Logistics study on the attractiveness of Wallonia for international logistics hubs

Final report

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Introduction

The European economy has been recovering from the financial crisis. Economic forecasts predict a European GDP growth of 1.6% in 2017, mainly driven by consumption (European Commission). At the same time new events like Brexit face the surface creating uncertainty today and new challenges for the future. Many companies in the European market are looking for the optimal location to set up their distribution centres (DC) and to support the growth of their operations. Distribution centres are essential components of the supply chain, determining the success or failure of a business from both a cost and benefit perspective as from a customer service perspective. Therefore it is important for companies to carefully select the region where one wants to open a DC to support the logistics activities and fuel future growth.

The World Bank regularly publishes the Logistics Performance Index, a benchmarking tool presenting the strengths and weaknesses of countries in terms of logistics performance. Six criteria are taken into account to calculate the logistics performance of each country. Belgium was always ranked in the top 10 of best performing countries in the last four reports (2010, 2012, 2014 and 2016). Competition between Western European countries to retain and attract new DC's is fierce, Belgium's neighbouring countries are top performers as well and investors can only be convinced of a regions added value when looking beyond rankings or classifications.

On request of the project's sponsors, PwC performed a detailed study on the attractiveness of different regions (NUTS-1[1] level) rather than different countries (NUTS-0 level). This study covers the attractiveness of Wallonia as a potential international logistics hub. Wallonia and all other 49 regions in scope are evaluated in function of different location factors that influence the location determination of a company's distribution centre. These location factors where challenged with an outside in view to complete the study. Based on this, the strengths and weaknesses of Wallonia as a logistic region can be addressed.

This study will provide a bottom-up and top-down analysis to determine the logistics attractiveness of Wallonia compared to neighbouring countries and regions, supported by an objective view on why companies should invest in a certain region.

[1] NUTS is The Nomenclature of Territorial Units for Statistics, a geocode standard of dividing the countries for statistical purposes. It is used by Eurostat.

Quantification of the attractiveness of logistics regions

Bottom-up analysis

The logistics attractiveness of each region is determined with a quantitative analysis. First the location factors that are considered when deciding the location of a new distribution centre are identified. These location factors are grouped in seven clusters based on common characteristics. Each cluster is given a weight as well as each location factor within the respective cluster. The weight represents the importance of each location factor and respective cluster in the decision to open a DC in a certain region. During the data gathering phase, numerous databases from different organizations (Eurostat, World Bank, World Economic Forum, etc.) are screened to identify the data that best characterises the chosen location factors. A location factor is retained only when a relevant dataset covering the 49 regions in scope could be identified. After having gathered all data, the quantitative analysis can be done by applying the predetermined scoring method and weights. Finally, a score between 1 and 10, indicating the logistics attractiveness of a particular region, is obtained. The methodology used is shown in figure 3.

Figure 1: Bottom-up approach

Regions in scope

Eleven European countries are taken in scope of this study: Belgium, Austria, The Netherlands, France, Germany, The United Kingdom, Luxembourg, Poland, Slovakia, Czech Republic and Romania. These countries form the logistics hotspots in Europe and as such are in direct completion with each other to attract investors and logistic providers. Wallonia's neighbouring regions are studied on NUTS-1 level, i.e. the countries Belgium, The Netherlands, France, Germany, Luxembourg and The United Kingdom. Other countries, Austria, Poland, Slovakia, Czech Republic and Romania are investigated on a NUTS-0 level. Here it is important to understand if these countries could possibly form a threat in terms of attractiveness in today or in the future. A detailed list of the regions in scope can be found in annex.

Clusters and location factors

There are multiple aspects that have to be taken into account when considering the location of a distribution centre. Seven quantitative clusters are identified in this study. Within each cluster multiple

location factors are defined and analysed. Since not all factors are equal in the decision of locating a new distribution centre, different weights are assigned to each of them. The weights indicate the importance of this factor towards the final decision.

The following clusters and location factors have been included in this study:

- Market proximity
  - Proximity to purchasing power
  - Proximity to economic activities

- Labour
  - Availability of logistics employees
  - Relationship employer-employee
  - Flexibility of logistics employees
  - Productivity of logistics employees

- Operational costs
  - Logistics labour costs
  - Warehouse rent/lease
  - Cost of industrial premises
  - Cost of electricity

- Distribution infrastructure
  - Proximity to logistics providers
  - Proximity to sea ports
  - Proximity to air cargo ports
  - Density of road network
  - Traffic congestion
  - Density of inland waterways
  - Density of railway network
  - IT infrastructure

- Availability of warehouses
  - Availability of warehouse space
  - Availability of industrial areas (Greenfields)

- Regulations and taxes
  - Transparency and efficiency of customs

    - Freedom to invest
    - Political stability
    - Administrative obligations

- Competences
    - Competencies: language skills and expertise in logistics

Other relevant location factors

There are other relevant factors that can determine the choice of a location but that are not included in this research. The list of location factors has been reviewed and completed several times to make it as exhaustive as possible. However, case specific or non-measureable location factors cannot be taken into account in this study. Furthermore, several location factors do not have enough data available to make a well-founded comparison between the different regions. One single element can vary greatly between one and the same regions, e.g. availability of support services. Since some possible location factors are already implicitly enclosed in other elements, double counting is avoided and location factors involved are excluded.

To start, the skills, quality standards and language skills of logistics employees have been investigated. However, since especially low-skilled employees are needed for this kind of job, the unemployment rate and sufficient expertise in logistics are important ("availability of logistics employees" and "language skills and expertise in logistics" factors). Those location factors make sure that there is higher choice in recruiting new employees.

The outbound transportation costs is clearly also an important factor, and is implicitly enclosed in the "proximity to purchasing power" factor. For inbound transportation costs the factors "proximity to airports and seaports" are of importance. The possibility to vertical or horizontal integration can be of importance as well, however this is very difficult to compare to all the different regions. The latter can be determined by the existing expertise and presence of other companies in a certain region.

The price of warehousing equipment (racking and/or automatization) is deleted since no relevant data was available. Moreover, it is understood that racking and automatization are universal processes that will have more or less the same impact and pricing in the different regions. Furthermore, the flexibility to upscale or downscale operations has been removed, due to the lack of information about these factors in the market. Other location factors such as the availability of support offices (e.g. Back office support, IT, customer services, …) are also considered but deleted since no up to date data is found for every region in scope. Factors that are important in general but do not contribute to the choice of an optimal location are removed.

Quantifying and evaluating the location factors

Each of the retained factors is estimated by means of an indicator or own calculations based on objective data sources. Subsequently a score (1-10) is given to each of the location factors and for every region.

Location factors explained

Proximity to purchasing power

The purchasing power is measured by using the relative Purchasing Power Standard (PPS) provided by Eurostat on NUTS-2 level (2014). The PPS is actualised by applying the GDP growth rates to come to the 2016 figures.

In 2015, the Belgian GDP added up to 409 billion euro, good for 2.8 percent of the total European Union GDP (14.700 billion). The growth in economic activity is mainly a result of the improvement in services and construction. A staggering 69 percent is generated within the services sector, whereas 15 percent comes from the industry, 10 percent of construction and only 1 percent comes from agriculture. Eighty percent of total Belgian GDP originates from export, making Belgium the tenth largest export country in the world. In Wallonia more than 75 percent of the GDP is generated by exports, showing the importance of this measure.

To measure the purchasing power of a certain region, on NUTS-1 level, the purchasing power within a radius of 800 kilometres has been summed. Since it is assumed that deliveries within 400 kilometres can be completed within one day, the distance between 400 and 800 only accounts for 50%. The latter states that the purchasing power of areas that are located nearby have a higher impact than others. Nowadays customers are demanding faster deliveries, therefore it is assumed that a company who provides deliveries within two days is only half as competitive compared to a competitor who can deliver the same day. This logic is restricted for the flows between the United Kingdom and the European continent. Due to the fact that the flow of goods between the United Kingdom and the European continent is more difficult, the above described logic is adjusted. For these flows, deliveries within 400 km are only taken into account for 50% and deliveries further than 400 km are not taken into account anymore.

Proximity to economic activities

The purchasing power standard is a good measure for the buying power on the B2C market. However the B2B market is not impacted by the consumption power of the normal citizen. The GDP is selected as a measure (Eurostat, 2014), indicating the potential of the B2B market of a potential region. A higher GDP is linked with a higher economic activity in that region and this economic activity is an indicator for the size of the B2B market. The same calculation method as described in the topic “proximity to purchasing power” is used, to calculate the proximity to economic activities.

Availability of logistics employees

The short term unemployment rate is used to investigate the availability of employees. The short term unemployment rate is calculated by deducting the long term unemployment rate of the total unemployment rate and divided by the total population per region (Eurostat NUTS-1 level, 2015). This factor indicates the likelihood that workforce will be available when investing in a certain region. Economic rules of demand and supply are applicable in this matter, high availability lowers cost and increases attractiveness of a certain region.

Flexibility of logistics employees

The flexibility of logistics employees is computed by using the "Labour freedom" indicator of The Heritage Foundation. This indicator shows the ability of individuals to work as much as they want and wherever they want. It gives businesses the ability to contract and dismiss workers freely when requiring additional resources or vice versa. This score is computed on country level and available for 2016. One could argue the relevance of this factor and its positive or negative evaluation depending on the viewpoint of the employer/employee. Hence there is a trend towards higher flexibility in logistics caused by increasing service expectations, value propositions, e-commerce, disruptors, … Offering or having this flexibility build into the social legislation can create competitive advantages for regions.

Productivity of logistics labour

It is assumed that the productivity of logistics labour is determined by the average number of hours an employee works per week and the value created per employee. 'Average hours worked per employee' (2016) and the 'wage adjust labour productivity' (2014) both weigh for 50 percent on this location factor. The 'wage adjusted labour productivity' compares the value created per employee with the wage paid for this employee. All data is collected on NACE[2] code and is available on Eurostat. NACE code is the European statistical classification of economic activities. It groups organizations according to their business activities.

Relationship employer-employee

The "cooperation in labour-employer relations" metric of the World Economic Forum (2016) is the score that is assigned to this location factor. A maximum score of 7 means that the relationship between employer and employee is excellent, whereas a score of 1 means that this relationship is very confrontational. There is off course a direct link with the previous labour related factors. However in this case the focus is more on collaboration between employer and employee, influence of trade unions, limited negotiation, etc.

[2] NACE : Nomenclature générale des Activités économiques dans les Communautés Européennes

Logistics labour costs

The logistics labour cost is available on Eurostat for 2012 on NUTS-1 level. The logistics labour cost is actualised by applying the national wage growth rates.

The overall high tax burden in Belgium is high and especially focused on labour (European Commission). The government received 45.3 percent of GDP as taxes and social contributions in 2015. This percentage is higher than the European average of 38.8 percent, having a negative impact on labour cost and employment for companies. The federal government adopted several measures in July 2015 to mitigate the difference and make Belgium more competitive. The measures, combined in "the tax shift" has the objective to reduce the labour taxes and shift to other tax buckets. The employer's social contribution decreases from 33 to 25 percent. The cuts made on labour taxes are covered by a series of tax increases on consumption and non-labour income. The combined efforts should have a positive effect on economic growth, employment to finance the tax cuts and tackle tax evasion and tax fraud. Overall it should enable Belgium to be more competitive versus its neighbouring regions.

The study takes into account the tax shift impacts. Therefor the Eurostat data for Belgium are adjusted. Three scenarios have been taken into account: employee is not married, employee is married without children and employee is married with children. The weighted average of the scenarios is calculated per region and used as the input to correct the logistics labour cost for the three Belgian regions.

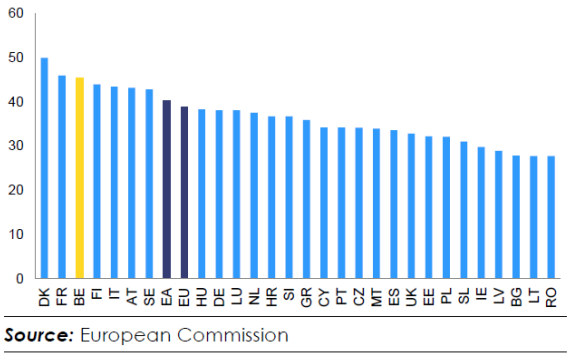

Figure 2: Total receipts from taxes and compulsory social contributions, 2014 (% of GDP)

It is important to take into account these positive measures and assess throughout the study what their impact is in comparison with the neighbouring regions.

Cost of electricity

The cost of electricity includes all taxes and levies and is calculated by looking at the prices per country per kWh. The data is available on Eurostat (2016) on country level.

Warehouse rent/lease

The rent prices of warehouses in 2016 are retrieved from JLL, ERES, CBRE and Goodman on a NUTS-1 level. When a range of prices is given, the maximum price is taken, assuming prime locations are desired.

Cost of industrial premises

The rent prices of industrial premises in 2016 are retrieved from JLL, ERES, CBRE and Goodman on regional level. When a range of prices is given, the maximum price is taken, assuming prime locations are desired.

Density of road network

To calculate the density of road network, the total length of motorways per region is divided by the surface of that particular region (Eurostat, 2014).

Traffic congestion

The INRIX scorecard of 2015 is used as a measure to indicate the degree of traffic congestion. This index measures the average time wasted in traffic per year.

Density of railway network

The railway density is obtained by dividing the total length of railways per region by the area of that particular region. Both data of the International Union of Railways and Eurostat is used of the year 2014.

Proximity to air cargo ports

Each airport is given a certain score based on the volume of freight (Eurostat, 2015). The weighted sum of each NUTS-1 region is calculated. The weights of each airport are 1, 0.75 and 0.5 for airports within respectively 100 km, 200 km and 400 km. The maximum distance of 400 km is selected based on the reasoning that air transports are usually urgent and/or of high value, and thus delivery of transport should be very fast.

Proximity to logistics providers

To make an accurate comparison between the different countries the proximity to logistics providers is calculated by dividing the total number of logistics services providers per country by the total area of each country, expressed in square kilometres (Eurostat, 2011).

Proximity to sea ports

Similar to the proximity to air cargo ports, each of the sea ports has been given a score according to its freight volume (Eurostat, 2016 Q1) after which the weighted sum is determined. The weights of the sea ports are respectively 1, 0.75, 0.5 and 0.25 for 100 km, 200 km, 400 km and 800 km. In this case, the

assumption is made that a sea port within 400 and 800 kilometres still offers an advantage. This score is also based on NUTS-1 level.

Density of inland waterways

The density of inland waterways is obtained by dividing the total length of inland navigable waterways per region by the area of that particular region. Both data of the Central Intelligence Agency and Eurostat are used (dated 2014).

IT infrastructure

The quality of IT infrastructure is measured by the average internet speed in Mbps. The data is dated 2016 and comes from the website of the Akamai company.

Availability of warehouse space

The data on the availability of warehouse spaces on NUTS-1 level in 2013 is retrieved from JLL, ERES, CBRE and Goodman. All regions received a score between very low and very high availability of warehousing space. Missing data for the Eastern regions is completed by taking the average of the total available data on warehousing space.

Availability of industrial areas

The availability of industrial areas is composed in the same manner than the availability of warehouse space. Data is retrieved from JLL, ERES, CBRE and Goodman and covers the year 2013. All regions received a score between very low and very high availability of industrial areas. Missing data has been completed in the same way as the warehouse space, by taking the average of the total data.

Freedom to invest

The investment freedom is composed by using the "Investment freedom" indicator of The Heritage Foundation. A free and open investment environment provides new entrepreneurial opportunities and incentives for economic activity, greater productivity and job creation. The highest score (100) shows transparency, honesty and encourages innovation and competition. This data is available on country level for 2016.

As an example of investment support, Wallonia offers a set of R&D aid incentives to medium and large businesses that are located in the region. The purpose of these multiple forms of aid is to stimulate businesses in strengthening and/or protecting their innovation potential, to acquire external knowledge needed to implement a project, to run research and development projects and to create spin-offs using new technologies that are not yet exploited. The type of aid differs depending on the size of the company, the company's activities and the location.

Political stability

The political stability and absence of violence and terrorism is measured by the governance performance. The World Bank scores this factor on a scale of -2.5 to 2.5 for a weak or strong performance respectively. The data is available for 2016, however data for Romania is missing. Hence the political stability for Romania is calculated by taking the average of Poland, Czech Republic and Slovakia.

Administrative obligations

The World Bank provides data on the ease of setting up a business. This is measured by counting the number of procedures and days needed to start a business. Both measures are valued as equally important, thus both measures are taken into account for 50 percent.

Transparency and efficiency of customs

The World Economic Forum measured this location factor by scoring the efficiency of custom procedures. Each country is listed in the Global Competitiveness Report and a maximum score of 7 means that procedures are efficient and easy.

Competencies: language skills and expertise in logistics

Expertise in logistics is measured by the "Logistics Competence & Quality" of the World Bank on NUTS-0 level for 2016. A score from 1 to 5 has been assigned to every region in scope. It scores the competition between the different countries on language skills and logistics competences.

Scoring methodology

A scoring method is used to obtain numbers that are comparable between regions and factors. Each location factor receives a score between 1 and 10. For each factor, the absolute raw data is converted to a minimum and maximum score within the range of 1 to 10. Three different methods are used to determine a score for each location factor, depending on the type of raw data:

1. In case the raw data is already a score, the score will be converted to a score between 1 and 10.
2. When the raw data is not yet a score, the minimum and maximum are calculated based on the deviation in the raw data. A bigger deviation in the raw data will lead to a wider range between 1 and 10.
3. If the raw data relates to a cost, the maximal score is equal to the lowest cost and the highest cost will reflect the minimal score. The gap between the maximal and minimal score will depend on the deviation between the highest cost and the lowest cost. The same logic is applier to

location factors where it is better to have a lower score, e.g. the INRIX traffic congestion scorecard.

Depending on the magnitude of the difference between the different regions the score will be between 1 and 10 or a smaller range when the difference between regions is not explicit. The location factors do not always have a minimum score of 1 and a maximum score of 10.

The scores for each region can be found in Table 4 in annex.

Weight of different location factors

Weights have been assigned to the different clusters and location factors, indicating their relative importance. These weights add up to 100%, both within and between different clusters and are representing the degree of significance a 'typical' company should attach to the different location factors. In reality the weights will differ between companies, depending on the specific situation. In addition it is very likely that companies take extra location factors into account which are of relevance for them. These additional ones can be both quantitative and qualitative of nature.

Interviews and surveys with experts and companies determined the weight of each cluster and the location factors within the cluster. An overview of the different weights per cluster and the weights of the location factors can be found in figure 4.

The most important cluster is proximity to market. The proximity to market largely influences the total transportation cost and the service levels a distribution centre is able to offer its customers.

Within the operational costs, labour cost is considered as the most important. Besides the latter, availability of labour and the relationship between employer and employee are two essential factors as well that need to be taken into account. Road, sea and air transport are given approximately equal weights when looking at the importance of infrastructure in a region. Nowadays it is not good enough to be excellent in one mode of transport, because intermodal transport is getting more and more important. In reality the choice for the mode of transport will largely depend on the nature of goods a company is shipping. Furthermore, it is assumed that most companies opt to rent a distribution centre rather than build it themselves.

To summarize, the choice for a particular region will have a big impact on the cost, quality and efficiency of the operations of a distribution centre. The impact of these different factors is determined by their weight, indicating the relative importance of the factor compared to others.

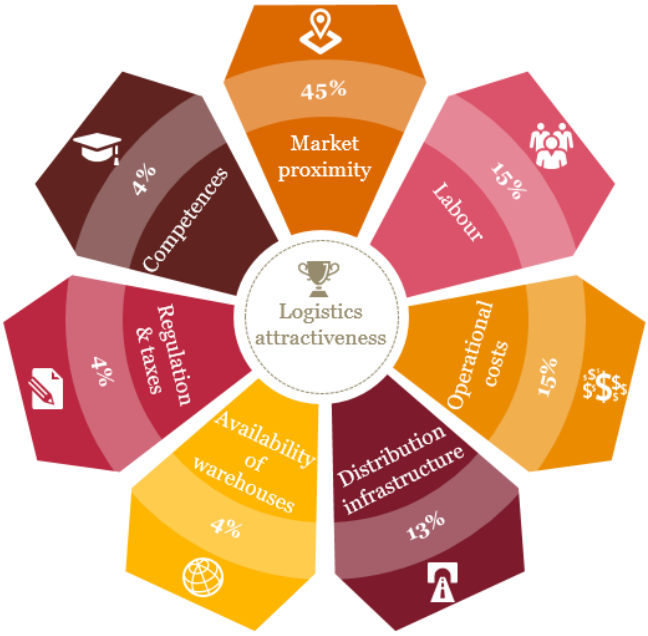

Figure 3: Overview location factors and weights assigned

Top-down analysis

Before deciding on a location, every company takes into account the attractiveness of investing in a certain region. Those location factors create an objective view on why companies should invest in a certain region. It explains the potential of Wallonia as an international logistics hub and why it is interesting, or not, to go to this region. Besides the measurable location factors, a lot of other elements are part of the decision of a company. This study touches upon the general market and logistics profile of Wallonia and the investment profile where the focus is put on the fiscal regulations, tax incentives and subsidies within Belgium and in particular Wallonia. The explanation and impact of the specified location factors is included in the results of the study.

Furthermore, to validate the model, interviews with external logistics leaders and internal logistics experts with great knowledge in warehousing and network optimization are performed and outlined.

Results of the study

Interpretation of results

The result of the quantitative analysis confirm high competition between regions. The difference between the top regions are very small and based on marginal differences. We see the strong elements of Wallonia confirmed with a strong fourth place well positioned in the top of the logistics regions of Europe. The region with the highest score is Saarland, followed closely by Rheinland-Pfalz. The third place is covered by the Southern Netherlands region. The top five is closed by Luxembourg. Furthermore, Brussels is found on the sixth place, followed by the region Est in France. On the eighth place is Thüringen and on the ninth place Flanders. The eventual top ten is closed by the Western Netherlands region.

The high position of Brussels is related to the fact that certain data is only available on country level, giving the advantage to Brussels to receive a higher score. When only regional (NUTS-1) data would be taken into account, Brussels would fall back in the final ranking as the region scores much lower on "operational costs" and "availability of warehouses" then Wallonia.
The lower positioning of Flanders can be explained by the high "labour cost" and lower "availability of logistics employees", both factors have a high impact on the final score of the specific cluster, penalizing Flanders with a lower score in total.

The detailed results are shown in the graphs below. First, figure 5 shows the full list of all regions and their final scores per cluster. A full ranking and scoring of each region can be found in table 4 in annex. Second, figure 6 gives a more detailed explanation on how the top five performing regions are scoring in the different clusters.

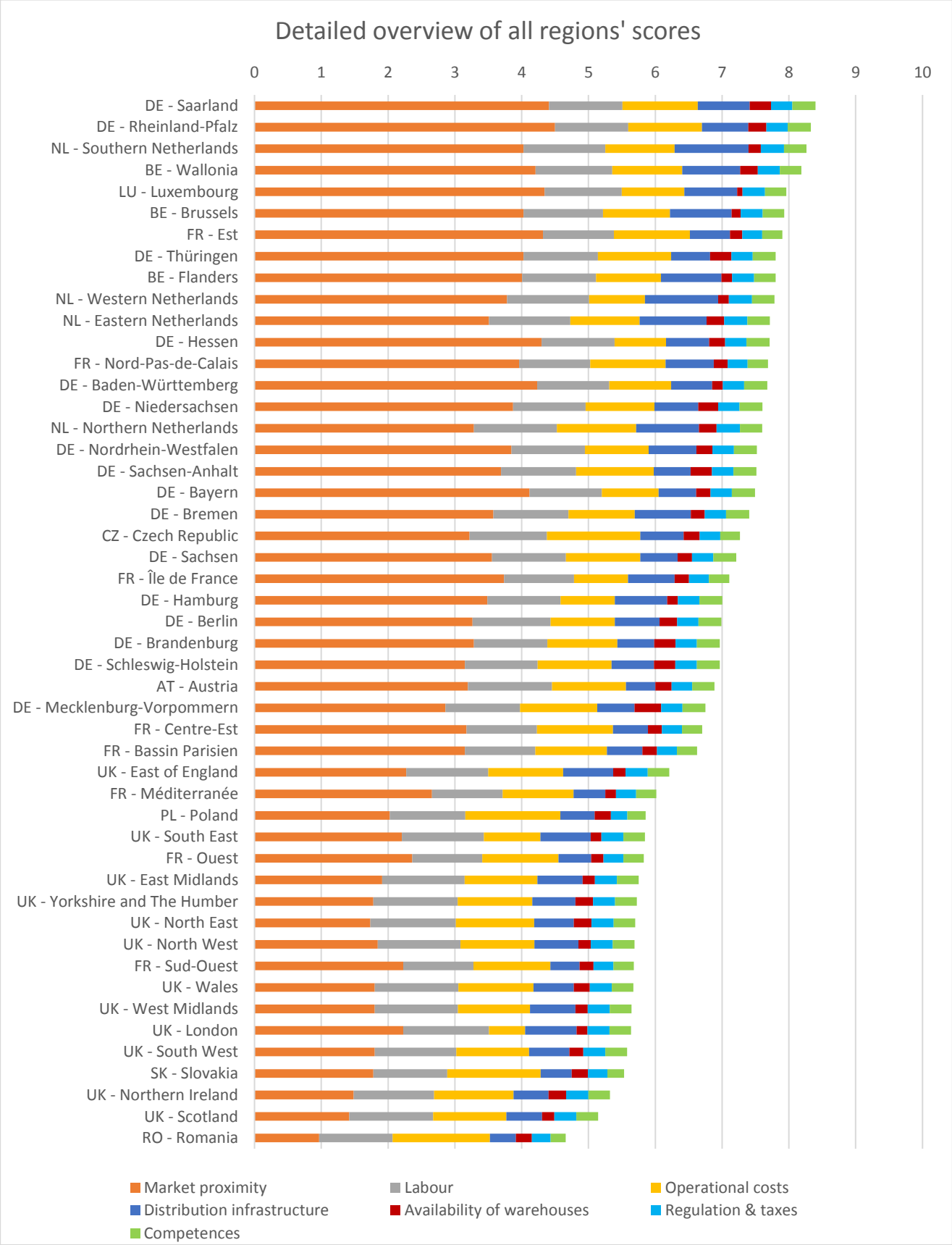

Figure 4: Performance of all regions for the different clusters

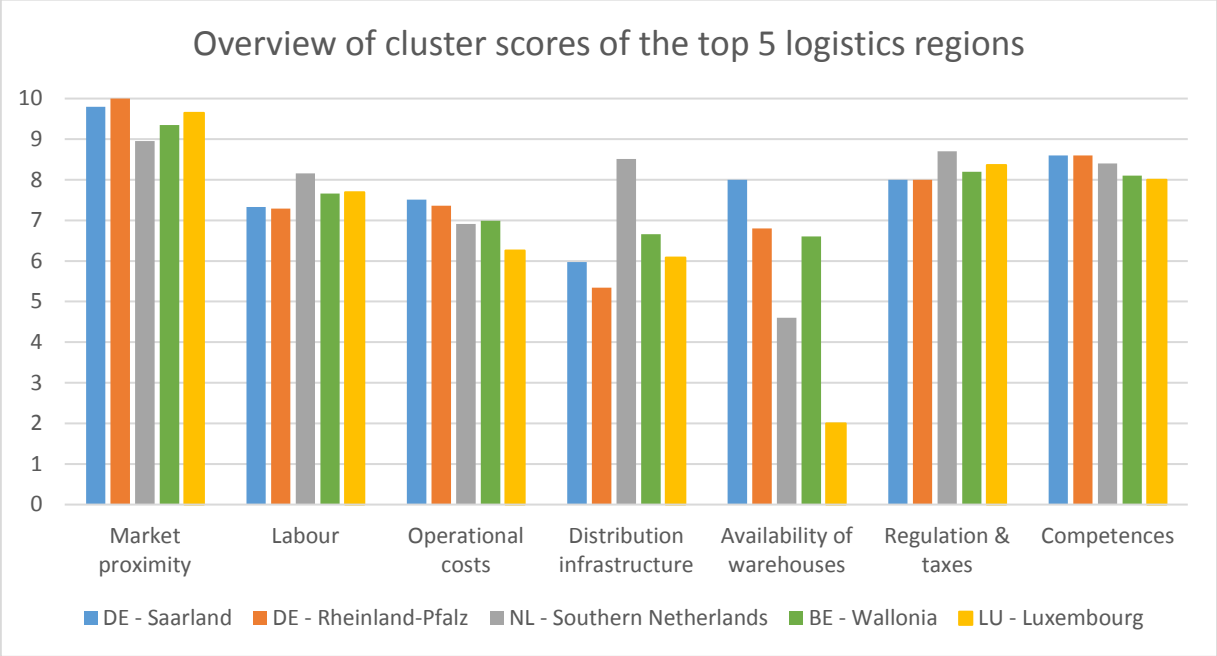

Figure 5: Cluster scores of the top 5 performing regions

Last, figure 7 shows the map of the top ten regions. It appears clearly that all top performing regions are geographically very close to each other and scoring mainly on the "proximity to market", which is also the cluster with the largest given weight.

Figure 6: Top performing regions

It is no surprise that the best scoring regions are still well nested in the blue banana[3] area as it is still the heart of logistics activity in Europe. The eventual line up of the regions is caused by small individual differences that are nevertheless an indicator of the competitive advantages from one region to another.

The overall scores on the different location factors of the top five regions are presented in figures 8 to 14. Wallonia has the best scores for the 'administrative obligations' indicator as well as for certain real estate indicators. For other factors Wallonia is always well in the top of the list, nevertheless the top scores on global cluster level are for other regions. The number one, Saarland, is scoring on market proximity, competences and availability of land. Each cluster will be looked at in detail in the following part of this report.

Market proximity

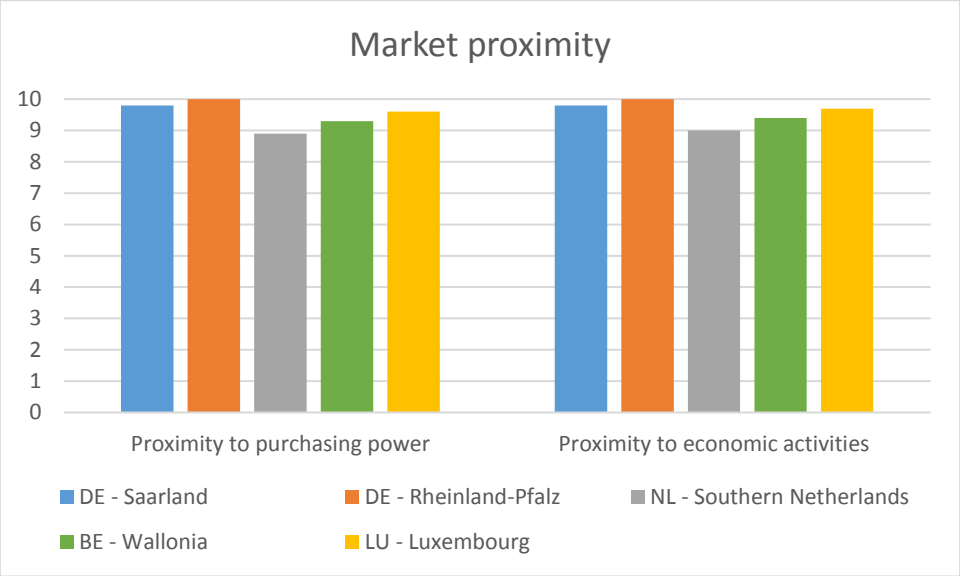

Figure 7: Market proximity cluster

The German regions are scoring better on proximity to market than all other regions and even reach the maximum. Although Wallonia is not in the top five for this cluster, it is ending in seventh position thanks to its central position in Europe. The scores for this factor are very close to each other. Belgium and Wallonia offers excellent accessibility to the main European markets. Eighty percent of all European purchasing power lies within a radius of 800 kilometres from Brussels. Even more, 65 percent of the market is reachable within a radius of 500 kilometres thus companies can take advantage of the beneficial transportation cost and short distance. Given above figures it is certain that Wallonia

[3] The blue banana is an area of high value economic activity in Western Europe, which can supply the largest part of Europe at a favourable price and decent delivery times.

is well placed in the heart of economic activity in Europe and can play an equal role as the surrounding regions.

Distribution infrastructure

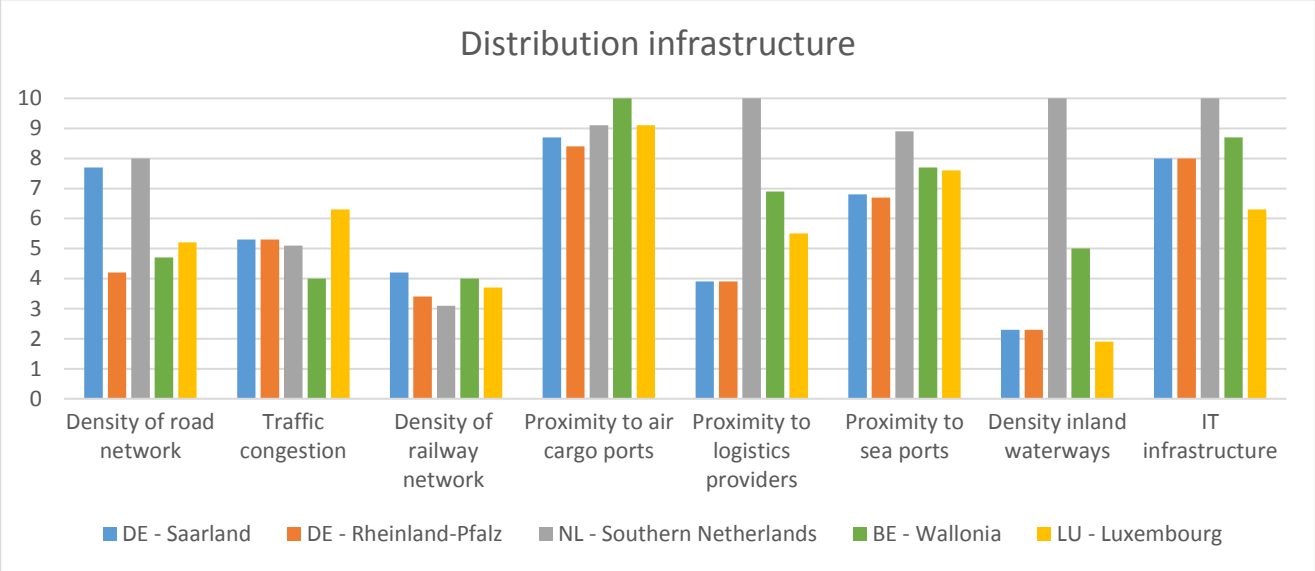

Figure 8: Distribution infrastructure cluster

Accessibility of the Walloon region is one of the key advantages of the region. It finds itself near important air cargo and sea ports like Liège, Zaventem and Antwerp. It is also linked to the waterways of Rotterdam, Antwerp and the Rhein area. Likewise, the main highways throughout Belgium and to Germany, France and the Netherlands are closeby. Belgium is seen as a very good location for logistics clusters and distribution centres, however this advantage is exposed to the increasing road congestion. Poor road maintenance and road safety are indicated as two extra reasons that can possibly weaken this position.

Belgium is Europe's most congested country in terms of hours wasted and delays, implying high extra costs for companies (INRIX). These costs include fuel, loss of productivity, lost workdays and air pollution. Although Belgium is not scoring well on the road congestion factor, looking at the regions the problem is mainly to be found around the area of Brussels and Antwerp, thus Brussels and Flandres, excluding Wallonia.

However, while this is true on a Belgian scale, Wallonia is suffering from far less traffic congestions and made an effort in this domain with the launching of the "Plan Route" in 2010. This 500 million euro program has the ambition to rehabilitate the Walloon road network.

Southern Netherlands is mainly scoring high on proximity to logistics providers. This as a direct result of the expansion and development of the logistics industry in the Netherlands.

Labour

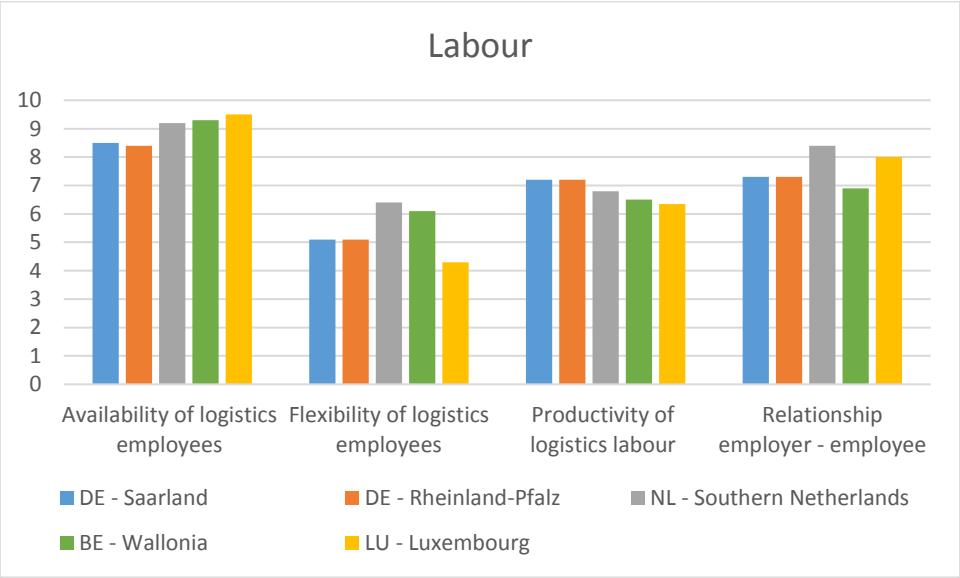

Figure 9: Labour cluster

Wallonia accounts for 32 percent of the total Belgian population of 11.4 million inhabitants. The unemployment rate has consistently remained under the EU average. The global Belgian unemployment rate is around 8.6 percent, whereas the European level hits 9.6 percent and the German rate is nearly 4.7 percent (Federal Government of Economics). It is no secret that the Walloon region suffered from factory closing in heavy industry. Hence the needed reconversion of Wallonia and the higher availability of logistics employees compared to Germany creates a competitive advantage for the region.

Belgium is scoring lower on the productivity of logistics labour. This can partly be explained by the different regulations that apply in Belgium. However, Wallonia is scoring well on flexibility of logistics employees, meaning that it is relatively easy to hire and discharge employees and find the optimal workforce. When looking at the relationship between employer and employee, Wallonia is scoring lower compared to other regions. Several regulatory initiatives have been implemented already in favour of the logistics industry but are still not enough to close the gap with the neighbouring regions. Further improvement will be needed to close the gap completely in this cluster.

Operational costs

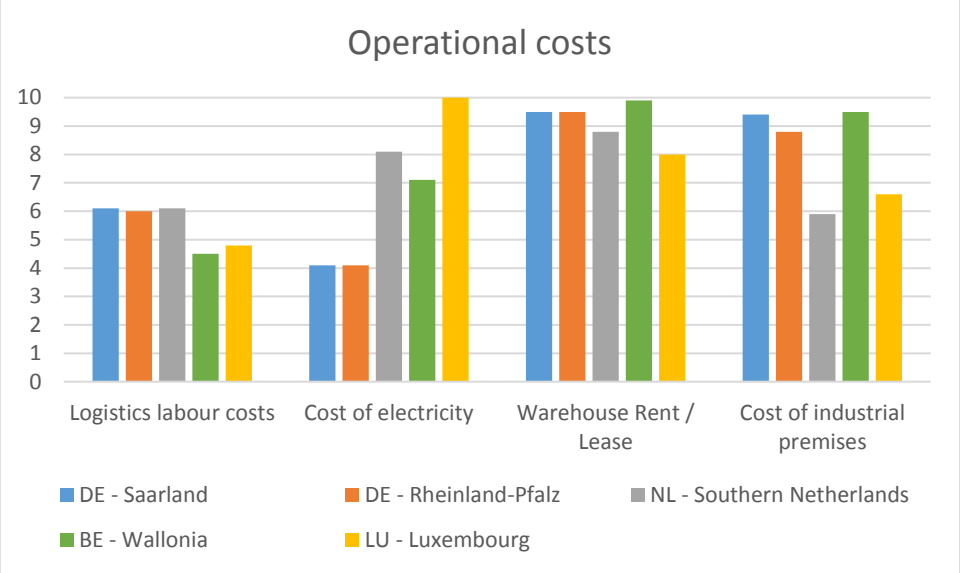

Figure 10: Operational costs cluster

Belgium (Wallonia, Flanders and Brussels) is one of the most expensive countries in the European Union when it comes to labour costs. Even with the adaptation of the tax shift, the Belgian regions are not scoring well on this location factor. As the weight of the logistics labour cost factor is fifty percent, the overall score of the total cluster is also not positive for the Belgian regions.

On the other hand Wallonia is scoring well at warehouse rent prices and cost of industrial premises compared to the other top five regions. Southern Netherlands and Brussels are lacking behind on this topic driven by higher scarcity and prices in these regions.

Availability of warehouses

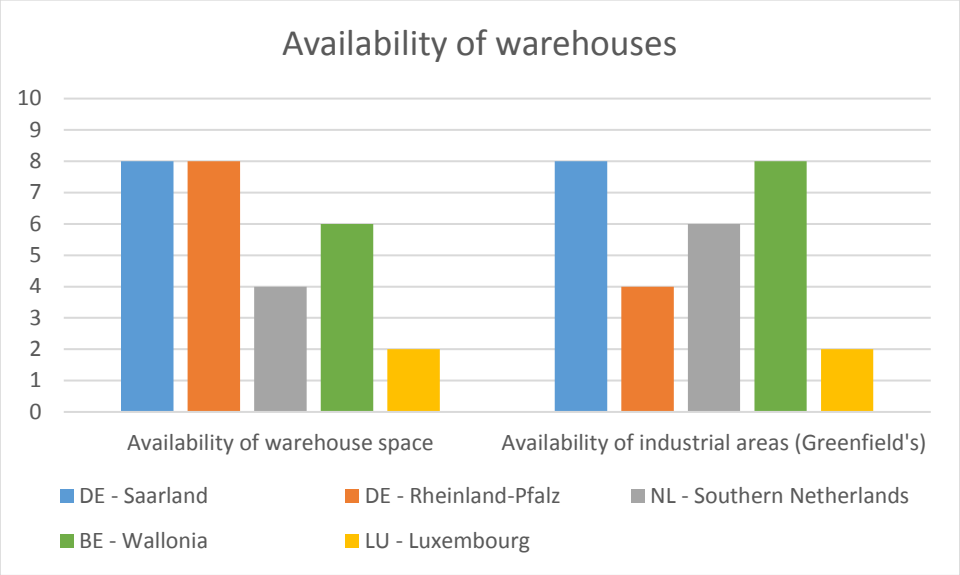

Figure 11: Availability of warehouses cluster

One of the advantages of Wallonia is the high availability of warehouse space and industrial areas. It shows a great contrast with the availability in Flanders and Brussels. The main logistics regions in Belgium are on the Brussels-Antwerp and Mons-Charleroi-Liège axis. A total of 215,000 square meters is taken up in 2016, which is the highest volume since 2013. (JLL). The prime rent for logistics property varies across the different regions. The Brussels-Antwerp region covers a rent between 48 and 55 euro per square meters, whereas the rent in Wallonia is significantly lower, reaching a maximum of €43 per square meter (JLL). These low rent prices create opportunities to attract new businesses to the region. In addition, Belgian cities offers less expensive real estate than neighbouring European cities, like London, Paris, Luxembourg and Munich (Cushman & Wakefield, 2013).

Wallonia, in cooperation with the eight intercommunal economic development agencies, manages more than 230 business parks with a total surface area of around 12,100 hectares with links to Europe's main communication and transport networks. These business parks are characterised by the generous availability of land at fair prices (Invest in Wallonia).

Regulation & Taxes

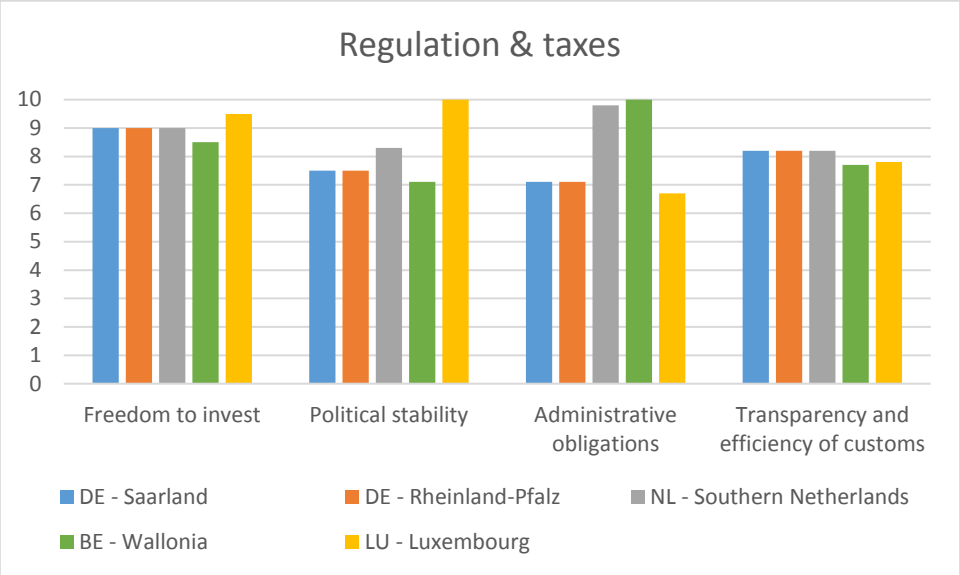

Figure 12: Regulations & taxes cluster

According the KOF Index of Globalization Belgium has one of the most open economies in the world, ending third in the ranking (2016). This index measures the economic, political and social globalization of a country taking into account the effective cross-border flows of goods and services and the restrictions that can prevent import and export.

The federal government provides a lot of ways to stimulate companies in setting up a businesses or distribution centres. First, the Belgian corporate tax level stands at 33.99%, however, a SME whose profit does not exceed € 322,500 is eligible for a reduced rate of 24.98% (Invest in Wallonia). Second, Belgium has settled multiple tax agreements with numerous countries to avoid the problem of double taxation, which is positive for companies with activities on a global level. Furthermore, the notional interest deduction has been introduced. All companies subject to Belgian corporate tax can subtract a fictitious interest based on the amount of shareholder's equity. This encourages companies to invest in self-financing or equity financing[4].

Other advantages that create incentives for a company are the tax deduction for research and development, deduction for patent income and stimulation for expat managers. Besides all this, Belgium applies the system of customs warehousing. This system makes it possible for companies to import goods in the EU without immediately having to pay custom duties, which avoids serious pre-financing (Invest in Wallonia).

The Walloon government offers extra incentives to stimulate a comparatively low tax rate. First, the nominal rate of corporation tax has been lowered and is comparable to the major Western European

[4]Finance.belgium.be

countries. Second, the notional interest deduction can be reduced even more to 25 percent. Third, the Walloon government has removed any uneconomical taxations like property taxes, etc. Last, multiple incentives are created for non-residents and foreign workers or researchers temporarily based in Belgium (Invest in Wallonia).

On this overall cluster, the score of Wallonia is not significant. However, compared to the other regions there are no remarkable differences to be found, keeping Wallonia on the same level.

Competences

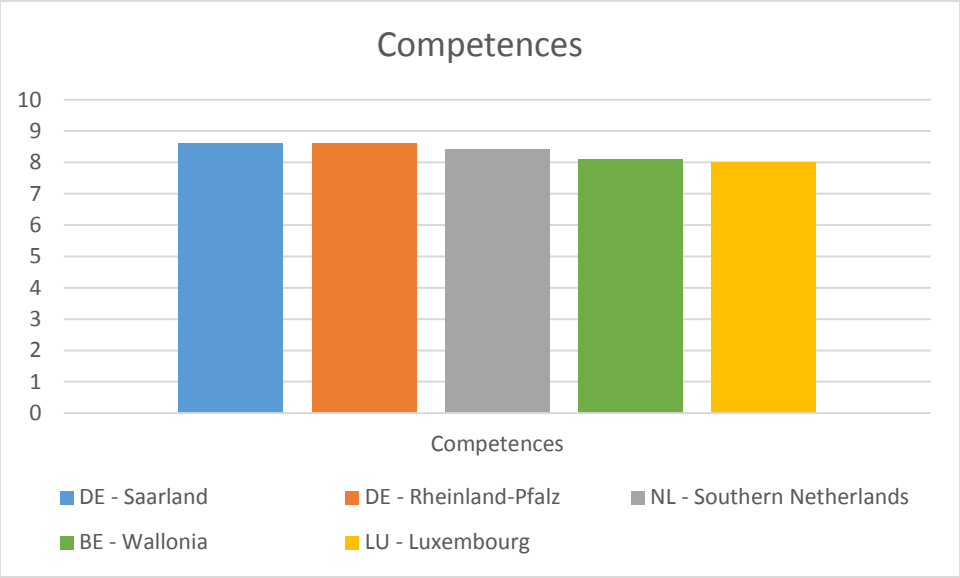

Figure 13: Competences cluster

Belgium offers companies a pool of talented human capital. The percentage of qualified workers stands among the highest in the world and the productivity level of Belgian employees is outstanding thanks to its quality of education systems and the ability to speak multiple languages, e.g. Dutch, French, German and English. This great pool of human capital can help a company in its development.

Taking every region into account, Wallonia is scoring at the same level as the other top five regions. Only minor differences can be distinguished between the specific regions, insufficient to create a competitive difference between the regions.

Cost versus quality

The model is taking into account both quality and cost factors. In the above evaluation of the factors we highlighted both. Depending on the strategy of the company, costs and/or quality may be of higher importance. Cost factors are the “operational costs”, whereas quality factors are all other clusters. An overview of how the regions are scoring on both type of factors is provided in the figure 15.

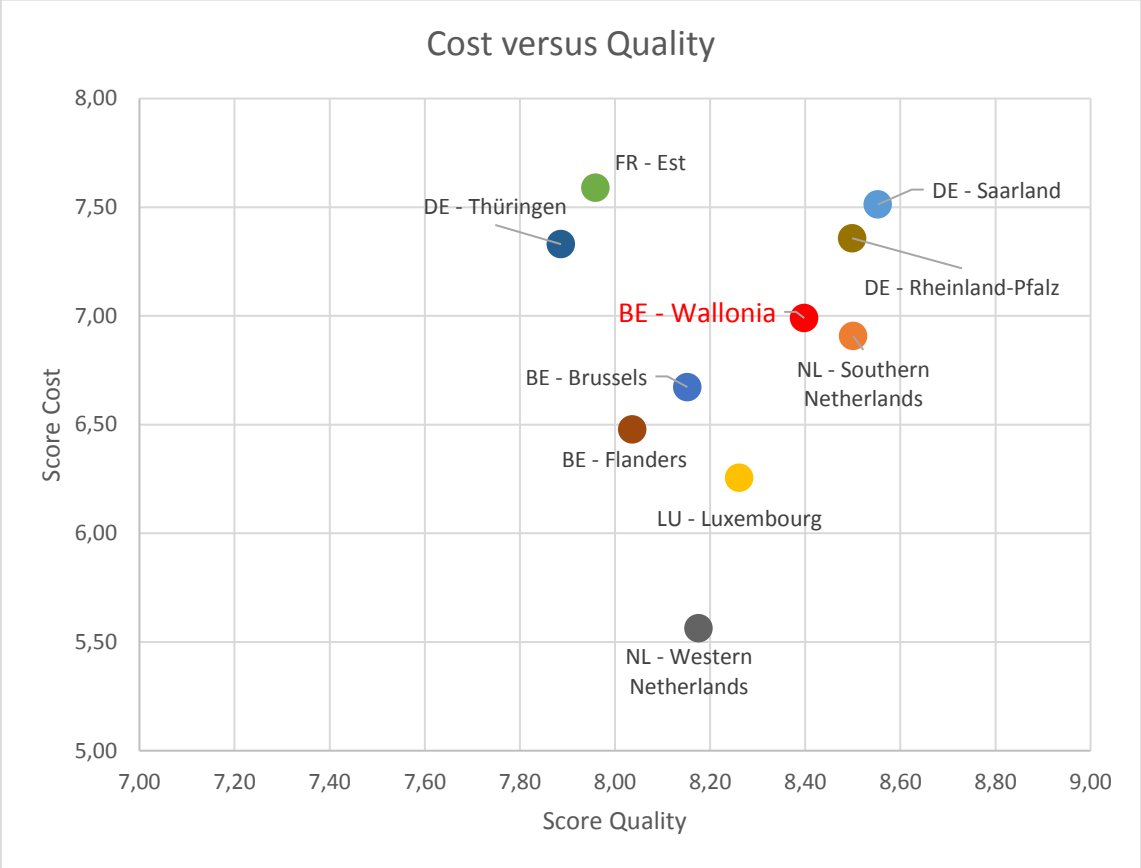

Figure 14: Cost versus Quality factors

Separating the two evaluation dimensions shows that Wallonia is a top performing region from a qualitative point of view. There are however still certain cost elements where the competing regions are better than Wallonia resulting in the overall 4th position. It shows that improvements can still be found in flexibility whereas improving the cost elements are the main drivers to improve the competitive position.

Sensitivity analysis

A sensitivity analysis is performed to verify the model. It shows how strong the results vary when adapting the assumptions and weights assigned. Three different scenarios are defined: operational cost versus transport cost, rent versus build decision and European sourcing and market.

Operational cost versus transport cost

The first scenario considers both transportation cost and operational cost as equally important for a company. In this case, both 'market proximity' and 'operational costs' are evenly weighed on 30% instead of 45% and 15% respectively. The final weighing can be found in annex, table 5.

The top 10 countries change a lot with the adaptation of the operational costs, however, the top 5 remains practically the same, safeguarding the favourable position of Wallonia. Brussels and Flanders fell out of the ranking. Czech Republic is the only new region within the top 5 and replaced Luxembourg. Table 6 shows the new ranking when operational costs are equally important.

Rent versus build decision

A company will have to make the decision to build or rent a warehouse. In order to investigate the difference between the two possible options, the weights of the relevant location factors associated to buying or renting a warehouse are put on zero. For the "warehouse rent/lease" or renting scenario, the weights have been increased to 45%, the same has been done in the other case. The results can be found in table 7 and table 8.

For both renting and building, the top 4 countries remain the same, nonetheless in a slightly different order. Saarland and Rheinland-Pfalz continue to keep their high ranking in both scenarios. The building decision is definitely in favour of the Walloon region, since Wallonia covers the third place in this scenario and ends up fourth in the renting scenario.

European sourcing and market

If the company would decide to only deliver the European market, a lot of location factors would have less or more impact. Proximity to air cargo ports and proximity to sea ports would become obsolete, since every country is reachable with road transport. Thus, density of road network would have a greater impact and its weight would go from 15% to 40%. Proximity to logistics providers would also have a greater impact, so the weight is doubled for this location factor. The weights of other relevant location factors have also been adapted. A total overview of this scenario's weighing can be found in figure 9.

The top ten of this scenario contains almost entirely the same regions as the original scenario. Again, the top 4 consists of the same regions, but in a different order. Saarland falls back to the third place, leaving the second place for Southern Netherlands. Wallonia keeps it ultimate fourth position, followed by Luxembourg and Brussels. The full ranking can be found in table 10.

Sensitivity Conclusion

Wallonia is an attractive region for a company's logistics activities when considering the sensitivity analysis. Wallonia's position changes only slightly when adapting the weights of different location factors. However, some of the neighbouring regions are scoring even better. Saarland, Rheinland-Pfalz and Southern Netherlands occupy the highest positions. Between the different sensitivity analyses, the top 5 countries do not change a lot, only switch places in some cases, thus the outcome of the model can be confirmed with these analyses as well as the strong position of Wallonia in the top performing regions.

Interviews with logistics leaders

Validation of the model

A number of interviews with logistic leaders are conducted to validate the model and to create a clear view on what businesses value in a specific region. A heterogeneous group of contact persons has been composed, taking into account the background and the main activities of the company. All of these enterprises listed, have a distribution centre somewhere in Wallonia.

The main purpose of these interviews is to validate the weights assigned to each location factor and to obtain extra information on what the driving factors are when one choses an optimal location for a distribution centre. This gives a clearer view on what the pros and cons of setting up a distribution centre in Wallonia are and what other relevant location factors are that companies take into account and that haven't been touched upon in this report.

The location factors used in this model are validated by the interviews with the logistics leaders. The main factors mentioned were: proximity to market, distribution infrastructure (proximity to sea ports, proximity to logistics providers, road congestion etc.), availability of warehouses, availability of logistics employees, logistics labour cost, warehouse rent/lease, investment freedom and expertise in logistics.

Besides the quantifiable location factors, the logistics experts pointed out some other company specific factors that can have an important impact on the choice of the desired location for a company. E.g. family owned businesses want to stay within a certain region, acquired firms need to create synergies with their distribution centres, etc. These of course cannot be measured nor processed within this study. A combination of all these factors can determine the ideal location for a specific company.

One of the most important elements mentioned is the history of the company. Some companies are rooted within a certain region in such a way that it is not easy to leave or set up a new distribution centre in a different region. When opening a new distribution centre, the building should not be far away from the present one in order to keep the current employees. Discharging and hiring employees is a costly activity, which most likely implies trouble with labour unions. Moreover, discharging employees entails loss of expertise and related image damage to the company.

Second, when closing an old warehouse and setting up a new one, government support and incentives is very important. For example, the sale of the old site can be included in the deal for the new one, reconversion measures ... However, government support varies largely by region.

The proximity to major motorways is another location factor that can have an impact on the decision of the optimal location. However, this is more related to the exact location within a region than choosing the desired region itself, e.g. a company choses to be in Wallonia and after makes the decision to be in a particular city close to the highway.

Last, for companies that have made the choice to outsource their warehouse operations the choice of a specific logistics partner can be a decisive element. The network of the logistics partner and its accumulated experience with regard to warehousing are more important than the choice of the location.

Besides the additional location factors, there are some other elements that are considered as important 'best practices'.

Road congestion is increasing in importance. Driving before and after working hours, including at night, can help solve this problem. Neighbouring regions are ahead of Wallonia on this aspect. While Belgian government has adopted measures to facilitate night shifts in distribution centres this is not seen as levelling the odds yet.

Other aspects that are addressed by the logistics experts of the interviewed companies are the high labour costs, the power of unions, fiscal regulations, political instability, the complexity of administrative processes and the new tax per kilometres cost. During the interviews, these points were mentioned as factors which make Belgium, and in particularly Wallonia, less attractive to companies than a few neighbouring regions. One can debate the impact of certain elements, it is clear that Wallonia has a challenge to create a positive, dynamic perception throughout the described criteria.

Internal logistics experts survey

The assigned weights have also been verified internally. A survey is composed to validate the weights used within the quantitative analysis. Internal logistics experts with a lot of experience in this field (e.g. warehouse design, network optimization and distribution network redesign) are asked to fill out the questionnaire and give their opinion. The questions varied from "ranking by importance" to "assigning percentages" to location factors. With this survey the importance of each location factor is validated and in line with our metric. Depending on the variance of these results the weights are adapted as a sensitivity analysis and then reviewed.

Conclusion

Conclusion of the study

For most companies, the decision to open a new distribution centre is driven by the different objectives, cost reduction, service improvement to the clients, enabling growth, improve competitive position. Finding the ideal location which will allow these companies to achieve their ambitions is a difficult and balanced exercise given the amount of parameters to be considered. It will never be a 100 percent mathematical exercise based on objective criteria, qualitative and emotional elements always play a role. This exercise is nevertheless crucial as it will impact the overall performance of the firm on long term.

The quantitative analysis of this study is based on criteria for which data is available for all the regions in scope. We understand that the list of these criteria will vary from case to case. The objective of the study is not to provide a framework to be applied to particular cases but to understand the attractiveness of regions when it comes to setup a European distribution centre. From this perspective, only generic criteria are retained.

Since not all criteria have the same importance in this decision, different weights are assigned to each location factor. The weights have been validated by internal and external logistics experts and a sensitivity analyses is performed to verify the outcome of the model. This analysis shows that the top four countries remain in the top positions when adapting the weights of the location factors. This indicates that the conclusion of the study is robust.

Wallonia is scoring well compared to the other regions, ending in fourth place with a total score of 8.1 on 10. Wallonia also receives a high score compared to the neighbouring regions. The four main competing regions, Saarland, Southern-Netherlands and Rheinland-Pfalz all have very close scorings of respectively 8.2, 8.15 and 8.14 on 10. This fourth position in the ranking is mainly driven by the strategic location of Wallonia which offers excellent accessibility to the main European markets.

Wallonia has definite strength to offer to companies, the available distribution infrastructure cluster, ranked 7th position, thanks to its proximity to air cargos and sea ports. Wallonia has a good location with direct water and motorways linking them to Rotterdam, Antwerp and the Rein area. Furthermore, Wallonia has a very good level of available industrial areas and warehousing space offering sufficient expansion possibilities. Logistic competencies and needed workforce are available.

The logistics performance of the region is threatened by high operational costs of which labour cost is the main driver. The tax burden in Belgium is high but initiatives like the tax shift that where included in this study have a positive impact. Nevertheless it is not sufficient to improve and lift the position of Wallonia more in line with the neighbouring regions. As this component counts for 50 percent of the operational costs cluster, the impact on the overall attractiveness of Wallonia is significant.

The Labour cluster, where Wallonia is ranked 20th, is also a point of attention where the competitiveness of Wallonia is affected. The lower flexibility of employees compared to other regions and more difficult employer-employee relationships are causing this low score. Besides the quantitative result Wallonia is also facing an image and perception issue when attracting new businesses.

Overall, the model shows that the top five logistics regions are positioned very close to one another, showing the central position of the European market. Wallonia takes up the fourth place in the ranking, proving the attractiveness of the region as well as the working points to improve the competitiveness.

We must however not forget that decision process in companies is not only based on ranking of regions. It will be based both on financial and quantitative elements as well as on cultural fit, strategic compliance, support provided by regions, etc. that affect company leaders decision process.

Remarks on the study

This model is fully generic, meaning that this will not give the optimal nor ideal location for a distribution centre for every single enterprise but provides companies with an idea of what the different interesting regions within the European Union are and what differentiates them from one another.

Future view

The environment in which DC's are operating, is changing at a high pace. PwC identifies five key trends that will reorganise the way of how business, as well as logistics, will be done in the future: demographic changes, shift in economic power, rapid urbanisation, climate change and technological changes (PwC, 2013). Below a few examples are described that can possibly change the logistics attractiveness of regions in the future. Note that the list is not exhaustive and that there are other factors that can change the logistics attractiveness in the future as well. It is impossible to predict the direction in which this trend will impact the logistics attractiveness of a region, nonetheless it is useful to monitor these trends carefully in order to be prepared and act proactively.

A shift in the economic power and the accelerating urbanisation will rebalance the economic dominance within Europe and the world. In the case of Europe, Central and Eastern Europe (CEE) will gain economic importance compared to the current dominant Western European countries. CEE is getting wealthier and starts consuming more and more. This could shift the centre of gravity for

consumption (proximity to market) further eastwards into the European continent. Besides the increasing consumption in these countries, Prologis reveals that the Central and Eastern Europe will dominate the top ranking of most desirable logistics locations, due to their cost advantage. The cost of labour and the real estate costs are significantly lower than in Western European countries.

Given the climate change and resource scarcity, consumers and manufacturers are paying more attention to sustainable alternatives (DHL Trend radar, 2016). Logistics is a large oil consumer and is a large contributor to the CO_2 emissions. By choosing for an optimal combination of intermodal transport, costs and services can be improved. The choice for a particular combination of modes of transport will as well have a solid impact on the sustainable image of a company towards their customers. Due to costs and the rising sustainable awareness, the choice between different modes of transport will play an important role for companies. If one compares for example air with sea transport, the cost per kg and the pollution is much higher for air transport compared to sea transport.

The way logistics is performed is heavily influenced by technological breakthroughs. Technological disruptions arise at an increasing and pace, changing both the world of manufacturing and logistics. Examples like 3D printing, autonomous driving trucks, drones, share-economy logistics, robotics & automation and internet of things will probably influence the supply chain of many companies and consequently the optimal location of a company's DC (DHL Trend radar, 2016).

Currently, the political landscape is changing in Europe. This political environment is an important factor that could have an effect on the optimal location to position one's DC. Recent events like the Brexit and the rise of nationalism within Europe hinder the efficient working of a global, open economy. This can have an impact on where products are sourced and how they are finally delivered to the customer. A rise in the degree of protectionism in Europe will disfavour Wallonia, as the region is strongly dependable on the high volume of exported goods and services at this moment.

Annex

Table 1 NUTS-1 regions

Nuts -1 code	Region
BE1	Brussels
BE2	Flanders
BE3	Wallonia
AT0	Austria
CZ0	Czech-Republic
DE1	Baden-Württemberg
DE2	Bayern
DE3	Berlin
DE4	Brandenburg
DE5	Bremen
DE6	Hamburg
DE7	Hessen
DE8	Mecklenburg-Vorpommern
DE9	Niedersachsen
DEA	Nordrhein-Westfalen
DEB	Rheinland-Pfalz
DEC	Saarland
DED	Sachsen
DEE	Sachsen-Anhalt
DEF	Schleswig-Holstein
DEG	Thüringen
PL0	Poland
RO0	Romania
FR1	Île de France
FR2	Bassin Parisien
FR3	Nord-Pas-de Calais
FR4	Est
FR5	Ouest
FR6	Sud-Ouest
FR7	Centre-Est
FR8	Méditerranée
NL1	Northern Netherlands
NL2	Eastern Netherlands
NL3	Western Netherlands
NL4	Southern Netherlands
SK0	Slovakia
UKC	North East (England)
UKD	North West (England)
UKE	Yorkshire and the Humber
UKF	East Midlands (England)
UKG	West Midlands (England)
UKH	East of England
UKI	London
UKJ	South East (England)
UKK	South West (England)
UKL	Wales
UKM	Scotland
UKN	Northern Ireland

Table 2: Weights per cluster and location factor

Cluster/location factor	Weight
Market proximity	**45%**
Proximity to purchasing power	50%
Proximity to economic activities	50%
Distribution infrastructure	**15%**
Density of road network	15%
Traffic congestion	10%
Density of railway network	5%
Proximity to air cargo ports	15%
Proximity to sea ports	20%
Proximity to logistics providers	20%
Density inland waterways	10%
IT infrastructure	5%
Labour	**15%**
Availability of logistics employees	40%
Flexibility of logistics employees	20%
Productivity of logistics labour	10%
Relationship employer-employee	30%
Operational costs	**15%**
Logistics labour costs	50%
Cost of electricity	5%
Warehouse rent/lease	27,5%
Cost of industrial premises	17,5%
Availability of land	**4%**
Availability of warehouse space	70%
Availability of industrial areas	30%
Competences	**4%**
Language skills and expertise	100%
Regulations & Taxes	**4%**
Investment freedom	20%
Political stability	20%
Administrative obligations	20%
Transparency and efficiency of customs	40%

Table 3: Final ranking and scoring of the regions

Region	Rank	Score
DE - Saarland	1	8,40
DE - Rheinland-Pfalz	2	8,33
NL - Southern Netherlands	3	8,26
BE - Wallonia	4	8,19
LU - Luxembourg	5	7,96
BE - Brussels	6	7,93
FR - Est	7	7,90
DE - Thüringen	8	7,80
BE - Flanders	9	7,80
NL - Western Netherlands	10	7,78
NL - Eastern Netherlands	11	7,72
DE - Hessen	12	7,71
FR - Nord-Pas-de-Calais	13	7,69
DE - Baden-Württemberg	14	7,67
DE - Niedersachsen	15	7,60
NL - Northern Netherlands	16	7,60
DE - Nordrhein-Westfalen	17	7,52
DE - Sachsen-Anhalt	18	7,51
DE - Bayern	19	7,49
DE - Bremen	20	7,40
CZ - Czech Republic	21	7,27
DE - Sachsen	22	7,21
FR - Île de France	23	7,11
DE - Hamburg	24	7,00
DE - Berlin	25	6,99
DE - Brandenburg	26	6,97
DE - Schleswig-Holstein	27	6,96

AT - Austria	28	6,89
DE - Mecklenburg-Vorpommern	29	6,75
FR - Centre-Est	30	6,70
FR - Bassin Parisien	31	6,63
UK - East of England	32	6,21
FR - Méditerranée	33	6,02
PL - Poland	34	5,85
UK - South East	35	5,85
FR - Ouest	36	5,83
UK - East Midlands	37	5,75
UK - Yorkshire and The Humber	38	5,72
UK - North East	39	5,70
UK - North West	40	5,69
FR - Sud-Ouest	41	5,68
UK - Wales	42	5,67
UK - West Midlands	43	5,64
UK - London	44	5,64
UK - South West	45	5,58
SK - Slovakia	46	5,53
UK - Northern Ireland	47	5,32
UK - Scotland	48	5,14
RO - Romania	49	4,66

Sensitivity analysis outcomes

Table 4: Weights of the operational cost versus transport cost scenario

Cluster	Factor	Original weight	Scenario 1
Market proximity	Proximity to purchasing power	50%	50%
	Proximity to economic activites	50%	50%
	Cluster weight	**45%**	**30%**
Labour	Availability of logistics employees	40%	40%
	Flexibility of logistics employees	20%	20%
	Productivity of logistics labour	10%	10%
	Relationship employer - employee	30%	30%
	Cluster weight	**15%**	**15%**
Operational costs	Logistics labour costs	50%	50%
	Cost of electricity	5%	5%
	Warehouse Rent / Lease	28%	28%
	Cost of industrial premises	18%	18%
	Cluster weight	**15%**	**30%**
Distribution infrastructure	Density of road network	15%	15%
	Traffic congestion	10%	10%
	Density of railway network	5%	5%
	Proximity to air cargo ports	15%	15%
	Proximity to logistics providers	20%	20%
	Proximity to sea ports	20%	20%
	Density inland waterways	10%	10%
	IT infrastructure	5%	5%
	Cluster weight	**13%**	**13%**
Availability of warehouses	Availability of warehouse space	70%	70%
	Availability of industrial areas (Greenfield's)	30%	30%
	Cluster weight	**4%**	**4%**
Regulation & taxes	Freedom to invest	20%	20%
	Political stability	20%	20%
	Administrative obligations	20%	20%
	Transparency and efficiency of customs	40%	40%
	Cluster weight	**4%**	**4%**
Competences	Language skills and expertise in logistics	100%	100%
	Cluster weight	**4%**	**4%**

Table 5: Ranking of the operational cost versus transport cost scenario

Ranking	Original	Operational costs
1	DE - Saarland	DE - Saarland
2	DE - Rheinland-Pfalz	DE - Rheinland-Pfalz
3	NL - Southern Netherlands	NL - Southern Netherlands
4	BE - Wallonia	CZ - Czech Republic
5	LU - Luxembourg	BE - Wallonia
6	BE - Brussels	NL - Northern Netherlands
7	FR - Est	DE - Thüringen
8	DE - Thüringen	FR - Est
9	BE - Flanders	NL - Eastern Netherlands
10	NL - Western Netherlands	DE - Sachsen-Anhalt

Table 6: Weights of the rent versus build scenario

Cluster	Factor	Rent	Build
Market proximity	Proximity to purchasing power	50%	50%
	Proximity to economic activites	50%	50%
	Cluster weight	**45%**	**45%**
Labour	Availability of logistics employees	40%	40%
	Flexibility of logistics employees	20%	20%
	Productivity of logistics labour	10%	10%
	Relationship employer - employee	30%	30%
	Cluster weight	**15%**	**15%**
Operational costs	Logistics labour costs	50%	50%
	Cost of electricity	5%	5%
	Warehouse Rent / Lease	**45%**	**0%**
	Cost of industrial premises	**0%**	**45%**
	Cluster weight	**15%**	**15%**
Distribution infrastructure	Density of road network	15%	15%
	Traffic congestion	10%	10%
	Density of railway network	5%	5%
	Proximity to air cargo ports	15%	15%
	Proximity to logistics providers	20%	20%
	Proximity to sea ports	20%	20%
	Density inland waterways	10%	10%
	IT infrastructure	5%	5%
	Cluster weight	**13%**	**13%**
Availability of warehouses	Availability of warehouse space	**100%**	**0%**
	Availability of industrial areas (Greenfield's)	**0%**	**100%**
	Cluster weight	**4%**	**4%**
Regulation & taxes	Freedom to invest	20%	20%
	Political stability	20%	20%
	Administrative obligations	20%	20%
	Transparency and efficiency of customs	40%	40%
	Cluster weight	**4%**	**4%**
Competences	Language skills and expertise in logistics	100%	100%
	Cluster weight	**4%**	**4%**

Table 7: Ranking of the rent versus build scenario

Ranking	Rent	Buy
1	DE - Rheinland-Pfalz	DE - Saarland
2	DE - Saarland	DE - Rheinland-Pfalz
3	NL - Southern Netherlands	BE - Wallonia
4	BE - Wallonia	NL - Southern Netherlands
5	LU - Luxembourg	FR - Est
6	FR - Est	DE - Thüringen
7	BE - Brussels	LU - Luxembourg
8	DE - Thüringen	FR - Nord-Pas-de-Calais
9	DE - Baden-Württemberg	BE - Brussels
10	DE - Hessen	DE - Hessen

Table 8: Weights of the European sourcing and market scenario

Cluster	Factor	Global	Europe
Market proximity	Proximity to purchasing power	50%	50%
	Proximity to economic activites	50%	50%
	Cluster weight	**45%**	**45%**
Labour	Availability of logistics employees	40%	40%
	Flexibility of logistics employees	20%	20%
	Productivity of logistics labour	10%	10%
	Relationship employer - employee	30%	30%
	Cluster weight	**15%**	**15%**
Operational costs	Logistics labour costs	50%	50%
	Cost of electricity	5%	5%
	Warehouse Rent / Lease	28%	28%
	Cost of industrial premises	18%	18%
	Cluster weight	**15%**	**15%**
Distribution infrastructure	Density of road network	15%	**35%**
	Traffic congestion	10%	10%
	Density of railway network	5%	5%
	Proximity to air cargo ports	15%	**0%**
	Proximity to logistics providers	20%	**35%**
	Proximity to sea ports	20%	**0%**
	Density inland waterways	10%	10%
	IT infrastructure	5%	5%
	Cluster weight	**13%**	**13%**
Availability of warehouses	Availability of warehouse space	70%	70%
	Availability of industrial areas (Greenfield's)	30%	30%
	Cluster weight	**4%**	**4%**
Regulation & taxes	Freedom to invest	20%	**33%**
	Political stability	20%	**33%**
	Administrative obligations	20%	**33%**
	Transparency and efficiency of customs	40%	**0%**
	Cluster weight	**4%**	**4%**
Competences	Language skills and expertise in logistics	100%	100%
	Cluster weight	**4%**	**4%**

Table 9: Ranking of the European sourcing and market scenario

Ranking	Global	Europe
1	DE - Saarland	DE - Saarland
2	DE - Rheinland-Pfalz	NL - Southern Netherlands
3	NL - Southern Netherlands	DE - Rheinland-Pfalz
4	BE - Wallonia	BE - Wallonia
5	LU - Luxembourg	LU - Luxembourg
6	BE - Brussels	BE - Brussels
7	FR - Est	NL - Western Netherlands
8	DE - Thüringen	DE - Thüringen
9	BE - Flanders	NL - Eastern Netherlands
10	NL - Western Netherlands	FR - Est

List of tables and figures

Tables

Figures

References

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