come the distributors, wholesalers and retailers. That is why the forces of Porter's model are sequenced to fit the power distribution of the industry.

### 6.2.1. Power of buyers (the mobile operators)

The mobile operators as elsewhere are the ones dictating the market. This is so because the handset itself is just means to actually use the service of mobile telecommunication. Moreover to attract subscribers operators are huge buyers of mobile phones, so that they can sell those with instalment schemes. That is why the market of handsets is part of the bigger market of mobile telecommunication services. Following the logic on market size described in the Theoretical Framework, the potential market is comprised by the total population, while the penetrated one - by the mobile subscribers. The penetration rate represents the future growth potential. In the telecommunication industry regarding mobile telephony market penetration might reach higher rates than a 100% due to multiple subscriptions of one person. This is the case with most Western European countries, but it is evident even in the Balkan region. Such examples are Greece, Bulgaria and Serbia. Penetration rate above 100% suggests that there is no room for organic growth, understood as completely new subscribers who have never used the service before. However, such rate is by no means, viewed as harmful to the market of the mobile phones. It actually indicates that the demand of handsets is higher than the organic parameters of the market. In table 10 below, is presented the percent of mobile penetration for each country and overall for the region.

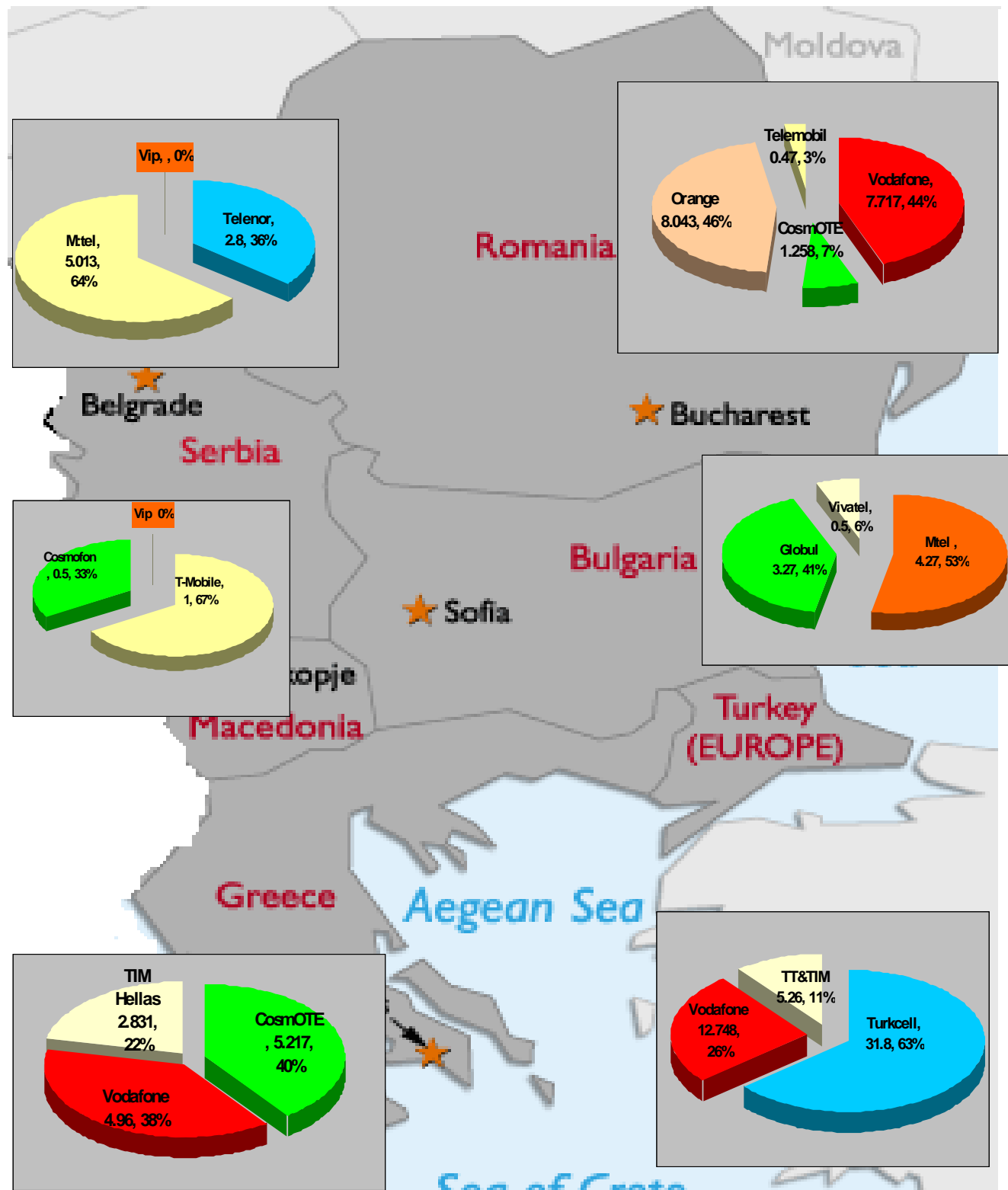
Country	Population	Subscribers	Mobile Penetration	Growth year on year
Bulgaria	7.7	8.04	104%	16
Turkey	74.2	49.808	67%	16.6
Greece	11.3	13.008	115%	5.5
Romania	21.5	17.488	81%	24
Serbia	7.4	7.813	106%	
Macedonia	2	1.5	75%	
<b>Total:</b>	<b>124.1</b>	<b>97.657</b>	<b>79%</b>	

**Table 10: Mobile penetration in the region for 2006 (in millions)**

Source: *Global Insight*

Greece as the most economically developed country in the region has the same pattern as the old EU members with a market penetration above 100%. Turkey as the biggest market, although having lowest penetration rate, is with the greatest number of subscribers –almost 50 million. Romania also possesses huge potential for organic growth both in relative and absolute terms. Analysing the whole region, it is clear that this is a growing market. Even if we just consider the potential for organic growth in the region, there are still 26.5 million people as future subscribers and buyers of handsets. Moreover, the marketing surveys show that on average, customers buy new mobile phone every 24 month. This means that for two years all the current users: 97.657 million are also new buyers. This means that the annual market is approximately 49 million handsets. Overall, the market size of the region is an evidence of large consumer base, with an impressive growth potential.

Each country has three mobile operators, with the exception of Romania, which has four (see figure 23). Almost all of the operators have licenses to provide 3G services and their market is growing. It is obvious that the market is rather consolidated and operators are present in more than one country. This also indicates quite competitive regional market.

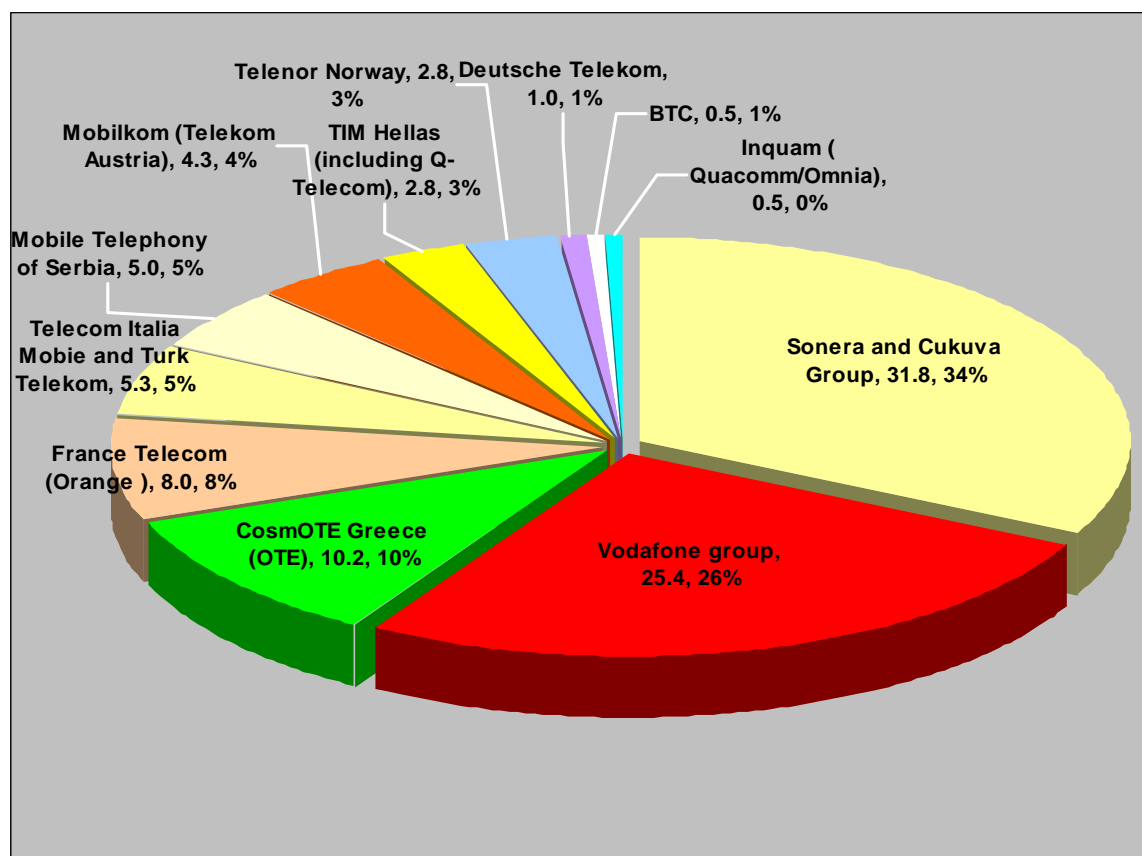


Country	Bulgaria			Turkey		Greece			Romania			Serbia		Macedonia				
Operator	Mtel	Globul	Vivatel	Turkcell	Vodafone Turkey	TT&TIM (Avea)	CosmOTE	Vodafone Greece	Vodafone Romania	CosmOTE	Orange Romania	Telemobil	Telenor	Mtel	Vip	T-Mobile	Cosmofon	Vip
Owned By	Mobilkom (Telekom Austria)	CosmOTE (OTE)	BTC	Sonera and Cukrava Group	Vodafone	Telecom Italia Mobile and Turk Telekom	CosmOTE (OTE)	Vodafone group	Vodafone group	CosmOTE (OTE)	France Telecom (Orange)	Inquam (Quacom Omnia)	Telenor Norway	Mobile Telephony of Serbia	Started Nov 2006 (no data available)	Mobilkom (Telekom Austria)	Deutsche Telekom	Mobilkom (Telekom Austria)
Market share %	50	42	6	64	25	15	37	36	27	44	7	46	3	35	64	66	33	Started Feb 2007 (no data available)
Sunscribers 2006	4.27	3.27	0.50	31.80	12.75	5.26	5.22	4.96	2.83	7.72	1.26	8.04	0.47	2.80	5.01	1	0.5	Started Feb 2007 (no data available)

Figure 23: Mobile Operators' market shares by country ( 2006)

Source: Based on Global Insight reports

South Eastern Europe is also following the global trend of consolidation. There is strategic interest from big mobile operators, which focus not on the small national markets but on the region as a whole. The biggest single mobile operator Turkcell has almost 32 million subscribers, accounting for 34% of the total subscribers in the region but operates only in Turkey. The greatest international presence has the Greek CosmOTE, working in four countries: Greece, Bulgaria, Romania and Macedonia. However, Vodafone has the second biggest subscriber base in the region with 25.4 million or 26% market share. Telecom Austria's cellular arm Mobilkom, has also appetites in the region. It has just penetrated the Macedonian and Serbian markets, and owns the biggest mobile operator in Bulgaria. Data of its new market shares is not yet available, but it is suspected that in the future it will manage to become the fourth biggest operator in the region. Moreover, strong cooperation for providing 3G services exists between Vodafone and Mobilkom. Deutsche Telecom, Telenor and France Telecom are other international companies working on the market, but they seem to have decided to penetrate certain national markets and not to struggle for regional presence. It also should be noted that the markets of Serbia and Macedonia will continue to develop and redistribute the market shares among the players, since these markets have been just recently opened.



**Figure 24: Consolidated market shares of the mobile operators ( 2006)**

*Source: Based on Global Insight reports*

In summary, Brightpoint has the opportunity to penetrate a region with population of more than 124million consumers, with current mobile subscriber base of almost 97million, which continues to grow. The strong consolidation of the market on the behalf of the international operators, such as CosmOTE and Vodafone makes it easier to penetrate several markets simultaneously, if cooperation with any of them is established. However, the rules of the industry make it so that signing an agreement with one of the national operators makes it much harder to work with any of the rest. In this respect, it is a strategic decision trough

which operator to enter the regional market. Considering all of these factors, it would be reasonable for Brightpoint to consider strategic alliance with Vodafone, as presented in three countries and having the second biggest consumer base. Moreover, Vodafone's cooperation with Mobilkom, might support penetration of three more countries and enlarging the market presence in all six markets in the region, accounting for the biggest consumer base in the region: about 32 million subscribers.

### **6.2.2. Power of suppliers (the OEMs)**

The other force of Porter's model is presented by the suppliers. The OEMs possess great influence in the industry and their actions could affect all the downstream partners. However, as explained earlier in chapter four, they try to sell great amounts of their products to minimize the risk of obsolescence and faster return the investments in the development of the models. That is why the OEMs through their regional and national trade offices, sell to all the other partners: operators, wholesalers and retailers. It is common that in most countries the OEMs have at least a representative office. However sales are made from trade offices or official authorized dealers, which source from a regional trade and distribution centre. OEMs, although managing customer relations and marketing on a national base, through their representative offices, physically distribute the products from distribution centres which are responsible for certain regions. That is why all of the official imports to the countries on the Balkans and Turkey, when bought from the OEMs, come from the same distribution centres serving this market. As mentioned the manufacturers have their marketing strategy for the national markets, so the official importers which work with the regional DCs, could buy only the models which are decided for the certain market from the manufacturer. That is why there is another channel for import. Importers which source whatever models they decide are suitable for their national markets, from markets that already have these handsets. Basically such importers source not from OEMs directly but from dealers. This type of indirect sourcing, not always aims to surpass OEMs marketing strategy in terms of what models to be sold on the national market, but also at sourcing for a lower price. Many distributors manage to find cheaper offers of the same models on other markets and prefer to buy handsets from there to get a bigger margin. For instance, a model in Germany is decided to enter the Bulgarian market two years later and be sold as a hit model then. Respectively it is cheaper in Germany, than the official OEM's price for Bulgaria. The most common scenario is though import from Asia and Latin America, rather than the European RDCs of the OEMs.

Nokia. Nokia has trade offices in Romania, Greece and Turkey. In Bulgaria it has a representative office, but trading is done through official distributors. In Serbia and Macedonia, Nokia mobile phones are imported only through distributors. The biggest authorized importer of Nokia is the Greek Alpha Copy. It supplies the markets of Greece, Bulgaria, Serbia and Montenegro, and Macedonia. The concept of Nokia Concept Stores was introduced as a joint effort of Alpha copy and Nokia, with the opening of 100 stores in Greece. The Turkish market is served through the trade office and it operates more than 20 Nokia Shops in the biggest cities in the country.

BenQ Mobile-Siemens. The regional headquarter for Europe of the Taiwanese company is in the Netherlands. It also has trade offices in Austria (Vienna), France (Suresnes), Germany(Hamburg), Italy (Milan), Russia (Moscow), Spain (Barcelona), Sweden(Täby), Switzerland (Dietikon), The Netherlands (Hoofddorp), UK (Hemel Hempstead). The South Eastern European market is served through the RDC in Austria. There is a separate trade office in Istanbul, which serves the Turkish market. In Bulgaria, for instance the Bulgarian branch of Siemens LTD, not BenQ's dealers, is still the biggest importer of BenQ-Siemens

handsets. This suggests that probably the distribution model of the new company uses the synergies created through the partnership with Siemens AG. If so, one channel of import is through Siemens' country offices which are present in all six countries from the region. The company works with official dealers, as well.

Samsung. The regional trade offices of Samsung are in Turkey and in Greece. So in these two countries sourcing is direct from the OEM. Some of the imports in Bulgaria, Romania, Serbia and Macedonia also come through these two destinations. However, the authorized Samsung importers in Bulgaria, state that they use the Austrian trade office for sourcing. Especially with this manufacturer, since it has so many products from the consumer electronics segment, the illegal import from Asia is substantial.

Motorola. Motorola has representative offices in Bulgaria, Turkey, Greece and Romania. However these are not trade departments and the company relies on officially authorized dealers for the distribution of its handsets. In Serbia and Macedonia, there is one dealer serving both countries and another local one in Macedonia. In Bulgaria, Romania, Greece and Turkey the company works with some of the mobile operators and authorized importers. Also it cooperates with big retail chains with international presence such as the Greek chain: Germanos, and the French Avenir Telecom, owning the Internity stores and GlobalNet.

Sony-Ericsson. Sony Ericsson has customized its webpage for every country from the region except for Macedonia and provides web-support for its customers. The company does not seem to have established a trade office here. Also, information on authorized dealers is scarce. The company claims to be open to every distributor that approaches it without giving any special or exclusive distribution rights. Its handsets could be found almost everywhere in the retail network.

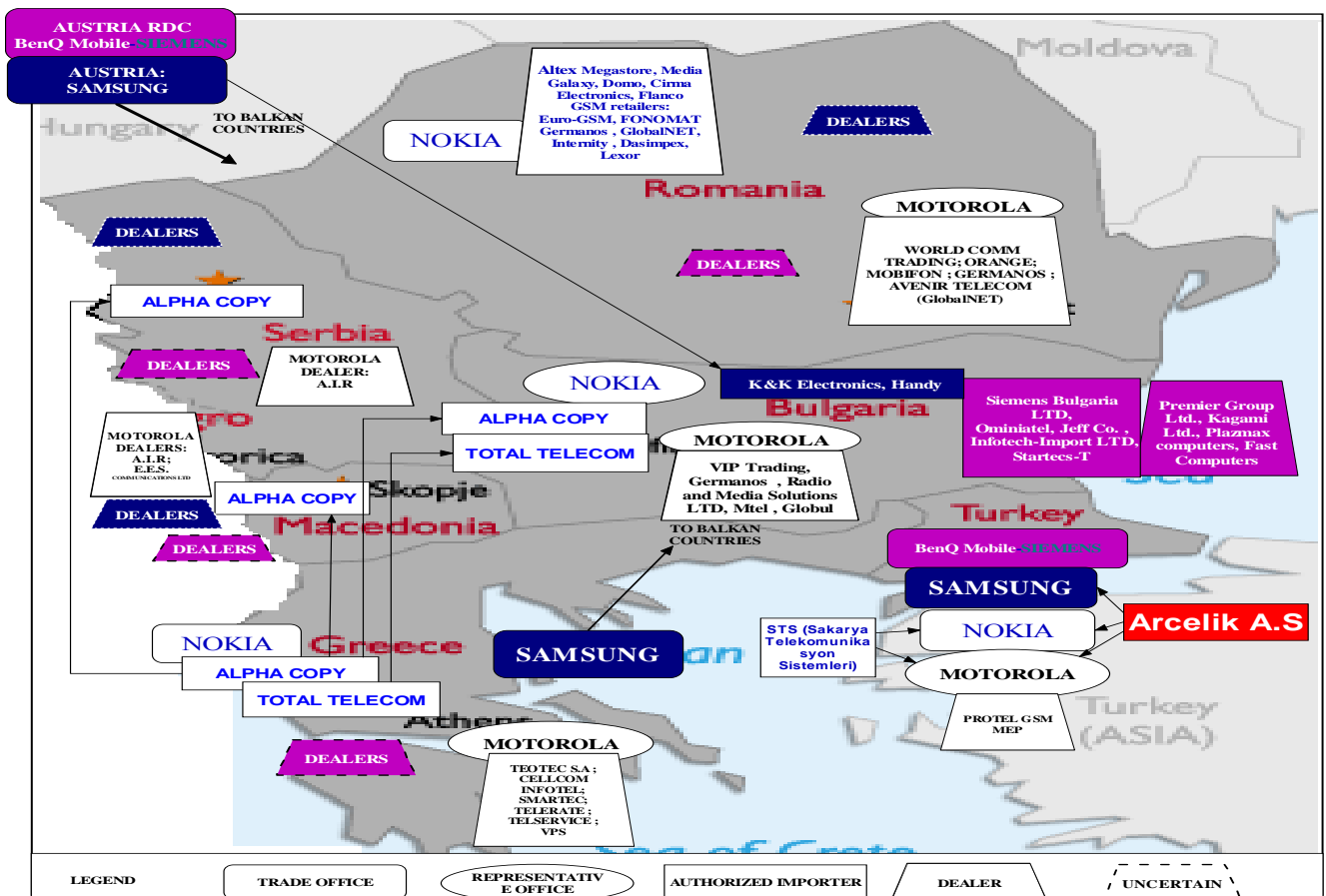


Figure 25: OEMs, OEMs' importers and dealers in the region

### 6.2.3. Rivalry among existing firms (OEM's trade offices, importers, retailers)

The competition for Brightpoint Inc. would not so much be from other retailers, but from all the companies which import and sell mobile phones. In this market, the many of the importers are also retailers and are already affiliated with the mobile operators, while the sole importers are strongly affiliated with the OEMs, making it hard to find a spare niche, unless your company provides a service or an offer which could not be met by the rest. Since none of the above mentioned companies deal with customization of handsets to the local market, this is an applicable entry strategy for Brightpoint Inc. However, some of the players have international presence in the region and should be considered as strong competitors.

The most influential dealer is the Greek company Alpha Copy, distributing Nokia handsets in Bulgaria, Serbia and Montenegro, Macedonia and Greece.

The retailer Germanos also has significant presence in the region, with 400 stores in Greece, 134 stores in Bulgaria plus 91 franchised under the name BEEP, 151 stores in Romania and 25 outlets in Macedonia. The total number, together with the franchised outlets, is 801. The company is closely cooperating with CosmOTE, and since the operator is present in all four countries the partnership is evident in all of them.

The retail chain that is present in all six countries in the region is the franchising chain Office 1 Superstore. It has 9 stores in Romania, 8 in Greece, 7 in Macedonia, 26 in Turkey, 26 in Serbia and 164 in Bulgaria, totaling to 240 outlets.

The French Avenir Telecom, runs retail chains in Bulgaria and Romania. It bought Da Da retail chain in Bulgaria and established the franchised brand Internity. Altogether Avenir has presently 65 outlets, aiming to reach 108 by the end of 2007. In Bulgaria it cooperates with the mobile operator Globul, owned by CosmOTE. In Romania Avenir also operates two retail chains. The first one Internity, as in Bulgaria is working with CosmOTE. The second one GlobalNET is partnering with Vodafone. Avenir's total number of shops is 212, of which 93 Internity outlets in Romania and 65 in Bulgaria and 54 GlobalNET stores.

Bulgarian retailers also have plans to go regional. The chain Handy, following its partnership with Mtel, owned by Austrian Mobilkom, will open shops in Serbia and Macedonia, where Mobilkom has just started the national mobile operators Vip. The other big Bulgarian retail chain 2be has planned to start working in the Romanian and Macedonian markets.

The Turkish retailers and importers do not operate on a regional level. However, their consumer base and operations surpass the regional players of the Balkan countries. For instance, Koç owned Arçelik A.S, one of the biggest producers of home appliances very well known for its Beko brand, is an official importer of Samsung, Motorola and Nokia, and also distributes the handsets through its huge dealer base of more than 4 500 dealers around the country. Another important company is STS (Sakarya Telekomünikasyon Sistemleri), a partner of Vodafone Turkey. As an importer of Nokia and Motorola, STS distributes to Vodafone's 750 stores along with the rest of its numerous outlets around the country. PROTEL GSM, not only an importer of Motorola, but also partner of the third biggest mobile operator TT&TIM (Avea). On the whole, the Turkish market due to its huge parameters is hard to be described with absolute numbers of retailers or importers. MEP İletişim is a partner of the regional leader among the mobile operators Turkcell and also an official dealer of Motorola. However as already mentioned the huge potential for organic growth in the mobile telephony sector gives opportunities for new players.



Figure 26: Competitors with regional importance



## 7 BULGARIA

*This chapter will present a thorough profile of Bulgaria, from the perspective of this thesis work. An analysis and rating of country's overall profile as an outsourcing destination will be given first. Next following company's strategy to have very deep understanding of the way the domestic market of the host country operates, a detailed description of the Bulgarian mobile phone market is given. Then, the assessment of Bulgaria as a location of RDC from logistics perspective is presented. Finally, a cost comparison is made on the potential for savings having a facility in Bulgaria to serve the regional market, instead of distributing centrally from Slovakia.*

### 7.1 BULGARIA: GENERAL ASSESSMENT

The aim of this part is to present the overall conditions in Bulgaria and an evaluation of the country as a destination for business process outsourcing.

#### 7.1.1 Overview of political, legal, economic and social conditions in Bulgaria

##### Political and legal conditions

*Government stability:* Bulgaria is a democratic republic. The stability of the political system has been sufficient for almost two decades now. Government stability has further grown with the EU accession in the beginning of 2008. The current government is a broad coalition of three main parties, with the major presence of the Socialist Party. There have been no major concerns of the political stability in the country and such are unlikely to appear. That is why the political risk ranking of the country has fallen from 2.50-medium prior to 2006, to 2.25-moderate in the end of 2006, according to Global Insight's Country Risk Summary of Bulgaria for 2007.

*Legal conditions:* The legal environment in the country has also improved with the EU membership. Most of the legislation is harmonized with the EU norms. This provides stable legal conditions for foreign and domestic business. The most recent accomplishments in that direction are connected to the lowering of the tax burden, more investors friendly labor law, better competition laws and improved intellectual capital legislation. However there are still quite many reforms to be made in the judicial system, especially in terms of reducing judicial immunity, increasing transparency, fighting corruption and economic crime.

*Tax politics:* One of the most evident areas of improvement in the country is the tax system. The substantial reform of 2006, continuing the trend in 2007, made the country have one of the most favorable tax conditions in the region. The corporate tax is currently set at 10%, and from 2008 flat taxation, will be introduced, making the incentive for investments even greater. Decentralization of taxation, giving greater power to the local authorities is also a fact from the end of October, thus increasing business initiative on a regional level. The aim with tax reduction is not only to attract more foreign investments, but also to stimulate local initiative and bring into the legal environment the former grey businesses. The VAT is also supposed to fall from 20% to 18% in 2008, thus making the country with the lowest VAT in the region. Improvements in tax payment procedures, for instance by introducing electronic filling of declarations, have made tax collection significantly easier.

*Foreign trade regulations:* The regulations regarding foreign trade are also in conformity with the EU legislation. Moreover the country is a member of WTO, and other economic organizations granting and having the status of most favoured nation to countries, which are

non EU members. There are no specific restrictions, as embargoes, or other extraordinary regulations, imposed on foreign trade. Moreover the country managed to significantly improve the time it takes both to import and export goods. Less paper work and bureaucracy will continue to be in focus of the reforms aimed at improving foreign trade.

*Employment law:* The employment legislation in Bulgaria is in line with the EU requirements. However, it is even more flexible and in favour of the employer than the employee, thus making the country more attractive for foreign business. Evidence for this are: the easier hiring procedures, tax deductions for hiring unemployed people and the more relaxed firing conditions.

### Economic conditions

The overall assessment of Bulgaria economic development for the last decade is that it has been impressive. The country recovered from its deep economic difficulties and managed to take control over inflation and unemployment. It maintains good growth levels of 5-6% and has become one of the most attractive destinations for FDI in the region.

*Macroeconomic indicators:* The economic development of the country has been on the growing trend for the last couple of years and this is forecasted to continue in the future (see table 11):

<b>Bulgaria key macroeconomic data</b>						
	2004	2005	2006	2007	2008	2009
<b>Real GDP (% change)</b>	6.6	6.2	6.1	6	5.7	4.8
<b>Nominal GDP (US\$ bil.)</b>	24.3	26.6	31.5	39	45.4	46.4
<b>Nominal GDP Per Capita (US\$)</b>	3134	3447	4108	5131	6006	6189
<b>Consumer Price Index (% change)</b>	6.1	5	7.3	5.3	3.7	2.9

**Table 11: Bulgaria key macro economic data and forecast**

Source: *Global Insight*

Although the nominal GDP per capita is still way below the European average, even compared to the other new members from Eastern Europe, its growth rates are higher. This indicates expected increase of the disposable income of the population and increase of its buying power, both suggesting market growth.

*Unemployment:* This is one of the indicators by which the country has presented its strongest performance. In October 2006, it marked the lowest unemployment rate for 15 years, accounting for 8, 38% of the active population. Part of this can attributed to the fact that more businesses from the grey sector became legal in the last years and officially registered their employees. Another reason is the effect from the re-training and placement programmes introduced by the government in 2006, through which labour force was re-qualified to fit existing needs. The tax relieves offered for employing permanently unemployed people is an extra initiative that influenced positively the unemployment levels. The declining population, combined with the growth of both service and industrial sectors, comprises a forecast for future decline in the unemployment rate at 7.6% by 2010.

*Disposable income:* As indicated in table 9 the nominal GDP per capita is growing, while the consumer price index is decreasing, which means that the disposable income of the population is on the rise. Furthermore, recent developments in the banking sector and huge

increase of availability of credit, gives additional boost to the buying power of the population. The trend of increasing wealth of the population will continue, in accordance with the thorough economic growth in the country.

*Inflation:* The inflation rate in the country is higher than the EU average. This is a natural outcome of the development of the world market prices of key imported commodities such as fuel and metals and the inability to use the exchange rate of the national currency to balance this impact. The overall prognosis is that this indicator will not fall below 4% for the next five years.

### Social conditions

*Population and demography:* The population has been constantly decreasing in the past ten years. After the first years of the economic and political transition, the disbelief in bright economic future, the insecurity of employment and the significant change in the organization of the social strata, lead to sharp decline in birth rate. Also huge economic emigrant flow of young people and experienced labour worsened the demographic outlook. However in the last two years, the birth rate presented more positive development and the pace of the decline of population was slowed down. The summarized demographic data is presented below:

<b>Population and Health Indicators</b>							
	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
<b>Total Population (mil.)</b>	8.1	7.9	7.8	7.8	7.8	7.7	7.7
<b>Population Growth (%)</b>	-0.74	-3.17	-0.57	-0.57	-0.52	-0.55	-0.33
<b>Crude Birth Rate (per 1,000 people)</b>	9	8.6	8.5	8.6	9	9	..
<b>Crude Death Rate (per 1,000 people)</b>	14.1	14.2	14.3	14.3	14.2	14.6	..
<b>Life Expectancy at Birth (years)</b>	71.7	71.8	71.9	72.1	72.4	72.6	..

**Table 12: Demographic characteristics**

*Source: Global Insight*

*Labour force:* The costs of labour in Bulgaria are almost one tenth of the average rate in the EU. The government incentives to curb unemployment resulted in training in accordance with the country needs. Moreover a pro-western attitude to work is evident. This factor will be further discussed later.

*Education:* One of the biggest assets of the country is its high percentage of educated people. Most of the young population speaks English. Language training, economic and technical education are in the main focus.

### **7.1.2 Bulgaria's rating as a BPO destination**

As explained earlier in the Theoretical Framework, BPO is one of the most common practices regarding internationalization of corporate activities. The aim of this part of the work is to present the position of Bulgaria as such a location, so that further assessment of country's attractiveness for Brightpoint Inc is possible. Ratings of that kind are done by the World Bank together with the International Finance Corporation, in particular the survey on Ease of Doing Business. The summarized results of this study will be presented. Additionally the Global Service Location Index for 2007 will be used to measure country's attractiveness, particularly as a location for BPO. These studies have been selected because they are made by world's renowned institutions, have broad geographical coverage and are objective in their comparison.

The study Ease of Doing Business is aimed to determine how favourable national conditions are for foreign and domestic investors and entrepreneurs. It is based on several indicators of critical importance for actually running a business. These are: starting a business, dealing with licences, employing workers, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and closing a business. The overall indicator is called Ease of Doing Business, which summarizes the ratings of all these parameters and reveals the relative position of the country. The study is performed over 178 countries all over the world, and compares the country with its region and the rest of the OECD members.

The ranking of Bulgaria for 2008 is: 46

Indicators of Doing Business	Bulgaria Rank 2008	Change 2007- 2008
<b>Overall Doing business</b>	<b>#46</b>	<b>+8</b>
<b>Starting a business</b>	<b>#100</b>	<b>- 12</b>
<b>Dealing with licenses</b>	<b>#103</b>	<b>-18</b>
<b>Employing workers</b>	<b>#57</b>	<b>+2</b>
<b>Registering property</b>	<b>#62</b>	<b>+2</b>
<b>Getting credit</b>	<b>#13</b>	<b>+8</b>
<b>Protecting investors</b>	<b>#33</b>	<b>-1</b>
<b>Paying taxes</b>	<b>#88</b>	<b>+34</b>
<b>Trading across borders</b>	<b>#89</b>	<b>+26</b>
<b>Enforcing contracts</b>	<b>#90</b>	<b>0</b>
<b>Closing a business</b>	<b>#72</b>	<b>-7</b>

**Table 13: Bulgaria: Ease of Doing Business 2008**

*Source: World Bank*

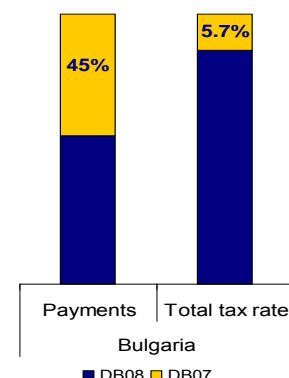
All ten indicators are quite important for the investors. The first one starting a business is presenting the steps that are needed to start a business in the country, including all the necessary procedures, how long does it take to fulfil them and how costly it is. In that respect the country, has worsened somehow its position, since it entered the EU, because of the more rigid rules that has to be followed. The same applies also for the next indicator: dealing with licenses, which describes the procedures and costs to build a facility and obtain all the required permits for running it. The imposed EU standards, made the regulations for closing a business also a bit more specific, requiring more paper work and legal steps to be followed, and the administration still cannot manage to do it as time-efficient as possible.

Bulgaria, showed remarkable steps towards improving its ranking in three critical areas: credit, taxes and international trading.

The greatest improvement was in the field of taxation, where the total tax burden was reduced by 5.7%, through cutting down the share of social security contributions that the employer was supposed to pay. Furthermore, many taxes on various corporate expenses were cut. Huge progress was made with introducing electronic filling of the tax declarations, and the number of tax payments, slashed down from 31 to 17. Additionally, as you can see from the table 14 below, on a regional level, Bulgaria is the leader and it is moving quite close to the performance of the developed countries. However, the number of hours spent in preparing and filling tax documents is still significant.

Indicator	Bulgaria	Region	OECD
-----------	----------	--------	------

Payments (number)	17	46.3	15.1
Time (hours)	616	451.5	183.3
Profit tax (%)	6.6	11.2	20.0
Labor tax and contributions (%)	26.6	28.7	22.8
Other taxes (%)	3.5	10.8	3.4
Total tax rate (% profit)	36.7	50.8	46.2



**Table 14: Tax improvement**

Source: World Bank

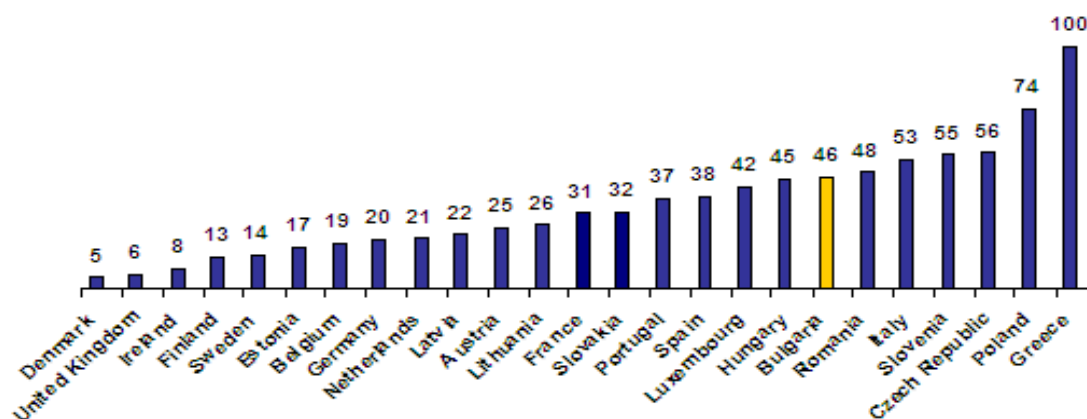
Entering the EU meant for the country, the integration into the common trade boundaries, which practically lead to no border-crossing for the goods coming from within the EU. That significantly impacted the ease of trading on an intra-union level. Still, Bulgaria is an outer boundary and it has to handle and further improve the import and export process. It has especially to focus on trying to minimize the time needed for export and import. However, on a regional level, the country is a leader in every indicator.

Indicator	Bulgaria	Region	OECD
Documents for export (number)	5	7.0	4.5
Time for export (days)	23	29.3	9.8
Cost to export (US\$ per container)	1,329	1,393.4	905.0
Documents for import (number)	7	8.3	5.0
Time for import (days)	21	30.8	10.4
Cost to import (US\$ per container)	1,377	1,551.4	986.1

**Table 15: Foreign trade documentation improvements**

Source: World Bank

The conclusion of the World Bank is that Bulgaria is on of the top ten reformers in improving its economic conditions for doing business. Overall, the country is the regional leader in that respect. It still has a long way ahead to go, but it is evident that it is moving forward with a very good pace.



**Figure 27: Country rankings on ease of doing business** (Source: World Bank)

To summarize the position of Bulgaria as a location for outsourcing, we might sight the Global Service Location Index for 2007 of A. Kearney. It evaluates the three main factors influencing the operations of the companies: people, financial and business environment. Bulgaria is in the top ten of the best destinations for outsourcing.

Rank	Country	Financial attractiveness	People and skills availability	Business environment	Total score
1	India	3.22	2.34	1.44	7.00
2	China	2.93	2.25	1.38	6.56
3	Malaysia	2.84	1.26	2.02	6.12
4	Thailand	3.19	1.21	1.62	6.02
5	Brazil	2.64	1.78	1.47	5.89
6	Indonesia	3.29	1.47	1.06	5.82
7	Chile	2.65	1.18	1.93	5.76
8	Philippines	3.26	1.23	1.26	5.75
9	Bulgaria	3.16	1.04	1.56	5.75
10	Mexico	2.63	1.49	1.61	5.73
11	Singapore	1.65	1.51	2.53	5.68
12	Slovakia	2.79	1.04	1.79	5.62
13	Egypt	3.22	1.14	1.25	5.61
14	Jordan	3.09	0.98	1.54	5.60
15	Estonia	2.44	0.96	2.20	5.60
16	Czech Republic	2.43	1.10	2.05	5.57
17	Latvia	2.64	0.91	2.00	5.56
18	Poland	2.59	1.17	1.79	5.54
19	Vietnam	3.33	0.99	1.22	5.54
20	United Arab Emirates	2.73	0.86	1.92	5.51
21	United States (tier two)	0.48	2.74	2.29	5.51
22	Uruguay	2.95	0.98	1.54	5.47
23	Argentina	2.91	1.30	1.26	5.47
24	Hungary	2.54	0.95	1.98	5.47
25	Mauritius	2.84	1.04	1.56	5.44
26	Tunisia	3.03	0.90	1.50	5.43
27	Ghana	3.27	0.90	1.25	5.42
28	Lithuania	2.60	0.83	1.98	5.42
29	Sri Lanka	3.18	0.96	1.22	5.36
30	Pakistan	3.23	1.00	1.11	5.34
31	South Africa	2.52	1.18	1.60	5.30
32	Jamaica	2.83	0.96	1.49	5.29
33	Romania	2.88	0.87	1.53	5.28
34	Costa Rica	3.00	0.86	1.36	5.22
35	Canada	0.77	2.09	2.30	5.16
36	Morocco	2.92	0.90	1.33	5.14
37	Russia	2.61	1.38	1.16	5.14
38	Israel	1.97	1.27	1.86	5.10
39	Senegal	3.19	0.82	1.05	5.06
40	Germany (tier two)	0.46	2.19	2.40	5.05
41	Panama	2.88	0.75	1.40	5.02
42	United Kingdom (tier two)	0.50	2.16	2.35	5.01
43	Spain	1.18	1.71	2.06	4.95
44	New Zealand	1.53	1.12	2.25	4.91
45	Australia	0.89	1.69	2.31	4.89
46	Portugal	1.59	1.14	2.11	4.84
47	Ukraine	2.76	0.98	1.09	4.83
48	France (tier two)	0.45	2.07	2.27	4.79
49	Turkey	2.06	1.31	1.41	4.78
50	Ireland	0.40	1.54	2.29	4.18

**Table 16: Global Service Location Index 2007**

Source: A. Kearney

## 7.2 MARKET ANALYSIS

### 7.2.1 Market size, potential and trends

Bulgaria's market size and mobile penetration is presented on table 17:

Bulgarian mobile penetration							
	2001	2002	2003	2004	2005	2006	2007
<b>Total population (Millions)</b>	7.91	7.86	7.81	7.76	7.71	7.66	7.7
<b>Telecommunications Revenue (US\$bn)</b>	0.4	0.9	1	1.6	1.7	2.2	
<b>Mobile Subscribers ('000)</b>	1550	2597.5	3898.9	4300	5700	6434.1	8 040
<b>Mobile Subscribers: % change y-o-y</b>	110	67.6	50.1	10.3	32.6	12.9	25
<b>Mobile Penetration (%)</b>	19.6	33	49.9	55.4	73.9	83.9	104

**Table 17: Bulgarian mobile penetration**

Source: Global Insight

The growth of the mobile sector continued to outperform the fixed-line sector. It managed to account for 60% of the total revenues of the sector. In numbers the revenue share of the mobile operators was 923 million euro and getting from its market share by many. In 2007 market penetration continued to increase, reaching 107% according to the latest data from the operators. The market leader is Austria Telecom's subsidiary Mtel with 53%, followed by Globul, owned by the Greek CosmOTE, with 41%, and finally the smallest operator Vivatel with 6%, the cellular arm of the fixed-line incumbent BTC. Presently the three operators offer 3G services.

### 7.2.2 Market Profiling

#### 1. Power of buyers (The mobile operators)

##### **Globul (Globul, 2007)**

Ownership: Globul is the brand name under which Cosmo Bulgaria Mobile operates. The later is owned by the Greek mobile operator CosmOTE, the unit of the Hellenic Telecommunications Organization (OTE).

Market position: The operator perpetually increases its market share, from to 1.625 million subscribers in 2004, the customer base grew strongly by 47% y-o-y, reaching 2.394 million at end-2005 comprising 38% market share, and continued reaching 2.7 million subscribers at the end of the first half of 2006, of which one-third are now post-paid customers. Currently it accounts for 41% with 3.27 million subscribers.

Corporate strategy: Globul focuses on the residential and corporate customers. The company provides voice services as well as i-mode wireless internet services, in cooperation with Japan's NTT DoCoMo. The aim of Globul is to offer its customers competitive price packages and advanced mobile services. That is why in 2006 there were significant tariff reductions and 2 million USD network optimisation upgrade was finalized, enabling it to increase its network capacity to serve 3.5 million users, in efforts to accommodate its growing customer base.

**MTel ( Mtel, 2007)**

Ownership: The oldest operator on the Bulgarian market is Mtel. It was formerly known as MobilTel, primary its acquisition from Mobilkom, the mobile unit of Austrian fixed-line incumbent Telekom Austria.

Market position: Starting as a single operator, and then working in a duopoly market till 2005, it is inevitable that Mtel constantly loses market share, from 58% at end-2005 to 51.7% in 2006. Nevertheless, the operator is still the market leader way ahead of its competition and its revenue in 2006 accounted for 59.7% of Bulgaria's total mobile revenue. The latest data show that Mtel managed to regain a bit of its share reaching 53% market presence with over 4.27 million subscribers.

Corporate strategy: What distinct Mtel from the other two operators is that it provides the most innovative services in the country. The latest technological developments as 3G, HSDPA and WiMAX services and EDGE were first introduced by the company. For instance, 3G services, such as watching TV on the mobile phone is available through the branded service Vodafone Live. Cooperation with Vodafone Group started in February 2006 and is still unique for Mtel's customers. The operator has also the widest roaming coverage through agreements with 307 operators from 135 countries around the world, and GPRS roaming agreements with 51 operators from 32 countries.

**Vivatel (Vivatel, 2007 )**

Ownership: Bulgarian Telecommunication Company (BTC), country's fixed -line incumbent, holds 100% stake of Vivatel.

Market position: For the few months of the official launch of Vivatel in November 2005 till the end of the year, it attracted 100,000 subscribers. For the next year the operator's customer base managed to reach 4% of the market. The growth continues in 2007 with a market share of almost 7%. The officially stated long term target of the company is 25% market share.

Corporate strategy: The late entrance of Vivatel determined its strategy to some extent. The operator is forced to attract the customer base of the other competitors. Thus aggressive marketing campaigns and lower prices were inevitable. At its launch, the company offered a two-month promotion, Talk for Free, offering prepaid customers a reimbursement of the full value of their calls, SMS, MMS and WAP usage, which has contributed to its dynamic growth. The rates of the pre-paid offer were 22% lower than the competitors'. The appearance of Vivatel fuelled competition and it is likely that this will further boost country's mobile penetration rate.

## 2. Power of suppliers (The mobile phone manufacturers OEMs)

In Bulgaria unlike the rest of the world, the market leader is not Nokia but Samsung. Further more some statistics show that the competition about the second place is quite tough between Nokia and Siemens. Although the marketing data about the market shares of the different OEMs vary, Samsung is stated as the market leader (Digital 2006). Based on various estimates the approximate market shares are :

1. Samsung - 42,4% (Samsung E900 , Samsung X820 , Samsung X460 )
2. Nokia- 17,9% ( Nokia 1112 , Nokia 1600)
3. BenQ-Siemens – 17,4% (Siemens AX72, Siemens A75, Siemens A70)
4. Motorola – 10,4% (Motorola C350and C140)
5. Sony Ericsson – 7,9% (Sony Ericsson K800i and SonyEricsson V630i)
6. LG- 4%



Nokia is struggling for the second place on the market. The biggest sales are of the lowest handset classes two and one, among which leaders are Nokia 1112 and Nokia 1600. The most popular model using the 3G service of Vodafone Live! is Nokia 6070. The company announced in an official press release that its strategy for 2007 for the Bulgarian market is to introduce the most innovative products. This is quite contradictory to the fact that the corporate investigation on consumer behavior showed that the primary usage of the phones apart for telephony is as an alarm clock, a clock or a calendar ( Mobilebulgaria, 2007), which means that a basic handset will be more successful than the edge-of- technology model. Nokia has its representative office but it is not a trade office, for the supply of the market it has authorized two official dealers.

BenQ- Siemens- Some market researches show that Siemens has the second biggest market share in Bulgaria, while others place is third. Regardless of this, it is a fact that the brand is very popular in the country, with the best selling models- Siemens AX72, Siemens A75 and Siemens A70. BenQ Mobile has a representative office in Bulgaria. The marketing intelligence and distribution to all the countries in the region, including Bulgaria , is run by the BenQ Mobile office in Vienna. The market share of Siemens in Bulgaria is 13.4%.

LG Electronics opened a official representative office in 2006, which managed to improve tremendously the sales of LG mobile phones. For instance, in 2005 only 9000 handsets were sold , accounting for 1million euro of sales, while in 2006 LG traded 40 000 phones for 4.6 million euro. The growth trend continues in 2007, just for Q1, the Bulgarian office sold 20 000 handsets. This places LG on the forth place of the OEMs in Bulgaria. The target for 2007 is to reach 11 000 million euro of sales , accounting for 8% of the market share and securing the forth position of the company( Mobilebulgaria, 2007).

Samsung-Samsung mobile phones are the number one selling brand in Bulgaria. Researchers state the reason that it has the best price/quality ratio, and that is why it is preferred. The company works with officially authorized distributor, but handsets are also imported through smaller retailers. The most popular models are Samsung E900, Samsung X820, and Samsung X 460 and Samsung X680.

Sony Ericsson has a trade office in Bulgaria. Its products are imported through the Bulgarian trade office. The most popular handset mobile is Sony Ericsson K800i and SonyEricsson V630i.

Motorola- The representative office of the company is situated in Sofia. It works with the operators as distributors and one importer and a retail chain as two more authorized distributors. The greatest successes for Motorola now are Motorola C350 and Motorola C140.

### 3. Rivalry of existent competition (the importers and retailers)

The existent rivalry on the market is represented by the officially authorized by the vendors' importers and the retail chains. The importers even when not having exclusive rights have certain influence that restricts competition, trying to ban the so called 'parallel' import. The parallel importers, on the other hand should not be regarded as illegal or harmful to the market. These are mostly the retail chains which also source original equipment but not from the regional distribution centers that the vendors have for the particular market. The claim is that since the OEM's have certain strategy towards the local markets they are willing to sell only certain models, while the retailers try to satisfy customer demands so they do not follow the vendor's local marketing policy. To improve their profit margins the retailers find

markets where the handsets are sold at lower prices and import them from there instead from the manufacturers DC. The issue with parallel import is pretty controversial. The opinion of the authorized importers is naturally against that phenomenon. That is why they try to ban it as illegal, and even try to counteract using actions that are on the verge of law, such as stopping at the customs the shipments of parallel importers for double checking the papers for origin. This practice is no longer applicable for Greece, Bulgaria and Romania, since this becomes an intra-EU trade.

Nokia's official authorized importers for Bulgaria are Alpha Copy and Total Telecom. Alpha copy is a Greek company, while Total Telecom is an offshore Cyprus company. Both companies source from the Greek DC of Nokia or Helsinki, when needed. Samsung's official importers are K&K Electronics, which own one of the biggest chains for consumer electronics Techno Market. They source from Samsung's DC in Austria. LG Electronics also source from the regional DC for Eastern Europe. BenQ Mobile source Siemens handsets from the warehouse in Austria and Sony Ericsson sources from the DC in Greece. Motorola's authorized distributors are VIP Trading, the retailers Germanos and the two operators- Mtel and Globul. The parallel import is mainly from Asia and Latin America. The handsets are not originally customized for the local market. That is why they lack manuals in the local language, for instance. Yet, it is claimed that the quality is the same as the quality of the handsets imported by the authorized importers. The greater margin comes from the lower prices at which they are sourced from these countries.

The unofficial market data state that the annual import in Bulgaria varies between 1.2 million and 1.5 million handsets. The majority above 60% is imported by the authorized importers, the smaller importers account for 5 to 10% and the illegally smuggled mobile phones are about 30% of the handsets sold on the market.

The retail market of mobile phones in Bulgaria is estimated to be between 1.2 and 1.5 million handsets per year. Following the estimates of BenQ Mobile the total revenues from mobile phone sales is about 137.5 million euro.

### The Retailers

Handy Tel Co. is the company behind the retail chain Handy, an official partner of Mtel. The retail chain has more than 95 shops in 53 cities around the country. The chain has been on the market for 7 years and is also one of the parallel importers of handsets. The portfolio of the retailer includes more than 120 models of mobile phones, digital cameras, laptops, and a wide variety of accessories. The company plans an expansion strategy with the goal to have 120 shops by the end of 2007. Moreover Handy is planning penetration on the neighboring markets of Serbia and Montenegro and Macedonia.

Together with Mtel, Handy launches new franchising retail chain Mobi. So far there are 37 shops around the country with the intention this number to reach 100 by the end of the year. The total investment in these is estimated to be 5million euro, where for leasing the shop and the equipment by the franchiser it will cost around 50 thousand euro for the first year. The chain is authorized to sell post-paid contracts to new Mtel subscribers.

Technopolis is the biggest retail chain for consumer electronics in Bulgaria and South East Europe. It has 12 outlets in the biggest cities in the country and just recently opened two shops Technopolis Mobile, which are further profiled for the mobile phone segment. Technopolis is the other official Mtel representative, able to sign post-paid subscriptions.

MSvqt (МСВЯТ , MWorld) is another retail chain for mobile phones and accessories, that is a partner of Mtel. There are more than 52 shops in 26 cities around Bulgaria. Unlike Handy and Technopolis, MSvqt sells only pre-paid subscriptions of the operator.

Germanos without a doubt is the biggest retail chain which cooperates with the other mobile operator Globul. Like the operator, this is a Greek retail chain which operates not only on the Bulgarian market, but also everywhere where CosmOTE operates. In the country it has more than 132 shops. Regionally, the retail chain has numerous outlets in Greece, Macedonia and Romania.

Beep retail shops are the franchise chain of Germanos. The chain is also selling prepaid Globul subscriptions. It has 91 shops.

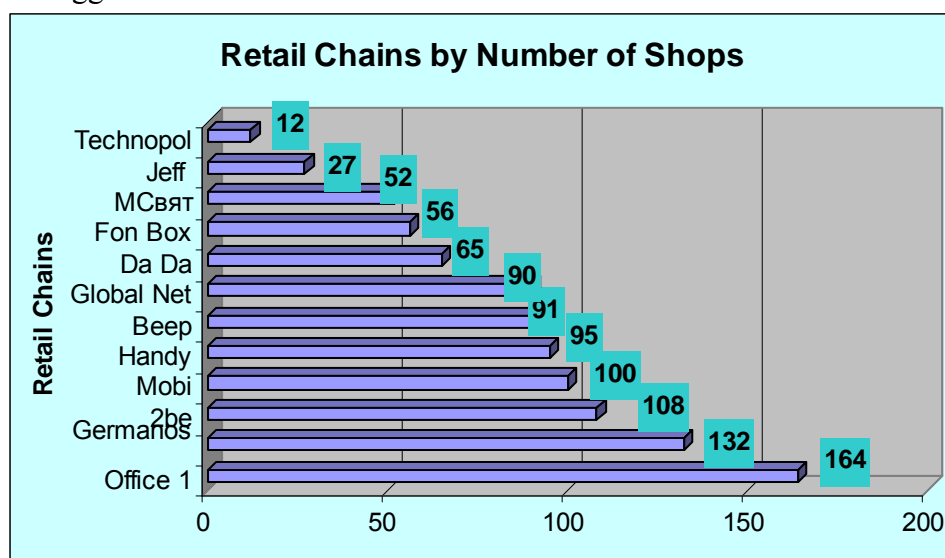
Office 1 Superstore is the biggest retail chain for office materials. It also sells pre-paid Globul subscriptions. There are 164 shops all over the country, even in the smallest cities. It also runs a franchise chain called Phonex.

Recently, the French company Avenir Telecom bought former Da Da retail chain and established new Da Da Internity chain. They have 65 stores and sell handsets, accessories for these and pre paid subscriptions for Globul customers.

Global Net Solutions is a retail chain which sells subscriptions for both Vivatel and Globul. They have 90 stores all over the country.

2be is one of the fastest growing retail chains for mobile phones, accessories, cameras, laptops and other technology of this segment. Although, it has been on the Bulgarian market for just a few years, the retailer has managed to attract the attention through a lot of advertising and aggressive marketing. It owns 108 shops, all over the country. 2be are partners of Vivatel and sell their pre-paid subscriptions. It also managed to establish a franchise Fon Box with 56 shops around the country. 2be is presently expanding, planning to reach 120 stores in Bulgaria and looking for opportunities to buy retail shops in Romania and Macedonia.

Jeff is one of the smaller retail chains, representative of Vivatel. It has 27 shops, situated in the biggest cities.



**Figure 28: Retail Chains by number of shops ( 2007)**

*Source: Based on information of retailers websites*

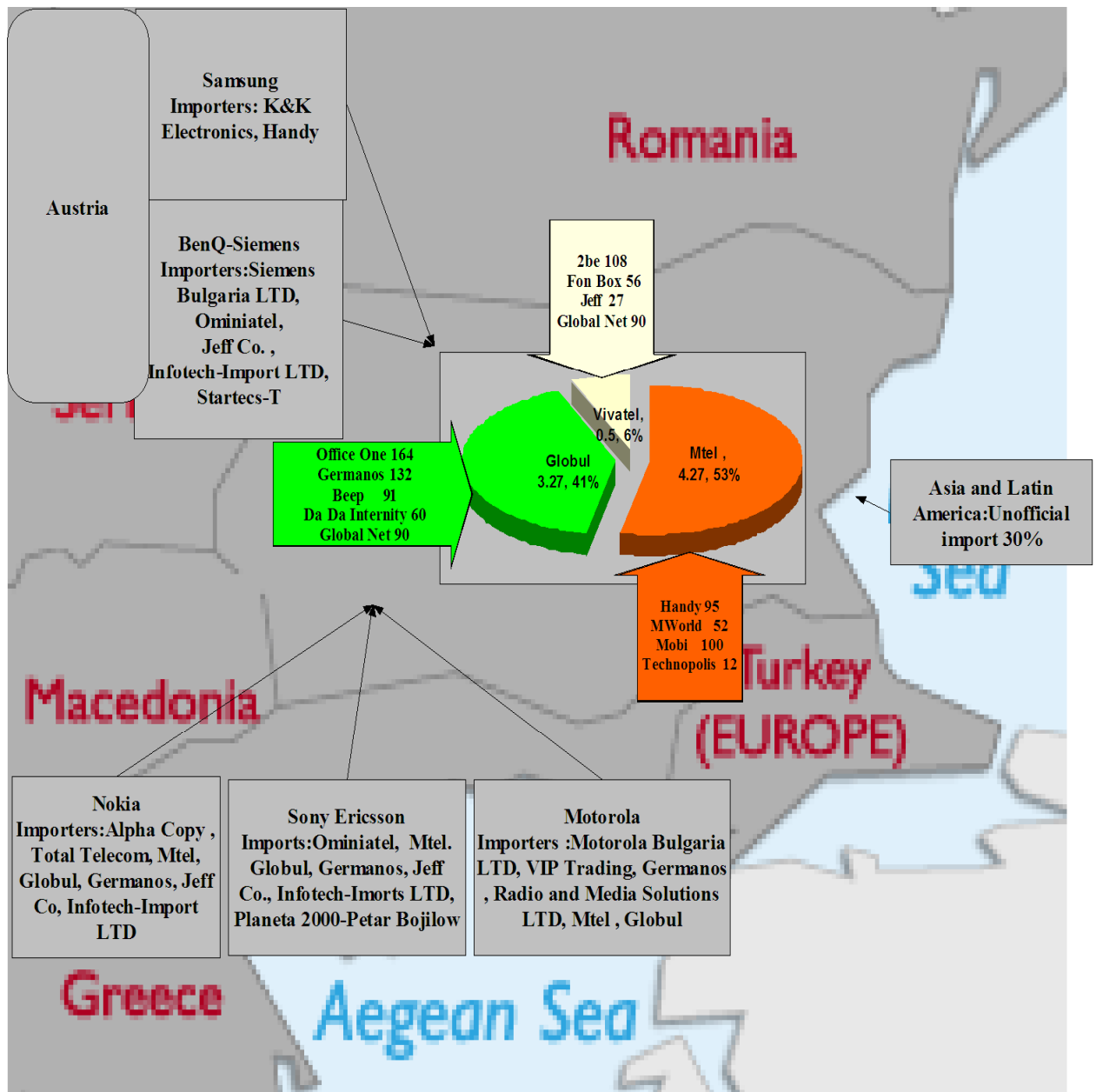
### Consumer overview

There is high consumer demand for wireless handsets in Bulgaria. Some of the reasons are economic, based on growing disposable income and the business need of having a mobile phone, others though are more psychological. In the first years of the introduction of the mobile telephony, having a handset gave a certain high status to the owner. Now things have changed dramatically. That is why a growing part of the market is comprised by the old and basic handset models from the biggest vendors (Boichev, 2006) . Another contributor to that is the fact that such devices are sold with installments schemes from the operators. According to Germanos, handsets purchased on installments actually comprise more than 30% of the sales.

Not only price influences the consumer demand. The mobile phone is a fashionable item, and as such many customers try to keep up with the latest trends. The second factor is brand loyalty, comments the sales manager of 2be Ivailo Kunev . More influenced by the first factor is the age segment between 27 and 32 years old, who buy new handset every six months on average. While people comprising the age group after this tend to be more brand loyal, buy regularly accessories but not handsets and use the one they have for more than an year. The younger teenage generation though very active, more or less just receives what is bought from their parents and could not influence the market that much. Germanos retail chain has estimated that Bulgarians buy new mobile phone every 18months on average.

#### 4. The rules of the industry

The mobile phone industry is much consolidated and quite rigid. It does not allow single or small players. The rules are dictated by the operators, especially by Mtel as the biggest one. All importers and retailers act according to the demand of the operators. The manufacturers look at our market as quite small so it is segmented as part of the South European market. Here the influence of the Greek trade and distribution centers is substantial. The established relations in Bulgaria are shown in figure 29 , below:



**Figure 29: The organization of the mobile phone industry in Bulgaria: players and relations**  
 Source: Based on information of corporate websites

## 7.3 LOGISTICS LOCATION RATING

In this part the logistics location rating will be done, applying the location determinant indicators presented as soft factors in the Theoretical framework, and still incorporating the gravity point method. Further, will be analysed how Bulgaria meets each location factor. Finally, cost comparison of a Bulgarian facility serving the regional market will be done.

The comprehensive range of factors, influencing a location decision for distribution facility are rated according to Brightpoint's preference and are presented in table 18 (below):

Variable group	Factors	Determinant of location	Rating
Network nodes	Proximity of downstream nodes	<b>Proximity to important markets</b>	<b>I</b>
		Proximity to key customers	
	Proximity of upstream nodes	Proximity to key suppliers	
		Presence of distributors	
		Related to the existing production plants	
Access to factors of production	Access to skilled labour	Access to qualified technical personnel	
		Availability of qualified managerial personnel	
		Labor productivity	
		<b>Labor rate</b>	<b>II</b>
	Cost of construction and land	Prices of construction	
		Availability of low-cost land	
		Availability of industrial zoned land	
Cost of housing			
	<b>Availability of existing buildings for business</b>	<b>III</b>	
Logistics and transportation	Logistics and transportation	<b>Good logistics services</b>	<b>V</b>
		Good logistics infrastructure	
		Efficient transport links	
		Quality of carriers	
		Proximity to major highway	
		Variety of carriers	
		<b>Proximity to major airport</b>	<b>VI</b>
<b>Proximity to major seaport</b>	<b>VII</b>		
National and regional characteristics	Government policies and regulations	Access to protected markets /Regional trade barriers	
		<b>Tax conditions</b>	<b>IV</b>
		Government subsidies	
		Exchange rate risk	
		Customs duty	
		Environment regulation	
	Societal characteristics	<b>Language, culture, quality of life</b>	<b>VIII</b>
		Business attitudes	
		Population density	
		Exit Strategy	
	Integrity of corporate books		

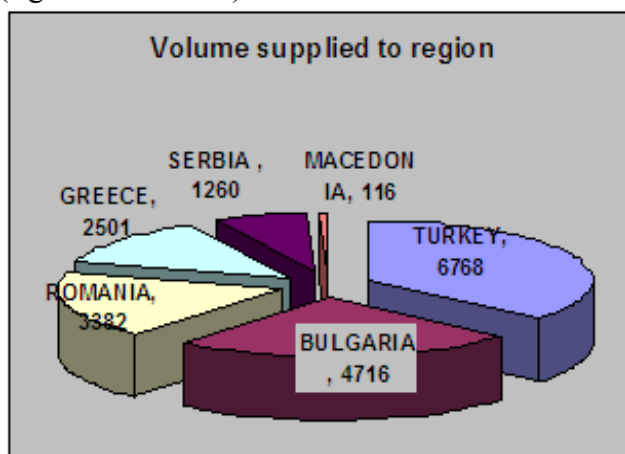
Table 18: Rating of location factors for Brightpoint Slovakia

Source: Based on personal interviews

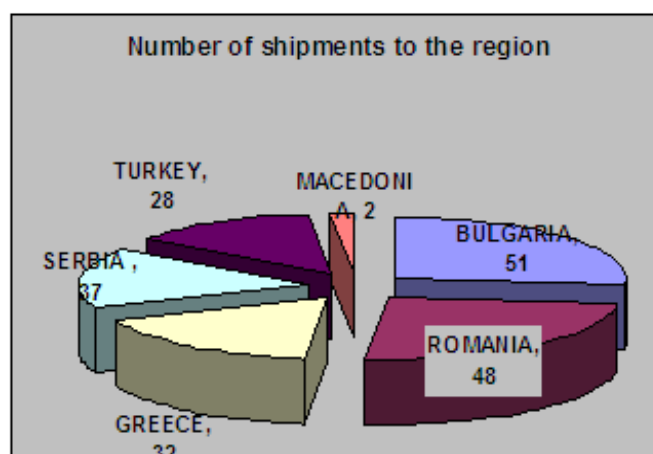
### 7.3.1. Network nodes. Proximity to markets.

This is the most important factor for Brightpoint Slovakia when the company decides on locating its facilities. It is seen from the map of the region, that Bulgaria is situated in the middle of the region. However, the proximity to markets is based not only on the geographical factor, but also on the market coverage, present as well as potential. This means that it is not that important to be in the country with central geographical position, but have central position regarding the served and potential markets, which actually might place the location point in the country with the biggest market, even if it is further away from the other markets. However, when locating a facility, one should incorporate not only volume and value parameters, which are cost related, but also the described 'soft factors' from the table above. As an initial step for the present case, first the Gravity Point methodology for locating a logistics facility will be employed. In this case, the minimum transport work calculation will be presented, to determine the location of the terminal, given the present shipments that Brightpoint Slovakia has made to the region.

The current market share of the region as percentage of the total market of Brightpoint Slovakia is only 3%. In absolute terms this is represented by 188 shipments, accounting for about 18.74 tons transported. Bulgaria is the regional leader by the number of shipments transported, while Turkey is holding the first place for the volume transported to the region (figures 30 and 31):



**Figure 30: Regional markets by volume shipped in kg**  
Source: Based on corporate records



**Figure 31: Regional markets by No of shipments**  
Source: Based on corporate records

Most of the deliveries fall into the light weight category, which again makes it costly to transport solely to the region. Many of the shipments have to be flown to the countries because they are urgent and yet quite small. It could be seen from the table 19 below that only Turkey has shipments in the upper weight classes. The two major volumes transported are those between 500 and 100, and 49 and 1kg.

	Turkey	Greece	Macedonia	Romania	Bulgaria	Serbia	Total
over 1000	1						1
between 1000 and 500	3						3
between 500 and 100	11	10		10	16	2	49
from 99 to 50	4	5	1	11	14		35
from 49 to 1	9	17	1	27	21	25	100
Total	28	32	2	48	51	27	188

**Table 19: Shipments by weight class to the region**  
Source: Based on corporate records

Some of these shipments are of mobile phones, others of notebooks. Information that is on a product class level is unavailable. That is why, when the gravity point for terminal location is calculated, there will be two alternatives. The first one if all the supply comes from Austria, Vienna. Where all the airfreight is sourced from, when arriving in Europe. The second alternative will be to position the supplier in Varna, Bulgaria. Because there are regular container lines from China, arriving at the Port of Varna, making the sourcing by maritime transport a viable option. For the customers, have been chosen the coordinates of the capital cities in each country, because information for delivery address of each client was unavailable, and it is only natural that the initial penetration strategy begins in the biggest cities.

Alternative 1: Airfreight. Sourcing only from Vienna.

The data needed for gravity point calculation based on minimum transport work is: volume shipped to each country and distance from supplier to each customer, as well the coordinates X and Z of each city are presented in the table 20 below. The demand and supply should be calculated in tonkm, by multiplying the volume to the distance traveled. This is presented in the last column of the table.

Calculations for Location of Terminal based on Gravity Point Method						
	City	X	Y	Distance	Volume in tons	D and S in tonkm
Supplier	Vienna	48.11	16.57	5	18.74	93.72
Customers	Sofia	42.53	23.08	985	3.00	2955.00
	Varna	43.10	19.88	1442	1.72	2474.47
	Istnabul	41.02	28.59	1583	6.77	10713.74
	Bukuresti	44.30	26.06	1046	3.38	3537.57
	Skopije	42.00	21.26	1030	0.12	119.48
	Beograd	44.48	20.23	907	1.26	1142.82
	Tesaloniki	40.38	22.59	1230	2.50	3076.23
	TOTAL DEMAND					24019.32
	S+TOTAL D					24113.03

Table 20: Data table for calculations based on Gravity Point Methodology

According to the formula the coordinates of the terminal, which minimize the transportation work should be found by summing up the multiplied coordinate point with carried volume and dividing it to the total transported volume in tonkm :

$$X = \frac{X_S \times S + \sum_{i=1}^N X_{ci} \times D_{ci}}{(S + \sum_{i=1}^N D_{ci})} \quad \text{and} \quad Y = \frac{Y_S \times S + \sum_{i=1}^N Y_{ci} \times D_{ci}}{(S + \sum_{i=1}^N D_{ci})}$$



The results from multiplying each of the volumes transported to the customers by the X and Y coordinates, where they are situated and summing up the total supply and demand are presented below:

	City	X*D or S	Y*D or S
Supplier	Vienna	4508.63	1552.86
Customers	Sofia	125676.15	68201.40
	Varna	106649.74	49192.50
	Istnabul	439477.78	306305.94
	Bukuresti	156714.44	92189.13
	Skopije	5018.16	2540.14
	Beograd	50832.63	23119.25
	Tesaloniki	124218.17	69492.04
	TOTAL DEMAND	1008587.07	611040.40
	<b>X(Y)*S+SUM X(Y)*D</b>	1013095.701	612593.26

Table 21: Data table for calculations based on Gravity Point Methodology

Finally we have to divide the sums of the multiplied volumes and coordinate points with the total volume of demand and supply. All the values are presented in the last rows of the two tables. Thus the terminal coordinates are:

$$X = \frac{1\ 013\ 095.701}{24\ 113.03} = 42.01 \quad Y = \frac{612593.26}{24\ 113.03} = 25.41$$

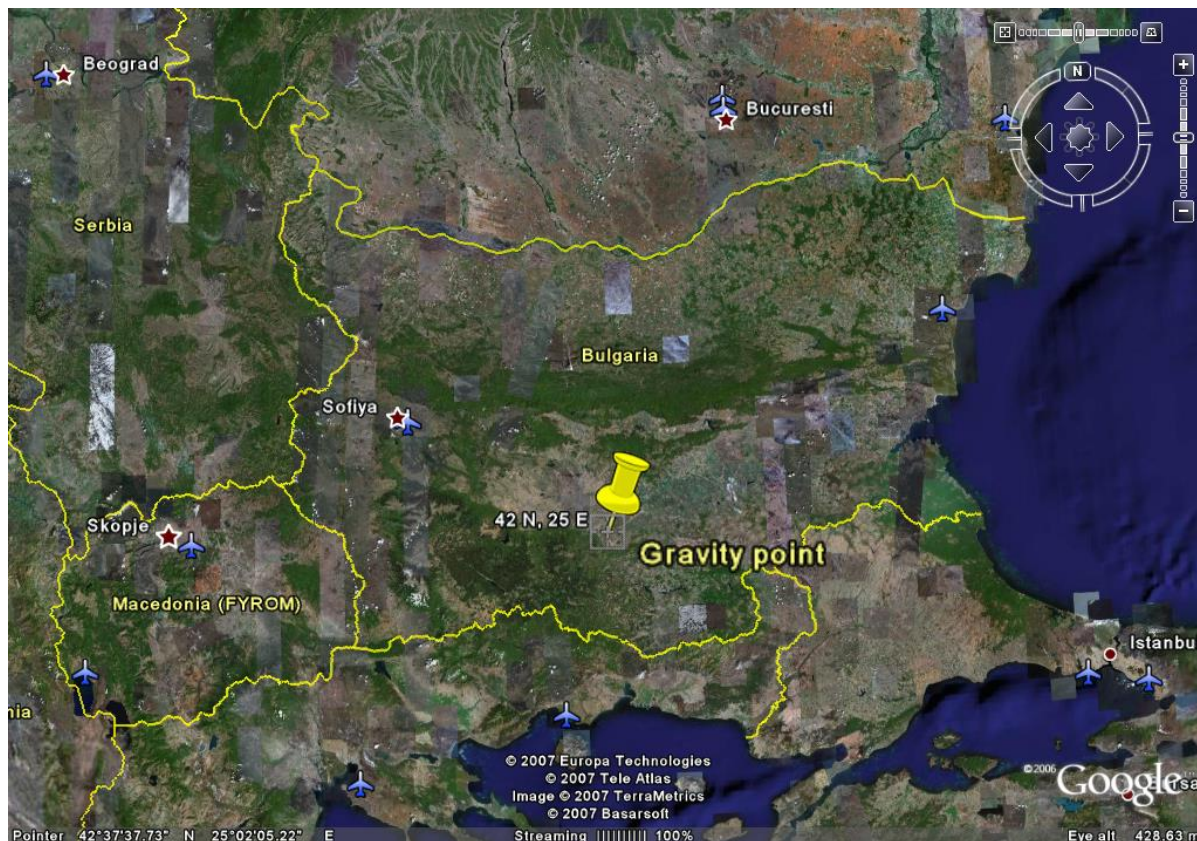
*Alternative 2: Seafreight. Sourcing only from Varna.*

The same calculations are made, if all the sourcing is done by the sea, having shipments arrive at the Port of Varna, and distributing from the city to the whole region (see summarized calculations in the table 22 below):

Calculations for Location of Terminal based on Gravity Point Method								
	City	X	Y	Distance	Volume in tons	D/S in ton km	X*D or S	Y*D or S
Supplier	Varna	43.10	19.88	10	18.74	187.43	8078.23	3726.11
Customers	Sofia	42.53	23.08	450	3.00	1350.00	57415.50	31158.00
	Varna	43.10	19.88	60	1.72	102.96	4437.58	2046.84
	Istnabul	41.02	28.59	512	6.77	3465.22	142143.16	99070.53
	Bukuresti	44.30	26.06	266	3.38	899.61	39852.81	23443.89
	Skopije	42.00	21.26	678	0.12	78.65	3303.22	1672.06
	Beograd	44.48	20.23	843	1.26	1062.18	47245.77	21487.90
	Tesaloniki	40.38	22.59	759	2.50	1898.26	76651.70	42881.67
	TOTAL DEMAND					8856.88	371049.73	221760.89
	<b>S+Total D</b>					9044.31		
	<b>X(Y)*S+SUM X (Y)*D</b>						379127.96	225487.00
	<b>TERMINAL</b>	<b>41.92</b>	<b>24.93</b>					

Table 22: Data table for calculations based on Gravity Point Methodology

These coordinates place the gravity point, minimizing the transportation work to the current clients of Brightpoint Slovakia, even if sourcing is done from Austria, in the territory of Bulgaria, near Plovdiv (see figure 32 below). The coordinates of both alternatives are almost the same, because regardless of the supplier, the methodology is aimed at finding the gravity point of the markets.



**Figure 32: Gravity point: near Plovdiv, Bulgaria**

These calculations are based on current volumes supplied to the region for 2007. However, if we incorporate the future expectations, the situation will not change significantly. Even if the Bulgarian market starts to lag behind the Romanian, and Romania becomes the second biggest market for the company in the region, still Turkey will remain the biggest one, and the gravity point will persist to be in Bulgaria, probably just a bit more on the north. Once again it should be noted that location decisions incorporate many more factors, which are considered by companies in order to make accurate decisions. The most important of those are further described below.

### 7.3.2 Labour costs

The second factor that influences the location decision for Brightpoint are the labour characteristics. In that respect many parameters might be discussed. Such are the availability of workforce, the attitudes to work, the qualifications and educational parameters. In brief, the country still suffers from unemployment, so the availability of employees is not an obstacle. The education and qualification level in Bulgaria are also parameters which put the country in a very advanced place not only in the region but overall in Europe. However, as stated by the company, the hourly rate of the workforce is what is of critical importance to them. This is also the foremost advantage of Bulgaria. From the table 23 below, is evident that the country has the lowest hourly rate in EU. As stated by the European commission:

*‘Relatively cheap and well qualified workforce continues to be one of Bulgaria’s main competitive advantages. Labor costs in Bulgaria are the lowest among EU countries, and are about one-tenth of the average hourly labor costs in EU27 countries’*

	<i>Labor Cost Index (2000=100)*</i>				Hourly labor costs. EUR, 2005
	2005	2006	2005	2006	
	Nominal value		Deflated		
EU27	119.9	123.4	106.1	106.7	...
Czech Republic	141.8	150.5	128.3	133.5	6.56
Estonia	163.9	191.1	137.7	153.7	4.71
Latvia	163.4	201.5	133.7	154.7	2.91
Lithuania	127.5	151.0	121.7	138.9	3.62
Hungary	161.2	175.4	121.4	126.8	6.57
Poland	136.8	144.2	119.5	124.4	5.78
Slovenia	143.5	152.5	109.6	113.5	11.49
Slovakia	157.6	170.4	118.6	123.0	4.59
Bulgaria	132.7	139.0	101.3	98.8	1.61
Romania	281.8	339.0	121.5	137.1	2.38

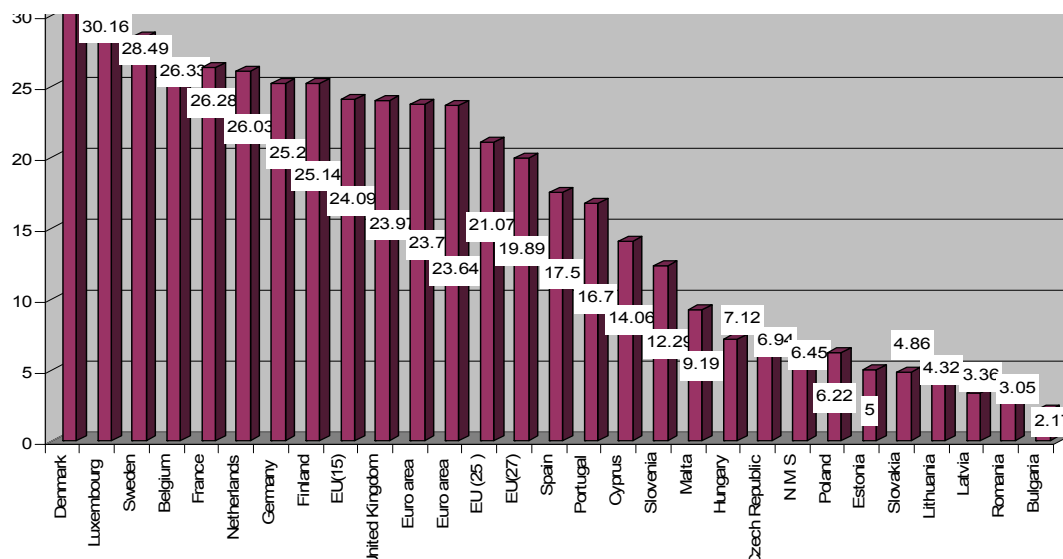
*Notes: \* Labor costs include gross wages and salaries, employers social contributions, and taxes net of subsidies connected to employment; \*\* 2003*

**Table 23: Hourly labour costs 2005/ 2006**

*Source: European Commission*

To be more accurate in the analysis, it is good to compare what is the hourly rate in the sphere of transportation and warehousing, so that the information is applicable to the case at hand. In the graph below are presented the EUROSTAT data for 2006, on average hourly wages paid in that industry.

#### Hourly labour costs in transportation and warehousing



**Figure 33: Hourly costs in transportation sector**

*Source: EUROSTAT*

It is evident that the overall proportion is kept. In this particular sector, Bulgaria is still the country with the lowest labour rate, just that the difference between it and the other new members of the EU is shrunk to about 50%.

### 7.3.3 Availability of warehouses and price of warehousing space

Availability of warehouse facilities has increased tremendously over the last five years. This is actually one of the biggest shares of construction activities, presently in the country. Five years ago, the main warehouse facilities were only in immediate proximity to the major sea and river ports and to some extent to the airports. However, now there has been such an increase in the real estate property development of logistics facilities, that freight depots and container terminals, as well as customs bonded warehouses, could be seen along all the major roads and transport hubs. There are several cities that grew in that respect and will continue the trend in the future. These are Sofia, Varna, Plovdiv and Burgas. Near Sofia the logistics centres planned will sprawl over 850 000 sq.m and have intermodality connection of air and rail. Plovdiv, region with its central location and favourable landscape is already surrounded by distribution centres on more than 2 500 decares. The distribution and logistics zones in the region will reach 4 000 decares. Together with the neighbouring town of Rakovski, the so called zone Maritsa will be the biggest logistics centre in Bulgaria. The Black sea ports of Varna and Burgas, both have very good potential to become distribution hubs. In both cities there are terminals of all means of transport. There are international airports, seaports, good rail and road connections. In both cities near the seaports and the airports have grown tremendous warehouse facilities and construction of such continues. Apart from the private investors interest in those regions, the country itself through the Ministry of Economy and Energy will invest a total of 100 million euro in the establishment of industrial zones for the 2007-2013 period. Additional funding from EU is also expected. (Industrial & Warehouse, 2006)

The overall conclusion is that presently there is sufficient warehouse space available. The conditions of the new terminals are in compliance with the contemporary technical requirements. There is also variety in the type of warehouses available, in terms of licences and permits. In all the major cities, there are facilities which are semi customs bonded, and fully customs bonded-the so called type A, where imported good might be kept without paid import duty. Of course, this is reflected in the price for renting space in such facilities. It is more than double. In absolute terms, this means 4 euros per sq.m of warehouse space in a normal warehouse in comparison to 9 euros per sq.m for renting space in a customs bonded facility ( Savchev, 2007).

### 7.3.4 Carriers

The availability of carriers is also evident. This applies to all means of transport, but the railways. There is just one company operating Bulgarian State Railways (BDZ). However for the purpose of this thesis, the interest is put on airfreight, sea freight and road transport in its low-weight segment. One of the biggest logistics providers in Bulgaria Unimasters LTD, serve several container lines on the Far-East destination. In that respect, China Container Shipping Lines could be mentioned, as a viable option for regular sourcing for Brightpoint for their sea-freight from Shanghai. Unimasters LTD also provide airfreight forwarding. However, it should be noted that in that segment Alexander Logistics is more prominent company, with a huge terminal on Sofia Airport. However, in the current situation for airfreight and sourcing to the country Brightpoint might consider to continue using DHL's services. This is also possible, since DHL are present in Bulgaria and have one of the biggest cargo-depot on Sofia International Airport. It might be assumed that as a current client of DHL, the freight tariffs are likely to be favourable for the company to stay with DHL for the road haul to customers as well. However, if Brightpoint would consider other parcel-carriers for distribution to market, such are also available. For instance, Speedy and City Express couriers are both Bulgarian companies, which operate not only in the country, but also in the

region. It should be mentioned that their freight tariffs are about 50% cheaper than DHL's. However, deciding on a carrier is a strategic choice, which should incorporate many other factors besides price. The research shows that in all respects, there are carriers in Bulgaria, which could meet the transport needs of Brightpoint.

### **7.3.5 Taxes**

The main tax conditions were explained in the assessing of the ease of doing business in Bulgaria. However, two main things should be mentioned. Bulgaria has the lowest corporate taxation -10% and the prospects of setting the VAT at 18% , which will be the lowest in the region ( Global Insight, 2007) The low tax burden in the country is in line with the corporate requirements for locating operations in a country.

### **7.3.6 Proximity to seaport.**

As already mentioned there are two main seaports in Bulgaria and sourcing through them from China is a viable option ( Stavrev, 2007). Moreover the port taxes of these ports are much lower than those of the presently used ports of Rotterdam and Hamburg. Thus cost savings from using local seaports are expected.

### **7.3.7 Proximity to airport**

No matter in which of the three major cities in Bulgaria the company decides to start operations, there are international airports in close proximity. However, these airports are more likely to be viewed from the point of convenience for the higher management to visit the facility, rather than sourcing. It is indisputable that for cargo coming from China, the use of Vienna airport will be necessary. This is so because, even on the biggest airport in Bulgaria, there are not that many airlines arriving from China, Singapore and Taipei. These are the countries where Brightpoint sources from and needs transport connections with. Although, recently Varna and Burgas airports were privatized by Frankfurt Airport, the biggest cargo airport in Europe, it is unlikely that these airports will start receiving shipments from the Far East ( Tuzlarov, 2007).

### **7.3.8 Living conditions**

Overall the living conditions in the country are as high as those in Slovakia, where part of the management executives live presently. There should be no concerns about the comfort of the employees who will come from abroad to start up and run the facility.

## 7.4 PROSPECT COSTS AND SAVINGS OF THE BULGARIAN RDC

The main goal of having a new RDC in Bulgaria that will serve the Balkan region and Turkey is that Brightpoint will be able to serve its customers better. Furthermore, if we take into consideration the potential market that could be gained, the interest towards establishing this facility increases. However, it is important to take into account some purely cost issues, so that such an investment has also economic grounds. Yet, calculations of alternative costs should be considered with ultimate caution, since these are based on assumptions and are not tested in reality. For instance, the price tariff for transportation services of the present carrier leads to an objective cost calculations, while alternative assessment using the same loads but with new carriers and their officially published transportation tariffs, are likely to deviate from reality. Thus, the estimations presented below, do not aim at being accurate and precise, rather than giving an overall perception of the expense variation incurred in a new RDC in Bulgaria.

### 7.4.1 Warehouse and labour expenses

Currently, Brightpoint Slovakia, rents a warehouse space on a fixed monthly rate per sq.m and also calculates the overhead expense for maintaining it on an average rate per sq.m. The annual costs are shown in the second column of table 24.

Type of expense:	Present	Expected	Difference
Fixed expense for renting space: in EUR per year	432000	432000	0
Overhead expense: in EUR per year	129600	108000	-21600
Labour expense: in EUR per year	864000	422400	-441600
<b>Total warehouse expense: in EUR per year</b>	<b>1425600</b>	<b>962400</b>	<b>-463200</b>

**Table 24: Comparison of annual warehouse and labour expense**

In Bulgaria, the prices for renting a non-customs bonded warehouse space are equal to that in Slovakia ( Bella & Savchev, 2007 ), thus no difference in that cost is foreseen. The overhead expense though, is less, because of the lower energy and maintenance services prices in the country. However, the most significant cost is incurred in respect to the labour that the company hires (Bella, 2007). As shown in the previous section of the thesis, the hourly labour costs in Bulgaria are about twice less than those in Slovakia, thus the annual expense for labour is more than 50% cheaper. This makes the annual costs for renting and running a facility in Bulgaria to be 62.5% of the current cost in Slovakia. It is reasonable, to incorporate some level of future price escalation in Bulgaria, since the country is in an economic upsurge. In that respect, the renting costs, are the most unlikely to change, because they are already as those in other countries in Central and Eastern Europe and to maintain its competitive position the local business should follow the general trends. The overhead expense will escalate, because of the continuous rise in energy and labour prices. However, it will take more than 5 years for these to become closer to the EU standards. Especially in terms of labour costs, the country's economy will overheat if the payments grow disproportionably to the labour productivity. Thus not to face the stress of rapid inflation labour cost will increase continuously in phases. In summary, the cost advantage of having operations in Bulgaria is sustainable in the medium term.

### 7.4.2 Transportation expenses

The more sensitive operational expense is the transportation one. Here, the question of how a new facility will influence corporate financial outflow is quite complex. Since, information on an item level was unavailable, in regards of what has been shipped to the end customer, it is impossible to be precise in creating transportation alternative calculations only for the mobile phones. Thus all the deliveries to the countries in the region will be considered being solely handsets, although it contradicts the reality. Respectively, the maritime option for sourcing will not be considered for several reasons. Foremost, the discussion is mostly concerned with the distribution of mobile phones, which are never shipped by sea. Secondly, container shipping from China to Bulgaria is not a challenge, thus direct sourcing to Varna or Burgas ports is possible. This is also associated with lower the freight rates than the present, due to more favourable port charges. Thus, comparison of the present sourcing through the Western Ports and a direct alternative will present the Bulgarian option in a very favourable position, which in regards to the notebook segment might be true, but is irrelevant to the mobile phone one.

Sourcing from the Far East by airfreight is a very complex task. In that respect, Brightpoint has already found the only option for Central and Eastern Europe: DHL airfreight service through Vienna International Airport. Although, Bulgaria has three international airports, still neither of them receives flights from China. Thus, the options for direct sourcing to Bulgaria are only through Vienna as an entry point, and then to the country, either by air or road transport. The present expenses incurred from sourcing the loads to Slovakia and directly distributing to the Balkans and Turkey are summarized in table 25, under the assumption that supply equals demand.

<b>Present transport expenses</b>	<b>EUR</b>
<b>Sourcing from Shanghai to Bratislava</b>	<b>60875</b>
<b>Distribution from Bratislava to the region</b>	<b>24675</b>
<b>Total present transport expenses</b>	<b>85550</b>

**Table 25: Present transportation expenses**

In other words, calculations have been made on the same volume first transported from China (Shanghai), using DHL's present average tariffs and charges per kg. for Brightpoint Slovakia. Then, based on the shipments from 1<sup>st</sup> January 2007 till 20<sup>th</sup> November 2007, made to each country, and DHL's present transport tariffs for Brightpoint, estimations on the outbound transportation cost are calculated. It should be noted however, that some of these shipments were also made by air, but for the sake of comparison it will be assumed that all deliveries were by truck.

Then, the alternative of having a regional facility, rather than direct distribution, is associated with cost savings on local delivery. It is inevitable, that the outbound transport cost will decrease substantially due to much shorter distances. Furthermore, local carriers also tend to have cheaper tariffs than DHL, which as a world renown company and provider of much more complicated services, is more expensive. In the calculations below, were used the prices of two Bulgarian parcel couriers: Speedy and City Express. However, the transportation of heavy shipments over 100kg to Turkey appeared to be a problem for these two companies. That is why for these shipments were used DHL's present tariffs from Bratislava to Istanbul, so that overoptimistic results are avoided.

Destinention country	Present otubound costs with DHL in EUR	Alternative costs from Bulgaria with local carriers and DHL for Turkey	Cost reduction in EUR	Cost reduction in %
Bulgaria	6665	1947	-4,718	-70.8
Turkey	4970	4755	-215	-4.3
Greece	4230	2054	-2,176	-51.4
Romania	5845	3360	-2,485	-42.5
Serbia	2745	1147	-1,598	-58.2
Macedonia	220	149	-71	-32.3
<b>Total cost of outbound distribuion:</b>	<b>24675</b>	<b>13412</b>	<b>-11263</b>	<b>-46</b>

**Table 26: Comparison of outbound transport costs of direct and regional distribution**

As seen from table 26, there is a significant reduction in delivery costs, by distributing regionally. The expense drops down by 46% or 11.2 thousand euro. Further considerations about the delivery service of the local carriers, is also relevant to some extent. Both Bulgarian couriers, have express and regular delivery times similar to DHL's. However, since their performance has not been tested some concern about that might be reasonable. In the case that Brightpoint does not want to test the local carriers, DHL Bulgaria could take over the outbound transport, as well. Alternative calculations of this option have not been made because of the prior relation of Brightpoint with DHL and thus the irrelevance of the officially published price tariff of DHL Bulgaria, which does not incorporate the likely more favorable terms that the companies might negotiate.

The advantages of local distribution should be compared to the larger costs that are involved because of the increased expenses for sourcing. As already explained direct sourcing by air from China to Bulgaria is impossible. This means that the goods will enter Europe through Vienna and then be transported to Bulgaria. This additional haul, if it is handled by DHL, using their present rates to Bulgaria will result in extra 16 thousand euro ( see table 27) .

<b>Alternative 1: Present sourcing from China and road haul of all loads with DHL to Bulgaria</b>	<b>Cost in EUR</b>
<b>Sourcing from Shanghai to Bratislava</b>	<b>60875</b>
<b>Road haul to Bulgaria DHL</b>	<b>16030</b>
<b>Local distribuion local carriers and DHL for TK</b>	<b>13412</b>
<b>Total transport cost of alternative 1:</b>	<b>90317</b>

**Table 27: Alternative 1: Sourcing through Vienna and road haul to Bulgaria**

This brings the total cost of transportation, having a Bulgarian RDC , to go up to over 90 thousand euro. Compared to the present expense 85 550 (refer up to table 14), the increase is substantial. However, there is another option. It includes further negotiations with DHL. The reasons for the author to believe that the sourcing will not be that expensive as if combine the outbound tariffs for the road , as done in alternative 1 , is that even DHL Bulgaria offer through their official webpage an import option from China. This suggests that the carrier has an established way to import in the country from the Far East. However, the published tariff in the Bulgarian website is so high, that it is several times more expensive than the option if Brightpoint keeps alternative 1, with their already negotiated prices with DHL. Thus, the author assumed that based on the good business relationship that the two firms have they might negotiate a sourcing price from China to Bulgaria with some increase than China to Bratislava. Using the present price, including all transport, customs clearance and handling



charges, per kg shipped from Shanghai to Bratislava, some options were explored and presented in table 28:

<b>Alternative 2:</b>	<b>Cost increase of 10% in EUR</b>	<b>Breakeven of present situation: 18.5%</b>	<b>Cost increase of 20% in EUR</b>	<b>Breakeven of alternative1: 26.3%</b>	<b>Cost increase of 30% in EUR</b>	<b>Cost increase of 40% in EUR</b>
<b>Sourcing from Shanghai to BG increase% of DHL tariffs</b>	<b>66962</b>	<b>72138</b>	<b>72935</b>	<b>76905</b>	<b>79061</b>	<b>85186</b>
<b>Local distribuion</b>	<b>13412</b>	<b>13412</b>	<b>13412</b>	<b>13412</b>	<b>13412</b>	<b>13412</b>
<b>Total transport cost of alternative 2:</b>	<b>80374</b>	<b>85550</b>	<b>86347</b>	<b>90317</b>	<b>92473</b>	<b>98598</b>

**Table 28: Alternative 2: Sourcing using DHL's increased tariffs**

If DHL agrees to set a price for sourcing from China to Bulgaria which is 10% higher than the one to Bratislava, then the total transportation expenses of a Bulgarian facility for both inbound and outbound transport will be 5.2 thousand euro less than the present direct distribution system. However, this might be too optimistic outcome. That is why the breakeven percentage increase of the sourcing price was calculated. It is 18.5 % up from the current charges. At that point, the present system to distribute from Bratislava to the region and a Bulgarian RDC, present the same total transportation costs. A price increased by 20% puts the transport expenses of the new facility between the current situation and the alternative not to negotiate new prices with DHL and just use their present sourcing (to Bratislava) and outbound ( Bratislava to Bulgaria by road) tariffs. If, DHL suggests an escalation of the price above 26.3%, then such offer is unacceptable for Brightpoint, since their current arrangements guarantee lower costs.

It could be concluded that the economic rationality in terms of lower costs, especially in regards to transportation, is really hard to be proven. First, the assumption that all loads are airfreight put too much weight on the costs and prevent from calculating cost advantages from direct sea sourcing. However the aggregation level of the information does not allow for further differentiation. Secondly, having a new facility just by its operations, having to pay for rent and labour is an additional cost for the company, even if the business environment in Bulgaria is favourable. To be more objective in the assessment of the benefits or costs of a new RDC, these extra expenses should be compared to the expected new market shares and profit from the operations of a regional facility. This is not an objective of the present work, so the conclusion hereby is that if Brightpoint decides to establish a RDC in Bulgaria, it should take extra attention in the sourcing of the handsets by air.

## **8 SUMMARIZED CONCLUSIONS AND SUGGESTIONS OF FURTHER RESEARCH**

*In this chapter all the major conclusions of the thesis will be outlined once more, so that the overall conditions which determine Bulgaria as a suitable location for a RDC for Brightpoint, are clearly stated. Further, some suggestions of future research will be made.*

### **8.1 SUMMARY OF THE MARKET POTENTIAL OF THE REGION**

The Balkan region and Turkey comprise a regional market accounting for almost half of European Union, 124 million people. Moreover it has growth rate which is more than double of the average EU level. There are three EU member countries, Greece, Romania and Bulgaria, and two candidate countries. The wealthiest country is Greece, having the highest GDP per capita. The future potential of Romania and Bulgaria in terms of consumer power is also encouraging. Both countries are in economic growth cycles and this trend will be continuously supported by the foreign investments and union funds. However, it should not be overlooked that the wealth of the population, although improving, is way below that of the other EU members.

The mobile phone industry in the region is characterized with high level of consolidation. No exception from the way the global telecommunication industry works, here again the most influential actors are the mobile phone operators. In that respect the mobile penetration rate in the region is also of significance for the distributors and retailers besides the operators. Here, Greece, Bulgaria and Serbia have penetration above 100%, as the rest of the European countries. This is an evidence of developed market and strong consumption and competition. However, Romania and Turkey still have penetration rates below 100%, which is an indicator for potential for organic growth. In absolute terms completely new subscribers should account for more than 26.4 million people. While the total annual sales of handsets to current mobile users, according to the average buying rate of two years, are estimated to be almost 49 million.

The Balkan market is viewed as one strategic market for the operators. That is why they struggle for presence on a regional level, not only nationally. Although, the biggest operator in number of subscribers is the Turkcell with 32 million users, the strongest regional customer base has Vodafone with presence in three countries and 26% market share of the region. CosmOTE is present in four out of the six countries in the region and has a strong consolidation bond with the biggest retailer in the region, the Greek chain Germanos. Austria Telekom's Mobilkom owns the biggest mobile operator in Bulgaria, Mtel, and has recently started its business in Macedonia and Serbia under the name Vip. It has also good cooperation with Vodafone, which suggests that if Brightpoint aims to partner with a significant player in the region, it might choose either Mobilkom or Vodafone and have a full presence in all six markets through them.

The OEM's view the market of the Balkans as one region, but Turkey is normally considered separately. This is evident from the fact that almost all of them have trade offices there, while in the Balkan countries they mostly work with authorized importers and dealers and keep only representative offices. From the Balkan countries, Greece, is the one that serves as a distribution centre for the OEM's. The Greek Alpha copy is an authorized importer for Nokia not only in Greece, but also Bulgaria, Serbia and Montenegro and Macedonia. Although it is claimed that Samsung handsets are imported from Austria, occasionally they are also sourced from Greece. Motorola, on the other hand has only representative offices, in each country, but authorizes a great brunch of dealers, without giving exclusivity rights to any of them, as

opposed to the practice of Samsung. As a Motorola distributor, Brightpoint should have not problem operating on the regional market along with the rest of its dealers.

The complete range of customization services that the company does and its proficiency in running all the back office operations of a major mobile operator (T-Mobile Slovensko) makes the firm unique in the region. This makes the retailers more likely to become its clients than to be its competitors. It already works with some of them. Retail chains with significant regional presence are Germanos (801 shops), Office 1 Superstore (240 outlets), and Avenir Telecom (212 store). The Turkish market is much consolidated and the importers of handsets are also owners of or in close cooperation with the retailers on the one end, and the mobile operators, on the other. Thus, it is very hard for a foreign company to find its place there. However, the capacity of the market is so great that the challenge worth the efforts, especially if the company manages to establish a cooperation with any of the operators.

## 8.2 CONCLUSION ON BULGARIA'S SUITABILITY AS A PROSPECT LOCATION AND DISCUSSION ON FUTURE COST DEVELOPMENT

Location and outsourcing decisions are complex by nature, but when those should incorporate highly unpredictable demand of a consumer design and price sensitive product, a comprehensive review of the considered destination should be done. That is why in the second part of the empirical analysis Bulgaria was assessed from three perspectives: outsourcing, market and logistic.

The overall political, social and economic state of the country reveals its strong position as an excellent outsourcing destination. The stability of the government and legal system and the membership in the EU, provide for security of the investment and conformity with the standard legal processes. Furthermore, low inflation rates and continuous increase of the disposable income of the population, suggest improving market conditions. Last but not least, the well educated and highly qualified labour force together with favourable labour regulations creates an opportunity for foreign and domestic employers. The assessment of the business conditions in the country by the World Bank ranks the country easiest to do business in among the neighbours in the region. The most remarkable advancements were made in the financial sphere, regarding credit availability, taxation improvements, through shrinking the tax burden and introducing electronic declaration filling, and the relieved procedures and shorter times regarding foreign trade. Another ranking for BPO, places Bulgaria as number 9 destination in the world for that type of outsourcing, foremost because of its labour force.

The market conditions regarding the mobile phone industry are thoroughly described. However it is worth mentioning, that there is no distributor in the country that has business portfolio similar to that of Brightpoint. This means that it is a feasible option for the company to find a good niche for business. It is already working in the country and as evident from the shipment data its business is growing. The estimation of one of the OEMs of the retail market size of handsets in Bulgaria is for over 1.5 million sales per year and the figure is growing. Also some of the retail chains are expanding to the neighbouring countries as well, and if they become Brightpoint's partners, this will give the company an easy access to their markets.

The logistics conditions that are of importance to the company are summarized in a table and rated according to its preference. The proximity to markets, as the most critical one was

assessed thoroughly, using the gravity point methodology. Both sourcing alternatives which are assessed place the centre of gravity of the current markets from the region in the territory of Bulgaria, near the town of Plovdiv. Even if we consider further development of the markets, since Bulgaria is in between the two biggest markets Romania and Turkey, still it is reasonable to assume that it will remain the point of gravity. Further, the costs for labour in the country are the lowest in EU, twice less than in Slovakia. The low corporate tax and the expected decrease of the VAT are initial incentives for investment. The availability of various logistics facilities and logistics providers and their competitive prices are both conditions for operating a distribution centre in the country. The availability of international ports and airports is also a prerequisite that is in place. However, the airports mostly will insure the accessibility to the facility for the company's foreign employees and guests. Finally, in an attempt to picture what the expenses of having a RDC in Bulgaria would be, some cost calculations were made. In respect to the warehouse and labour costs, there are some significant cost benefits of operating in Bulgaria. However, for the transportation expenses the assessment is rather inconclusive. These have more hypothetical nature, due to information shortcomings, and the level of abstraction involved with untested in reality situations. The conclusion is that transportation from a Bulgarian facility to the regional market is heavily dependent on the transportation expenses for sourcing. Has, Brightpoint have a strategic interest in increasing its presence in the region and utilization of its market potential, then the need of high performance in serving its customers, will pay-off for the investment in a RDC.

### 8.3 FUTURE RESEARCH

There are issues that could further be covered, so that the opportunity for Brightpoint Inc. to start operations in Bulgaria is more comprehensively explored. Due to time and information constraints the author is aware of the shortcomings associated with the present work. Regarding the marketing description of the region, further investigation on the import flows of handsets in each country might be made, as well as the marketing rating by vendor and retail sales figures. Such information is highly sensitive and the OEMs, as well as the retailers, refrain from releasing it to the general public. Also further options for sourcing might be explored, having data on an item level. The exact location of the facility might be explored, if the interest towards the region is considered substantial. It would be interesting to make a thorough assessment of the investment needed: expected set up and operational costs, performance level, as well as the profit and benefits that are desired. However, the author hopes that this study could be used as a base for further investigation of the suggested areas.

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EUROSTAT

< <http://epp.eurostat.ec.europa.eu/> >

Global Insight:

< [www.globalinsight.com](http://www.globalinsight.com) >



Mobile Operators	OEM's	Importers Retailers	Carriers
Telemobil <a href="http://www.zapp.ro/">www.zapp.ro/</a>	Ben Q Mobile <a href="http://benq.com">benq.com</a>	Alpha Copy <a href="http://www.alphacopy.gr">www.alphacopy.gr</a>	City Express <a href="http://www.city-express.com">http://www.city-express.com</a>
M: tel <a href="http://www.mtel.ba/mtel/Portal/en-GB/">http://www.mtel.ba/mtel/Portal/en-GB/</a>	Nokia <a href="http://www.nokia.bg">www.nokia.bg</a>	Handy <a href="http://www.handybg.com/">http://www.handybg.com/</a>	DHL Bulgaria <a href="http://www.dhl.bg">http://www.dhl.bg</a>
Telenor <a href="http://www.telenor.co.yu">www.telenor.co.yu</a>	Motorola <a href="http://www.motorola.com/">http://www.motorola.com/</a>	Technopolis <a href="http://www.technopolis.bg/">www.technopolis.bg/</a>	Speedy <a href="http://www.speedy.bg/">http://www.speedy.bg/</a>
Orange <a href="http://www.orange.ro/">http://www.orange.ro/</a>		2be <a href="http://www.2be.bg">www.2be.bg</a>	Unimasters LTD <a href="http://www.unimasters.com/">http://www.unimasters.com/</a>
Vip mobile <a href="http://www.vipoperator.com.mk/index.php">http://www.vipoperator.com.mk/index.php</a>		Avenir telecom <a href="http://www.avenir-telecom.com">www.avenir-telecom.com</a>	
T Mobile <a href="http://www.t-mobile.com.mk/en/">www.t-mobile.com.mk/en/</a>		Office 1 Superstore <a href="http://www.office1.com">www.office1.com</a>	
CosmOTE <a href="http://www.cosmote.gr">www.cosmote.gr</a>		Germanos <a href="http://www.germanos.gr">www.germanos.gr</a>	
Avea <a href="http://www.avea.com.tr/index_en.shtml">http://www.avea.com.tr/index_en.shtml</a>		Vip trading <a href="http://www.vip-trading.com">www.vip-trading.com</a>	
Vodafone <a href="http://www.vodafone.com">http://www.vodafone.com</a>		Arcelik A.S <a href="http://www.arcelik.com.tr">www.arcelik.com.tr</a>	
Turkcell <a href="http://www.turkcell.com.tr/en">www.turkcell.com.tr/en</a>		STS <a href="http://www.sakaryatelekom.com.tr">www.sakaryatelekom.com.tr</a>	
Vivatel <a href="http://www.vivatel.Bg">www.vivatel. Bg</a>		Protel GSM <a href="http://www.protelgsm.com">www.protelgsm.com</a>	
Mtel <a href="http://www.mtel.bg">www.mtel. bg</a>		Jeff <a href="http://www.jeff.bg/">http://www.jeff.bg/</a>	
Globul <a href="http://www.globul.bg">www.globul.bg</a>			

## APPENDIX:

### INTERVIEWS

Name	Company	Position	Date
Svilen Savchev	SIS Technology, Bulgaria	CEO	Sept 10 <sup>th</sup> , 2007
Jason Blanchard	Brightpoint Slovakia	Business Line Director- Distribution	Nov 26 <sup>th</sup> , 2007
Karin Brunnemann	Brighpoint Slovakia	Purchasing Manager	Nov 27 <sup>th</sup> , 2007
Martin Bella	Brightpoint Slovakia	Finance Manager	Nov 27 <sup>th</sup> , 2007
Chris Greenough	Brightpoint Slovakia	Vice President-Central and Eastern Europe, Managing Director	Nov 29 <sup>th</sup> , 2007
Emmanuel Thill l	DHL Austria	Gateway Manager - Airfreight Export	Nov 28 <sup>th</sup> , 2007
Miloslav Stavrev	Barwil Unimasters Ltd, Bulgaria	Import Agent: China Shipping Container Lines	Nov 30 <sup>th</sup> , 2007