Profiling the ports of Rotterdam, Antwerp, and Hamburg: a brief history

8.1 INTRODUCTION

A short overview of the development of the ports under study is given in this chapter. As it is not the intention to give an exhaustive historical overview of how these three ports have developed over time, this chapter aims to give an overview that encompasses elements that provide a clear picture of the most important elements of the development of Rotterdam, Antwerp, and Hamburg from the perspective of the relationship between port and port city. Sections 8.2, 8.3, and 8.4 are essentially monographs of these three ports, with historical overviews to show how the current situation finds its origin in the past. In addition to the historical overview, the general dynamics from the research model are used as a guide. So, besides the history, each port is described along the general dynamics : containerization, regionalization, and globalization. In section 8.5, the historical development and the influence of these dynamics that led to the present visible situation is wrapped up by comparing the three ports from the spatial perspective as described in the problem analysis (section 1.6), which is the separation of port functions from the port city. This is referred to as visibility. As the component, presence, co-exists alongside visibility, section 8.6 compares the cultural and economic aspects, paying explicit attention to the ports and their respective port cities. In section 8.7, some concluding remarks are made based on the descriptions in the monographs, thereby creating a bridge between this chapter and the analysis in Chapter 9, where the political-economic systems are espoused as a perspective to describe and explain the relationship between ports and cities.

8.2 THE PORT AND PORT CITY OF ROTTERDAM

8.2.1 Site: a dam in the river Rotte

It was a rather swampy area, the land along the coast of Holland in the 13th century, where several rivers formed a delta in which settlements were created, especially at those places where rivers joined together. And it was absolutely not Rotterdam that took the lead in those days. At the end of the 13th century, Dordrecht was the jewel among the northern Dutch merchant cities, thanks to the support of the Dutch counts (Blok, Prevenier, & Roorda, 1980, p. 93). All the merchandise – especially wine, timber, and corn – shipped along the river Merwede was traded in Dordrecht, which had received city rights in 1220. In 1299, the nobility granted Dordrecht staple rights. For a long time therefore, Dordrecht was the economic center of the region, but it focused on its staple rights and the money that the city earned from the toll demanded from passing ships. It did not really have a maritime position;

that position was primarily held in the southern part of The Netherlands, Sealand and Flanders, which were far more developed in terms of urbanization, trade, and industry (Blok, Prevenier, & Roorda, 1982). The nobility of Holland concentrated on this toll, thereby creating room for other cities to play a role in the trade via the sea to England. Another interesting difference is that Dordrecht was a member of the Hanseatic league (Hammel-Kiesow, Puhle, & Wittenburg, 2015) and Rotterdam was not (at that time much too insignificant, later on too competitive with cities like Antwerp and Hamburg).

In the middle of the 13th century (around 1270), a dam was constructed in the little river, the Rotte, connecting the river Maas (connection between France, Germany, and the sea) and the inland of Holland, whereby a sheltered area was created (see Figure 8.1; the map dates to about 1340). Such constructions were often applied in Holland, as can be seen in the names of its towns and villages (Schiedam, Amsterdam, Leidschendam) (Blok et al., 1982, p. 197) and formed a base to load and unload ships on both sides of the dam. These activities formed the core for a settlement. This dam in the Rotte was positioned at the current Hoogstraat, thereby initiating the urbanization of Rotterdam.

Figure 8.1 A dam in the river Rotte (Source: https://www.entoen.nu/nl/havenvanrotterdam) Retrieved:8 August 2019

Note: Regarding orientation: the left the Rotterdamse Schie forms the left side of a triangle. The base of the triangle is the rive Meuse. The top is where nowadays the Weena is situated. This triangle can still be seen on a topographical map of Rotterdam.

The construction of the Rotterdamse Schie improved the connection with the western and northern parts of Holland (via the Rhine Schie canal), and the city's economic growth could take off. During the 14th century, Rotterdam's position was still quite weak. City rights were granted and later revoked and granted again. It was a city whose inhabitants lived from fishery, local trade, and agriculture (Hooydonk & Verhoeven, 2007, p. 318).

To recognize Rotterdam as a port city, a leap in time has to be made to an era when Rotterdam really became an important port city. This was not reached overnight. It took about 200 years before that could happen. In those 200 years, Rotterdam was a fishing port and a market center without any other industries. There simply was not really any business: "Rotterdam and other Maas ports, as well as ports farther north, assumed the transport function for the merchants of Flanders who were not interested in developing ocean-borne and coastal trade" (Weigend, 1973, p. 9). Two factors stimulated growth after these 200 years of quietness. On the one hand, in an early phase, Rotterdam declared itself a supporter of the rebellion against the kingdom of Spain and sided with William of Orange (Weigend, 1973, p. 9). The other factor was that the influential lawyer, Van Oldenbarnevelt, achieved the highly ranked position of Grand Pensionary (nowadays Prime Minister) and protected Rotterdam's interests in the States of Holland (the "national" government). He used his influence to create the expansion of the few docks towards the southwest, so a real port with docks and quays began to take shape (Hooydonk & Verhoeven, 2007). This direction south/southwest/west determined Rotterdam's expansion from that period.

It is important to note that the functions of towns in the political-economic structure in those days were quite separate. The Hague was the political center where the politicians came together and political governmental power was situated. Amsterdam and Rotterdam were important merchant cities where institutions like the United East India Company (V.O.C.) – the first stock-issuing company to initiate and organize trade with the East Indies – were located, although Amsterdam had the upper hand in trade with the Far East, and Rotterdam was more into trade with the West Indies (and later, Western trade). This division of functions, especially the separation of economic importance and political influence, is a characteristic that shaped the development of the port of Rotterdam compared with the ports of Antwerp and Hamburg. This will be made clearer in future sections.

8.2.2 Becoming a port of national interest

As noted in the previous section, the port of Rotterdam expanded to the south and the southwest. Its development in terms of spatial growth was rather slow, and its growth would not accelerate until the third quarter of the 19^{th} century. Before 1860, Rotterdam's docks and quays (built in the 17^{th} century) were still situated on the northern edge over the river. The city and its port were more or less locked into the old urban triangle. Thorbecke, the national liberal politician, strongly favored free trade, which would be enhanced when shipping was liberated from all the constraints of the existing (international) legislation of those days; and in 1868 this was realized. Three developments can be identified as laying the base for the accelerated growth:

- The abolishment of shipping rights on the Rhine;
- The abolishment of duties on exports;
- The introduction of shipping laws that ended the favoring of Dutch ships in their own ports.

These measures, formalized in the Manheimer Akte (Manheim Act), enhanced competition (Oosterwijk, 2011, p. 15), but Rotterdam still suffered from a lack of the accessibility that makes it so unique nowadays. It took years before the needed gateway was realized. The first step was the canal through Voorne (1830), which was an improvement but still meant that ships had to round an island with all its problems of distance and navigational difficulties. It took another 40 years before the daring but obvious solution was created by Pieter Caland, whose new canal penetrated the protection from the sea right through the dunes and created a highway for ships: De Nieuwe Waterweg (the New Waterway). The second important improvement was the canalization of the Rhine that made the connection from west to east faster and enhanced the possibility for larger barges to use this waterway.

The second effect of the legislation that enhanced industrial development was the enlargement of the port on the left side of the river Meuse. One man must be mentioned who had a tremendous influence on this development: Lodewijk Pincoffs. To create a new port area, infrastructure such as railways were needed. Pincoffs was the man who was the motor for the 'Leap over the Meuse'. In 1878, the connections to the south – Willemsbrug for road traffic and a railway bridge over the river – were realized, paving the way for further development on the south bank. Thus, the creation of the port on Feijenoord was made possible. This development involved cooperation between the national authorities, the municipality, and private investors: a kind of public–private cooperation, but not completely, because the responsibilities were strictly separated. Some infrastructure was realized by the national authorities: railways and the digging of a dock (Spoorweghaven). Rotterdam municipality was in charge of building the Noorderhaven, the bridges, and the quays. Other facilities were the responsibility of a private investor, Rotterdamsche Handelsvereeniging (Oosterwijk, 2011).

Economic activity focused mainly on port activities and not on industrial activities in the city. The space needed for the maritime function was accommodated by expropriation and incorporation in the municipal structure in order to have all the facilities under direct municipal control (Weigend, 1973). In the 19th century, the port-related activities were based on storage of goods waiting to be transshipped. Later, thanks to industrialization in Germany, the increased need for raw materials like coal and ore gave rise to further expansion of shipments to and from this industrial heart of Europe. At the end of World War 1, the devastation of German industry also affected Rotterdam, but, when the German economy started to recover, so did the port of Rotterdam, as the rebuilding of the German economy needed many materials, transported via the port of Rotterdam. This was the heyday of companies like Steenkolen Handels Vereniging, with which illustrious names are associated. The people who were in charge of these companies are certainly well known and remembered – people like Van Beuningen and Fentener van Vlissingen, who was the founder of a company that in time became known as Akzo Nobel; Jan Veder, stemming from a family of bankers, later involved in stevedoring and who became the director of Rotterdam Droogdok Maatschappij; Willem Ruys, starting as a shipper, the founder of the Rotterdamse Lloyd and Nedlloyd; Willem de Monchy, of the company Pakhuis Meesteren, the foundation of what later, after several mergers, would become Vopak; Anton Kröller (shipping company) and Willem Van der Vorm of the Scheepvaart en Steenkolenmaatschappij and Jacques Schoufour. These people, known as the barons of the port of Rotterdam, not only were responsible for their economic activities, but also felt themselves responsible for the wellbeing of the city. Examples of their actions include the financing of the port hospital (later well known for its treatment of tropical diseases), the football stadium Feijenoord (thanks to Van Beuningen), the well-known collection of the Boymans van Beuningen museum, the Blijdorp zoo, and so on. They were the rich business people who supported the city to make life more pleasant without having direct economic profit from it. Of course, they benefitted from that as well: happy workers create fewer social problems, but still they were examples of a class of people who looked beyond direct self-interest.

In those days, Rotterdam's main focus was on maritime activities in terms of moving goods as fast as possible to and from the German industrial area as a transshipment port, and not so much on other industrial activities. It was only in the 1930s that manufacturing started in Rotterdam itself. Oil activities started in the 1930s when the Bataafse petroleum Maatschappij (predecessor of Shell) started its refinery near the little town of Pernis. In 1938, the port of Rotterdam handled 42.3m tonnes of goods and headed the list, with Hamburg handling 25.7m and Antwerp 23.5m (Hooydonk & Verhoeven, 2007, p. 332).

Then, the bombardment of Rotterdam in 1940 seemed to blow away all its aspirations to be Europe's main port. Within 10 minutes, 850 people were killed, 75,000 made homeless, and 638 hectares destroyed. This bombardment was specifically directed at the city, although Willemsbrug and many quay walls in the old parts of the city (behind the Leuvehaven locks) were also destroyed. From a port function perspective, the bombardments of 1943 and 1944 had an even more severe impact, because then the quay walls for berthing the seagoing vessels were destroyed. This was the first part to be rebuilt after World War 2 (Posthuma, 1972). The resurrection of the port of Rotterdam in the first 20 years directly after the war can be divided into three phases:

1. 1945–1950: restoration and modernization of the port;
2. 1950–1960: realization of the Botlekplan and new facilities for the transshipment of cargo and breakbulk in the old port areas;
3. 1960–1970: the realization of Europoort, Maasvlakte, and the dredging of a channel for the mouth of the New Waterway (Posthuma, 1972).

Rotterdam had already made preparations for the first phase. During the occupation, groups of men came together, initiated by Van der Mandele, chairman of the Chamber of Commerce of Rotterdam. After the liberation, he became the chair of the Reconstruction Committee. Posthuma (director of the Municipal Port Company from 1959 to 1973) remarked that the national government was of the opinion that rebuilding the port was not a local matter but needed prioritization on the national agenda and had to be given full support (Posthuma, 1972, p. 19). Since then, the national government has always been involved in the development of the port of Rotterdam; this eventually led to the main-port policy, which is of national interest. This rebuilding of the port and the city was not the work of governmental institutions only. The port barons also played a large role in it. They met one another in an organization called The Rotterdam Club. The members of this club were involved in the rebuilding of the city after the war together with the city's officials. This subsystem was later unified in the Scheepvaartvereniging Zuid. One of its chairmen, Jan Backx – director of Thomsen's Havenbedrijf, founding father of the Havenvakschool, and chairman of the Chamber of Commerce – applied the social system that he had introduced in his company to the development of the Rotterdam Port Community (Sennema, 2015).

The second phase, the Botlekplan, was the second real enlargement of the port in a westerly direction, following the Pernis area, assuming that the Waalhaven construction can be seen as still being part of the city's environment. In the Pernis area (first and second Petrol Port), large areas were leased out and international companies got a foothold in the port area. Caltex (nowadays Texaco) and Shell made their way in and enlarged their presence in the port. The typical Rotterdam port baron was slowly exchanged for captains of industry, a change that frightened some people, afraid as they were of an American influence that could be too strong (Posthuma, 1972, p. 24). For the Botlek, another industry was reserved: Dow Chemical made its way in (1957), but, before that, the shipbuilding industry entered this area under the leadership of one of the post-war port barons: Cornelis Verolme. As stated, before the war Rotterdam was mainly a transit port for bulk to Germany, but now additional activities emerged. The Botlek area attracted a lot of industries. It was now that, in contrast to other ports where this was already the current situation, manufacturing happened within the port area itself (Weigend, 1973). The interest shown by these industries was of such a magnitude that the port and the civil service, the Municipal Port Company (Gemeentelijk Havenbedrijf: GHB), responsible for the leasing of port areas, had to make selections based on what they thought best suited the port. The Ministry of Economic Affairs intervened regularly, the criterion being that it had to be an industry that needed deep water before it could be taken into consideration. There was, however, also a second criterion. In those days, thanks to the rebuilding of The Netherlands as an aftermath of the war, the availability of employees was low. So, the choice of which company to allow to settle in the port was also determined by the nature of its employment, which needed to be as labor extensive as possible (Posthuma, 1972). Expropriation from farmers of the land needed went rather smoothly after GHB took over the lead in this process, formerly supervised by municipal officers. The Botlek complex was built to its maximum in no time, and new port areas were needed. The number of cargoes transshipped exploded in those years. One of the drivers of the increase in transshipment was the role that Rotterdam played in supplying the American forces in Germany. Paardenkooper (2018) states that these goods formed the critical mass to achieve the economies of scale that formed the basis of the conditions later needed for container transport.

The third phase (1960–1970) was the realization of Europoort, a jump further to the west. In this area, again oil companies such as Shell, Caltex, and Mobil Oil settled. In the meantime, bulk transport increased (ore and grain). In 1963, a visit by Posthuma, director of GHB, to New York with Tobin, director of the New York Port Authority, was the beginning of a new phase in the handling of goods. Rotterdam was interested in creating a container service between New York and Rotterdam. Mc Lean of the Sealand company discovered the possibilities of the Princess Beatrixhaven in Europoort. Just a common quay was not enough, a depth of hundreds of meters was needed to store the containers (Posthuma, 1972). That kind of terrain was available in the Beatrixhaven. It was there that the first containers landed on 3 May 1966 (Kuipers, 2018b).[17]

For the handling of ships with containers, Posthuma succeeded in getting together several companies that at first formed the Europe Container Terminus, which in 1989 became Europe Combined Terminals, consequent to a merger with the stevedores Quick Dispatch and Müller-Thomsen Rotterdam. With the arrival of British Petroleum in Europoort, the availability of land was getting scarce. On the level of the national department of waterworks, Rijkswaterstaat, plans were developed for an extension of unseen proportions. This extension was determined mainly by theoretical models that forecasted how long the piers needed to be to have the least need of dredging. So, it was not the need of land that determined the new area of reclaimed land called Maasvlakte I, but rather hydraulic engineering modeling (in the end, the length of the piers determined how much land would be required in between) (Posthuma, 1972). Again, initiatives were taken on a national level together with GHB. Posthuma likes to recall that, from 1970, a "Havenbedrijf", a more or less autonomous entity, was responsible for these investments (Posthuma, 1972, p. 74).

What can be said of this development of the port of Rotterdam in the first 20 years after the war? Despite the fact that a lot of smaller companies also settled in the port area, the main characteristics of the development of the port of Rotterdam in those years was that:

- It was labor extensive, aimed at mass (petrochemical, bulk, and eventually containers);
- It was getting more diversified as it became not only a transit port, but also a maritime-based industrial cluster;
- It was driven by a few visionary people: e.g. Van der Mandele and Postuma, as representatives of the Rotterdam institutions, and De Lange, Thomassen, and Van Veen as representatives of governmental bodies at regional and national level;
- There was strong cooperation between local and national governments;
- There was a strong feeling that the development of the port was of national interest;

17 Posthuma himself dates it to 5 May 1966 (Posthuma, 1972, p. 67).

Individual business men felt a strong responsibility for the wellbeing of the port city. This was not only felt in the years after the war; this cultural subsystem had already been present in the years shortly before the war and was ready to be mobilized when Rotterdam could benefit from it.

8.2.3 Becoming an international port with an effect on location and city functions

Containerization

A new era started with the arrival of containers in the port. The recovery from the war damage was definitely over in the port, although the city still bore the marks. The new way of handling cargo meant that suitable areas with enough space could not be found within the old docks and quays. The small fingers of water basins were not suitable for the new way of handling goods, and the amount of breakbulk also decreased in favor of containers. Those areas became desolated while prosperity-generating activities went westward (the left wing of the butterfly: Figure 1.3 in Chapter 1). The character of employment in the port changed as well. The handling of containers needed another kind of employee. Between 1968 and 1988, the share of containers within the total transit of general cargo had increased from 8 to 64% (Van den Eijnden, 2016, p. 80). So, companies like ECT, looking for the right kind of employee, offered training and employment tracks to educate their employees. This was more than stimulated by the high degree of automation that took place in the port. The container terminals in particular underwent a transformation that was unique in the world. The combination of a technical university in the neighborhood (TH Delft) and Gerrit Wormmeester as the CEO of ECT (in the 1980s and 1990s) was responsible for taking the possibilities of logistical improvements to the highest level, especially because of the implementation of robotization. Fostered by the GHB director, Henk Molenaar, an engineer himself, this created a company that was famous in Rotterdam, even in The Netherlands, and was considered to be proof of Dutch ingenuity and entrepreneurship. In one of the interviews for this thesis, a respondent sighed that, when he was first employed at ECT, it "looked more like a laboratory than a company with all these scientists from Delft".[18]

Regionalization

Another characteristic of the containerization was that new drop-off points were needed in the hinterland, connected via railway and barge. These were the port-linked distribution centers in the hinterland of The Netherlands. Regionalization

18 Interview June 2018

was especially realized by ECT (the first and for a short while only terminal in those days), which took over the hinterland terminals of Duisburg in Germany and Willebroek in Belgium as additions to the terminal in Venlo. So, the transit function was even more simplified in terms of visibility within Rotterdam. Containers were put on a railway or a barge, located far in the west (Maasvlakte) and then rushed eastwards for further handling. This aspect was responsible for the right wing of the butterfly (Figure 1.3 in Chapter 1), illustrating the dispersion of these activities from the port city to other regions in the country.

Globalization: competition and changing ownership

The changes in the world economy did not bypass Rotterdam. The big shipping lines like Maersk wanted to have more control of the total logistics chain and opted for their own terminal on the Maasvlakte. Maersk, a big customer for ECT, bought another big ECT customer, Sealand, and that gave them enough leverage to do business. At first, a joint venture was realized with ECT in the Maersk Delta Terminal; later on, it had its own terminal. This was the trigger for some shareholders to withdraw from this business and for ECT to look for new investors. In 2002, Hutchison Port Holdings from Hong Kong became the owner of ECT. Later on, Dubai Ports got a foothold in the port of Rotterdam with RWG (Rotterdam World Gateway) and, in 2006, APMT, a division of AP Møller Maersk, created a terminal. This was an outcome of the desire to have more competition in the port of Rotterdam – a desire articulated by the former CEO of GHB, corporatized in 2004, which thereafter was known as the Port Authority of Rotterdam. Hans Smits stated: “The contract with APMT is important because it is a sister company of Maersk Line that is taking care of 20% of the global container transport and has a very strong financial position. The Danish company has foreseen guaranteed decennia of growth. What else do you want?” (Van den Eijnden, 2016, p. 152). This made it clear that Rotterdam’s port activities were no longer a Rotterdam affair, but were dependent on international, even global, developments where not only maritime considerations, but also financial ones, would play a role.

That this was not a game for a city to play but for a professionalized organization that could act as an independent entity had already been clear for a very long time, as it was a worldwide process (Brooks, 2004; Brooks & Cullinane, 2007a). The Port Authority of Rotterdam is a fine example of an entity that knew how to act entrepreneurially and to be on a level with the international players. In 1996, the first signs of independence were already clear. “By accident”, a chapter was added to a plan in which the intention to gain independence was stated.[19] From that moment, an active lobby from GHB was started. In 2004, GHB became an independent public company. For quite a long time, it had already been very involved in rolling out its internationalization strategy (Van der Lugt, 2015). The landlord model is applied in many partnerships with ports in developing countries. Thus, the port behaves in terms not only of exploitation – although it "explicitly intends to act as a landlord port" (Van der Lugt, 2015, p. 122) – but, by stretching its basic responsibility, also of exploration in a role that is highly entrepreneurial. Doing so raises the question of whether it is not transcending too much and losing contact with the city from which it originated. That is for the second part of this thesis to explore.

8.2.4 International port and local city

How did the relation with the city manifest itself? Many Rotterdam citizens in the higher income range had left the city favoring the suburbs, leaving a poorer city behind. At the same time, new groups of migrants entered the city, stemming from different countries, partly attracted by the need for labor (Turkey, Morocco), partly by choosing to live in The Netherlands instead of being an inhabitant of the former Dutch colonies of The Antilles and Suriname.

Table 8.1 Composition population of Rotterdam 2019

Native	313,861
Western immigrants total	80,742
Non-Western immigrants total	244,109
Total population	638,712

By Country	
Morocco	44,164
Netherlands Antilles	24,693
Suriname	52,620
Turkey	47,712
Other non-Western	74,920

Source: https://allecijfers.nl/gemeente/rotterdam/. Retrieved: 4 April 2019

In the 1970s and 1980s, this population did not have the best economic prospects due to changes in the character of employment (less blue collar more sophisticated) and the general economic circumstances in the early 1980s that led to a high degree of unemployment. This had large effects on the socioeconomic situation in Rotterdam. The position of the city in the rankings of income per household was staggeringly low and still has not recovered. In the year 2016, Rotterdam ranked lowest for standardized income in the four big cities in The Netherlands, at €25,600 (The Hague, €27,800; Amsterdam, €29,200; Utrecht, €29,700; for The Netherlands

19 Interview with city representative

as a whole, this was €28,900).[20] The size of the population increased from 610,385 in 1945 to 731,564 in 1965.[21] From that year, despite the immigration, the city's population decreased consequent to the growth of suburbs like Poortugaal, Hoogvliet, and Spijkenisse, where higher income earners could get better housing conditions. This had a tremendous effect on the composition of the city, with the biggest problems in Rotterdam-South. The population of Rotterdam was at its lowest in 1984, with 555,353 inhabitants. In 2019, the number is 644,373.[22]

Rejuvenation of the city

In the meantime, the city reclaimed the abandoned port areas, and, in line with other port cities worldwide, started a rejuvenation of these areas known as waterfront projects (Hoyle & Pinder, 1992). The RDM dock, transformed into the RDM Campus, combines the need to restore the old complex with the need to address education and employment, and stimulate start-ups. The old complexes with former warehouses on the Wilhelmina pier, together with Binnenhaven, Spoorweghaven, Rijnhaven, and Entrepothaven (an area that was partly developed by the entrepreneur Pincoffs in the late 19t century) were also redeveloped. The companies in the port play an active role in this with their apprenticeships and their donations to events. The upgrading of this area with its restaurants, dwellings, and cruise terminal has stimulated the perception of Rotterdam as a dynamic city.

On the other hand, this upgrading is well perceived by the higher income earners in the city. They welcome this. The domestic function of this area is suited for middle and higher incomes; but the situation of the population in Rotterdam-South is still below the average socioeconomic situation in The Netherlands. Furthermore, economically speaking, this affects the position at household level as well, as Table 8.2 shows.

20 Source: Stadsarchief Rotterdam. Bevolkingscijfers van Rotterdam vanaf 1868. Retrieved: 2 August 2018

21 The standardized income is the available income after correction for differences in household size and composition. Source: https://rotterdam.buurtmonitor.nl/documents/Werk-en-inkomen. Retrieved: 5 April 2019

22 Source: https://rotterdam.buurtmonitor.nl/jive?cat_open=Beleidsthema%27s/Demografie. Retrieved: 5 April 2019

Table 8.2 Standardized income per household

	2016	2006	Δ 2006–2016
Rotterdam	€ 25,600	€ 19,600	31%
Amsterdam	€ 29,200	€ 21,200	38%
The Hague	€ 27,800	€ 21,200	31%
Utrecht	€ 29,700	€ 22,100	34%
Netherlands	€ 28,900	€ 21,600	34%

Source: Rotterdam Buurtmonitor: https://rotterdam.buurtmonitor.nl/documents/Werk-en-inkomen. Retrieved: 6 April 2019

Rotterdam is at the bottom of the standardized income per household scale, at 11.4% less than the average in The Netherlands. Growth in the 10 years between 2006 and 2016 also lags behind. The new Rotterdam, as built on Kop van Zuid and to be developed further along the edges of the Maas, might attract young urban professionals who view the port as a vibrant, leisure-offering phenomenon, but the Rotterdammers at the other end of the socioeconomic scale may not have the same positive feelings about the possibilities of the town and may have another perception of the port, if at all.

8.2.5 The significance of the port of Rotterdam

The impact of the port of Rotterdam as a main-port cluster on the Dutch economy is considerable as an outcome of the transit function. For 2017, in terms of direct employment it is 121,800, for indirect it is 103,3000. In terms of direct added value, it is €18 bln; for indirect added value, it is €9.2 bln (Kuipers, 2018a). These figures, however, refer to Rotterdam as the port cluster: Rotterdam plus the Drechtsteden and Moerdijk. Looking at the municipality of Rotterdam gives an insight into the effects of the port for Rotterdam itself (see Table 8.3).

Comparison of the percentage change between Rotterdam municipality and the main-port cluster reveals that the values do not differ tat much. The increase in total direct added value is the same. What is striking is the increase in direct employment in Rotterdam, at 23.8% compared to the increase for the main-port cluster of 8.1%. Kuipers attributes this increase to the increase in demand for goods and services in the rest of the country (Kuipers, 2018a). However, as the increase in total added value was the same, this had an effect on the added value per employee, which increased slightly more in the main-port cluster (33.8%) compared to Rotterdam (31.4%) within the city's boundaries. This effect could result from high value industries like Boskalis, Van Oord, IHC, and so on (Kuipers, 2018a, p. 20).

Table 8.3 Added value and employment port of Rotterdam within the municipality

	Rotterdam municipality 2002	Rotterdam municipality 2017	% change	Main-port cluster 2002	Main-port cluster 2017	% change
Direct added value	8.8	13.4	52.3	11.7	18.0	53.8
Indirect added value[a]	4.2	6.8	61.9	5.8	9.2	58.6
Value added multiplier	1.48	1.5	1.4	1.49	1.51	1.3
Total direct added value (blns €s)	13.0	20.2	55.4	17.5	27.2	55.4
Direct employment	69.8	86.4	23.8	103.4	121.8	8.1
Indirect employment[b]	62.6	70.2	12.0	90.4	103.3	14.2
Employment multiplier	1.9	1.81	-4.7	1.87	1.85	-1.1
Total employment (thousands)	132.4	156.6	18.3	193.8	225.1	16.2
Added value/ employee	€98,187[c]	€128,991	31.4	€90,299	120,835	33.8

Source: Kuipers (2018a).
Note: a: Attributed to supplying industries; b: Attributed to supplying industries; c: Total direct value/total employment.

Table 8.4 Direct added value Rotterdam Rijnmond (€ m)

	2012	2013	2014	2015	2016	2017
Transport	2,590	2,766	3,061	3,201	3,258	3,193
Transport services	2,040	1,998	2,117	2,163	2,251	2,202
Transshipment and storage	2,054	1,993	2,124	2,084	2,146	2,117
Food industry	320	318	314	313	339	348
Oil industry	1,506	1,064	81	1,674	1,589	1,650
Chemical industry	1,921	1,811	1,851	2,206	2,530	2,829
Metals	267	294	306	254	306	330
Transport equipment	104	120	120	117	112	100
Electricity	661	543	491	496	473	413
Others	209	256	261	285	353	361
Wholesale	660	790	860	881	951	969
Producer services	623	677	680	664	710	714
Total	12,955	12,630	12,266	14,338	15,018	15,226

Source: Van der Lugt, Witte, Becker, & Streng (2018)

If the numbers for direct added value are broken down, the picture portrayed in Table 8.4 emerges.

8.2.6 A score so far

As the port's maritime activities are more labor extensive than before, need a more highly educated workforce, and are further away from the city, they are especially suited to the inhabitants of the suburbs and less to the citizens of Rotterdam. This, in combination with the fact that Rotterdam is less diversified in its economic activities and its activities are of a less extensive nature, makes it hard for Rotterdam to benefit from its industrial cluster. Rotterdam's new employment is in research, education, and other high-level activities – regarding maritime activities, maritime advanced producer services (MAPS), and Rotterdam does not benefit from these activities as much as it could, because 30% of companies involved in economic activities in Rotterdam buy only 12 % of their MAPS within Rotterdam. Many such services are sourced outside the region (financial and legal services in Amsterdam or London) (Kuipers et al., 2011). It is even more interesting to see how this is affected by company ownership. Companies with local headquarters (indigenous companies) are more inclined to do business with local suppliers, whereas international companies (and indigenous companies that outgrow the region) do business with suppliers with an international profile. Kuipers et al. (2011, p. 12) state that companies with an international profile like Esso, APMT, and ECT have less autonomy in their buying procedures and so will often exclude suppliers located in the region. They make a plea for international companies to be headquartered locally. This shows that internationalization has made the activities of the port of Rotterdam less dependent on the region in which they take place. Not only has a spatial separation taken place, but also local economic supply chains that would intertwine businesses have been excluded.

So, it can be concluded that there is a certain imbalance within Rotterdam as a main-port. Its position as Europe's biggest port is not to be doubted in terms of tonnage and TEUs, nor in terms of its innovation power (Smartport) and its position in the Dutch economy. The main-port concept underlines the way in which the Dutch government values its contribution and importance for the Dutch economy, as Kuipers (2018a) depicts in his contribution to this –often debated (Merk, 2013) – subject. On the other hand, however, from this position one might expect Rotterdam to have a bigger share in the number of maritime headquarters and a more prominent position in the share of MAPS, but this is not the case.

In this short review of the development of Rotterdam, aspects of the general dynamics as pictured in the research model, and mentioned in section 8.1, can be recognized: containerization, globalization, scale increase, foreign ownership, as well as regionalization and relocation. Consequently, a spatial, economic, and mental separation has taken place.

8.3 THE PORT AND PORT CITY OF ANTWERP

8.3.1 Site: a fortress opening up to the river

The city of Antwerp can trace its origins back to a Gallo-Roman settlement, as remnants have been found near the so-called fortress zone – between the Steen and the Noorderterras along the quays of the Scheldt (Vander Ginst & Smeets, 2015). Unlike Rotterdam, the start of the port and the city of Antwerp did not originate in a rather slow and careful building up of settlements. In Rotterdam, transshipment activities arose because, to handle and process shipments, goods had to be transferred from one carrier (barge or cart) to another (barge or cart) in order to be processed elsewhere. In Antwerp, the current well-positioned warehousing activities of the port of Antwerp were already in place in the 11th century. Storage of fish and salt, and the trade in wine stemming from the Rhone valley, gave the city of Antwerp an important position in the flows of goods (Hooydonk & Verhoeven, 2007). Antwerp, however, was not the only important trade center. In the 11th century, the route between Bruges and Cologne was the most important one, and a lot of trade took place along that route. Antwerp was a bit off that route's track. It was more important for the north–south route (from Brabant to Namur). In time, however, Antwerp played a bigger role in competition with Bruges: partly because of problems with the depth of Bruges' maritime entrance to the North Sea, the Zwin, (although according to some this is highly exaggerated (Munro, 1966)), partly because the navigability of the Scheldt improved, but also because of the city's more liberal policy towards foreigners (Hooydonk & Verhoeven, 2007). In the 13th century, Antwerp was trading Rhine wine, fish, metals, and English wool. Later on, the wool was transformed to cloth, which was more lucrative (added value) and for which there was a great demand from Germany. Moreover, Bruges was protecting its own cloth guilds, whereas Antwerp had no cloth industry at all, so there was nothing to protect and they welcomed the English cloth, which formed the base for the rise in the late 15th century of exensive dyeing and finishing industries based on English cloth imports (Munro, 1966). Wine in particular was imported from Cologne, which formed a staple place for the wines from Southern Germany (Harreld, 2004). This all needed to be handled with ships and barges.

The layout of the city had a distinctive form as it was surrounded by canals (called *ruien*). This is not surprising, as Antwerp was located in an area that formed the estuary of the Scheldt, with lots of smaller waters that led to the sea, forming a semi-circular structure that bordered the first settlement. In later years, this perimeter was replaced by fortifications called *vesten* (Figure 8.2). As a result, the old canals formed the places where the docks and quays were established.

8.3.2 Maturing from transit to adding value: becoming a merchant's city

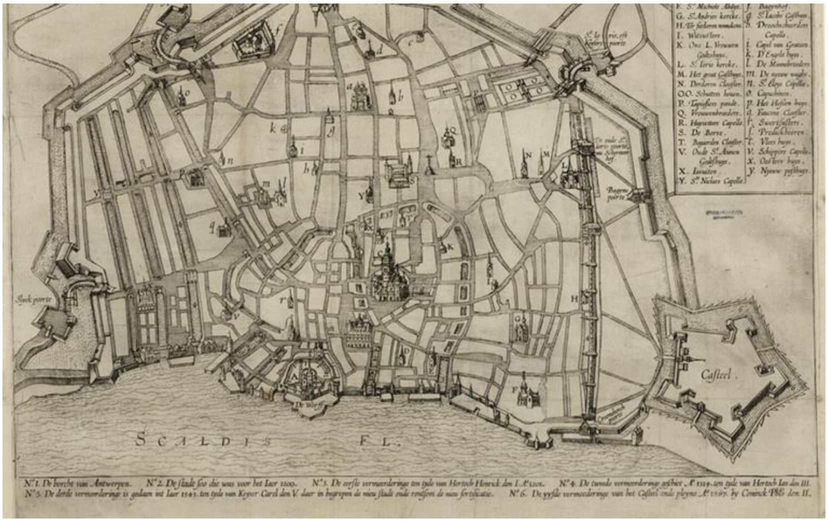

Figure 8.2 The ruien and vesten of the city of Antwerp (Source: ruien.be)

Cargo handling was not limited to transit trade only. Over the years, artisans in Antwerp found a way of adding more value to the cloths by dyeing them, earning a premium by adding 20% to their value (Harreld, 2004). The trade activities expanded more and more. Wine, hemp, paper, and fustians[23] were imported, as well as goods from Southern Germany, the Cologne area, and the Hanseatic Baltic. Of course, there were exports too: dairy products (from the Antwerp hinterland) and herring (wet, dried, smoked, salted). Antwerp's economic development was further spurred in the 15th century. During that century, Flanders revolted against Emperor Maximillian, but Antwerp stayed loyal and because of that it was rewarded with privileges. Maximillian also decided that all foreign merchants in Bruges should relocate their offices to Antwerp. Bruges never fully recovered from this blow, and

23 A thick, hard-wearing twilled cloth with a short nap

Antwerp's merchant base was secured (Harreld, 2004). Trade in Bruges was based on local goods, whereas Antwerp's trade was based on goods produced elsewhere. So, Bruges was serving a nation market and, in contrast, "Antwerp truly was an international marketplace" (Harreld, 2004, p. 1). The existence of these merchants also has a more fundamental economic element: the ability to decrease transaction costs. Those were costs that could occur, like seizure or taxes, when goods had to be transported through politically unstable regions. This was to a certain degree avoided when the goods were handled and stored by merchants (Harreld, 2004). Besides merchants, Antwerp also attracted Italians, Spaniards, and immigrants from the Low Countries who settled as artisans adding value to products: sugar refiners, soap makers, cloth finishers, knife makers, packers, and teamsters.

8.3.3 Being part of the Hansa: securing an outward orientation

A special group within the Antwerp community were the German merchants who participated in commercial and social life. They were factors and agents. They were the founders of great German merchant houses, like the Welsers, the Hochstetters, the Fuggers, the Herwarts, and the Reitweisers. These merchants, who were often Cologne based, established themselves in Antwerp and controlled the trade between the Low Countries and Germany. Many merchants in Antwerp were foreign born, and in the 15th and 16th century especially, the Italians and the Germans formed large number of organized communities (called *naties*) that were in charge of north–south and west–east trade, respectively. These agency relationships were founded on "family ties, norms and beliefs, laws and organizations [such] as merchant guilds or city governments and the services of these organizations such as justice and contract registration" (Puttevils, 2016, p. 10). Antwerp's trade was part of the Hansa network, of which of course initially Bruges was the center in the Low Countries. However, as Bruges lost its prominent position (see section 8.5.2), the city of Antwerp became the base for German, English, Italian, Spanish, and Portuguese merchants. The Hansa was responsible for the import of wheat, oats, and ash from the Baltic region to Antwerp, which was an entrepot for the grain trade, because some of this was re-exported to Portugal for sale (Harreld, 2004). Trade was financially supported by the establishment of bankers like the Welsers and the Fuggers. Antwerp certainly became "the center of early modern economy, not just European but global" (Munro, 1966, p. 1144). This was materialized in the gesture made by the council of Antwerp in 1563 by granting them the Hansa house (known as the Oosterhuis) located at what is nowadays known as The Little Island (het Eilandje) which formed the most northern part of the port in those days and for many years after. This was a deliberate policy. An investment was made in a commercial infrastructure with the intention of enhancing contacts and trade between buyers and sellers as part of a policy that resulted from inter-city competition (Puttevils, 2016; Harreld, 2003). Antwerp's commercial attitude was based on a particular political economy that allowed trade to be in the hands of non-natives organized in open-access institutions; and, in that respect, Antwerp was unlike other trading cities. Puttevils (2016, p. 14) makes an interesting remark when he states that in the 16th century "there was not a considerable group of politically entrenched merchant-citizens". This is very different from that other great Hanseatic merchant city in North West Europe, Hamburg, in the 16th century, (see section 8.4), and different from Amsterdam in Holland, where being a merchant was very much combined with being a politician.

Antwerp became a city of great wealth, although this wealth was not evenly distributed. It was a city of extremes, with the rich merchants in the center and the poor masses in the peripheral areas (Harreld, 2003).

8.3.4 A cutting off from its life line

Antwerp's Golden Age, which made it a far more important city than other seaports in the 16th century (Van Hooydonk, 2008), came to an end in the second half of that century. The Religious Troubles between the Low Countries and Spain led to the so-called Spanish fury, when Spanish troops ransacked and plundered the city. This was followed by the siege of Antwerp in 1585. After the capitulation of the city, the Dutch closed the Scheldt estuary "to protect the commercial interests of their own ports" (Hooydonk & Verhoeven, 2007, p. 43). This was the moment for many merchants to leave Antwerp and to go to another liberal and open society, which they found in Amsterdam, spurring the rise of this new merchant jewel in the Low Countries. The city of Antwerp did not completely lose its function as a port thanks to inland barges calling at the port, but seagoing vessels were no longer seen. So, the supremacy of the city was tenuous. The merchant companies depended on the seagoing vessels of their northern neighbors – the Germans and the Dutch. The city was deeply affected by the exodus after the 1585 siege. So, goods were no longer physically transported from the city, but merchants, bankers, and insurers continued to maintain Antwerp as a maritime city. For two centuries however, it would be a shadow of its former self.

What one sees in Antwerp in these early times is the birth of a merchant cluster in Porter's (1990a) true sense. All the Porter diamond factors are present. There was demand, especially from Germany. There were related and supporting industries: the dyers, the storage, the stevedores. There were factor conditions: capital from the merchant families like the Fuggers; the site at the Scheldt; labor, attracted from countries all over Northern Europe. There was a firm structure and rivalry. There certainly was government in the sense of a city council that favored trade. This led to a self-enforcing institution that could only be stopped by forces from outside (chance), as eventually happened with the diaspora of the Antwerp merchants (especially to Amsterdam) and the closure of the Scheldt.

8.3.5 Rising again: becoming a modern port

Despite these radical changes, Antwerp managed to stay in the European picture. It had the tradition, the structure, and the hinterland connections. The inland barge trade still made Antwerp an important port (not to mention the fact that Holland and Zeeland earned money on tolls, so why stop the business?) (Hooydonk & Verhoeven, 2007). Furthermore, the existing infrastructure of bankers and insurers was still intact, so the city was able to revive and play a role in the early 17th century. It was only the 1648 decision to keep the Scheldt closed that was decisive for its demise as a port for a long time; and, even then, it remained "one of the richest, best cultivated, and most populous provinces of Europe" (Smith, 1776, p. 413). That situation continued until the early 19th century when, finally, the Dutch pressure to close the Scheldt was lifted. Napoleon's decision to open the Scheldt to allow vessels to enter the port again and the building of large docks (Bonapartedok and Willemdok) ushered in a new era. Belgium's independence helped the port of Antwerp thanks to the abolition of the toll, which improved their competitive position. In those days, Antwerp became the port of Belgium, as manifested by the Belgian government's decision to construct a canal between Antwerp and the industrial hinterland of Wallonia. To overcome debates with Holland, it was realized entirely on Belgian territory (Hooydonk & Verhoeven, 2007).

One cannot study the port of Antwerp without paying attention to its most striking characteristic: being a port with a large logistics function. For Antwerp, this is expressed by the presence of many naties, of which the multinational Katoen Natie is the most prominent. In every port, goods need to be handled after they are unloaded or when they have to be loaded onto a ship; and these quayside activities are undertaken by unskilled laborers – and especially in former times. In almost every port in Europe, such laborers united to avoid competition amongst themselves that would weaken them vis-à-vis the men who hired them: the shippers and the traders. These organizations had different names in the various countries (in Hamburg, *Quartiersleute*; in Bremen, *Küper*; in Lübeck, *Verlehnten*; in Amsterdam, *Vemen*). These terms were often accompanied by the names of the type of goods they handled. In Antwerp, they were – and still are – called naties, a term dating back to the late middle ages (Devos, 2013). The word natie means handler of goods. In the 19th century, the old organizations of port workers, more or less privileged by the city government, reorganized themselves in commercial companies. In 1838, there were more than 23 naties at work in the port (Devos, 2013), such as Katoen Natie, Gist Natie, Kraan Natie, Noordnatie, Baltiknatie, Zuidnatie, and Rijnnatie. These organizations were powerful and played an important role in Antwerp's cultural life with their meetings, their processions, and their umbrella organization, De Vereeniging der Werknatiën van Antwerp. These naties were also strongly present in city politics. The naties' executives originated from the rural Catholic area around Antwerp. They formed a front against the liberal merchants and entrepreneurs who as shippers, agents, and forwarders were the naties' customers (Devos, 2013, p. 81). These tensions were never relieved and later formed the base of a strong culture of dockworkers' unions that would turn into a pool of laborers that decided who would work where. The naties' managers, who in fact were a kind of chairmen (called *deken*), would later become real entrepreneurs and even company owners, as exemplified by Fernand Huts, CEO of Katoen Natie.

In the interbellum (1919–1939), the port expanded northwestwards with the construction of the Albertdok, the Leopolddok, the Hansadok, and the Fourth Portdok. This expansion diversified the port: both the maritime and the industrial sector increased in industries like automotive (General Motors and Ford), oil refinery, wood, and shipbuilding (Devos, 2013). From then on, the important family companies that owned industrial and maritime businesses played a central role in Antwerp's development into a modern port: the Cigrand family, with the Cobelfret company for stevedoring, forwarding, and shipping; the Saverys family, involved in shipping with CMB, Exmar, and Bocimar; the Roussis family, involved in the production, distribution, and recycling of synthetic granulates; the Moorkens family, with the import of cars with the Alcopa company; the Dieryck family, with its dredging company Ackermans & Van Haaren[24]; and the Huts family, with Katoen Natie, a logistics company globally represented in 38 countries. Family business is still a very important factor characterizing the port of Antwerp.

After World War 2, the damage in the port and the city of Antwerp was far less than in Rotterdam and Hamburg. At first sight, this was an advantage. Business could quickly recover as the port was open in 1944 and was used by the Allied Forces to supply the troops with ordnance and provisions, thereby availing of Antwerp's port facilities. However, this would later prove to be less favorable, because Rotterdam and Hamburg could start with the newest technology, which was not available in Antwerp. Halfway through the 1950s, Antwerp speeded up, thanks to the large

24 Source: http://www.nieuwsblad.be/cnt/ghi1hbv8u). Retrieved: 12 August 2017

petrochemical plants that chose to be located near the Scheldt – a development fostered by the fact that a lot of petrochemical industries could not get a location in Rotterdam and therefore chose Antwerp. This made Antwerp the second largest petrochemical cluster in the world behind Houston, Texas (Hooydonk & Verhoeven, 2007), despite the fact that the port of Antwerp does not have as large an oil storage infrastructure as Rotterdam has. The increasing draft of oil tankers in the 1970s rendered the Scheldt insufficiently deep for these ships to be served in Antwerp. The solution was found by connecting the Antwerp refineries to the oil intake in the port of Rotterdam, which is very suited to these large tankers because of its deep water. For Antwerp, this can be seen as a blessing in disguise. Port areas can now be used for more value-adding activities with these large petrochemical industries, instead of simply being used to store oil. The expansion of the port was enhanced by the collaboration of the national government and the city. This situation can be qualified as rather rare. For example, the national government, as an energetic instrument of decision making, failed in the case of the Baalhoekkanaal. This project (a canal, cutting off the curve in the Scheldt at Bath) could have spurred the development of the port, but the federal government of Wallonia was opposed, fearing changes in the flow rate of the Meuse. This political opposition does not stand in isolation. The two regions, Flanders and Wallonia, do not only collide from time to time. When Antwerp wanted to expand on the Left Bank, it encountered (and still encounters) a rather hostile attitude, channeled through the mayors of the Left Bank communities who are truly political representatives with strong bonds at national level.[25] The way in which labor is organized is also a politically influenced situation. Thanks to the Majoor Legislation – legislation initiated by the Minister of Labor in 1972 – labor in the port is confined to laborers united in the officially acknowledged labor pools, from which employers hire their laborers. This legislation has resulted in rather high wages, even for many jobs that have significantly changed in character, such as those in distribution centers. For Antwerp, this means that sometimes rather simple logistics activities must be performed by these highly paid laborers because the companies are located within the designated port area. On the other hand, when economic times get tough, like in the period 2008–2010, employers can easily dismiss them from their payroll and have them sent back to the pool. It is, however, remarkable that working conditions, influenced by new technologies and so creating new jobs, are still dominated by legislation that is understandably strongly supported by labor unions, but might also endanger future flexibility.

25 Source: Interview with the mayor of a Left Bank municipality. It is interesting to note that the Left Bank is in the province of East Flanders, whereas the city of Antwerp is located in the province of Antwerp. These are completely different cultures, based on an agricultural East Flanders and an urban, industrial Antwerp.

8.3.6 Growing out of the city, the need to expand

Containerization

So, the various docks like Havendok 1-6, Albertdok, Churchilldok, Leopolddok, Hansadok, and Kanaaldok were developed in the 20th century. The first container-ship in Antwerp was received in 1966 at the Churchilldok, located on the right bank. The possibilities to build new docks were limited however, especially docks suited to the new large container vessels. In the north, the Dutch border prevented a further expansion on the right bank of the Scheldt, so now the Delwaidedok, finished in 1979, is Antwerp's most northerly situated dock on the right bank. A right bank with 19 kilometers of docks stretched out to the north. As the map depicted in Figure 8.3 shows, this is the port moving seaward. The map also shows the inland orientation, which for Antwerp meant development along the Albert Canal heading for the east (Genk, Liege) and moving upstream on the Scheldt to serve France's northern industries. To respond to the need for more quays and areas for other maritime-related activities, jumping over the river Scheldt was theonly alternative if Antwerp wanted to stay in the race for its share of the continuous growth of maritime activities in the Le Havre–Gdansk Range, which Rotterdam so strongly dominated in terms of cargo tonnage. Refocusing attention from the right to the Left Bank of the river Scheldt did not mean just crossing a waterline. In fact, the Antwerp situation appears to be more of a watershed, metaphorically speaking. Turning to the Left Bank did not mean just crossing a couple of hundred meters of water, but appeared to be a kind of 'crossing of the Rubicon', because creating infrastructures and realizing spatial planning is more than just taking care of the physical environment. It is about dealing with socio-cultural and socio-political structures.

The space needed was on the territory of other (rather small) municipalities, primarily the villages of Beveren and Zwijndrecht. These small communities (located in the Waasland region) did not want to give in just as a response to the port of Antwerp's

Figure 8.3 Antwerp, moving seawards along and across the river and reaching out to the hinterland (Source: Vroomans, Geerlings, & Kuipers, 2018)

need for land. In fact, their stand was that, if they had to transfer agricultural land for port activities, they wanted to be in charge of it. On the other hand, the city of Antwerp, which owned the port, had a quite opposite position: “If this is going to be a port, this is going to be Antwerp.” Because of the foreseen imbalance between these villages and the demands of the port, for which in those days (mid 1970s) the city of Antwerp’s council was responsible, the Belgian government intervened with a law, known as the Chabert Legislation. This law determined that everything that had to do with maritime activities should be the responsibility of the port of Antwerp, in those days the city of Antwerp. The quays belonged to that as well. Everything beyond was the responsibility of a new company that was to be founded. In 1982, the Company for the Left Scheldt Bank (MLSO) was founded. In this company, which is a public institution responsible for issuing concessions for industrial areas, consists of various shareholders, each of which has a stake in the benefits of the maritime activities developed on the Left Bank. The MLSO can act as an intermediary if there are opposing interests between the port authority and the population and its representatives in the Left Bank communities. In this construction, not only the potential controversies between Antwerp and the region of Waasland, but also political divisions have to be taken into account (Vroomans et al., 2018).

Regionalization

Whereas in Rotterdam the port spread its fingers to the far west, Antwerp also relocated but not that far. The Left Bank is still rather close to Antwerp city, and the city is strongly involved in its development. Heading inland, the port of Antwerp also developed its hinterland with the creation of new ports and transit points to reach its customers. Because of its large petrochemical cluster, one of its main customers is the chemical industry in Dutch Limburg at Geleen: Chemelot (Antwerp Port Authority, 2013). Furthermore, Antwerp has partnerships with a network of gates extended inland (Merk, 2018) like Meerhout, Willebroek, Genk, Moerdijk, Duisburg, and Ghent. Near the Albert Canal (Grobbendonk) in 2012, a container terminal was realized in a joint venture between the Antwerp Port Authority (20%) and DP World (80%). Antwerp also strengthened its relationship with the port of Liege (Antwerp Port Authority, 2012).

Globalization

The port of Antwerp is a gateway to the world. Although an inland port, it owes its gateway position to its good location on the Scheldt estuary, but also to how internationalization has influenced relationships within the port. Like in Rotterdam, multinationals have come to the port. After the merger of Hessenatie and Noord Natie, the shares were sold to PSA, and DP World started container activities. MSC has been an appreciated customer for more than 20 years, and the Aponte family is one of Antwerp's established elites. So, one of the most influential trends in ports and port cities – changing ownership of very important actors from local to foreign multinationals – has also made its mark in Antwerp.

8.3.7 International port and local city

The politically fragmented society in Flanders is also mirrored in the port authority. The Antwerp port authority was the first in the Le Havre–Gdansk Range to achieve autonomous status in 1996, but the political "color" of the city council is mirrored in the supervisory board, and the chairman of this board is the city alderman. At the beginning in particular, the number of political representatives was quite large. In 2015, this changed: *In 2015 Antwerp Port Authority changed its legal form to an "nv van publiek recht" (a type of joint stock company under Belgian law). This means that the board of directors now has fewer politically appointed members and more external, independent directors with the necessary expertise"* (Antwerp Port Authority, 2016, p. 39). In 2004, eight members were political representatives, with Baronet Leo Delwaide as chairman. In 2015, it was stated that four independent members were needed, but that still leaves room for strong city-based political influence on the port's activities.

Rejuvenation of the city

Like in other ports, in Antwerp too, the old abandoned parts of the port gave way to city development. The old area, known as *het Eilandje*, is experiencing a gentrification in which the Museum aan de Stroom (MAS) is an accelerator thanks to thousands of people visiting this museum, which also celebrates centuries of port history with a permanent exhibition. Two other dominating buildings that changed function and act as landmarks are the Hessenhuis and the Magasins et Entrepot Réunis la Cloche. This neighborhood is an attractive place for small entrepreneurs and artists. Combined with the adjacent student area of the University of Antwerp, it has become an attractive site. Despite these developments however, it has the scale and the turnaround of the waterfront developments and neighborhood gentrification that has been happening in both Rotterdam and Hamburg. Mobility is a big problem in Antwerp. The famous Antwerp Ring is one of the most negative externalities of the port's activities for port business as well as for the Antwerp population. Traffic is congested from early morning to late evening with hardly any letup. Since 2017 however, the Deurganckdok is open at night as well as during the day, and this should relieve traffic pressure, and waterbuses provide transport for employees living on the right bank of the Scheldt who work on the left bank and consequently no longer have to use private cars.[26]

It is a city like other port cities with a variation in original nationalities. Spatial segregation is clear-cut, with the poorer neighborhoods at the edges of the inner city and social inequality because of a large contingent of less educated people. This is remarkable in a city that hosts a large industry sector, but whose economic development is led by the high-level service sector. The well-to-do population resides in the suburbs on the outskirts of the Antwerp region, leaving the problems behind (Grippa, Marissal, May, Wertz, & Loopmans, 2015), and, with a median income of €55,576, this means that inequality must be strong, although the OECD report shows a Gini coefficient of 0.30 (OECD, 2016), which is more or less the same as in Rotterdam (0.31)[27] and Hamburg (0.32) (Freie und Hansestadt Hamburg, 2014).

The city of Antwerp has a diverse composition of population like the other two ports, with 21% of its population (totaling 527,000) coming from outside Belgium (see Table 8.5).[28]

Table 8.5 Immigrants residing in Antwerp

Nationality	Number	% of total population
Total EU	**54,565**	**10.5**
Neighboring countries	23,147	4.4
West and north EU non-neighbors	2,525	0.5
South EU	10,734	2.1
EU 13	18,159	3.5
Total non-EU	**52,643**	**10.1**
Europe non-EU	5,206	1.0
Turkey	4,188	0.8
Magreb (Marocco)	12,472	2.4
Other countries	30,777	5.9
Total	**107,208**	**20.6**

26 Havenbedrijf en private sector gaan samen voor betere mobiliteit in en rond havengebied. 19 September 2017. Source: http://www.portofantwerp.com/news. Retrieved: 19 November 2017

27 https://evr010.nl/inkomensverdeling-rotterdam/

28 Source:https://stadincijfers.antwerpen.be/dashboard/Hoofd-dashboard/Demografie Retrieved: 7 June2019

8.3.8 The significance of the port of Antwerp

Value-adding activities are activities that create the heterogeneity that characterizes dynamic port environments, which in turn creates good incomes, business relations, and the ability to cope with external dynamics that can influence, positively or negatively, port cities' development. The port of Antwerp has extended 29,821 acres along its river banks, of which 16,763 acres on the right bank and 13,057 on the Left Bank (Port of Antwerp, 2017). So, the port extensions on the Left Bank almost doubled the port's capacity in terms of available space. The port itself is about 80 kilometers inland, and it promotes itself by stating that the first 80 kilometers are transported over sea, which, per tonne, is the most efficient mode of transportation. With a cargo handling of 223.3 m tonnes (2017), Antwerp is the second port in Europe in terms of total tonnage. For breakbulk, Antwerp is the absolute leader, with 15 million tonnes (including RoRo).[29] However, tonnage should not be the measure to assess a port's viability and contribution to the economic wellbeing of its region – what is done with it is what matters. Handling cargo in addition to just transshipping it creates the added value from which port's community can benefit. Table 8.6 depicts the value added throughout the years by the various clusters within the port of Antwerp.

Table 8.6 Value added at the port of Antwerp from 2012 to 2017 (€mln)

	2012	2013	2014	2015	2016	2017
Cargo handling	1,481.2	1,563.3	1,604.8	1,665.0	1,697.7	1,803.9
Shipping agents and forwarders	591.3	631.6	593.1	632.8	603.0	607.8
Shipping companies	558.1	368.0	438.8	739.8	661.6	451.8
Other maritime	708.6	718.3	686.3	749.7	714.9	740.3
Maritime	**3,339.2**	**3,281.2**	**3,323.0**	**3,787.3**	**3,677.2**	**3,603.8**
Chemical industry	2,946.1	2,944.2	3,113.2	3,421.9	3,165.2	3,653.5
Fuel production	970.8	806.2	824.9	1,064.5	1,066.4	1,182.4
Trade	903.6	855.1	917.0	908.1	997.9	1,065.8
Other non-maritime	1,896.1	1,914.0	1,831.1	1,816.4	1,884.3	1,947.2
Non-maritime	**6,716.6**	**6,519.6**	**6,686.2**	**7,210.9**	**7113.7**	**7,849.0**
Direct	10,055.9	9,800.7	10,009.2	10,988.2	10,790.9	11,452.7
Indirect	9,085.8	8,525.2	8,478.5	9,222.4	8,647.6	9,284.3
Total	**19,085.8**	**18,326.0**	**18,487.7**	**20,220.6**	**19,438.6**	**20,737.0**

Source: Gueli, Ringoot, & Van Kerckhoven (2019)

29 Source: https://www.portofantwerp.com/en/breakbulk. Retrieved: 7 June 2019

The value-adding activities relate especially to the chemical industries, with a rise from 29.3% of total direct added value in 2012 to 31.9% in 2017. This strong position of the petrol-chemical sector is clearly illustrated in Table 8.7 where BASF takes the lead as the most value-adding company in Antwerp. The position of the Centrale Der Werkgevers Aan De Haven Van Antwerpen shows the importance of logistic activities in Antwerp.

Table 8.7 Value-adding top 10 at the port of Antwerp in 2017

Ranking	Company name	Sector
1	BASF Antwerp	Chemical industry
2	Kuwait Petroleum (Belgium)	Trade
3	EXXONMobil Petroleum & Chemical	Fuel
4	Centrale Der Werkgevers Aan De Haven Van Antwerpen	Cargo handling
5	Total Raffinaderij Antwerpen	Fuel production
6	Antwerp Port Authority	Port Authority
7	Electrabel	Energy
8	COVESTRO	Chemical industry
9	Evonik Degussa Antwerpen	Chemical industry
10	Lanxess	Chemical industry

Source: Gueli et al. (2019)

8.3.9 A score so far

From the early years, Antwerp was very internationally oriented. It truly was founded on trade and adding value and therefore a gateway to the world from its beginnings until now. Merchants acted as information channels to “familiarize the outside consumers (demand) with the abundance and its location (production) and to familiarize the producer with the location of external scarcity in the goods” (Mathys, 2017, p. 5). Harreld (2006) contends that, for Vance, this is the city acting as an open system, an agent of trade, and thus a center of information exchange. The bonds between the merchants were based on agency relationships. For that, 16th century Antwerp is a fine example, and Vance’s statement that “The vigorous mercantile entrepreneur of the seventeenth and eighteenth century had to turn outward from Europe because of the long history of parochial trade and the confining honeycomb of Christaller cells that had grown up with feudalism left little scope there for this activity” (Vance, 1970, p. 148) fully neglects the very internationally oriented merchants of 15th century Antwerp that cast out their nets across Europe. The city still reflects its history with the obvious presence of logistic activities reminiscent of older storage and value-adding activities, but it is also a city with a very industrial port where chemicals especially play an import role. Thanks to the oil pipeline connection with Rotterdam, no space is needed for rather low value storage, and so this space can be used for more interesting higher value-adding activities such as logistics, manufacturing, and petrochemicals. It is, however, also a port city affected by the whimsical political landscape – not only on council level and on the level of the port authority board (due to its political representation), but also as a port situated in the complex political landscape of Belgium, where a favor bestowed on one region must be compensated with a gesture to another region. This could hamper further development significantly, as the international actors within the port are getting larger and more dominant and have a very clear goal. In combination with the rather ancient labor structure, this is likely to be a less favorable mix.

8.4 THE PORT AND PORT CITY OF HAMBURG

8.4.1 Site: a fortress (burg), located on the Ham (swamp)

The origin of this city, dating from the beginning of the 7th century, reflects its main characteristic: a place where, in addition to some craftsmen and fishermen, merchants located because of the existence of a landing stage that is believed to have been located (much doubt exists about its exact location) near the Binnenalster (Hooydonk & Verhoeven, 2007). In the following centuries, it suffered, as many towns in the northern parts of Europe did, from attacks by Vikings who ransacked the town from time to time. The core of the town's activities was embedded in the existence of a powerful merchant class that fiercely protected its interests as a closed community. It did so by demanding toll for goods shipped on the Elbe that did not belong to the Hamburg merchant class. This merchant class was so influential that they even succeeded in claiming privileges like exemption from duty or other levies on their vessels – a privilege erroneously based on a Charter of Privileges granted by Emperor Barbarossa (1189). Later, this Charter, from which they benefited so much, proved to be a fraud dating from 1265 (Hooydonk & Verhoeven, 2007). In the 13th century, a dam was built that blocked the flow of the river Alster, resulting in two lakes, the Inner and the Outer Alster (see Figure 8.4).

The real take-off of the port (which was first located at the Inner Alster, which did not exist before the dam was built) was when infrastructure such as cranes and quays were located at the mouth of the Alster at the confluence of the Elbe. So now, there was a true connection between the port's activity and the Elbe seaway to the North Sea. Hamburg's maritime history really could take off, and so it did, for the rise of this port city really accelerated when it joined the Hanseatic League.

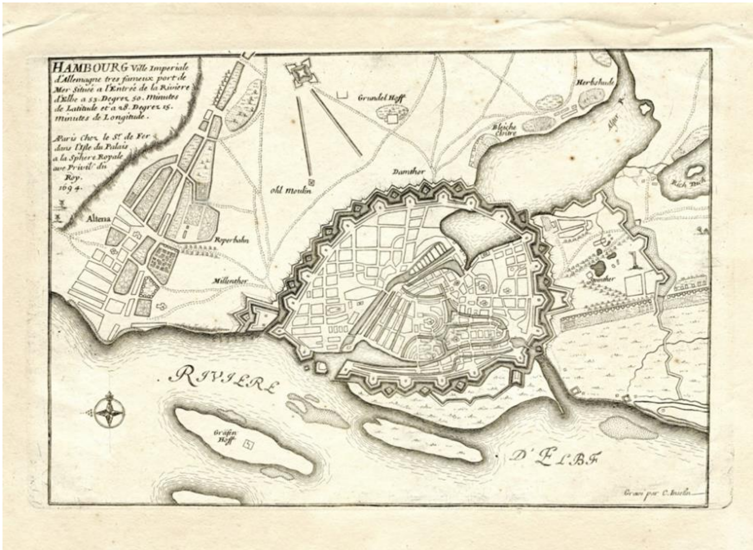

Figure 8.4 The port and city of Hamburg (Source: ownership author) Note: This map, dating from 1702, shows the Alster dam, creating the two lakes and the finger-shaped piers of the original port on the east side of the Elbe. The Reeperbahn, the place where ropes (Reeper) for the ships were manufactured, is also depicted.

8.4.2 The Hanseatic league: fostering economic prosperity

That the merchants of Hamburg really fitted within the Hanseatic league is a bit surprising, as we shall see later. As mentioned above, it was initially a closed community that really wished to separate itself from others in order to benefit from that. The cities that belonged to the Hansa are also called Wendische Städte, and the German-Slavonic word *Wende* means "to seclude oneself from others" (Hammel-Kiesow et al., 2015, p. 14). The merchants were really powerful and took over the governance of the city. This happened in many Hansa cities, and also in Hamburg, by the Hansa replacing the existing representatives of the – until then – influential lower nobility.

The Hansa was a large network of participating cities, as shown in Figure 8.5, but this was not always a situation of equality with everyone's interests taken into account. During the 15th century, more and more there was the tendency to exclude the smaller member cities in favor of the seaports. The trade between the 'German' cities with London, which, next to the trade with the Baltic regions, was the most important, was dominated by Lübeck and Hamburg. Besides its commercial success, many scholars in the Romantic period (late 18th century) were of the opinion that this success could be attributed to the Hansa's effect of binding people in a society. "Man sah in der Hanse also durchaus ein Alternativ-Modell zum adligen Ständestaat der Vorrevolutionszeit”[30] (Hammel-Kiesow et al., 2015, p. 194). In terms of Tönnies’ (1887) concepts: the Hansa in fact was a *Gemeinschaft* based on a *Gesellschaft*; and perhaps that is the most striking way to describe Hamburg society up to the present day, as we shall see later.

Figure 8.5 The Hanseatic network Source: Doc Brown (own work) + Base map from: File:Europein1328.png by Afterword, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=5490716. Retrieved: 9 May 2017

Because the Hansa’s bonds were based on commercial ties, these ties were rather weak. A breakaway by one of the partners did not really affect the existence of the pact (Hammel-Kiesow et al., 2015, p. 194). In fact, whereas the guilds in England and Holland disappeared after the beginning of the 16th century, they did not disappear in many parts of Europe and the Baltic. They organized themselves in strong groups that dominated their city councils. The economy and resources were in the hands of these few, thanks to legal privileges (Lindberg, 2008). For Lindberg, the German Hansa was rather “a result and not a cause of the great expansion of the German trade in the fourteenth century” (Lindberg, 2008, p. 645). So, in fact, one could say that the German Hansa was a social, political, economic structure, but not one that always acted as a representation of a unified cluster bound by a non-existent kind of unwritten tacit understanding of belonging together. They were nothing more than a *confederatio*, as was written in a letter to the English Secret Council (Pye, 2014). Opportunistic as they were, they enjoyed the benefits, but walked away from responsibilities when they could take advantage of that. As time passed however,

30 “They recognized in the Hansa an alternative model for the former hierarchical nobility-based society before the times of revolution.”

the ties between them faded away, and the last Hansa Day was held in 1669. Different interests of the different partners and the constant trade-off between 'does my own effort pay better than the communal results' came down more and more on the individual side. With it, the protective status of being member of the Hansa also disappeared. It was the Reichsstadt status of Lübeck, Bremen, and later Hamburg (in 1768 acknowledged by the occupying Danes as a Reichsstadt) that made them still influential and, in Hamburg's case, rather powerful. A community of merchants formed the core of the city.

8.4.3 Hamburg as a merchant city: political-economic structures that led to success

As Rotterdam was competing with Dordrecht in the first 200 years of its existence, and Antwerp had to deal with its rival Bruges, so Hamburg was in severe competition with Lübeck. These two cities formed the core of the German Hansa. Initially, Hamburg was the port of Lübeck, a city that can be considered as the most important Hansa city in the league in those days. However, Lübeck's role, thriving thanks to its trade with the Baltic region, diminished as the Dutch took over that trade, which they consolidated in such a way that they soon became the dominant player in the region. The Dutch, however, traded fish and other low value cargo, whereas the merchants still had the more valuable trade, such as spices. As stated earlier, not driven by altruism, Hamburg took advantage of Lübeck getting into trouble over a dispute with Bruges, which was the beginning of Lübeck's stagnation, while Hamburg's star rose. Its growth resulted from domestic trade as well as from being one of London's most important partners. It was situated as the great connector between "feudal and backward eastern Europe and market-oriented western Europe" (Lindberg, 2008, p. 648). The trade via London also gave the opportunity to trade with the American market where London had the monopoly. Although that might have a disadvantage (it cost the German merchants a margin because of the extra handing by the English), on the other hand, certainly in those days, with long payment periods arising because an ocean had to be crossed, it had the advantage that "In this trade …… he [the Hamburg merchant] certainly receives the returns of his capital much more quickly than he could possibly have done in the direct trade to America"… and for that "…his capital can keep in constant employment a much greater quantity of German industry than he possibly could have done in the trade from which he is excluded" (Smith, 2012, p. 624). Indeed, Adam Smith, too, appreciated the Hamburg merchants' special relationship with London. As Hamburg was not situated in a densely populated area, other reasons must explain its commercial success. So, it could not have been the site, as it could never be, but rather the political foundation of the city's commercial institutions, as Lindberg (2008) states; and this must have been a legacy of the Hansa period, as explained in section 8.4.2.

Many Hansa cities, and in fact many cities in central Europe, can be seen as *Gemeinschafts* with protective regimes to favor the local merchants, but the closed community attitude of these cities decayed at the end of the 17th century as a result of an endless chain of debates and conflicts between councils and merchants, mostly on the issue of taxation and pressure for the establishment of the German nation-state that was taking off. Hamburg, however, had a completely other situation and was the exception. It grew to be the most important center for trade with the Mediterranean and with England. It managed to do so without being part of a larger nation-state. Lindberg sees this in contrast to Amsterdam, which was, in his opinion, also embedded within the emerging nation-state like other merchant cities (Lindberg, 2008, p. 654). In fact, in the 17th century, Amsterdam was not very attached and loyal to the emerging nation of Holland but followed its own path, as did Hamburg. Unlike the other German cities, there was not so much a conservative inner circle but a city council that represented a balance of power, formalized under the Constitution of 1529, called the Long Ordinance. This more or less made a socio-political structure of a *Gesellschaft* with an open structure and where council members were merchants. More and more, a kind of liberal Hamburg evolved over the years as, like Amsterdam, it allowed foreign merchants to settle, and it was a place of refuge for many migrants (French Hugenots, Portuguese Sephardic Jews, and Antwerp merchants as a result of the fall of Antwerp in 1585). Later, Lutheran dominance and intolerance caused a decrease in this liberal atmosphere and gave rise to more conflicts between the council (the Senate, as Hamburg is a city-state) and the people. A new constitution was needed in 1712 to establish clarity about the position of the different political/power factions (Lindberg, 2008). So, as Linberg concludes, it was politics that gave rise to Hamburg, not its site. In contrast to Lübeck, this all gave Hamburg, where merchant guilds faded away, an international style that was far ahead of other members of the Le Havre–Gdansk Range of northwestern ports.

The fact that Hamburg was a merchant city gave rise to other important economic activities as well as, for example, the banking sector. The city hosts the oldest bank in Germany, the Berenberg Bank, M.M.Warburg & CO, and HSH Nordbank; and the Hamburg Stock Exchange is the oldest in Germany. So, the merchants' activity was the core for a cluster of trade-related activities that laid the foundation for an economic center with great diversity. Initially, this diversity reflected commonalities (room for the same activities) and complementarities (contributing to the value chain in terms of customer/supplier relationships) but was mostly trade related.

Later, it also diversified into other sectors, as they appeared to be the necessary foundation for the city in the future.

8.4.4 Breaking out of the walls: the new port

The strong merchant society class, backed by the political city-state's institutions, made Hamburg Europe's leading trade center. The old port could not keep pace with all the goods that needed to be handled, so a new site needed to be created at Grosser Grasbrook. More or less forced to do so by Chancellor Bismarck, Hamburg joined the Deutsche Bund and gave up its independence. As a favor in return (they were negotiators, even at Bismarck's table), they succeeded in keeping the port as a free zone, which favored trade. They also succeeded in getting the empire to finance the building of the famous Speicherstadt (warehouses).[31] For this project on the Kehrwieder and Wandrahm, 1,900 houses were destroyed and 24,000 people had to be relocated (Gretzschel, 2008). Until then, the port of Hamburg was a port with locks, which still can be seen. The leap over the Elbe at the end of the 19th century to the southern part of the city was accompanied by the decision to make it a tidal port with open access to the sea. Later, expansion took place on Kleiner Grasbrook. These – nowadays old – quays can still be distinguished, as they form the finger-shaped docks of the port.

The effect that an open sea entrance can have on water levels should not be forgotten. The Elbe funnels water upriver, and high storms can cause trouble. Dikes had to be built to prevent the water from inundating the city, which was built on marsh land (Ham = swamp!). In the future, rising sea levels would put this to the test, as it did in 1962 when a North Sea flood cost the lives of 315 people (Pedersen, Köster, Sempell, & Strauss, 2014).

World War 1 did not affect Hamburg very much in terms of damaged infrastructure or buildings, but trade suffered severely and it took quite some years before this recovered. During this recovery, trade with South America became especially important. It put Hamburg in the position of being the most important partner for South American trade, a position that it has retained to the present day. But the war left more legacies. One of them was formalized in the Treaty of Versailles, which determined that Czechoslovakia was entitled to have a free entrance to the port, whereby it was granted a 99-year lease of part of the port. So, Moldauhafen, Saalehafen, and part of Peutehafen do not come under the jurisdiction of the Hamburg

31 Interview with Anjes Tjarkes

Port Authority (HPA) – a situation that will end in 2028.[32] Not only was the port used for handling cargo, but also was the place where industrial activities were located. Shipyards like Blohm & Voss, Deutsche Werft, and Howaldts Werke were traditionally located in Hamburg. Having had difficulties after 1918, especially in the 1930s Blohm & Voss expanded, thanks to orders to build warships. This was one of the industries that contributed to Hamburg's prosperity. Another water-bound activity that bloomed in Hamburg, and that would give a new impetus to the city in the late 20th century, was the development and exploitation of cruise ships. Hapag Shipping Company shipped millions of immigrants from Europe to America; and this shipping was not only for migration. The number of people that travelled for pleasure on cruise ships grew steadily and became a pillar of Hamburg's maritime industry – an activity that stopped for quite some time because of World War 2 (Hein, 2016). During the war, the port was severely bombed. Its infrastructure was shattered and its shipbuilding activities were stopped under regulations set by the Allied Forces. Only after 1947 was permission given to clear up the port and remove the sunken wrecks, and shipowners were allowed to restart their trade (Hooydonk & Verhoeven, 2007). Slowly, the port of Hamburg recovered and reorganized within the existing port infrastructure of that time.

In fact, after World War 2, Germany regained a powerful economic position known as the Wirtschaftswunder, and Hamburg was one of the wealthiest cities in Europe again, a position that it has been able to retain to the present day, thanks not least to a powerful and wealthy group of shipowners that formed the Hamburg elite: Rickmers, owned by the Rickmers brothers; Döhle Schiffahrts KG, owned by the Döhle family; CP Offen, owned by the Offen family. This elite was also involved in logistics through the Kühne family and in transshipment through the Eckelmann family. In fact, in Hamburg today, there are 34 family-owned companies, and consequently Hamburg is the city with the most family-owned companies in Germany.[33] They are descendants of old family businesses that sometimes had their roots in the 19th century and still prospered during the 20th. After the war, they formed the basic structure under Hamburg's blooming economy. The Otto family, still owners of the €17 bln company Otto Group, is Hamburg based, and the Herz family is still a major shareholder in Beiersdorf.

32 https://www.welt.de/regionales/hamburg/article146690038/Neue-Flaeche-fuer-Tschechien-im-Hamburger-Hafen.html. Retrieved: 10 May 2019

33 Hamburg News 24 June 2016. Source: https://hh-business.anythingabout.net/en/trade-finances/hamburg-capital-city-family-companies/. Retrieved: 17 May 2016

Of the three cities under research, Hamburg is the most prosperous, as we shall see in section 8.6. Its underlying structure has changed however. Heavy industry like shipyards gave way to high-tech industries and service industries. Blohm + Voss is the only shipyard left, depending for its existence on repairs and orders from the national government (Hooydonk & Verhoeven, 2007) and the construction of luxurious cruise yachts. This reorientation towards other industries, however, is very beneficial for a city that in spatial terms is so close to the port and that is so exposed to its negative external effects: air, water, and land pollution. Industries like Airbus, Beyersdorf, the cruise industry (if they use shore-based power) put less pressure on the environment. Knowledge-based activities like higher education, Aesclapius (a hospital owner that owns a lot of hospitals throughout Germany), NXP, and so on have taken over a lot of high-level jobs needed by Hamburg's citizens.

What can be said of this development of the port of Hamburg in the first 20 years after World War 2? The main characteristics of the development of the port of Hamburg in those years were that:

- It was recovering from the aftermath of the war, hampered by the fact that a lot of activities had been dismantled;
- It was situated very close to the Iron Curtain, which created a blockade to the east in terms of hinterland;
- It enhanced its role as a port for cruising, which would become one of the most interesting and port city-strengthening activities in the late 1990s;
- The elite structure whose base dates back for centuries still formed the backbone of the city's social fabric;
- Although the post-war development took off slowly, soon the economic situation of the port and the city was back on its feet;
- Many non-maritime industries were founded in Hamburg and grew fast, so Hamburg's economic base was very diversified.

8.4.5 Becoming an international port with an effect on location and city functions

Containerization.

After World War 2, Germany's financial position meant that the wrecked port could not be reconstructed rapidly. As stated however, from the 1960s, Germany boomed economically and, like Rotterdam, needed new port facilities, but, unlike Rotterdam, which expanded westward towards the sea where large-scale operations could be established, Hamburg had to find solutions within the city-state boundaries. Initially, this did not pose a problem as the severely bombed areas offered the opportunity to plan new large-scale docks. In 1967, the first container terminal was opened at the Burchardkai, where on 31 May 1968 the first containership, the American Lancer, berthed in Hamburg. She was the first vessel of a new era that has changed the appearance of the port of Hamburg.[34] Water, the lifeline of ports, took on a new shape; containerships reshaped the port so that a new shape of the water was required (Hein, 2016). Hamburg had to adapt to that by creating new docks to accommodate these increasingly larger vessels to avoid San Francisco's destiny, which declined because piers were not created, whereas the port of Oakland (a city on the east side of San Francisco Bay) "offered dedicated container facilities and good access to transportation" (Hein, 2016, p. 423). Hamburg was also in competition with another port, Bremen, as a competitor with great possibilities and with even easier access to the sea. So, Hamburg had to keep developing its container sector, and in early 2000 the port opened a new terminal on Altenwerder where Hamburger Hafen und Logistik AG (HHLA) exploits Hamburg's most advanced container terminal.

Regionalization

Regionalization as a side effect of containerization has, like in Rotterdam, taken place in Hamburg. Magdeburg, situated on the upper Elbe, is one of its main inland partners, and in 2011, for example, HHLA and the railway operator Polzug Intermodal started a hub terminal in Poland in the town of Posen.[35] The HPA spread its wings, especially to the eastern part of Europe. Traditionally, it has strong bonds with Russia, and, even in times when the relationships between the countries are tense on national government level, the bonds between the city-state and Russian regions are maintained, as shown again in April 2019 when an agreement was signed between HPA and DTL.[36] This is one of the efforts to enclose the eastern Europe hinterland for which the port of Hamburg is very suited, and, with its old Hanseatic partner Lübeck, its connections to the Baltic region are strengthened. Within the Le Havre–Gdansk Range, it is Hamburg that traditionally has the strongest bonds with Eastern Europe, not only from a logistics point of view, but also historically and mentally. These arrangements are a way of defending the hinterland from intruding competitors, but this policy has its side effects as well. A combination of integrat-

34 Source: https://www.hafen-hamburg.de/en/press/media/brochure/port-of-hamburg-magazine-1-2018-50-years-of-container---37991e. Retrieved: 29 March 2019

35 https://www.logistik-express.com/hhla-und-polzug-eroeffnen-intermodal-hub-in-posen/. Retrieved: 10 May 2019

36 Digital Transport and Logistics (DTL). The DTL alliance was set up by Russian Railways (RZD), Aeroflot, RT-Invest Transport Systems, Avtodor, Glosav, ZashchitaInfoTrans and Digital Radio Engineering Systems in 2018. DTL is a center of competence of the same name for Russian Ministry of Transport projects.

ing logistics chains with decoupling the activities from the port location itself will mean less income for the port. Meanwhile, port maintenance – especially high for Hamburg because of the efforts to keep the Elbe suited to large vessels and the need for investments to prevent pollution of the nearby city – will mean higher costs (Grossmann, 2008). In that case, being responsible as a city for the port's activities (and so for its investments) can be a burden.

Globalization: competition and changing ownership

One of the effects of globalization in relation to containerization was the integration of the logistics chains. MAPSs like insurance, banking, and logistics are no longer bound to traditional locations at port cities. Controlling the logistics chain will be more and more in the hands of shipping lines that operate in dedicated terminals and communicate with intermodal facilities (Grossmann, 2008). On the whole, a devolution of port operations is going on. In particular, global terminal operators like the famous four – Hutchison Port Holdings (HPH), Port of Singapore Authority (PSA), Dubai Ports World (DPW), and AP Möller Terminals (APMT) – are establishing logistics chains that they control (Rodrigue & Slack, 2013). The first three of them are stevedoring companies, and the last one stems from a liner company. From this perspective, Hamburg is an exception to this widespread phenomenon, which is also very present in Rotterdam and Antwerp. The two dominating terminals HHLA and Eurogate are not dedicated (liner) terminals, but German owned, with HHLA 75% owned by the Free and Hanseatic City of Hamburg. The fact that a shipping line such as Hamburg Süd was taken over by Maersk in 2017 was quite a shock, and actions were undertaken to stop this process.[37] Competition between ports will therefore be fought out on the basis of not only costs or hinterland access, but also the preferences and the interests of shipping lines that own terminals that need to operate with sufficient cargo to be profitable. Furthermore, this combination of being a shipping line and a terminal operator is an excellent tool to put pressure on port tariffs and port authorities' policies to get things done according to a global company's intentions and long-term goals. So, the tendencies of globalization, where ownership and competition go hand in hand, may have profound effects on ports, but to date the element of foreign ownership has been successfully prevented in Hamburg. How this is done, and whether it will be an advisable strategy in the long term, is evaluated later in this thesis in Chapter 10, because there is also the view that keeping the port's functions in one's own hand and trying to prevent foreigners from entering the port is a burden.

37 Interview with Hamburg expert

The devolution of port responsibilities from the city to a more or less independent entity is a global phenomenon, but translated in different ways in different countries. So, the situation in Hamburg is quite different compared to that in Rotterdam. In many ports, the port authority was repositioned to give it more flexibility and the possibility to develop its own policies for the wellbeing of the port. However, the relationship between port authority and port city varies strongly if one compares the different situations in the world. Even with the three ports in such proximity as Rotterdam, Antwerp, and Hamburg, the differences are very clear. In 2005, the HPA was founded as an independent organization, 100% owned by the city but operating independently from it, although this independence may be questioned. It is the Senate that more or less determines port development, as stated in the report *Hamburg hält Kurs* (Hamburg Port Authority AöR, 2014, p. 6). In Hamburg, the port authority has a degree of freedom but is still very bound by the city-state's decisions. In fact, this situation is even more complicated than in the other two cities, because the city council interferes not only with the decisions of the HPA, but also with those of the largest port company: HHLA. So, there is a web of interests between city, port authority, and some port companies, not only in terms of responsibilities (who governs who), but also in financial terms. Of the three ports under study in this thesis, Hamburg has the closest relationship between city government and port business. For example, a former minister became CEO of HHLA (Helmuth Kern, Minister of Economics), and a state secretary became managing director of a port company (Gunther Bonz at Eurogate). The city-state has ownership in companies and widespread interests in other activities. The largest port operator, HHLA, is still in the hands of the city-state (75%). The city is still a shareholder in one of the proud Hamburger shipping lines, Hapag Lloyd (as is the Hamburger logistics company Kühne), although ownership had to be shared with the states of Quatar and Saudi Arabia (in the UASC-enterprise) in addition to the Chilean operator CSAV.[38] Via Hapag Lloyd, the city has shares in Grimaldi (Euro Terminal in Antwerp and Unikai Terminal in Hamburg).

Hamburg society has strong community-based bonds that go back a long time.[39] The foundation for this must be sought partially in its long, rich tradition (hence the reason for a brief overview of the Hanseatic period in section 8.4.2). This is strengthened by Hamburg being a city-state, which more or less fences off Hamburg from the Bundesstaat and enhances this community feeling. This proximity of companies (commonality or complementarity based) is grounded on trust as a key dimension

38 Financiële Dagblad 3 April 2017

39 interview with diverse Hamburg respondents

but runs the risk of getting locked in, favoring local players, and might create an over-embeddedness (Hall & Jacobs, 2010). In Hamburg, a clear example of this can be found in the almost intriguing relationship between port authority, port city, and its dominant container terminal operator, HHLA. At the same time, arguments are rising about who is responsible for bearing the cost of investments or who should be favored for sharing the benefits. This is not surprising in a situation where an entity (the port authority) bears the cost of infrastructure but is owned by the government, which is also a shareholder in – and so very connected to – port companies, but which is also the entity that has to protect the city from the negative externalities created by the port to secure its license to operate. So, different and sometimes conflicting responsibilities exist within one organization. Until recently, HPA investments in infrastructure were financed by selling some of Hamburg's shares in HHLA. Now that this source of financing has dried up, the port of Hamburg's losses are absorbed by the city-state – a situation that is surely not the case in Rotterdam.

Besides this rather complicated situation, the port of Hamburg is not seen by the federal government as the port of Germany, so special investments like taking care of the most important waterway, the Elbe, is not seen as a task of national importance. This port will have to do it by itself, as it has done for the last 1,000 years. Consequently, it is not a main-port in the same sense as Rotterdam.

8.4.6 International port and local city in a thriving metropolitan area

The port of Hamburg is very connected to the city as shown above, not only in terms of visibility (on the other side of the river) and presence (ownership intertwines with city's interests), but also in the minds and hearts of the common citizen of Hamburg. The Hamburg people are proud of their inheritance, as every respondent stated in the interviews. They are aware of the benefits accruing from the port directly (the maritime activity itself) and indirectly (trade, related to the port). The port's function is more international than ever thanks to international trade and the still growing cruise industry berthing at four cruise terminals: HafenCity, Altona, Aida, and Steinwerder. Furthermore, famous brands like Nivea (Beiersdorf) and Mont Blanc have their home in this very internationally oriented city.

Sectors like finance, insurance, business services, and real estate activities make up 33% of its gross domestic product, which is far above the average of 26.3% for the whole of Germany. Education and healthcare take 22.3% of the cake. It is home to Deutsche Elektronen-Synchrotron DESY, several Max Planck Institutes, the CAN (Center for Applied Nanotechnology), the ZAL Center for Applied Aviation Research, the LZN Laser Zentrum Nord, and some institutions of the Frauenhofer-Gesellschaft, proof of the presence of cutting-edge high-tech industries (Hamburg Chamber of Commerce, 2016). Its gross domestic product reached €109.3 bln, which is 3.6% of total German economic output. In 2015, the city of Hamburg had a gross domestic product of €90,905 per employed person. Compared to the national average of €70,317, this certainly is Germany's number 1 city. A rich city, originally based on trade and maritime activities, has now grown beyond this and, with respect to its maritime origin, diversified successfully in many sectors In this diversification, the city as the owner of 350 companies plays an active role. This has its pitfalls, as the city found in 2008 when it covered the losses of the credit default swaps of the HSH NordBank – a bank that led in financing ships but hit stormy weather due to the financial crisis of 2008. This meant a risk of €13 bln. In 2019, the bank was sold, so the risk was downsized, but the result is that the city-state of Hamburg is the owner of 230 ships.[40,41]

This city also has the problems accompanying such economic activities. Congestion, as in any other major city, is rooted in the travelling of 338,431 employees in Hamburg who live outside the city limits and 111,010 employees who live in Hamburg but work outside the city boundaries. This results in a ratio of three to one commuting into and out of the city (Hamburg Chamber of Commerce, 2016). The city's international orientation is reflected in its composition. Of the 1.787 m Hamburgers, 16.1% are of foreign origin (Statistisches Amt für Hamburg und Schleswig-Holstein, 2019). This composition reflects not only the well-known immigration consequent to the search for employees during the 1970s and 1980s from the Mediterranean countries, but also its position in the center of Europe. Table 8.8 gives a breakdown per country of origin.[42]

Given the great wealth of Hamburg city, as reflected in its inhabitants' incomes, the median income per household in Hamburg is €52,810,[43] whereas the median income

40 Interview with Hamburg respondent

41 The sale of German state bank HSH Nordbank to a consortium of private equity companies was completed in February 2019. The consortium consists of: Cerberus Capital Management, J. C. Flowers & Co., GoldenTree Asset Management, Centaurus Capital LP, and BAWAG. These companies now have a 100% stake in the bank between them, and it operates under the name Hamburg Commercial Bank. This is the first time that a public bank in Germany has gone into private hands. Source: Splash 247.com. Retrieved: 18 March 2019

42 Source: https://www.citypopulation.de/php/germany-hamburg.php?cityid=02000000. Retrieved: 16 May 2019

43 Source: Point and homes: https://www.point2homes.com/US/Neighborhood/PA/Hamburg-Town-Demographics.html. Retrieved: 16 May 2019

in Rotterdam is €34,700.[44] It is not an exception that wages for port labor are more than moderate, but the employee of the Hamburg container terminal operator HHLA has a very luxurious position. The average income of a HHLA employee is €85,390. Compare this with the €62,000 earned by the average employee of HafenCity, an organization that is packed with university-educated employees, and one sees how well this Hamburg-based, very embedded (and protected) company takes care of its personnel. In fact, they head the list of salaries paid, which compares the 2017 incomes of the city-owned companies and institutions.[45]

Table 8.8 Composition of population of Hamburg

Land of origin	#
Germany	1.492.489,00
Austria	3.625,00
Croatia	4.129,00
Greece	5.411,00
Italy	5.446,00
Poland	18.084,00
Russia	7.042,00
Turkey	47.473,00
Europe (other)	57.826,00
Africa	14.381,00
America	8.424,00
Asia	40.236,00
Other	2.130,00

Rejuvenation of the city: in competition for land

As is the case in Rotterdam and Antwerp, parts of the town were abandoned as a result of breaking out of the city's limits in need of new land, partly because of the expansion of activities (early 20th century), but even more because of the scale increase necessitated by containerization. Hamburg has taken up the regeneration of the town vigorously. The project HafenCity, initiated in 1997, started with the area between the Speicherstadt and the Elbe – an area with mixed use nowadays, where domestic buildings are found cheek by jowl with offices, shops, educational premises (Hafencity University, Kühne Logistics University), and a harbor for yachts.

44 Source: CBS: https://www.cbs.nl/nl-nl/nieuws/2019/12/doorsnee-inkomen-werkenden-al-10-jaar-vrijwel-constant. Retrieved: 16 May 2019

45 Source: https://www.abendblatt.de/hamburg/article215763171/Was-die-Chefs-der-staedtisch-en-Unternehmen-verdienen.html; date: 11092018. Their source: Hamburg Senat. Retrieved: 21 May2019

This project, which creates high-value uses for the former port land, is spreading its wings. It will provide 45,000 jobs and up to 7,500 homes, meaning a 40% enlargement of a New Downtown.[46] It is, however, in competition with the port, as it represents a land use with much higher value creation than when it was dedicated to port functions (Grossmann, 2008). The next phase will be the redevelopment of Billebogen (a very deserted area still enduring the effects of World War 2), followed by Grasbrook. Because for so long it was an abandoned area reminiscent of the war, there is no opposition to the invasive rejuvenation, and acceptance of the plans is widely recognized. It is a competition for land, as the CEO of HafenCity explained when he recalled the opposition from the port companies that feel protected by the Port Development Act of 1982.[47] The port companies experience a city that is penetrating into 'their' area, and in time fear that negative externalities faced by the new occupants will hinder their activities. Regarding this rejuvenation, Hamburg also has to take into account the possibility of flooding. So, in building the new Hafencity, they paid attention to the level to which the water could rise. For example, the ground floor of the buildings on the Elbetor Promenade have a low-value function that would not be very affected if the water rose too high.

8.4.7 A score so far

The general dynamics visualized in the research model designed in Chapter 1 are present in Hamburg as well. Containerization, globalization, scale increase, as well as regionalization and relocation can be observed in Hamburg. In contrast to Rotterdam however, a spatial, economic, and mental separation has not taken place. The factors of the conceptual model that shape the shared values concept presented themselves in another way. This has been illustrated in this brief monograph. Business relations, ownership, investment in society, are articulated in Hamburg's own configuration. This is partly a rather tacit phenomenon that emerges in Hamburg society and influences its development. The port of Hamburg is striking for its dominance of locally owned companies, or, if not locally owned, at least German owned. As described in the theoretical part, this is very much a feature of the Coordinated Market Economy. It results in a reluctance to allow – even opposition to allowing – foreign companies to take a stake in port activities or to take over a complete business. Examples are given in the Chapter 9 where the results of the interviews with local representatives are presented. An important player in this game is the locally owned container terminal company, HHLA. This special attitude towards ownership creates a locked-in situation that may be advantageous initially but may also

46 Presentation Bruns-Berentelg, CEO HafenCity Hamburg GmbH, 13 December 2018

47 Interview CEO HafenCity

prohibit an outward-directed view on global developments in which one may have to participate (Menzel & Fornahl, 2009). But this is viewed from a port's perspective. The city is booming in a diversified way, and MAPSs, offering high-value jobs and housing international companies, are creating a wealthy society. The port of Hamburg has been the growth engine for many years and "a central part of its identity as a city of trade" (Grossmann, 2008, p. 2062). And indeed, it is still the shaper of the city of Hamburg and certainly a blue print for its mentality. The city breathes the port wherever one goes – in the name of buildings, the buildings themselves (Chilihaus is a fine example), and in the presence of the port, viewed from the city center. Threats are looming however. The increasing size of ships might endanger the port's capacity to handle them. The Jade-Weser-Port at Wilhemshaven is a threat, with its capacity to handle these bigger vessels. The network of firms in the global production system (Global Distribution Networks) gives more independence and latitude to firms to be in charge of the supply chain and to choose their partners who are competing for them as a customer (Hesse, 2006; Grossmann, 2008). The absence of liner terminals and the tendency to be a closed community might have its positive sides: policies can be adjusted to be mutually beneficial. On the other hand, this might scare off investors who want to avail of all the possibilities that the port has to offer.

However, the port is not the whole of Hamburg. Calling it a driver of the economy gives it too much credit nowadays. This does not have to be a disaster, as discussed in the analysis of the consultation with experts and the HPA annual reports.

8.5 WRAPPING IT UP, A BRIEF SPATIAL COMPARISON

8.5.1 On site, situation, and visibility and presence

So, the pictures of the three ports under study have been presented. These pictures can be viewed from the perspectives of visibility and presence. Visibility is understood in the way in which the word speaks for itself: what do you see? What does the site look like? Presence is understood as how the port expresses itself in its relationship with the city that is shaped by its different activities, leading to an artificial morphological pattern, as formulated by De Bruijne, Hoekveld, and Schat (1973, p. 31). The sites where the ports of Rotterdam, Antwerp, and Hamburg are located have led to different situations (Broek & Webb, 1973, p. 10; Abler, Adams, & Gould, 1977, p. 345), as described in the monographs by using the general dynamics of containerization, globalization, and regionalization. That these three ports have been chosen to be researched is not coincidental. They form the top three in Europe for container handling, they each have their own particular industrial structure, and they overlap in one of the most important hinterlands in Europe: the Ruhrgebiet. In the last decennia, significant changes have occurred concerning the sharing of hinterlands, as Paardenkooper-Süli (2014) has shown. Rotterdam's hinterland is retreating to the north thanks to aggressive actions by the German ports, featuring the railways as an important steering instrument in this process. This issue is not the focus of this study, but it is a phenomenon that should not be forgotten. As a comparison between ports ticks all the boxes of competition, one cannot talk about two ports without even thinking of which one performs better, is bigger, more advanced, and so on. Competition occurs between ports for the transshipment of goods – Kreukels and Wever (1998, p. 8) call this the primary function – and for the industrial and distribution function (the secondary function) (Kreukels & Wever, 1998, p. 8). As the monographs show, these ports have been developed under similar circumstances, as they were often in competition with other national ports, and under different circumstances, as they performed in another national structure. This wrapping up is conducted through the lens of visibility: what do you see? This is the spatial outcome of the developments described as the general dynamics. Presence can be understood as *how* the port presents itself by the activities that are interconnected and lead to another ecosystem and to another artificial morphological pattern (De Bruijne et al., 1973).

8.5.2 The sites and the spatial movements of the three ports

Rotterdam

The remarkably visible effect in Rotterdam of Bird's stages of port city separation, or of Hoyle's phases III and IV, is that the port has more or less left the city behind. The Waalhaven complex is the part with large-scale activities closest to the city center. The other quays are abandoned, are places where vessels are 'parked', or where urban development plans are waiting to be implemented. Positive exceptions to these are De Kop van Zuid and the RDM docks where large-scale (the former) and small-scale (the latter) activities are taking place. The interesting thing about the port development is that it stretched not only towards the west as much as possible by creating new land (Figure 8.6),[48] but also eastward, although strictly speaking these activities are not part of the port of Rotterdam. These are the activities in the Drechtsteden (Dordrecht, Zwijndrecht, Papendrecht, Sliedrecht, Alblasserdam en Hendrik Ido Ambacht) as logistics partner of Rotterdam and the port of Moerdijk, which can be seen as part of the petrochemical complex and as an extension (and

48 The scale of the maps in Figures 8.6, 8.7, and 8.8 is the same.

a competitor!) in logistics and value-adding activities. In fact, one could say that the most recent maritime developments are taking place further and further away from Rotterdam, that is, both upstream and downstream. This is the regionalization effect. The port of Rotterdam made its first enlargements on the south bank of the river Meuse. From there on, starting in the 1920s, the expansion of the port was westward and it could fully exploit its position towards the sea. Theoretically, there is no end to the possible expansions in the future, as the realization of Maasvlakte I and II has illustrated. The tidal basins of a port such as Rotterdam are more easily enlarged than the enclosed docks that typify Antwerp (Hayuth & Hilling, 1992), but the result of this is that the port is more than 30 kilometers away from the city center, making the core business of the port – gateway and transit – almost invisible for the town; this also reflects its emotional bond, as this thesis shows.

Figure 8.6 Port of Rotterdam (Source: Google Maps. Retrieved: 30 December 2019)

Antwerp

For Antwerp, the processes of the spatial separation of port and city, as described above, are comparable to those in Rotterdam. In the past, the growth phase could be realized on the right side of the river Scheldt. Stretched along the river Scheldt towards the Westerscheldt in The Netherlands, the port has moved out of Antwerp towards the northwest (Figure 8.7). In the 20th century however, there was no longer any space available without crossing the border with The Netherlands, which is out of the question. So, the only possible enlargement could take place on the left side of the river: the "Jump over the River Scheldt", which more or less entered foreign territory, as we shall see in the next sections. Not only spatially but also functionally, the port expanded towards Genk in the east and in the direction of France to the south, as part of the influence of regionalization. From the inner city, no large-scale activity can be seen, and Antwerp could be any city in Belgium, and (exaggerated) even not located near a river, as the city center and its main activities are southeastward. The Museum aan de Stroom underlines the importance of the river and the port function at the Willemdok, where waterfront renovation is taking place, but the port is still far away. Large-scale activities are aligned along the N1. To the east, the Albertkanaal is the transport axis towards the east and southeast, eventually towards The Meuse, where, near Herstal, the connection with the Meuse is made. In Herstal, a large marshalling yard in combination with dockyards makes a connection for a modal split from road and barge to rail. Large-scale innovations and developments, like the Deurganckdoksluis, are still taking place in the existing port area.

Figure 8.7 Port of Antwerp (Source: Google Maps. Retrieved: 30 December 2019)

Hamburg

The port and city of Hamburg have been intertwined from the beginning. At first glance, the port activities are best seen in the city of Hamburg. The port is very close by and is spatially more or less surrounded by the city (see Figure 8.8). There was no alternative. The initial phase, the growth phase, and the maturity phase had to take place on the left side of the River Elbe and was stopped at the border of the city-state. In the meantime, on the right bank, there were no possibilities for expansion as the city was situated there. Its proximity makes it an integral part of the city, and the Hamburg council – which is called the Senate of the Free and Hanseatic City of Hamburg – is strongly involved in what happens in the port, as described in the monograph. The Speicherstadt, the old warehouse district that is part of the Ueberseequartier, forms a natural transition zone between the city and the port function of Hamburg. This part of the town is world famous and stands out as a successful waterfront renovation project. The container terminal activities and extensions are relatively close to the city center, giving the feeling of a true port city. Examples include Altenwerder, Moorburg, and Hohe Schaar. Contrary to other port developments, these do not head downstream as in Rotterdam or (to a lesser extent) in Antwerp. Because of its physically locked-in situation, the Free and Hanseatic City of Hamburg is, being a city-state, surrounded by other Bundes Staaten and has no possibility of growing in spatial terms. Every new desired port development has to be realized within the current boundaries. The same applies to city development; every move the city makes in a southern and southwestern direction means entering the land taken by port activities. When this happens, like in Rotterdam and Antwerp, spaces that housed former port business, or with current business that yields a smaller return, are taken over for city functions. In Hamburg, this means that new city developments are taking place right beside large-scale port business, like ship repair and container terminals. This has its attractive possibilities and unique features, but on the other hand puts stress on the current port's activities, as negative externalities, taken for granted in the beginning, in time will take their toll. Consequently, the proximity of the port in relation to the city has hardly changed. The HafenCity project exemplifies this best. Here, the waterfront integrates port and city in an intensive way, more than the other two port cities have realized. And this project is not over yet. On the contrary, large areas still remain to be transformed and will be sites where port functions and city functions will sometimes battle for their existence.

So, what we see as a spatial phenomenon by just taking a bird's eye view is diversity in the concentration in port activities, varying from rather concentrated in Hamburg, far less in Antwerp, and least in Rotterdam. All three ports show port activities in motion, started decades ago thanks to scale increase, still not finished, and sometimes forced away from the city by other dynamics. The question is whether this spatial appearance, which in some cases shows a decrease in the connection to the port city, is also articulated in such a way that the port and the port city live more or less close together and thus whether they enhance each other's performances. Or to put it in another way, do visibility and presence go hand in hand? A causal relationship is not suggested, rather a factor that does or does not contribute to a flourishing co-existence. What factors have contributed to this weakening of the linkages? And have they led to different situations for the port cities' residents in terms of employment and skills?

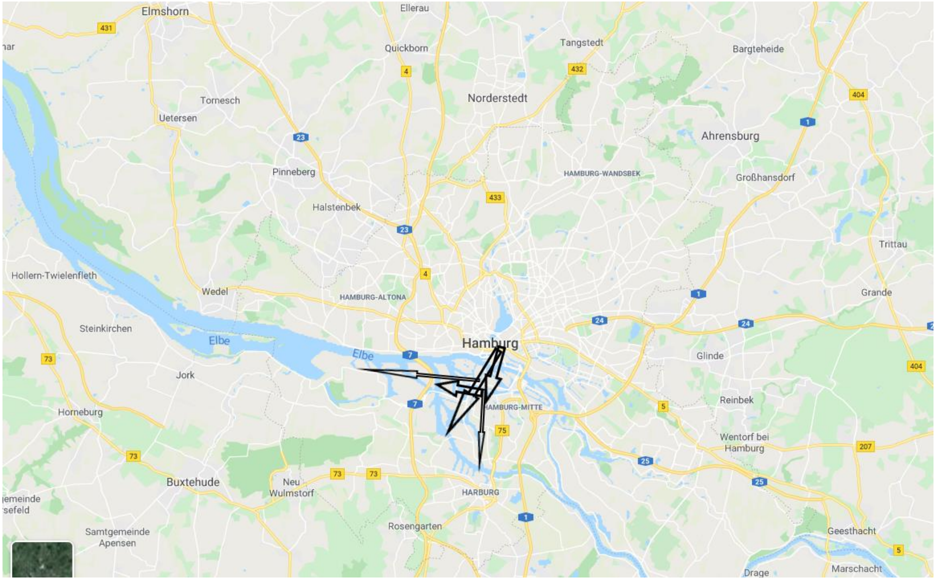

Figure 8.8 Port of Hamburg (Source: Google Maps. Retrieved: 30 December 2019)

8.6 WRAPPING IT UP, A CULTURAL AND ECONOMIC COMPARISON

8.6.1 Ports and activities: presence

Besides the visibility of the port in relationship to its port city as a result of site and situation, the presence, or how the port performs, can be evaluated. This evaluation is conducted in two ways: first, from a cultural perspective and second, by overviewing the economic situation of both the port and its port city.

8.6.2 Cultural

The port of Rotterdam has not only literally left the port. The strong independence of the port authority reflects the loosening of the ties between port and port city. This process had been going on for a long time before it was formalized by the city council's decision to make it an autonomous corporatized organization under public control, whose shares are divided between the city and the national government. In the 1990s, there was already a strong entrepreneurial orientation, although in those days this was primarily personalized by the director of the port authority. Since it achieved its formal autonomous position, this has become even stronger, as will become clear in the analysis of the annual reports and the conversations held with Rotterdam representatives. This does not mean that the port wanted to keep aloof from the city. Many structured and planned relations have been undertaken in terms of participation in education and waterfront rejuvenation. RDM is a fine example of cooperation and proof of a port authority that wants to be held responsible for what is happening in the city. However, real involvement in terms of a constant balancing between what the city needs and how the port authority responds to that is reflected in the dichotomy between the forces within the port authority, which can be summarized as exploitation (the traditional landlord function) and exploration (the entrepreneurial attitude). And there may be a risk that the port authorities are "losing the responsibility orientation while corporatizing" (Van der Lugt, 2015, p. 55). Chapter 9 shows this balancing attitude by analyzing the annual reports of the port authority.

For Antwerp, crossing the Scheldt meant that it had to deal with a completely other cultural and political sphere. It was entering an area where rather hostile communities opposed any interference from the city of Antwerp, as the port of Antwerp was considered to be. The solution was found in having these communities take a share in the revenues of the port by creating the Maatschappij Linker Scheldeoever under Chabert's Law. This did not mean that everything decided in Antwerp was accepted, but the fact that they could participate to a certain extent 'sweetened the pill to swallow'. That the port of Antwerp was seen as Antwerp (in the meaning of the city of Antwerp) is not surprising. Not as much as in Hamburg, but in Antwerp as well, city politics are still heavily involved in port policy. The composition of the port authority board confirms this: eight members still represent the political parties of the city council (besides four independent members to guarantee the necessary professional input). Congestion problems are experienced by the population of the city, who experience the negative externalities in other ways also (air pollution, smell). This forces the port to do its utmost to earn its license to operate. Ownership in Antwerp has switched in the past decades. Traditional, typical companies like Hessenatie and Noord Natie have given way to companies like MSC, PSA, and DP World. The former natie structure has partly given way to the global players that have entered the port, meaning that local governance is directly involved in the business politics of these giant multinationals. This must be considered of great concern, as these companies will undoubtedly use their increasing power to play the ports against one another, as was already a concern more than a decade ago. The city of Antwerp is the port's sole shareholder, with the city alderman for maritime business as its chairman. The city's political influence is still very much in evidence, but the fact that it is restricted to the municipal level illustrates the position of the port in the political framework of Flanders or, even more intriguingly, Belgium.

In cultural terms, the proximity of the port of Hamburg is as strong as its spatial configuration. The city influences the port as the port influences the city. The position of the port authority, on paper an example of port devolution, is still very connected with the city council. The inter-ownership of port companies under the protection of the Free and Hanseatic City of Hamburg is still as present as it was in the middle ages when merchants were members of the city council and controlled the city. It just has another manifestation. However, if the people of Hamburg consider that "the city is the port and the port is the city", this expression cannot be considered an empty phrase. This rather strong adherence from city to port is necessary to cope with negative externalities, and on the other hand reflects the awareness of the Hamburg people that the city's welfare started with the port. Together with the fact that Hamburg port is considered as only "one of the ports" of Germany, Hamburgers realize that they have to fight for their position. This closedness is strikingly expressed by the inclination of the Hamburg business world to retain ownership of important infrastructural business, like container terminal operators, in German – preferably Hamburg – hands. Mirroring medieval entanglements of governance via the city/state council/parliament, this feeling of *Gemeinschaft* is stronger than the idea that, businesswise, the world is changing, and, in response, ownership is becoming global. For business especially, that is so much an expression of international linkages like a port. The port authority's legal position is one of independence, but the Free and Hanseatic City of Hamburg is its owner and in fact treats the port authority like any department that needs money: it compensates its losses by financing infrastructure that actually should have been posted to the profit and loss account of the port authority. So, although it is clear that the port authority is not making a profit, as stated, at the same time, this is solved by recourse to the city's account.

8.6.3 Economic: the port

All three ports have in common that, in their early days, they were in strong competition with another city. For Rotterdam this was Dordrecht, for Antwerp this was Bruges, and for Hamburg this was Lübeck. It was not only in their youth, however, they had to keep an eye on a specific competitor. Throughout their existence, they have had to cope with national competition. For Rotterdam this was with Amsterdam, for Antwerp this was Zeebrugge, and for Hamburg this was Wilhelmshaven. Because Rotterdam reached the status of main-port, it has received much attention and support from the national government. The other two ports lack this support, meaning that the perception of the port as a motor for economic development is limited to the local, city-bound environment, whereas the sympathy for the port of Rotterdam has a national foundation. The three ports differ considerably in terms of economic outputs.

The most common comparisons between the ports are based on throughput. Every year, the annual reports and, in line with that, press communications boast about the development in the growth (or, if necessary, the decline) of the ports in terms of tonnage or TEUs. Comparing these ports differentiated in diverse segments based on m/tonnes delivers the next overview, presented in Table 8.9.

Table 8.9 Development import/export of the ports, 2012–2017 (metric tonnes)

TOTAL (import/ export)	Rotterdam			Antwerp			Hamburg		
	2012	**2017**	**Δ%**	**2012**	**2017**	**Δ%**	**2012**	**2017**	**Δ%**
Liquid bulk	214.2	214.3	0	45.3	73.2	61.6	14.1	13.7	-8.1
Dry bulk	78.1	80.2	2.7	19.1	12.2	36.1	25.3	31.0	22.5
Containers	125.4	142.6	13.7	104.1	122.9	18.1	89.4	90.3	1.0
Breakbulk *	23.8	30.3	27.3	15.7	15.0	-4.5	2.1	1.5	-28.6
Total	441.5	467.4	5.9	184.2	223.3	21.2	131.7	136.5	3.6

*Including RoRo

Sources: Port of Hamburg: http://www.hafen-hamburg.de/en/statistics; Port of Rotterdam: Port Statistics 2010–2011–2012; Port of Rotterdam: Facts and Figures about the Port; Port of Antwerp: https://www.portofantwerp.com/sites/portofantwerp/files/POA_Facts_and_Figures2018.pdf. All retrieved: 1 June 2019

The three of them did grow, but the amount of growth between 2012 and 2017 differs considerably! The development of Hamburg is especially striking, because of containers. It lags far behind Rotterdam and Antwerp. These figures do not show the brief timeframe in the early 1990s when Hamburg profited from the opening up of the east with the disintegration of the former Soviet Union and the fall of the Berlin Wall. For the long run however, that apparently was not enough to keep on track with Rotterdam and Antwerp. For Antwerp, container shipping and liquid bulk are responsible for its growth. Although Rotterdam was and is the largest by far, its growth in these five years has not been as spectacular as that of Antwerp. In fact, the increase is not even spectacular compared to Hamburg. The figures for breakbulk show a decline for Hamburg and Antwerp, but, in the end, this is comparing ports in terms of tonnage. Combining tonnage and added value makes a more interesting comparison to see what size and contribution means.

The picture presented in Table 8.10 is evidently biased by the effect of the tonnes of liquid bulk that pass through the port of Rotterdam, but as the discussion within the ports is often dimensioned in terms of the largest (based on tonnage), this perspective provides food for thought.

Table 8.10 Direct added value per metric tonne in 2017

	Rotterdam	Antwerp	Hamburg
VA (€bln)	18.0	11.5	12.6
Tonnes	467.4	214.2	136.5
VA/tonnes	0.04	0.05	0.09

Source: https://www.mobiliteitsraad.be/mora/thema/kerncijfers/vlaamse-havens/toegevoegde-waarde; /https://www.hafen-hamburg.de/en/statistics/seabornecargohandling. Retrieved: 17 January 2020); (Kuipers, 2018a)

A seaport as a location for industries has its advantages (Kuipers, 2018c) in terms of cost advantages, agglomeration economies, policy support, and the availability of large sites. For Hamburg, this last advantage (availability of large sites) is problematic, as discussed in section 8.5.2. So, the development of these maritime industrial development areas has been hampered within the port's area. The Hamburg monograph shows, however, that, for the city's wellbeing, this was overcome by the establishment of other activities – non-port based, that were even more profitable than the port business – that offset the importance of the position of the port itself.

Adding value is important for a port's region. It usually means activities for which more skills are required and where profits can be higher and activities are more location based. They need high investments (as for refineries, storage, and distribution companies). These investments are responsible for their being less footloose (Kreukels & Wever, 1998). Besides, a port city located further away from the port will presumably have inhabitants who are not employed by the port itself, so they especially benefit from activities that are a spillover from the port and that are generally more value-adding activities. Rotterdam performs poorly on this issue compared to Antwerp and Hamburg. In an OECD study dating back to 2010, the multipliers for demand for suppliers' services (backward linkages) were calculated for the ports in the Le Havre–Hamburg Range (+ two more) (Merk, 2013). Rotterdam scored 1.13, Antwerp 1.18, and Hamburg 1.79. Thus, every €1 spent in the port leads to 79 cents more for the suppliers to the Hamburg port cluster and to 19 cents for the suppliers to the Rotterdam port cluster. So, Hamburg has a greater impact on the economy than Rotterdam does: "Port of Rotterdam's role in employment certainly does not dominate the labour market anymore" (Kreukels & Wever, 1998, p. 22). Rotterdam is a typical example of a very large port in a small country, so the effects of its activities take place mainly abroad (Merk, 2013, p. 22). This is strongly confirmed by Kuipers (2018a) when he stresses that the growth of the port has a far stronger impact on the national economy than on the local economy of Rotterdam.

8.6.4 Economic: the port city

The cities of these three ports cope with similar problems regarding their population. All three of them have a diverse population of immigrants from non-European Countries, resulting in lower educational levels and lower incomes. There are, however, striking differences between these cities when income is taken as an indicator (see Table 8.11).

Because of differences in definitions used by the various statistical agencies, a better comparison can be made by looking more closely at the position of the city within the country by using the figures for other big cities. This creates the following overviews.

Table 8.11 Income in port cities (median 2018; per capita 2014)

Income	Rotterdam	Antwerp	Hamburg
Median 2018[a]	€ 34,700	€ 55,576	€ 50,751
Per capita 2014	€ 16,480	€ 19,490	€ 23,110

Sources: Rotterdam: https://www.cbs.nl/nl-nl/nieuws/2019/12/doorsnee-inkomen-werk-enden-al-10-jaar-vrijwel-constant; Antwerp: www.salaryexplorer.com/salary-survey.php?loc=172&loctype=3; Hamburg: https://www.point2 homes.com/US/Neighborhood/PA/ Hamburg-Town-Demographics.html. All retrieved 16 May 2019. Per capita figures: Zabrodzka (2015).
Note: a: The median income reflects the situation in a comparison better than, e.g., an average income does. It illustrates the wealth of the upper 50% in a better way, and for that it is interesting to see that the top 50% in Antwerp performs better than the top 50% in Hamburg. There is a four-year difference in these figures, but they still indicate this phenomenon.

The situation for Rotterdam does not look good, as the comparison with other big Dutch cities shows in Table 8.12.

These figures are particularly interesting because they also show the inequality within the cities. Rotterdam scores the lowest in income and the worst when it comes to inequality. Of the 40% of households with the lowest incomes according to the national situation, in Rotterdam 54.2% of households belong to that category; this is the highest. And conversely, of the 20% of households with the highest incomes according to the national situation, only 13.1% are in Rotterdam. In both rankings, they score the worst.

Table 8.12 Comparison income for the top 4 cities in The Netherlands 2016

	Average personal income per citizen (x € 1000)	40% households with lowest disposable income	20% households with highest disposable income
Rotterdam	€22,800	54.2%	13.1%
Amsterdam	€27,600	52.6%	16.4%
's-Gravenhage	€24,900	49.1%	16.8%
Utrecht	€26,300	49.0%	19.8%
The Netherlands	€24,700	40.0%	20.0%

Source: https://www.cbs.nl/nl-nl/maatwerk/2019/02/inkomen-per-gemeente-en-wijk-2016. Retrieved: 8 October 2019.

The position of Antwerp is slightly different from that of Rotterdam regarding its position in comparison within Belgium, as shown in Table 8.13. Antwerp has the typical income position of many big cities in countries: below the national average. Compared to the other big cities in Belgium however, its score is the best, reflecting its wealth stemming from port employment.

Table 8.13 Comparison incomes for the top 4 cities in Belgium 2016

	Average income per tax return	Median income per tax return	Average income per citizen
Belgium	€ 31,938	€ 23,773	€ 17,824
Antwerp	€ 28,209	€ 21,688	€ 15,718
Brussels	€ 25,260	€ 17,802	€ 12,475
Charleroi	€ 23,518	€ 18,694	€ 13,020
Liege	€ 25,149	€ 18,792	€ 14,503

Source: https://statbel.fgov.be/nl/themas/huishoudens/fiscale-inkomens#panel-13. Retrieved: 9 October 2019.

The situation for Hamburg is more positive, as Table 8.14 shows. Here too, Hamburg is compared to the other big cities in Germany. Especially interesting is the position compared to Bremen, the other large container port.

Table 8.14 Comparison income for the top 7 cities in Germany 2016

City	Disposable Income
Munich	€ 29,685
Stuttgart	€ 25,012
Düsseldorf	€ 24,882
Hamburg	€ 24,421
Frankfurt	€ 21,690
Bremen	€ 21,327
Berlin	€ 19,719

Source: https://de.statista.com/statistik/daten/studie/998971/umfrage/verfuegbares-einkommen-in-den-groessten-staedten-in-deutschland/. Retrieved: 9 October 2019.

The position of Hamburg is not surprising as it is the fourth richest city in Germany. The position of the city of Rotterdam as the location of the richest port is remarkable at first sight. It is not that remarkable when account is taken of the fact that the port workers live in the suburban areas of the city in places like Spijkenisse, Hoogvlet, Poortugaal, leaving a contingent of poorer people behind in the city. This is also reflected in the level of education, as Table 8.15 shows.

Table 8.15 Educational level in port cities

	Rotterdam	Antwerp	Hamburg
Primary	33%	18%	11.7%
Secondary	39%	45%	42.1%
Tertiary	28%	22%	46.2%
Unknown		15%	

Sources: Rotterdam: file:///C:/Users/Jos%20Vroomans/Downloads/Feitenkaart+Opleidingsniveau+2018-voorl.pdf; Antwerp: https://stadincijfers.antwerpen.be/?var=natcube; Hamburg: eurostat.ec.europa.eu/nui/submitViewTableAction.do. All retrieved 9 April 2020.

This shows clearly that education does help to improve incomes. The differences between Hamburg and the other two cities for the tertiary level are strong. The position of the secondary level might have a relationship with port labor, where middle level (technical and logistic) jobs are available. For Hamburg, the presence of a significant number of tertiary educational institutions and employment in high-level (theoretical and vocational) jobs is clearly shown. As the Sozialbericht of Hamburg states, having a good education indeed helps in getting better paid: “As the most important factor in respect to participation and by that in the end to achieve a middle or higher income, education and qualifications are the key. Compared to the other counties, the Hamburg people have a more than average higher level of education. Every second Hamburg citizen has a degree equal to or higher than a university of applied sciences (50% of the men, 49% of the women). Therefore, between 2005 and 2010, the share of people with a university entrance qualification has increased significantly."[49]

Looking at the degree of inequality within the port cities, one can see that the differences are very small. The Gini coefficient for Hamburg is 0.32[50], for Antwerp it is 0.29[51], and for Rotterdam it is 0.31 (reflecting the lowest inequality of the four big cities in The Netherlands).[52] Having an education that more or less guarantees a higher income, as is the situation in Hamburg, leads to higher inequality for those who are left behind in education. This is happening in all three cities, which have a class of people with jobs that pay well, but also have a number of citizens that are lacking good job opportunities because of their deprived social status and lack of education.

8.7 CONCLUDING PORT CITIES AND POLITICAL-ECONOMIC SYSTEMS

The subject of the thesis, how port-port city relationships helped to shape the configuration of the port, in terms not only of visibility, but also of presence, are dealt with in the next chapter. There, the results and the analysis of the interviews with the port representatives and the analysis of the annual reports and empirical literature regarding these three ports are presented. This brief historical overview was meant to show that the seeds of the outcome of the general dynamics as manifested in the present port situation, were sown in the past. In Chapter 5, three models of political-economic systems were presented. These three monographs have shown that the origins of these systems are still present and the foundations were laid in the past. These foundations can be seen as the building blocks of different political-

49 Sozialbericht der Freien und Hansestadt Hamburg, 2014: "Als wichtigster Faktor im Hinblick auf Erwerbsbeteiligung und damit letztendlich zur Erzielung mittlerer bis hoher Einkommen erweisen sich Bildung und Qualifikation. Im Bundesvergleich weist die Hamburger Bevölkerung einen überdurchschnittlich hohen Grad an schulischer Bildung auf. Jeder zweite Hamburger verfügt über die Hochschulreife (50 % der Männer; 49 % der Frauen). Zwischen 2005 und 2010 hat dabei der Anteil der Personen mit Hochschulreife an der Gesamtbevölkerung erheblich zugenommen."

50 Sozialbericht der Freien und Hansestadt Hamburg, 2014

51 OECD (2015), OECD Regional Statistics (database), http://dx.doi.org/10.1787/region-data-en

52 Source: EVR 2018; Economische verkenningen Rotterdam https://evr010.nl/inkomensverdeling-rotterdam/. Retrieved: 5 June 2019

economic systems. There is a Rhineland political-economic system in which Hamburg is embedded, (in VoC terms: the Coordinated Market Economy; for Rotterdam, there is an Anglo-Saxon one (in VoC terms: the Liberal Market Economy; and there is a Latin system for Antwerp (in VoC terms: The Latin Market Economy). Chapter 10 restates this based on the empirical data presented and inductively analyzed in Chapter 9.

The findings of these three monographs are used in Chapter 10 to compose the narrative of how the developments that took place in these ports formed the ports as they are today and how the present port actors evaluate them.