The Most Successful Trading Hub in Late Imperial Russia: Using Historical GIS to Map Riga as a Global Port City

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ABSTRACT

In the first decade of the twentieth century, Riga became imperial Russia's most successful trading hub in terms of sales volume. This concluded a development which began in the 1860s with the rapid expansion of Russia's railroad network, the rise of supplies of agricultural products, and the increase of Riga's trade contacts on a global scale. This article uses historical GIS to display the agglomeration of trade contacts on the supplier side, i.e. central Russia, and the rising demand in Western Europe, the Americas, and Australia. The article's GIS visualizations allow the study of Riga's development into a global trading hub and the city's increased industrialization. The article argues that the sharp increase of sales volume was due to two developments: Riga's successful expansion of exports, including new products such as eggs and butter, and a rise of imports due to the increased need of various raw materials for Riga's native industry. The article also uses GIS to demonstrate the variety of ethnic backgrounds of Riga's business owners, which included Baltic Germans, Jews, Latvians, Russians, and Poles. A micro-study of Riga's biggest industry at the time, the rubber-processing factory "Provodnik," concludes the argument underlining the incorporation of Riga into the global trade network prior to World War I.

KEYWORDS: Riga, port city, Imperial Russia, historical GIS, sales volume, industrialization, industries, railroad, Provodnik, World War I, Baltic Germans

Declaration on Possible Conflicts of Interest
The author has declared that no conflicts of interest exist.

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Introduction

Geographic Information Systems (GIS) is one of the digital methods that have become increasingly popular among historians in the last decade as part of "going digital."[1] Cartography has always been part of historical research, so one could argue that the visualization of research results on digital maps is merely a continuation of historical cartography, albeit in a new form. Yet, historical GIS is far more than visualizations—even if the visuals are a very strong asset of this new digital form of research. First of all, GIS allows for better spatio-temporal visualization than standard historical maps did, if one, for example, combines several digital maps on an interactive website or in rapid succession one after another to portray historical change. As Anne Knowles argues with regard to the use of historical GIS: "mapping data reveals dimensions of historical reality and change that no other mode of analysis can reveal."[2] Moreover, historical GIS can open up new research trajectories by combining the knowledge embedded in historical maps with digital tools. This allows us to tackle research problems in cases where the sheer number of data would have otherwise made a spatial and/or cartographic solution either impossible or extremely time-consuming.

As will be explored in this essay, historical GIS can be a powerful research tool for the right kind of project. The researcher applying historical GIS must, however, be aware that—apart from collecting all the necessary data—it also takes time to learn this new technology and rewards cannot be expected immediately.[3] Still, especially for economic and social historians who work with large statistical datasets, digital history can be very useful. I will demonstrate why I think my research profited immensely from the application of digital tools. I also seek to provide insights for researchers who are considering the application of digital methods.

I will be using my personal research on Riga's economic history as a case study. Riga is well suited for this kind of research due to the large amount of

[1] I would like to thank the BKM for the funding that enabled me to do the research for this project, and Prof. Dr. Anke Hilbrenner for hosting the project at the Department of History at the University of Göttingen. I would like to further thank the BKM, the DFG, the Nordost-Institut IKGN Lüneburg, and the University of Göttingen for their financial and organizational support of the conference "New Approaches in Central and East European History: The Digital and Spatial Turn" in Lüneburg, 7–9 November 2019, where I presented an earlier draft of this article. I also thank the participants of the conference for their constructive criticism and useful remarks.

[2] Anne Kelly Knowles: Introduction Historical GIS: The Spatial Turn in Social Science, in: Social Science History 24 (2000), 3, pp. 451–470, here p. 453.

[3] I am indebted to my research assistants Amadé Karnagel and Phillip Schroeder for helping me to clean the data and create the ArcGIS and QGIS maps enclosed in this article. I would also like to thank Ineta Lipša, Roberts Putnis and Guntis Vaveris for obtaining missing data from the Latvian State Historical Archive and the National Library of Latvia at a time when I could not travel to Riga myself.

statistical data that administrators and statisticians working for the Riga Bourse Committee (Rigasche Börsen-Comité) collected in the period before World War I. As a growing metropolis at the crossroads of Eastern and Western Europe, or, depending on one's viewpoint, right in the center of East Central Europe, Riga offers ample points of comparison with other trading cities in Europe in terms of size, relevance, and growth rates.[4] Today, Riga (Rīga)[5] is the capital of Latvia, but it is also a Baltic port city with roots stretching back to the Hanseatic League.[6] In the time period this article focuses on, from 1880 to 1914, Riga was one of the three major ports in the Russian Empire, in addition to Saint Petersburg (Sankt Peterburg) and Odessa (Odesa). Between 1901 and 1905 Riga became the port with the highest sales volume in the Russian Empire and it retained this position until 1914.[7] Before World War I, Riga's economic elite was made up primarily of Baltic German or Germanized merchants and entrepreneurs.[8]

This article draws its sources from a) archival documents, such as communication with trading partners left behind by the Riga Bourse Committee,[9] which was in charge of running the Riga port, and b) statistical reports of ex-

4 Riga's statisticians frequently referred to German cities for comparison, for example to Frankfurt am Main, see BRUNO VON SCHRENCK: Beiträge zur Statistik der Stadt Riga und ihrer Verwaltung, Riga 1909, p. 12.

5 Names for cities, rivers and other places are provided in the currently internationally used English form, e.g. Riga instead of Rīga. For Russian names academic transliterations are used, except in the case of commonly used variants such as Odessa (instead of Odesa). When first referred to, the historical, mostly German variant (or alternate transliteration) is put in parentheses.

6 For Riga's Hanseatic history see KEVIN O'CONNOR: The House of Hemp and Butter: A History of Old Riga, Ithaca—London 2019, pp. 70–84. For the development of Riga's trade from the sixteenth to eighteenth century see ELISABETH HARDER-GERSDORFF: Riga als Handelsmetropole des Ostseeraums in der Frühen Neuzeit, in: ILGVARS MISANS, HORST WERNICKE (eds.): Riga und der Ostseeraum: Von der Gründung 1201 bis in die Frühe Neuzeit, Marburg 2005, pp. 261–294.

7 For an overview of Riga's port data compared to other seaports in imperial Russia see BRUNO VON GERNET: Die Entwicklung des Rigaer Handels und Verkehrs im Laufe der letzten 50 Jahre bis zum Ausbruche des Weltkrieges, Jena 1919, p. 17, table 5.

8 For an overview of Riga's development into an economic and trading hub and industrialized city see ERWIN OBERLÄNDER (ed.): Riga: Portrait einer Vielvölkerstadt am Rande des Zarenreiches 1857–1914, Paderborn 2004, pp. 15–20; ULRIKE VON HIRSCHHAUSEN: Die Grenzen der Gemeinsamkeit: Deutsche, Letten, Russen und Juden in Riga 1860–1914, Göttingen 2006, pp. 67–83; ANDERS HENRIKSSON: The Tsar's Loyal Germans: The Riga German Community, Social Change, and the Nationality Question, 1855–1905, Boulder et al. 1983, pp. 65–81, and WILHELM LENZ: Die Entwicklung Rigas zur Großstadt, Kitzingen a. M. 1954.

9 For the Riga Bourse Committee see HERMANN VON STEIN: Der Rigasche Börsen-Comité in den Jahren 1866–1872, Riga 1873, pp. 5–9. See also KATJA WEZEL: Transcending Boundaries: Riga's Baltic German Entrepreneurs in an Era of Nationalism, Revolution and War, in: Journal of Baltic Studies 48 (2017), 1, pp. 39–54, here pp. 40–42.

ports and imports by sea as well as trade by railway, including trade volumes per country and location.[10] In addition, especially in the latter part of this article, files from Riga's companies[11] are used to add qualitative aspects to the quantitative analysis based on large datasets.

What first drew my attention when starting this project were the meticulous listings of trade links in Riga's historical statistics, which mention over 800 different locations, and the numbers of goods exported and imported from various ports. The detailed lists reveal that, in the 12 years before World War I, Riga was not merely a port with well-established European trade links, but was also well connected within the global commodity exchange, as a supplier of timber and agricultural products and as a buyer of raw materials and machineries. For instance, by 1911 Riga had achieved the position of the top commercial center for timber worldwide.[12]

The study of imports and exports provides a glimpse into Riga's expansion: its trading network expanded not only in scale but also in terms of the range of products. Riga became a major supplier of butter and eggs, especially to the United Kingdom. The spatial component is crucial for understanding why Riga—and not Saint Petersburg or Odessa—became the port with the highest sales volume in the Russian Empire in the decade before World War I. Thus, this article combines spatial and digital history with traditional archival research. What made this project well suited for digital methods was the large amount of data that needed to be to organized. Applying digital methods helped me achieve this and the visualizations provided by ArcGIS and QGIS allowed me to draw conclusions that I might not have reached otherwise. ArcGIS is a commercial program developed by ESRI (Environmental Systems Research Institute) that specializes in digital cartography and Geographic Information System (GIS) software. QGIS is the open-source version.

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10 Beiträge zur Statistik des Rigaschen Handels, ed. by Handelsstatistische Section des Rigaschen Börsen-Comités (1866–1914), Hamburg—Riga 1867–1915.

11 The Historical State Archive of Latvia in Riga only holds records for a fraction of the companies that existed in Riga before World War I. Due to the war and the evacuation of industries, many company records got lost entirely or are incomplete. I have studied the records of three metallurgical companies, one rubber company, two tobacco companies, one chemical company, one company in the food sector, and two sawmills. For this article I included materials of the largest factory in Riga before World War I, the rubber factory "Provodnik."

12 LENZ, p. 65.

1 Primary Sources and Agency: The Riga Bourse Committee

The statistical data collected by the Riga Bourse Committee, an organization that had the means to employ its own statisticians, gives insight into the sheer number and wide-ranging business contacts that the Riga port had on a global scale.[13] In the story of Riga's economic success, the Riga Bourse Committee is the most important agent. It was founded in 1816 as the representative of the Bourse Association (Börsenverein) in order to "maintain and develop Riga's trade" (paragraph 9), and its 15 members were voted into office by the general assembly of the Riga mercantile community.[14] It often worked together with the city administration but it was financially independent. The Riga Bourse Committee received one quarter of the *Bewilligungsgelder* (taxes and customs) paid by incoming and outgoing ships—and in return it was responsible for maintaining the port.[15] While frictions existed, the Riga city administration and the Bourse Committee had a good working relationship.[16] This was also eased by close personal contacts. It was not uncommon for one family member to serve on the city council, while the son, brother, or uncle served in the Bourse Committee.[17]

Until World War I, German speakers dominated the Bourse Committee. Yet by 1913, the importance of Baltic Germans in the Riga business world did not match their share of the population any longer. Whereas in 1867 the majority of citizens in Riga (42 percent) had still been German speakers, this percentage dwindled over the following 46 years. At the same time, it needs to be taken into account that ethnicity, nationality, and language were not always clear-cut and also did not necessarily correspond to each other in the late nineteenth century, especially not in a borderland area such as the Baltic provinces that several ethnic groups called their home.[18] Well into the nineteenth century, it was common for other ethnic groups to climb the social ladder by "becoming German" and by integrating into Baltic German society

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13 Beiträge zur Statistik des Rigaschen Handels.

14 Statut der Rigaer Börse vom 13. December 1866, in: Latvijas Valsts Vēstures Arhīvs (LVVA) [Latvian State Historical Archive], Riga, sign. 3143, vol. 1, no. 11, pp. 16–17.

15 GUSTAV D. HERNMARCK: Erinnerungen: Aus dem öffentlichen Leben eines Rigaschen Kaufmanns (1849–1869), Berlin 1899, p. 109. See also: Allerhöchster Befehl vom 10. April 1867: Patent der Livländischen Gouv.-Regierung Nr. 104, in: LVVA, sign. 3143, vol. 1, no. 11, p. 216.

16 HERNMARCK, p. 18.

17 For instance, James Armitstead was a long-serving member and president of the Bourse Committee while his nephew George Armitstead became a member of the city council and later served as Riga's mayor, 1901–1912.

18 For a more thorough discussion of this argument see KARSTEN BRÜGGEMANN, KATJA WEZEL: Nationally Indifferent or Ardent Nationalists? On the Options of Being German in Russia's Baltic Provinces 1905–17, in: Kritika: Explorations in Russian and Eurasian History 20 (2019), 1, pp. 39–62.

through German education and marriage.[19] By 1881, Latvians made up the majority of citizens in Riga. With 32.87 percent (per nationality) they had just overtaken the number of Germans in the 1881 census.[20] Yet 10.34 per cent of those who had declared their nationality to be Latvian still gave German as their *übliche Sprache* (main language), reducing the number of Latvian speakers to 28.91 percent of the overall population of 169,320 in 1881.[21] With the growing number of Latvians flooding into the city and finding work in Riga's factories, the population peaked at 482,115 in 1913.[22] In this process the share of Latvian speakers as well as those who declared their nationality to be Latvian grew. By 1913, Latvians made up 40.7 percent of Riga's population, while Germans had become a minority with 14.1 percent.[23] The four other largest ethnic groups in 1913 were Russians (18.8 percent), Poles (9.7 percent), Lithuanians (7.1 percent), and Jews (6.9 percent). [24]

It is quite extraordinary that the statute of the Riga Bourse Committee not only allowed but insisted that one of its members had to be a *handelstreibender Ausländer* (foreign merchant).[25] This allowed foreign merchants and entrepreneurs to quickly take on an active role in city affairs. Building on this openness, foreigners who settled down in Riga could reach the highest positions in Riga's institutions. Two good examples are Gustav Hernmarck and James Armitstead. Born in Sweden, Hernmarck took on Russian citizenship in 1848 and became the president of the Riga Bourse Committee in 1852.[26] Armitstead's father was a British merchant, who settled down in Riga at the beginning of the nineteenth century and quickly integrated into Riga's German-speaking elite, while James, born in Riga in 1826, became the presi-

19 Cf. LENZ, p. 6.

20 FR. V. JUNG-STILLING, W. ANDERS: Ergebnisse der baltischen Volkszählung vom 29. December 1881. Theil 1: Ergebnisse der livländischen Volkszählung, 1. Band: Die Zählung in Riga und im Rigaischen Patrimonialgebiet, Riga 1883, pp. 52–53.

21 Ibidem.

22 Akten des Rigaer Stadtrats, Ergebnisse der Volkszählung vom 5.12.1913, in: LVVA, sign. 2791, vol. 1, no. 165, p. 13.

23 MARK R. HATLIE: Riga at War, 1914–1919: War and Wartime Experience in a Multi-Ethnic Metropolis, Marburg 2014, table 2, p. 323.

24 Since Riga had not belonged to the Pale of Settlement, the number of Jews in Riga had always been very limited. Only in 1841 were Jews officially allowed to register in Riga. Their number grew after the liberalization policies of Alexander II, thus exactly during the peak of Riga's industrialization. See SVETLANA BOGOJAVLENSKA: Die jüdische Gesellschaft in Kurland und Riga, 1795–1915, Paderborn 2012, pp. 135–136.

25 See Paragraph 15, Statut der Rigaer Börse vom 13. December 1866, in: LVVA, sign. 3143, vol. 1, no. 11, p. 17.

26 HERNMARCK, p. 1.

dent of the Riga Bourse Committee in 1868.[27] On his death in 1879, Armitstead left two ninths of his fortune (about 500,000 Roubels) to the city of Riga, stipulating in his will that the money should be used to "assist residents in need."[28] The rules of the Bourse Statute also specified that two members should have commercial ties to central (i.e. Russian) *guberniias* to ensure that the interests of Riga's trading partners within the Russian Empire were taken into account.[29] Names of members and internal correspondence suggest that all of the main ethnic groups in Riga were represented with at least one member.[30]

One of Riga's spatial advantages was its mostly ice-free port. In some years, the winter port, located next to the mouth of the Daugava (Düna, Dvina) where it flowed into the Baltic Sea, didn't freeze at all. If there was ice, it usually only stayed for 1–3 months and not 4–5 as was often the case with Saint Petersburg. By 1907, the Riga Bourse Committee owned an ice-breaker to keep the port open even when the mouth of the Daugava started to freeze.[31] It also acquired several floating cranes as well as power shovels to dredge the Riga port on a regular basis, ensuring it did not silt up.[32] The Bourse Committee was thus actively engaged in several undertakings that would further not only the port's but also the city's development and its economic well-being.

Four examples highlight how the work of the Riga Bourse Committee shaped technological progress and economic advancement. The first telegraph line in the Russian Empire, from the Riga city center to the port in Bolderaja (Bolderaa), was financed and built by the Riga Bourse Committee in 1852 to ensure an immediate information flow about incoming ships to the bourse.[33]

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27 On the Armitstead family see the memories of George Armitstead's granddaughter MAUD RADCLIFFE: Bilder meiner Kindheit, in: Jahrbuch des baltischen Deutschtums (1996), pp. 9–20, here p. 9; Rigasche Zeitung from 1868-03-12.

28 Vorlagen für die Stadtverordnetenversammlung zu Riga, 1883, Nr. 4, Verwendung der Armitsteadschen Erbschaft, in: LVVA, sign. 2724, vol. 1, no. 14, p. 1.

29 See paragraph 15, Statut der Rigaer Börse vom 13. December 1866, in: LVVA, sign. 3143, vol. 1, no. 11, p. 17.

30 In the interwar period, Latvians started to play a larger role and Baltic German dominance diminished. However, the main ethnic groups were represented in the interwar Bourse Committee and its leadership made sure it stayed that way. In 1927, when the Jewish representative of the Riga Bourse Committee Samuel Sachs died, the president of the Bourse Committee contacted another representative of Riga's Jewish mercantile community, Leon Levstein, and asked if he would be willing to succeed Sachs. See: Nachricht an Leon Levstein, in: LVVA, sign. 3143, vol. 1, no. 27, p. 172.

31 For the purchase of the ice-breaker see ARNOLD PAPST: Hafen von Riga, Riga 1908, p. 22.

32 Brief der Ingenieurabteilung an den Rigaer Börsenkomitee über fehlende, während des Krieges verlustig gegangene Gerätschaften, 1920-12-01, in: LVVA, sign. 3143, vol. 1, no. 1621, pp. 99–102.

33 HERNMARCK, p. 10.

Riga's first railroad, the "Riga-Dünaburg Railroad Corporation," was initially a private enterprise planned between 1853 and 1858 by the president of the Riga Bourse Committee, Gustav Hernmarck, who raised the capital from British and Baltic German investors.[34] The railroad opened in 1861 and, by 1871, Riga had a railroad link to Volgograd (Tsaritsyn) and hence to Russia's most fertile region. To aid in the shipping of grain, the Riga Bourse Committee also funded a grain elevator in Andrejsala (Andreasholm) in 1893.[35] Finally, the Riga Bourse Committee co-financed the opening of Riga's first university, the Polytechnical Institute (Polytechnikum zu Riga), founded in 1861. Members of the Bourse Committee had been on the commission that negotiated the founding of the university with Russian state authorities.[36] This technical university, the first in the Russian Empire, modeled after the Federal Swiss Technical University in Zurich (ETH Zürich) and the Polytechnical Institutes in Karlsruhe and Hanover, opened its doors to students in 1862.[37] The graduates of its six faculties—Architecture, Engineering, Mechanics, Chemistry, Agriculture, and Commerce—would become the backbone of Riga's industry and were employed in leading positions in the city's factories, enterprises, and trading houses.[38]

2 Riga as a Global Trading Hub

The two main questions that initially sparked this research project were a) how did Riga become the most successful port city in imperial Russia and b) what shaped the expansion of the trade network? Since these were at least partially spatial questions, GIS technology opened a new research trajectory. Figure 1 shows Riga's trading network in 1883. Comparing it to Figure 2, which visualizes Riga's trading partners at its peak in 1913, it becomes obvious that Riga's trade expanded greatly, first within Europe and Eurasia but later also on a global scale. Within 30 years, Riga opened new trading routes with the Americas and Australia. The first trade link to Australia was estab-

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34 HERNMARCK, p. 30. For the Riga-Dünaburg railroad see also HENRIKSSON, The Tsar's Loyal Germans, p. 70.

35 Anschreiben und Kostenvoranschlag der Firma Unruh und Liebig in Leipzig an die Commission für den Erbau eines Elevators auf dem Andreasholm, 1893-08-08, in: LVVA, sign. 3143, vol. 1, no. 1621, p. I–II.

36 ALIDA ZIGMUNDE: Die Technische Universität Riga zur Zeit ihrer Deutsch-Baltischen Anfänge, in: Baltische Ahnen- und Stammtafeln 50 (2008), pp. 52–64, here p. 53.

37 Its first director, Professor Dr. Ernst Nauck, was a physicist from Germany, see: JĀNIS STRADIŅŠ: Das alte Rigasche Polytechnikum (1862–1918): Seine Bedeutung für das Baltikum und die internationale Welt, in: Deutsch-Baltisches Jahrbuch 61 (2013), pp. 59–65, here p. 60.

38 STEVEN A. MANSBACH: Riga's Capital Modernism, Leipzig 2013, p. 15.

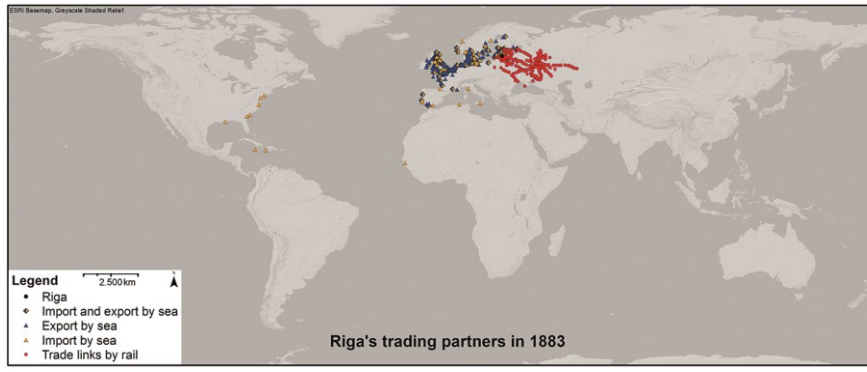

Fig. 1: ArcGIS Map of Riga's trading partners worldwide in 1883 (map by Amadé Karnagel and Katja Wezel)

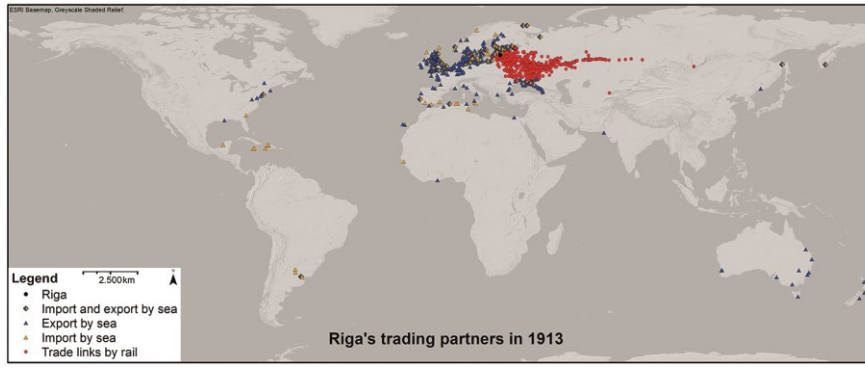

Fig. 2: ArcGIS Map of Riga's trading partners worldwide in 1913 (map by Amadé Karnagel and Katja Wezel)

lished in 1911. By 1913, the Riga port was regularly shipping timber products with an annual value of 120,000 roubles to several cities in Australia.[39]

Riga also profited greatly from the enlargement of the Russian railway network and its extension to Siberia, visualized in the above maps (Figures 1 and 2) as red points. The red point cluster symbolizing the train connections becomes increasingly thicker and denser. Dating back to the era of the Hanseatic League, Riga had exported agricultural products from the Baltic provinces such as flax, hemp, timber, and grain.[40] The extension of the rail network to the entire Russian hinterland allowed Riga to enhance its position as

[39] Beiträge zur Statistik des Rigaschen Handels: Jahrgang 1913, Abteilung Rigas Handelsverkehr auf den Wasserwegen, Riga 1914, p. 100.

[40] From the sixteenth to the eighteenth century, Riga had been the most important emporium in the Baltic Sea for flax and hemp, followed by timber products. See HARDER-GERSDORFF, p. 291.

a trading hub for agricultural products from the Russian Empire to Western Europe, with an expansion both in the quantity and range of products. Economic considerations (besides military ones) had played the crucial role in the construction of imperial Russia's railway network.[41] Riga clearly profited from the development of this railway network and used the new means of transportation extensively to export Russia's agricultural products. New products from the hinterland, especially perishable items such as eggs, butter, and poultry, were added to the traditional agricultural product range. For a long time Riga's main trading partner had been Great Britain. Yet, between 1881 and 1913 the value of exports to Great Britain more than tripled[42] while imports increased sevenfold.[43]

Table 1: Major trading partners and value of exports in roubles 1881–1913[44]

Country	**1881–1885**	**1886–1890**	**1891–1895**	**1896–1900**	**1901–1905**	**1906–1910**	**1913**
Great Britain	26,478,404	24,785,011	23,153,869	28,177,738	48,109,435	64,037,848	87,165,521
Germany	7,358,323	6,267,196	7,797,648	12,203,126	27,748,362	31,661,312	43,172,045
Belgium	6,583,859	6,574,994	7,669,474	10,518,591	13,123,031	21,691,469	30,921,628
France	6,859,417	5,702,821	5,793,076	8,559,681	10,583,700	14,675,519	14,150,255
Netherlands	4,661,726	4,039,295	3,347,517	6,075,282	4,219,729	9,044,218	14,894,571
America	2,590	6,423	0	1,376	344,136	9,821,663	21,825,688
Exports Overall	**56,692,923**	**53,213,961**	**51,233,451**	**70,148,655**	**110,716,583**	**157,534,863**	**224,870,564**

41 FRITHJOF BENJAMIN SCHENK: Russlands Fahrt in die Moderne: Mobilität und Sozialer Raum im Eisenbahnzeitalter, Stuttgart 2014, pp. 55, 62.

42 Beiträge zur Statistik des Rigaschen Handels: Jahrgang 1914, Abteilung Rigas Handelsverkehr auf den Wasserwegen, Riga 1915, p. XIII.

43 Ibidem, p. XII.

44 Trading statistics were usually collected over a period of five years. The numbers provided are average annual numbers in a five-year period, with the exception of 1913, which was the last year when normal trade was possible before the closing of the port at the beginning of World War I. The best years in terms of trade volume were 1911, 1912 and 1913. See ibidem, p. XIII, and: Beiträge zur Statistik des Rigaschen Handels: Jahrgang 1900, Abteilung Rigas Handelsverkehr auf den Wasserwegen, Riga 1901, p. IX.

Table 2: Major trading partners and value of imports in roubles 1881–1913[45]

Country	1881–1885	1886–1890	1891–1895	1896–1900	1901–1905	1906–1910	1913
Great Britain	12,624,361	8,704,067	10,527,450	21,208,242	40,786,319	48,253,525	79,726,468
Germany	7,908,456	6,410,554	7,300,282	18,567,950	29,693,358	42,730,271	61,959,990
Belgium	1,588,905	1,576,043	3,034,665	6,579,465	3,088,991	4,120,933	5,200,127
France	957,540	503,765	324,078	214,558	178,923	325,548	7,660
Netherlands	444,741	311,412	171,217	1,512,818	3,361,981	4,742,658	10,432,133
America	760,063	1,216,786	1,194,853	1,585,628	1,627,489	2,356,741	3,842,735
Imports Overall	**27,442,544**	**21,139,758**	**25,945,677**	**53,219,369**	**85,089,265**	**113,954,545**	**184,499,310**

As the tables above show, in the period 1881 to 1913 exports quadrupled overall, while imports increased more than sixfold. The increase in imports can be explained by the large number of resources needed for Riga's industrialization, which gained speed especially in the late 1890s. This resulted in an increasingly even trade balance, something that Riga had never achieved in its long history, as exports had always and by far exceeded imports. In the late eighteenth century, exports had been four times as high as imports, which meant that many ships entered the Riga port carrying only ballast and no goods on board.[46] While Riga was still an export-based port in the 1870s and 1880s, imports caught up in the late 1890s.[47] This had a decisive impact on Riga's trade balance and the financial success of the port.

Riga's trading network not only expanded but also intensified with additional trade connections along existing trade routes, for instance, trade links with cities in the German Empire. While Russia and Germany were engaged in a trade and customs war until 1893,[48] the situation improved with the Russian-German trade treaty of 1894, which was extended by another ten years with the supplementary contract of 1904.[49] The 1894 treaty resulted in a sixfold increase in exports to the German Empire between 1895 and 1913, while

45 Ibidem, p. VIII, and Beiträge zur Statistik des Rigaschen Handels: Jahrgang 1914, p. XII.

46 HARDER-GERSDORFF, p. 280.

47 LENZ, p. 15.

48 For the effects of the customs war on the Riga port, see ARVIS POPE: Rīgas Osta Deviņos Gadsimtos [The Port of Riga in Nine Centuries], Riga 2000, p. 147.

49 Dogovor' o torgovle i moreplavanii mezhdu Rossiiu i Germaniiu [Treaty of Trade and Seafaring between Russia and Germany], 1894-01-29/1894-02-10, in: Arkhiv vneshnei politiki Rossiiskoi Imperii [Archive of Foreign Politics of the Russian Empire], Moscow, sign. I-20, vol. 28, no. 168a.

imports rose eight times in the same time period.[50] By 1908, Riga had a fast steamship connection with Hamburg scheduled three times a week.[51]

Technological innovation and progress were pillars for Riga's expanding trade network: Since Great Britain was the main consumer of eggs and butter, which came from the Russian Empire and were transported via the Riga port, British industrialists financed a cold store in Riga's port on the island of Andrejsala.[52] In 1901, the Riga based Baltic German shipping company "Helmsing & Grimm" purchased three steamers fitted with refrigerating equipment and established a fast steamship connection to London.[53] Other fast steamer connections to Hull and Leith (Edinburgh) were added later. These steamers transported perishable items from Russia and the Baltics to British consumers. A train from the station Ob' (Ob) in the Novosibirsk Oblast' took 15 days to reach Riga and another four days to get from Riga to London by steamer.[54] By 1906, Riga handled 59.5 percent of Russia's butter export, most of which was exported to Great Britain.[55] Similarly, the export of eggs multiplied by seven between 1895 and 1906 and by 1906 Riga was exporting 40.1 percent of Russia's eggs.[56]

Fig. 3: ArcGIS map of Riga's trade with eggs in 1913 (map by Amadé Karnagel and Katja Wezel)

50 The treaty did not have only positive impacts for the Riga port; a negative side effect was that exporting grain became less profitable for Riga since Russia and Germany agreed to harmonize their tariffs, resulting in more competition from Germany's Baltic ports especially in the grain sector, see LENZ, p. 35.

51 PAPST, p. 12.

52 Ibidem, p. 37.

53 Report on the establishment of a special line of fast steamers between Riga and London in connection with the Siberian butter trade, 1901-05-01, in: The National Archives London, Foreign Office Records (FO), sign. 65, no. 1633, p. 248.

54 Ibidem, pp. 249–250. The other stations along the route from Siberia to Riga were Omsk, Tatarskaia, Petropavlovsk and Kurgan.

55 BRUNO von SCHRENK: Beiträge zur Statistik der Stadt Riga und ihrer Verwaltung, Riga 1909, p. 143.

56 Ibidem.

As Figure 3 shows, Riga gained several new trading partners in the period 1903 to 1913 (the new trading partners are marked in italics). While Great Britain was the main destination for the new perishable items shipped through the Riga port, butter and eggs were also exported in large quantities to the German Empire. Riga's sea trade profited from the extension of German waterways due to the construction of canals such as the Kaiser Wilhelm Canal (today: Nord-Ostsee-Kanal) linking the Baltic Sea to the North Sea in 1895, the Elbe-Lübeck Canal linking the Baltic Sea to the Elbe river in 1900, and the Mittelland Canal linking the Elbe to the rivers Weser, Ems, and Rhine (Rhein) in 1906.[57] These canals, in combination with new and faster steamships, facilitated the export of perishable goods to German cities like Magdeburg on the river Elbe, or Cologne on the Rhine.[58] The Kaiser Wilhelm Canal was also used by the steamer line from Riga to London and other British ports, shortening the journey.

The expansion of the Russian railroad network, such as the construction of the Trans-Siberian railroad, and the invention of refrigerated railroad cars made transport of perishables from Asian Russia possible. The easternmost train station on Figure 3 is Cheliabinsk'. It is located east of the Ural Mountains, which separate Europe and Asia. Riga was able to make full use of its advantageous location on the Baltic Sea and its railroad connections to the Eurasian hinterland by the beginning of the twentieth century. In 1913, 18.2 percent of Russia's exports overall—in terms of value—passed through the Riga port.[59] Its geographic position and long-standing mercantile connections made it the perfect trading hub between Western Europe's most advanced economic regions on the one hand and the Russian hinterland on the other hand. The latter was in need of resources and machinery for its industrialization while offering sought-after agricultural products to feed the growing populations in British and German industrial hot spots. Riga's main rival, the port of Odessa, was clearly not on the direct route between the Russian hinterland and Western Europe's most industrialized centers. Railroad connections and geography seemed to favor Riga, which explains why Odessa lost its position as Russia's main port.

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57 For the importance of waterways for shortening trade routes and the Kaiser Wilhelm Canal see DIRK VAN LAAK: Alles im Fluss: Die Lebensadern unserer Gesellschaft—Geschichte und Zukunft der Infrastruktur, Bonn 2019, pp. 37–38.

58 Beiträge zur Statistik des Rigaschen Handels: Jahrgang 1913, p. 87.

59 For comparison, 9.6 percent of Russian exports went through Saint Petersburg and Kronstadt and 7.1 percent through the port of Odessa in 1913. The value of Odessa's exports had not decreased in numbers but rather stayed on the same level, while Riga's export numbers rose significantly. See GERNET, p. 19.

3 Riga as an Industrial Center for the Baltic Provinces

> "Riga is an important center of commerce and daily growing, and since I came to the town, I have watched its progress and endeavored to make myself acquainted with everything that might be of service to our merchants and manufactures at home and it is astonishing what large correspondence has developed with British and Colonial firms and traders. For me to leave the place under these circumstances would feel [to] be a possible mistake."[60]

When British Consul Arthur Woodhouse wrote these lines in 1903, he had been running the Riga Consulate for eight years. The Riga-Britain trade volume had not yet reached its peak, but, based on his local and regional knowledge, Woodhouse rightly anticipated that British trade with Russia through the Riga port would grow further in the next decade. He believed Riga to be of greater importance for British interests than the capital Saint Petersburg. The same letter went as far as to suggest that Riga be made the seat of the British General Consulate in Russia and that he run British affairs for the whole country through Riga.[61] While this did not happen, the suggestion alone is extraordinary. It shows that Riga was in a position to outperform the capital Saint Petersburg in terms of business interests at the beginning of the twentieth century from the point of view of a British diplomat.

The correspondence of the British Consulate offers crucial insights, not only into the increase of agricultural exports from Riga to Britain but also into Riga's industrial expansion and opportunities for British industrialists. New factories led to increased imports of raw materials. Riga's industry ran primarily on British coal. Due to high freight costs for rail transport, it was cheaper to import British coal by ship than to transport Russian or Polish coal to Riga by rail.[62] Moreover, a number of British industrialists set up their businesses in Riga, especially in the textile industry. Five of Riga's largest companies in 1901 were entirely controlled by British owners and several other multi-national companies had British investors. The largest company controlled by British investors was the Sassenhof Cotton Spinning and Weaving Corporation founded in 1895, which was employing 1,690 workers by 1913 and had an annual turnover of 2.2 million roubles.[63]

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60 Arthur Woodhouse, British Consul in Riga, in his answer to Sir Eric Edward Barrington, rejecting the promotion to General Consul in Saint Petersburg, 1903-09-10, in: FO, sign. 65, no. 1672, p. 176.

61 Ibidem, p. 177.

62 LENZ, p. 35.

63 Rigaer Fabrikantenverein, Rigaer Fabriken—Bestand und Umfang 1913, in: LVVA, sign. 2765, vol. 1, no. 84, pp. 11–26, here p. 18.

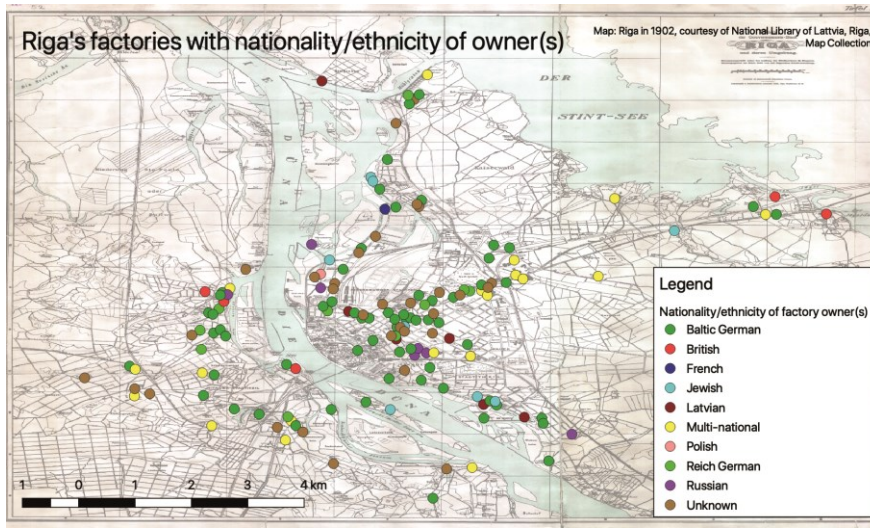

Fig. 4: QGIS Map of Riga's 152 largest industries in 1901 by owner's ethnicity/ nationality (map by Katja Wezel)

Figure 4 shows Riga's 152 largest companies—in terms of numbers of employees—in 1901, visualizing the location and the nationality or ethnicity of the owners or main investors.[64] While it is obvious that Baltic Germans owned the majority of enterprises in Riga at the time, the map also demonstrates that the nationality and ethnicity of owners overall was rather diverse. By 1901, Riga had become a location which attracted considerable foreign investments and was regarded as a good entry point into the Russian market.

A report by the German merchant S. Marx to the Prussian Ministry of Trade and Industry also stresses this point. Marx, who travelled from Gdańsk (Danzig) to Riga, Helsinki (Helsingfors), Saint Petersburg, and Moscow in 1897, painted a very positive picture of Russia's favorable business conditions. He wrote "the Russian government is trying to support this [economic] development with all means. It enables industrialists, no matter what their nationality, to found new factories and smooths the path for new developments."[65] As long as an entrepreneur was willing to bring business to Russia and set up his company within the Russian Empire, the Russian government supported these endeavors.

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64 These 152 largest companies are listed in a publication produced on the occasion of Riga's 700th anniversary in 1901, which was celebrated with an industrial exhibition, see WILHELM HELD (ed.): Führer durch das industrielle Riga, herausgegeben zur Jubiläumsausstellung 1901, Riga 1901.

65 Bericht von S. Marx aus Danzig über seine Reise nach Russland, 1897-10-22, in: Geheimes Staatsarchiv Preußischer Kulturbesitz, Berlin (GStA), I HA, rep. 120 C XIII 6a, no. 27, vol. 61, pp. 36–52, here p. 36.

Ivan Alekseevich Vyshnegradskii, Russian Minister of Finance between 1887 and 1892, started the policy of inviting foreign investors into Russia, and his successor Sergei Iulevich Witte continued these policies.[66] Witte, who has long been regarded as chief architect of Imperial Russia's industrialization, further facilitated foreign investments both in private companies and state enterprises. He also pushed for the development of a native Russian metallurgical industry and increased customs duties for iron products.[67] At the same time, the introduction of the gold standard by Witte in 1892 stabilized the Russian rouble and further increased the likelihood of foreign investments in Russian companies. The Riga Bourse Committee maintained a close relationship with the Finance Ministry and made sure that Riga's interests were heard in Saint Petersburg. It employed a full-time representative in Saint Petersburg, who kept his superiors in Riga informed about plans, regulations, and laws of the government, discussions in the state council as well as rumors circulating in the capital by sending regular reports to the Riga Bourse Committee, often on a daily basis.[68]

While French investments were most crucial for Russia's industrialization overall, Riga's industry profited most significantly from Reich German investors, especially industrialists from the most industrialized western parts of Germany.[69] It is important to distinguish between Baltic German and Reich German investors in the Riga context. Baltic Germans were culturally part of the "German-speaking world" and had frequent exchanges with their counterparts in the German Empire. Yet, they were also Russian subjects and held a Russian passport. When Russian nationalism soared during the reign of Alexander III and Nicholas II, Russian newspapers increasingly attacked Baltic Germans and their close connections to the German Empire and the German world, failing to differentiate between a *political* and *cultural* German identity. Trade wars and political differences between the German and the Russian Empire also increased in the late 1880s and early 1890s and made business transactions with German investors and banks more difficult.

In this situation, it was important for Baltic Germans to operate their own banks. The Riga Bourse Committee had already initiated the founding of its own bank in 1862. The Riga mercantile community voted for the first board of directors of the Riga Bourse Bank (Rigaer Börsenbank) at its general as-

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66 JENNIFER SIEGEL: For Peace and Money: French and British Finance in the Service of Tsars and Commissars, Oxford—New York 2014, pp. 2–3.

67 See German complaints about Russian customs, in: GStA, I HA, rep. 120 C XIII 6a, no. 27, vol. 68, p. 184.

68 See for instance the correspondence about the commission of a painting for Sergei Witte by Constantin von Huebbenet to the Riga Bourse Committee, 1901-07-10, in: LVVA, sign. 3143, vol. 1, no. 366, p. 21.

69 For French capital in Russia overall see SIEGEL, p. 2. For investments in Riga see: Bericht von S. Marx aus Danzig über seine Reise nach Russland, p. 38.

sembly on 24 September 1863 and the bank opened for business in 1864.[70] The Riga Bourse Bank not only managed the assets of the Bourse Committee and financed several of the enterprises and institutions that the Riga Bourse Committee was involved in;[71] it also played an important role in Riga's industrialization, which gained momentum in the 1870s, 1880s, and especially the 1890s. While foreign investments were crucial for Riga's industry, the Bourse Bank also enabled local industrialists to start businesses on their own.

4 Using GIS to Analyze Location Economies of Riga's Factories

Making use of spatio-temporality on a georeferenced GIS map while displaying the location of Riga's largest industries as well as the date when they were founded, the map below demonstrates how the city attracted a wide range of new industries within a relatively short time span. The majority of new factories and businesses were founded in the 1880s and 1890s.

Riga's most thriving industries, see Figure 6, were the metallurgical, iron, and machinery producing factories (in dark red), followed by chemical, rubber, and petroleum industries (in violet) as well as sawmills and wood processing factories (in green).

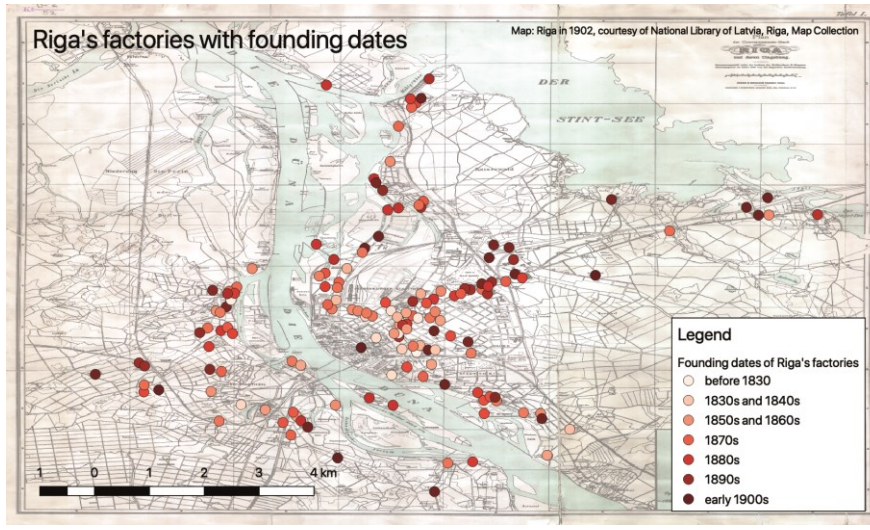

Fig. 5: QGIS map of Riga's 152 largest industries in 1901 by founding year (map by Katja Wezel)

70 Eugen Stieda: Die Rigaer Börsenbank 1864–1914: Ein Bild ihres Werdens und ihrer Wirksamkeit im Laufe eines halben Jahrhunderts, Riga 1914, pp. 21–23.

71 See for example the letter to the Riga Bourse Committee, 1910-06-09, regarding a loan for the Riga Polytechnical Institute, in: LVVA, sign. 3143, vol. 1, no. 800, p. 36.

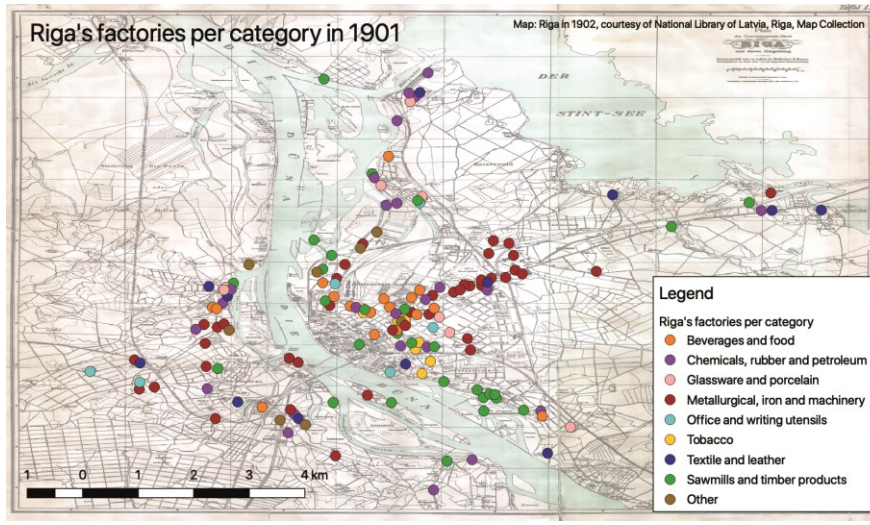

Fig. 6: QGIS map of Riga's 152 largest industries in 1901 per product category (map by Katja Wezel)

Factory centers shapefiles :: Features Total: 152, Filtered: 152, Selected: 0

	ID	Factory	Address	Type	Ethnic	xcoord	ycoord	date
130	MT_38	Schwarzhoff Machinery	Alexanderstr. 135-139	MT	Unknown	24.14198982...	56.9655936...	1879
131	MT_39	Sellier & Bellot	Kalnezeemsche Str. 96	MT	Multi-national	24.0471535...	56.9362215...	1883
132	WP_19	Sengbusch & Co Cork	Ritterstr. 11	WP	Baltic German	24.12560371...	56.9599024...	1855
133	MT_21	Sirius Machine Parts Corp.	Bickernsche Str. 40	MT	Multi-national	24.1822562...	56.9710663...	1900
134	MT_41	Skuye Machinery	Schiffsstr. 21	MT	British	24.09410313...	56.94419173...	1855
135	MT_33	Sönnecken Saw and File Factory	Thorensberg	MT	Reich German	24.0918595...	56.9301674...	1879
136	BF_06	Starr & Co Chicory	Marien-Mühlenstr. 26-28	BF	Baltic German	24.0834878...	56.9308905...	1860
137	BF_17	Stein Steam Mill	Alexanderstr. 84	BF	Unknown	24.13428912...	56.9601817...	1867
138	MT_13	Stella Corp. Machinery	Matthäisstr.78	MT	Baltic German	24.14415023...	56.95119087...	1898
139	MT_34	Strauch and Kruming Shipyard	Hasenholmsches Ufer 4-6	MT	Baltic German	24.11459752...	56.9344569...	1889
140	BF_02	Stritzky Brewery	Nikolaistrasse 75-77	BF	Baltic German	24.13000831...	56.9655325...	1854
141	BF_15	Tannhäuser Brewery	Dünamündsche Str. 49	BF	Baltic German	24.0700120...	56.9600044...	1870
142	TX_05	Textil	Weissenhofsche Str. 35	TX	British	24.0677400...	56.9665991...	1897
143	WP_07	Th. Pychlau Sawmill	Oskarstr. 7	WP	Baltic German	24.1044600...	56.9322986...	1865
144	CR_17	Thalheim Petroleum	Mühlenstr. 17	CR	Baltic German	24.11123465...	56.9604352...	1867
145	CR_15	Trampedach & Co	Fockenhof 5-6	CR	Multi-national	24.1455244...	56.91537267...	1886
146	XY_05	Ullmann Construction Materials	II. Weidendamm 25	XY	Unknown	24.11736576...	56.9827158...	1899
147	MT_30	Union Electricity Corp.	Petersburger Chaussee 19	MT	Multi-national	24.16034219...	56.97031961...	1885
148	XY_06	Vierecke Toys	Mitauer Chausée	XY	Unknown	24.0887739...	56.9270653...	1880
149	BF_10	Waldschlösschen Brewery	Dampfstr. 104	BF	Baltic German	24.1208403...	57.00507561...	1865
150	XY_07	Walter Cement	Peterholmsche Str. 21	XY	Unknown	24.0996289...	56.9708506...	1868
151	WP_11	Welzer Sawmill	Kojenholm 15	WP	Baltic German	24.15071615...	56.9348176...	1880
152	BF_09	Wolfschmidt Spirits	I. Weidendamm 25	BF	Baltic German	24.1047026...	56.9636687...	1847

Show All Features

Fig. 7: QGIS Attribute table with shapefiles of Riga's factories

The two maps in Figures 5 and 6 as well as the attribute table in Figure 7 show another advantage of using GIS technology for storing information: It is possible to collect various attributes and add them to the database. The researcher can produce a series of maps that visualize different attributes, such

as the founding date or the category of industries. In my case, GIS technology and the use of georeferenced maps also enabled me to find the location of Riga's factories and businesses on today's map: in GIS programs, georeferenced maps can be used as a second layer over open-street maps. Since they are assigned to geographical coordinates showing the exact location, they help to locate places. With the support of a georeferenced historical (German) map, I could identify both the old and the current geographical location, as well as today's Latvian street name. In the next step, I was able to mark the location and assign factory layer shapefiles to geographical coordinates. These factory layer shapefiles can be reproduced on any other map, both current and historical.

Furthermore, one can use GIS technology to inquire into certain connections and correlations, for instance by using the program to calculate and visualize only Baltic German and Reich German metallurgical, iron, and machinery producing factories. The program calculates that German speakers held the highest proportion of enterprises in aforementioned sectors in 1901, i.e. 56 percent. Another 21 percent of metallurgical, iron, and machinery industries were multi-national companies, which also often had a significant share of German investors. If we compare this result to the ownership of timber-processing companies, most of which were sawmills, we see that in 1901 only 39 percent had a Baltic German or Reich German owner, while 14 percent of owners were Latvian and 18 percent Jewish. Thus, Riga's timber-processing industry had a more diverse ownership pool. This can be explained by the fact that metallurgical, iron, and machinery producing factories were more capital intensive, while setting up a sawmill required less capital.

Looking at the map of Riga's main industries per category, it is obvious that the metallurgical, iron, and machine-producing industries were driving Riga's economic boom. In the two decades before World War I, Riga became Russia's main producer of railway cars and railroad rolling stock. The two main companies in this sector—the Russo-Baltic Wagon Corporation founded in 1874 and the Phoenix Corporation founded in 1894—were multinational companies established with investments from Russian, international, and local shareholders.[72] By zooming into the map, or choosing only a particular section, we can also make out clusters of certain industries. This helps us to understand Riga's logistical advantages. The metallurgical and machine-producing companies tended to be near the railroad, with a connection both to the Riga port and to the railroad lines into the Russian Empire. Its production needed significant resources—especially a large amount of coal—which were shipped to Riga from abroad, while its products were either transported to the Russian hinterland or exported by ship.

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72 HENRIKSSON, The Tsar's Loyal Germans, pp. 120, 122.

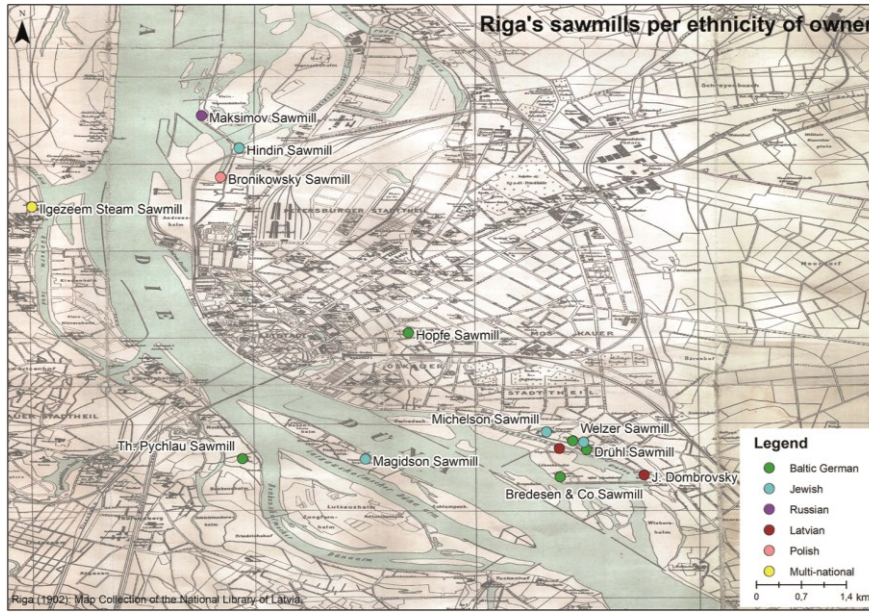

Fig. 8: ArcGIS map with cluster of sawmills in 1901 (map by Amadé Karnagel and Katja Wezel)

The 14 sawmills in Figure 8 are all located next to or near the river. Close proximity to the waterways was a necessity since timber from nearby provinces was floated to Riga. The ownership of these sawmills affirms my earlier argument about the diversity of entrepreneurs in the timber-processing industry: only five of the 14 sawmills visible on this map section were owned by Baltic Germans. Four, the Hindin, the Magidson, the Michelson, and the Maimin & Dubrowsky Sawmill, were owned by Jews; two, the Beyer & Vanags and the J. Dombrovsky Sawmill, belonged to Latvians; one, the Maksimov Sawmill, was owned by a Russian and another one, the Bronikowsky Sawmill, belonged to a Pole. With the exception of the J. Dombrovsky Sawmill, established in 1869, all of them were founded in the 1880s or 1890s. Thus, in the case of the timber-processing industry, Riga's boom also contributed to diversification and economic advancements of groups that—until then—had not played a significant role in the city's economic leadership and among its entrepreneurs.

5 Provodnik: An Example of Riga's Economic Success on the Micro-level

At the peak of its economic boom, Riga's largest company was the "Russian-French India Rubber, Gutta-Percha and Telegraph Works Provodnik," one of three rubber factories in Riga at the time. Provodnik had been established in 1888 with primarily French capital.[73] Its main product were rubber overshoes, so called *Galoschen* (galoshes), with a yearly production of 40,000 in 1907.[74] They were commonly used to protect leather shoes in colder and rainy weather and were exported to all parts of the Russian Empire as well as abroad, "contributing to the reputation of Riga's rubber industry worldwide."[75] Provodnik's second most important product were tires. By 1914, the company had become the number two manufacturer of automobile tires worldwide.[76] Additionally, Provodnik made various other rubber goods including balls and sponges as well as surgical goods; it also produced linoleum and processed asbestos.

At the onset of World War I, Provodnik had 14,022 employees.[77] The company was almost a town on its own, with its own library, schools, daycare facilities and a hospital that also employed midwives to cater for the large number of female workers in the galoshes production. Treatment at the company hospital was free of charge for workers and employees. Provodnik also provided a park with a pub, a lecture and dancing hall as well as a casino (the latter albeit only for research and managerial staff) for the recreation of its workers and employees.

The company Provodnik is a prime example for Riga's inclusion in the colonial trade network. The colonial and racist language of the era is reflected in product labels for rubber found in the company's files, for instance "Negro-heads Para," "Para" being short for Para rubber tree.[78] The map visualizing Riga's trade contacts in 1913 (Figure 2) does not provide evidence of an extensive trading network with South America or Africa, where rubber grew naturally. The company's primary sources as well as Riga's port statistics, however, complement the picture: rubber was imported not directly from

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73 Statute of the Gesellschaft der Russisch-Französischen Gummi-, Guttapercha- und Telegraphenwerke Prowodnik zu Riga, 1888-08-27, in: LVVA, sign. 1773, vol. 2, no. 26, p. 19.

74 Beiträge zur Geschichte der Industrie Rigas, Riga 1911, p. 42.

75 Ibidem, p. 43.

76 ANDERS HENRIKSSON: Riga: Growth, Conflict and Limitations of Good Government, 1850–1914, in: MICHAEL F. HAMM (ed.): The City in Late Imperial Russia, Bloomington 1986, pp. 177–208, here p. 181.

77 Rigaer Fabrikantenverein, Rigaer Fabriken—Bestand und Umfang pro 1913, in: LVVA, sign. 2765, vol. 1, no. 84, p. 11–26, here p. 20.

78 List with potential rubber supply and prices, Provodnik files, LVVA, sign. 1773, vol. 2, no. 88, p. 1.

Africa but through intermediaries in British, German, Belgian, Danish, and Dutch ports.[79]

The global nature of the company can also be affirmed when looking at their seats and secondary branches. Before World War I, Provodnik opened a subsidiary in Zurich under the name *Schweizerische Aktiengesellschaft für den Import russischer Gummiwaren "Columb"* (Swiss Stock Corporation for the Import of Russian Rubber Goods "Columb").[80] The primary aim of the subsidiary, as stated in the statute, was to sell Provodnik products in Switzerland. Perhaps the board of directors was also anticipating problems in the globalized trade and production network in the event of a war between Germany and Russia and wanted to have another company branch in neutral Switzerland. In any case, the Zurich based subsidiary proved especially valuable during the war when Provodnik and other companies were forced to evacuate to central Russia.[81] To make sure that industrial assets would not fall into the hands of the approaching German army, the Russian military administration forced the company to move machinery, warehouse stocks, and raw materials worth 30,026,333 gold roubles to Moscow in 1915.[82]

Yet, already in November 1914, Provodnik's board of directors had made use of the secondary seat in Zurich and opened another subsidiary company named "Columb" in the port city Soerabaia (Surabaya) in the Dutch Indies.[83] According to its statute, the company's aim was "to import rubber from the Dutch Indies and sell rubber products and other articles of the Russian-French Rubber Guttapercha and Telegraph Works Provodnik."[84] This subsidiary used the neutral Netherlands and their trading connections to supply lines in the Dutch Indies to continue the manufacturing of rubber products during the war in locations other than Riga.

The opening of such a subsidiary company based outside of the Russian realm was aided by the fact that Provodnik had a diverse banking portfolio. Provodnik's financial assets were not only held in Riga or at Russian banks but also with French, Swiss, and German banking houses.[85] Besides, Provod-

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79 Ibidem, and: Beiträge zur Statistik des Rigaschen Handels: Jahrgang 1913, pp. 50–51.

80 Statuten der Schweizerischen Aktiengesellschaft für den Import russischer Gummiwaren "Columb", 1913-07-31, in: LVVA, sign. 1771, vol. 1, no. 1044, pp. 5–16.

81 Prikaz" 17-go iyunya 1915 goda, Gor. Riga [Order of 17 July 1915, City of Riga], in: LVVA, sign. 1773, vol. 2, no. 20, p. 14.

82 Gesuch an das Finanzministerium Lettlands, dated January 1926, ibidem, no. 73, p. 70.

83 Actien Gesellschaft Columb Naamlooze Vennootschap tot Invoer van Russische Gummiartikelen [Stock Corporation Columb Limited Company for the Import of Russian Rubber Goods], 1914-11-06, ibidem, no. 30, pp. 105–111.

84 See Article 3, ibidem, p. 105.

85 Several banks with accounts are mentioned in the sources, most often the Société Marseillaise in Paris but also the Zürcher Kantonalbank in Zurich and the Deutsche Bank in London. See: Vorläufige Vereinbarung, 1920-12-01, in: LVVA, sign. 1773, vol. 1, no. 1044, pp. 26–29.

nik stocks, though mainly held by French shareholders, were traded in several European countries as well as the United States. This diversification proved especially valuable during World War I. The company continued to exist, despite the fact that Provodnik lost the machines of its Riga factory as well as all financial assets stored at Riga based banks to Russia's evacuation policy. Although a new factory was built in Moscow during the war, Provodnik Moscow never produced anything due to the naval blockade of the Baltic Sea and a lack of rubber supplies. In 1918, the factory and all financial assets held in Russian banks were nationalized by the Bolsheviks.[86] However, the Zurich based subsidiary Columb continued to produce rubber goods (mostly tires), albeit in much smaller numbers, in several locations during the war. Among them were the branches "Columb Tires Johannesburg" and "Columb Tyre Company Singapore."[87]

Despite its global nature and the fact that its shareholders were mostly French, Provodnik was firmly rooted in Riga's German-speaking environment. Its director was Boris Wilhelm Wittenberg, and the names of people on the board of directors and the advisory board suggest that the company was largely led by members of Riga's Baltic German elite.[88] Only three members of the advisory board had French sounding names. The internal communication of the company was primarily conducted in German. When production ceased in Riga and the company was closed on 4 August 1914 because of the war, all letters of dismissal were written in German, even those to coachmen and daycare employees.[89] Only occasionally do Provodnik's archival sources contain communication records with state authorities in Russian or letters to shareholders in French or English. The reports of the board of directors were published in English, German, and Russian.[90] Latvian sources only appear in the company's files after World War I, when communication with the state authorities switched mostly (though not always) to Latvian.

As the files of several Riga based companies at the Historical State Archive of Latvia attest: before World War I, Riga belonged to the German-speaking as well as the Russian-speaking and the Latvian-speaking world.

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86 See: Gesuch an das Finanzministerium (as in footnote 82), p. 70.

87 Columb Tyres Import Company LTD. Johannesburg Balance Sheet and Columb Tyre Company (Far East) Singapore Balance Sheet, 1917-12-31, in: LVVA, sign. 1773, vol. 2, no. 30, pp. 55, 145.

88 Board of directors in 1909: R. Lehmwald, H. Kunkel, A. v. Hertwig, E. Koch; advisory board in 1909: Paul A. Schwartz, Th. Henri Schwartz, Wilhelm Vajen, Jacob Erhardt, Balthasar Herberz, F. Uthemann, Rudolph Finaly, Louis Vernes. See: Erklärung des Aufsichtsrats, dated March 1909, and Bilanz am 1. Januar 1909, ibidem, no. 10, pp. 5, 13. Especially the Schwartz family was one of Riga's oldest and most well-connected families.

89 See several Provodnik letters of dismissal, 1914-07-22/1914-08-04, ibidem, no. 17, pp. 9–11.

90 See several reports of the board of directors, ibidem, nos. 6–18.

Their realms overlapped in this city on the river Daugava. Riga's companies looked for engineers, chemists and other sought-after talents not only in the Baltic provinces or the Russian Empire, but they also placed ads in newspapers in Germany or Switzerland, thus attracting highly qualified personnel from these countries as well.[91] In addition, workers flocked to the city from all surrounding provinces, making Riga an increasingly multinational city. Soon there was not just a German, a Latvian, a Russian, and a Jewish Riga, but Polish, Lithuanian, Estonian, Ukrainian, and Belarussian quarters as well.[92] Since trade ruled the city before World War I and Britain was Riga's main trading partner, English became the most learned foreign language replacing French. English was one of the three languages (after Russian and German) taught at the Riga Commerce School, which was financed by the Riga Bourse Committee.[93] At the peak of its economic development in the first decade of the twentieth century, Riga was a multicultural metropolis and a well-connected trading hub. Its population as well as the global outreach of its companies reflected this diversity.

6 Conclusion

This article and the presented research project demonstrate the importance of combining both qualitative and quantitative approaches. The large amount of data from Riga's trade records required a quantitative solution. The spatial character of the project and the research question of why Riga became the port with the highest sales volume in the Russian Empire opened up the trajectory to use GIS. The map with over 800 trading partners in 1913 (Figure 2) allows the viewer to grasp the global reach of Riga's trade immediately before World War I. As the ArcGIS map shows, Riga was able to attract new trading partners not only in Europe, but also in Asia, the Americas, and Australia. In this part of the research project the large amount of data required a digital solution. Adding the spatial dimension of the city and mapping Riga's biggest companies allowed me to dissect the economy in greater detail and to

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91 See letter of application, job offer and employment contracts of engineers from Germany and Switzerland with the Riga based Felser company, which constructed machinery, in: LVVA, sign. 7422, vol. 2, no. 8, pp. 81–83, 88–89, 92–93, 101–102, 109. Felser recruited the engineer Richard Schünemann, previously employed with Krupp, in October 1910. He moved from Magdeburg to Riga for this job. Another applicant, Hans Peter from Zurich, was hired in 1912 as a specialist for the construction of diesel machines.

92 For the different language groups in Riga before 1914 and their contribution to the city's development see OBERLÄNDER. Riga's Jews were primarily German- or Russian-speaking, see BOGOJAVLENSKA, p. 158.

93 Zehnter Jahresbericht der Rigaer Kommerzschule des Börsenvereins über das Schuljahr 1910/11, Riga 1911.

focus on aspects such as access to railways and waterways, as well as to map spatio-temporal data (Figure 5) and information about the nationality and ethnicity of business owners (Figures 4 and 8). Looking more closely at the founding dates of enterprises in Figure 5, the visualization demonstrates that Riga was one of the cities that profited extraordinarily from Russia's industrialization in the 1880s and 1890s—topped only by Moscow and Saint Petersburg.

Zooming into one of Riga's most successful companies and making use of traditional, qualitative archival research, completes the picture. Provodnik's company records provide insight into the global character of Riga's trading and production network. Since Provodnik relied on rubber for its main products, a commodity harvested from Para rubber trees, imports from Africa or South-East Asia—mostly shipped through British, French, or Belgian ports—were crucial. In the end, several factors contributed to Riga becoming the most successful port in late imperial Russia: 1) its geographical position as a natural trading hub between Eastern and Western Europe; 2) its far-reaching global trading connections; 3) its ability to attract a diverse workforce, including highly specialized university graduates from German-speaking Western Europe; and 4) the fact that the city authorities as well as the Riga Bourse Committee attracted innovations and ensured that the city's infrastructure and the port were up to date with the latest technological developments.

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