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Structural Changes in the network pattern

of the Bergenfahrrers in the Late Middle Ages:

Medieval Merchants in Social Network Analysis

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1. Introduction

Networks are a popular term in modern historical research papers and articles. It is difficult to find a journal without at least one article that to some extent discusses networks which are found in the relations between the investigated subjects. However, when we have a closer look at these networks, they often turn out to be nothing more than a couple of relations between a certain person and its surroundings. Thus the word network is merely used as a metaphor, a sexy term attractive to potential readers. With its vagueness and the lack of a determined definition it is regarded suitable to describe a huge variety of social relations that otherwise were hard to define. Ylva Hasselberg pinpointed this tendency when she observed: “If the people that we are working with don’t belong to a class or professional group, than maybe it is a network!?”¹

As my research project investigated and described the network pattern in the relations of merchants that participated in the Bergen market in the Late Middle Ages,² I feel the need to define what I understand as a network and how to work with relational data.

After a short introduction to Network Analysis, I will concentrate on some aspects of the Late Medieval Bergenfahrrers’ networks. I will start with the economical relations, where the main focus will be on trade companies, other joint economical activities, and the Bergenfahrrers’ involvement in the Lübeck capital market. In the second part of this article social networks will be in the centre of interest. Considering the limited space I have to present some of my results I will concentrate on the relation mesh that is to be found in the choice of last-will executors, the participation of Bergenfahrrers in the town council of Lübeck and on the Bergenfahrrers’ investments in the Lübeck Real Estate market.

2. Principles of Social Network Analysis

Social Network Analysis is a field of research in the social sciences. Its methods and theory have already been established in the first half of the 20th century, but in the last thirty years we saw an immense increase in network studies and with computers becoming more powerful and easy to handle, the technical conditions to run a large scale analysis got much better.

¹ Hasselberg, Ylva: Nätverk är ingen tejudning, in: Aronsson, Peter/ Fagerlund, Solveig/ Samuelson, Jan (ed.): Nätverk i historisk forskning – metafor, metod eller teori?, Växjö 1999, p. 13.

² Burkhardt, Mike, Die Geschichte des Bergenhandels im Spätmittelalter. Handel, Kaufleute, Netzwerke, (habil.) Copenhagen 2006.

In contrast to other fields of research in the social sciences, Network Analysis doesn't deal with the attributes of the subjects. It is the relations that are in focus of the research. For example the network analyst doesn't ask how a person's profession or social status affects it, but which consequences relations to other people have for success or failure, sense of well- or unwell-being, influence or powerlessness and so on.

Formally, a network is a structure or system that is to be described mathematically in a graph. The centre points of the graph are linked according to existing relations between the system components. This mathematical-technical definition is also the basis of definitions of social networks. However, some adjustments and extensions are needed to get a definition that we can work with in an investigation of social relations and their networks. Taking into account the special characteristics of social relations and organization, we can use the following definition as the foundation of Social Network Analysis:

A social network is a group of actors that all are connected to at least two other actors of the group. The foundation of the network is a flow of resources, which are important to all members of the network in order to enable them to reach their goal(s). A social network is a type of social organisation, where the position of the individual within the group is not determined by hierarchically stipulated patterns, but only by its access to resources that are important in the network, and by the qualitative and quantitative strength of its connections to other members of the network. A social network is a dynamical pattern. Its size, structure, social influence and goals might vary and change. It will disintegrate when the common goal, which is shared by its members, is reached or regarded as no more reachable with the network.³

Important terms in network analysis are *nodes* - dots which represent a single individual or object in the pattern - *diads* - which mean the connection between two nodes - and *triads* - three nodes, which are connected with each other, thus creating a triangle and representing the smallest possible unit of a network. *Stars* are important nodes with a lot of relations in the network, *clusters* are groups of nodes, which are densely connected with each other and a *broker* is a node that is the only one in the mesh that has a relation to a part of another network. Thus he is able to decide, which resources flow from one to the other network.⁴

³ Burkhardt, Bergenhandel, p. 37 (Authors translation).

⁴ For definition of terms: Burkhardt, p. 32-45; Scott, John, Social Network Analysis. A Handbook, London 1991.

The expert in the field of Social Network Analysis might find this short introduction way too incomplete and immature. I did not mention several essential terms as density, centrality, cores and cliques nor did I explain any of the structural conclusions that a Network Analysis results in. But as the main objective of this article is to show how Network Analysis can be applied to historical studies, I have to leave these explanations to the many textbooks and articles specially focused on the methods and techniques of Social Network Analysis.

Before we turn our attention to the Late Medieval Bergenfahrers' networks some words have to be said about how a Social Network Analysis is done practically. First, of course, we have to select data on the relations of our group of investigation. This requires a precise definition of the relevant group and a strict demarcation against its surroundings. We will lose some important connections of group members to other social groups this way, but without this restriction, a thorough empirical data collection would be impossible. In the second step all the collected data are to be recorded in a matrix, which is a symmetrical table with all the recorded actors entered in both rows and columns. When the matrix is filled with a lot of numbers, which might represent strength or certain values of relations, it can be read in an analytical way. To get a better idea of the network we can make it visible in a graph. One of the most sophisticated methods to do that is to use UCInet and NetDraw, computer programs that were developed for modern social network theory.⁵ But as we will see in the course of this article, they work pretty well in Historical Social Network Analysis, too.

3. The Bergenfahrers' networks

The group that I investigated in my research are merchants that were active in the Bergen stockfish market in the Late Middle Ages. I concentrated on three periods, which covered the years 1360-1400, 1440-1470 and 1490-1510. These reference periods were chosen according to availability of source material and political background. Dependent on the available sources and against the background of the Hanseatic merchants' important position in the Bergen trade during the 14th and 15th century, the main focus of my work had to be on them, with merchants from Lübeck in the first place.

In all three periods together I could verify a total of 882 merchants as active in the Bergen market. Another 120 are probably to be added to that number. With all their connections in the Baltic and

⁵ Borgatti, S.P./ Everett, M.G./ Freeman, L.C., 1999, UCINET 6.0 Version 1.00, Natick: Analytic Technologies; http://www.analytictech.com/ucinet_5_description.htm; Borgatti, S.P. NetDraw: Graph Visualization Software. Harvard, MA: Analytic Technologies.

North Sea region a total of about 1650 persons had to be taken into account. Such a huge number of individuals is hard to incorporate into any kind of network analysis. I therefore chose to split the total network up into different meshes, which represent a certain type of relation each. Main groups are economical and social networks. Economical networks are those regarding trade companies, short-term business connections, loans, and common declaration and freight. Concerning social relations I looked on kin and friendship, last wills, sureties, membership in merchant corporations, guilds and closed societies, political activities, and investments on the Lübeck real estate market. For all these aspects of relations I found relatively dense patterns that are worth to be called networks. Even after cutting off all the dead links that didn't fulfil the demands of double connections to other parts of the mesh, in most of the cases there were still a lot of nodes and relations left.

After combining all the different part networks I found huge networks in all three periods, which are so large, that it is impossible to get any useful information from the corresponding graphs. For this reason I decided first to analyze the smaller part meshes in order to present an understandable picture of the many subnetworks that the complex entire networks consisted of.

4. Economical Networks

I will start the description with some examples of the economical networks that made the foundation of the Hansards powerful position in the Norwegian market throughout the Late Middle Ages. When we look at the graph which shows the relations of trading companies that were run with at least one *Bergenfahrer* in the second half of the 14th century (Fig. 1), we see a lot of small networks. Most of the merchants had one or two partnerships, which carried the main part of their Bergen trade. Many of the partners bear the same family names, indicating that they were relatives. Two bigger structures, however, show that there was a tendency towards more complex holdings. Both larger networks are family dominated, one made mainly by the family Gronau, the other one by the families Paal and Wartberch. Obviously kin relations were a very important factor, when a merchant wanted to establish longer lasting trading partnerships in this time,.

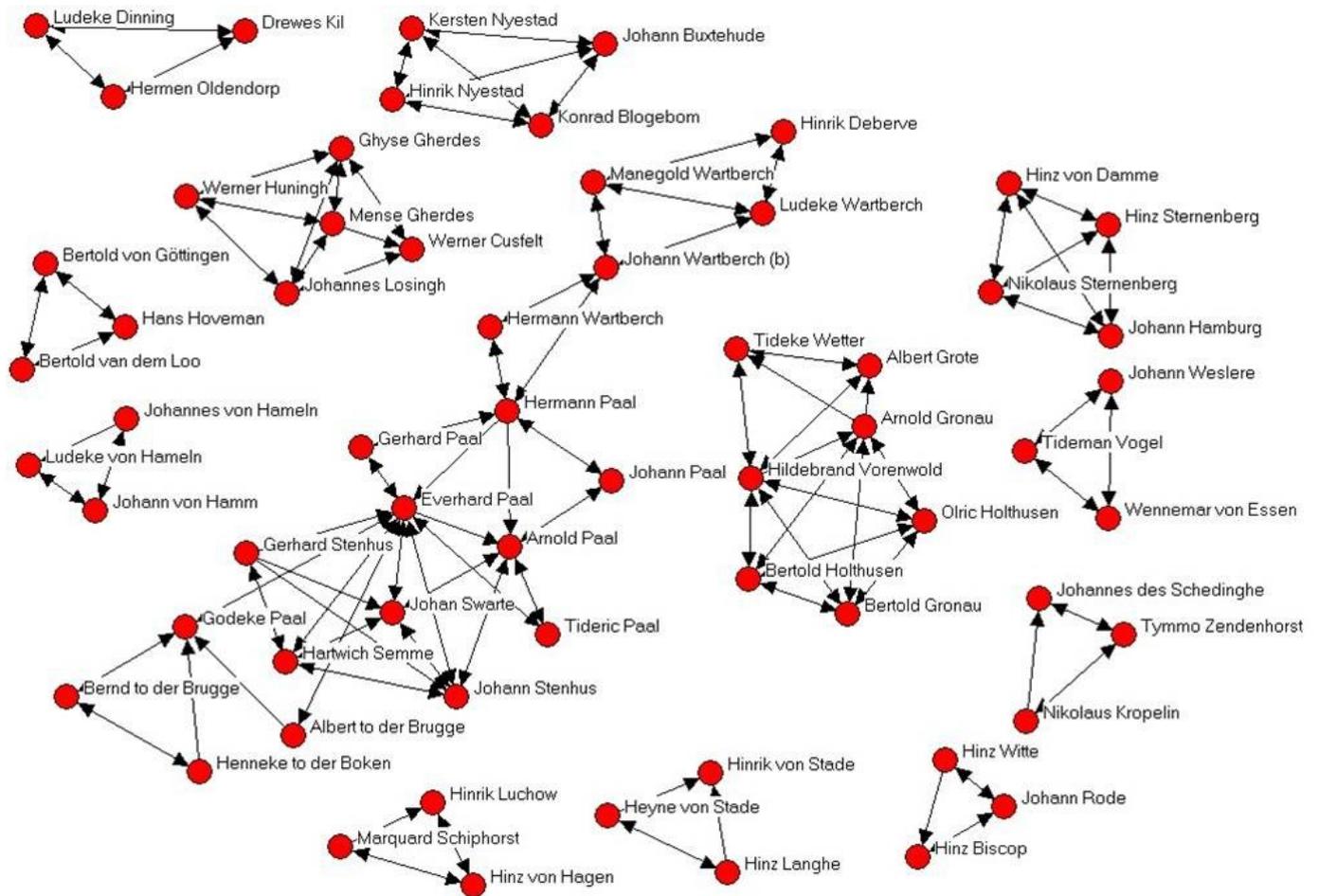


Fig. 1: The network of companies with at least one Bergenfahrer as partner 1360-1400.

In the middle of the 15th century we can see a similar pattern with a lot of triads and small networks (Fig. 2). The biggest difference is that the business partners no longer seem to be related. Although we still have a sufficient number of quite dense networks, some of them consisting of five or more actors, and a very long cluster chain with Hinrik Moller as a regional star, relationship ties are not dominant in the choice of corporate business partners any more. Only a few partners could be proved to be members of the same family. In most cases the choice of partners was influenced by other factors than common origin or descent. Even in the somewhat larger network centered on Hans Wulff and Sander Wentmeyer for most of the merchants a proof of kinship links is not possible.

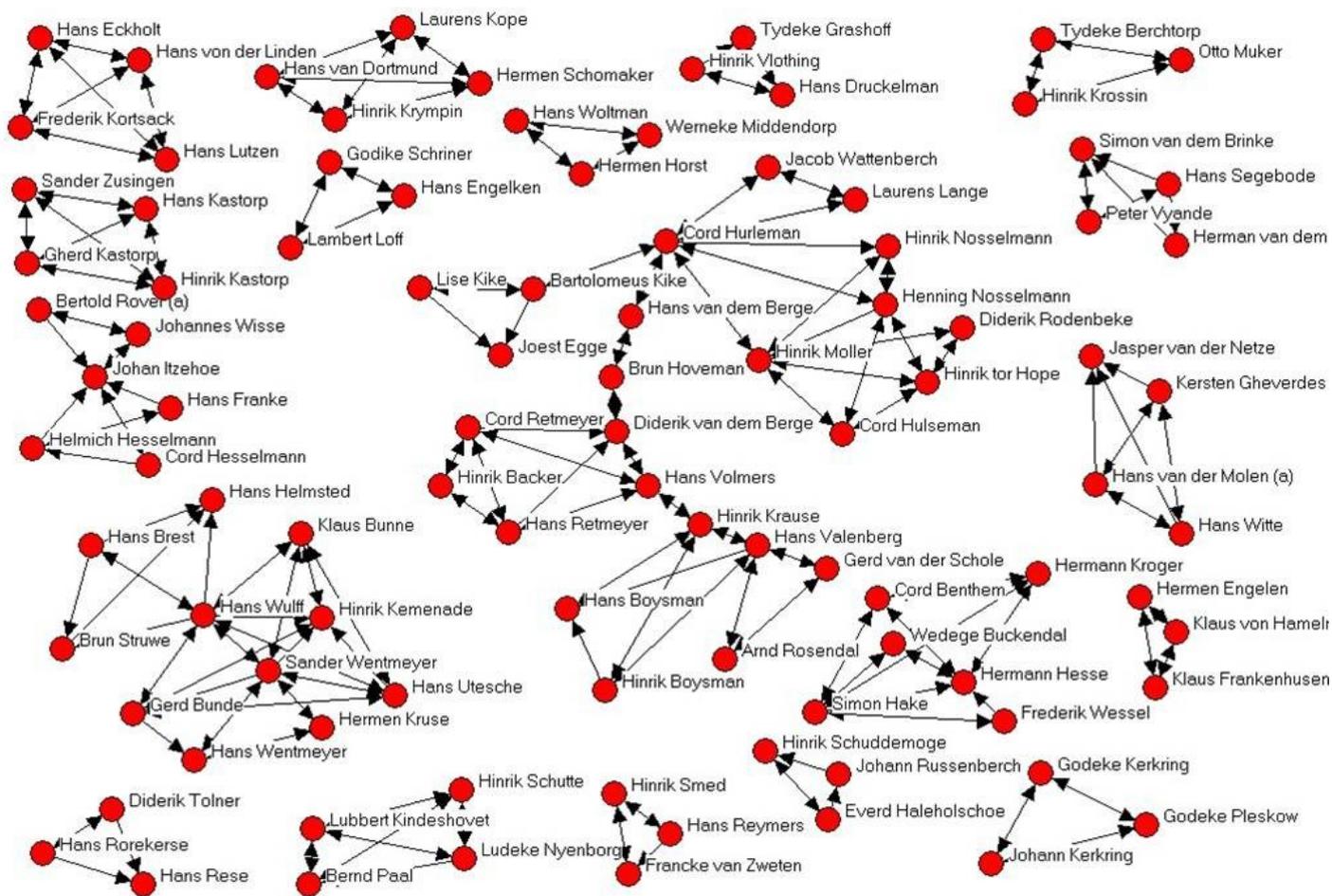


Fig. 2: The network of companies with at least one Bergenfahrer as partner 1440-1470.

A totally different picture can be observed in the end of the 15th century (Fig. 3). The whole network structure of corporate business partnerships disintegrated. The largest relation pattern that was found in this phase consisted of five merchants. None of the many triads could be connected to any of the others. Again kinship didn't play an important role in the selection of the partner. We can notice a gradual change in the way Bergenfahrers organized their long-term business partnerships in the Late Middle Ages. While in the last half of the 14th century trade corporations were a family business with a considerable grade of interlocking, family ties didn't play much of a role in the choice of company partners in the second half of the 15th and at the change from the 15th to the 16th centuries. An interweaving of trade companies was nearly impossible to prove for the last reference period, contrary to the first one, where a lot of companies were connected to other trade corporations due to double engagement by one of the partners.

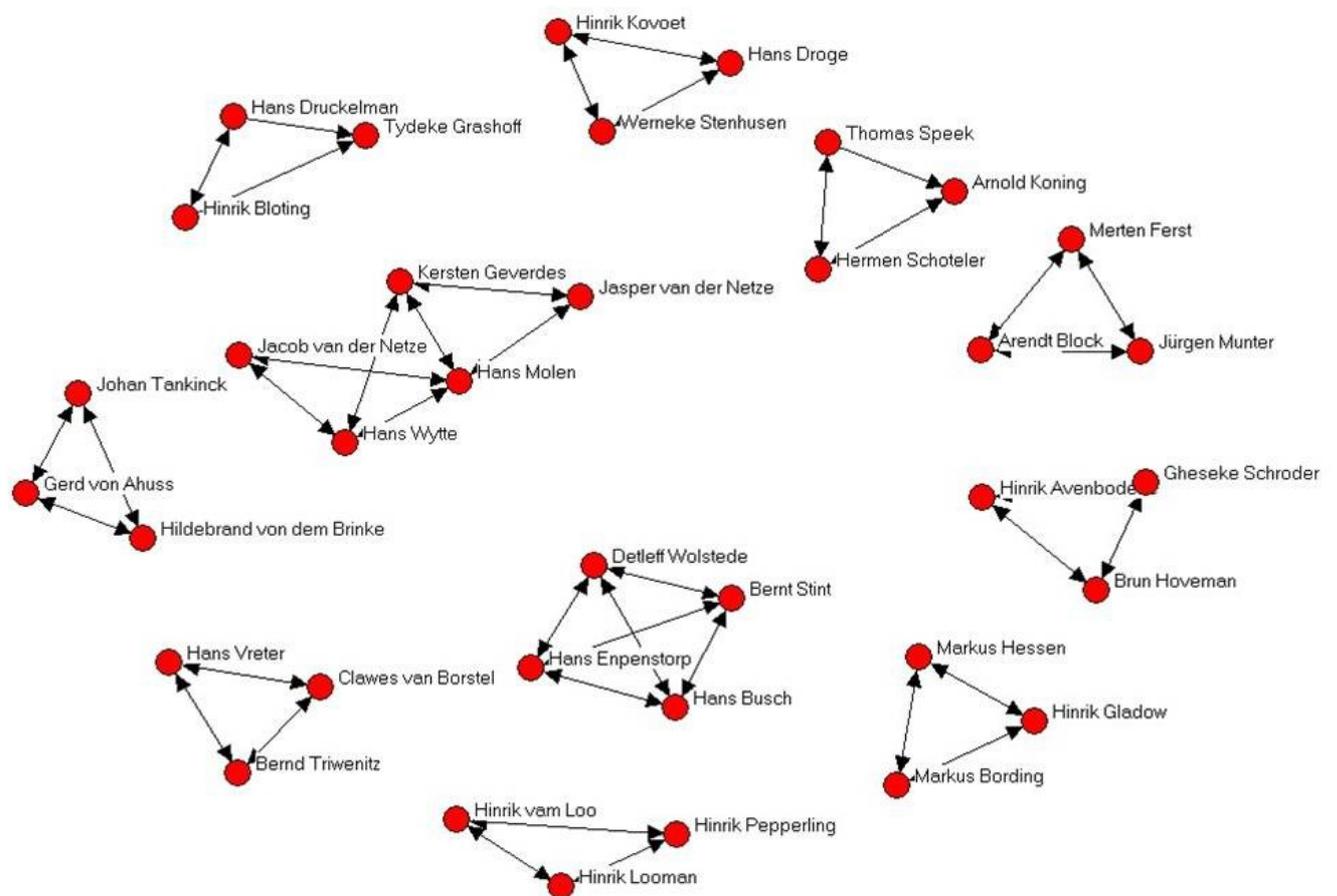


Fig. 3: The network of companies with at least one Bergenfahrer as partner 1490-1510.

Looking at the short term business contacts, a different situation is visible. Besides a network of six people, which resulted from one single deal, only one larger mesh of relations can be detected in the second half of the 14th century (Fig. 4). Interestingly, it is concentrated around Everhard Paal, who also is the star of one of the two family networks related to corporate business. Hereby, we get the opportunity to compare both types of relations entered into by one single person. We can notice that Paal did his short-term business transactions mainly with people he did not have family ties with. Also, the other larger network of short-term trade contacts that is to be found in this period did not show any family relations between one of the six members. Thus, we can conclude that in the 14th century kinship was much less important to enter a short term deals, than it was in the establishment of long-lasting partnerships.

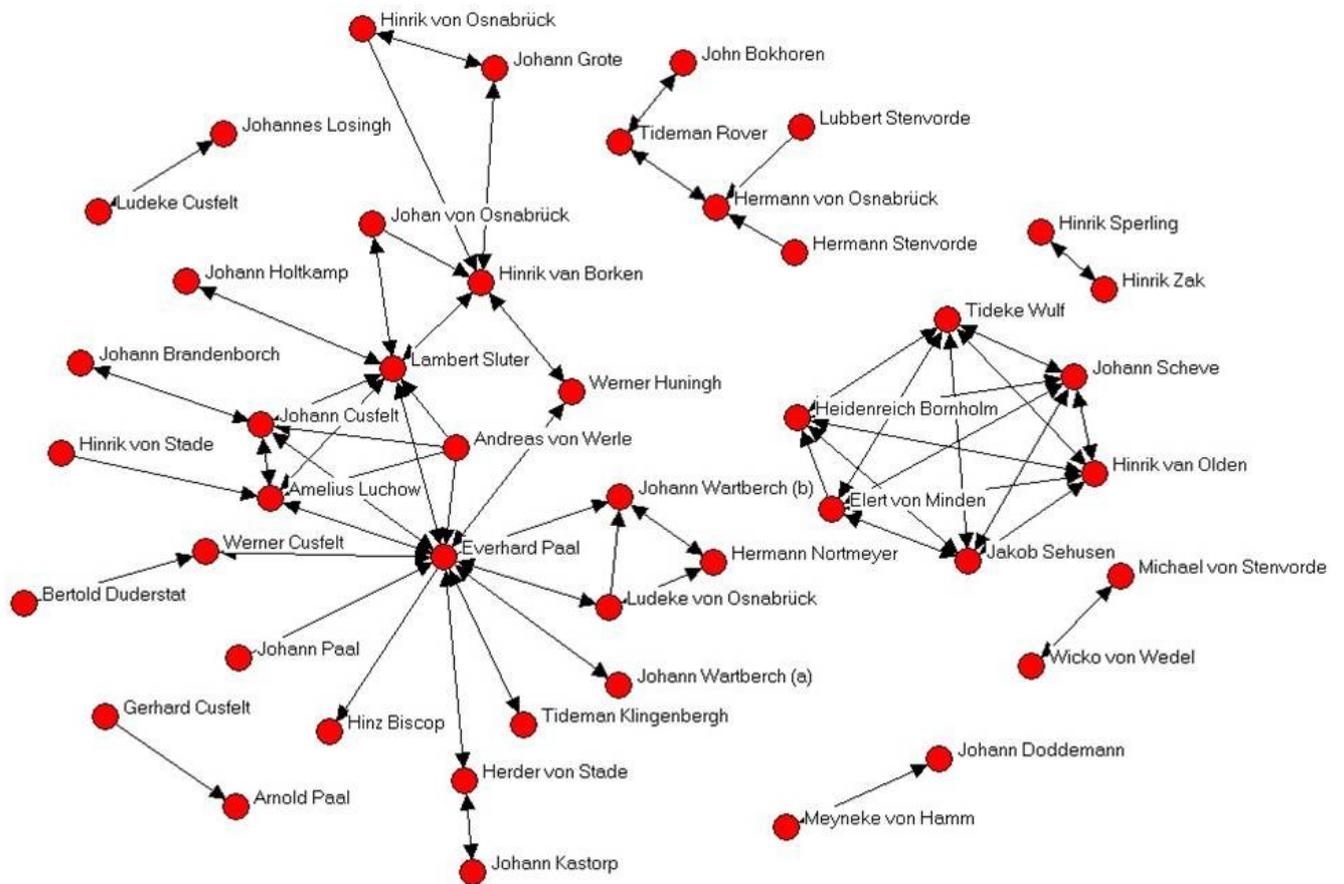


Fig. 4: The network of Bergenfahrrers' short term business deals 1360-1400.

A much denser relation pattern regarding short-term business contacts is to be established in the reference period between 1440 and 1470 (Fig. 5). Several smaller relation patterns and a larger chain that integrates no less than 41 merchants lead to the assumption that short-term business contacts among unrelated merchants became much more common in the middle of the 15th century compared to the situation in the late 14th century. Still most of the contacts were very loose from a network analytical point of view. Several merchants, especially Cord Hurleman and Hinrik Moller, held decisive positions. Their disappearance would have caused the loss of a lot of agents in the resource distribution chain. That's why we can't talk about a network in this case, but we see a lot of relation chains that might be proven as parts of networks if our source base would be more sufficient.

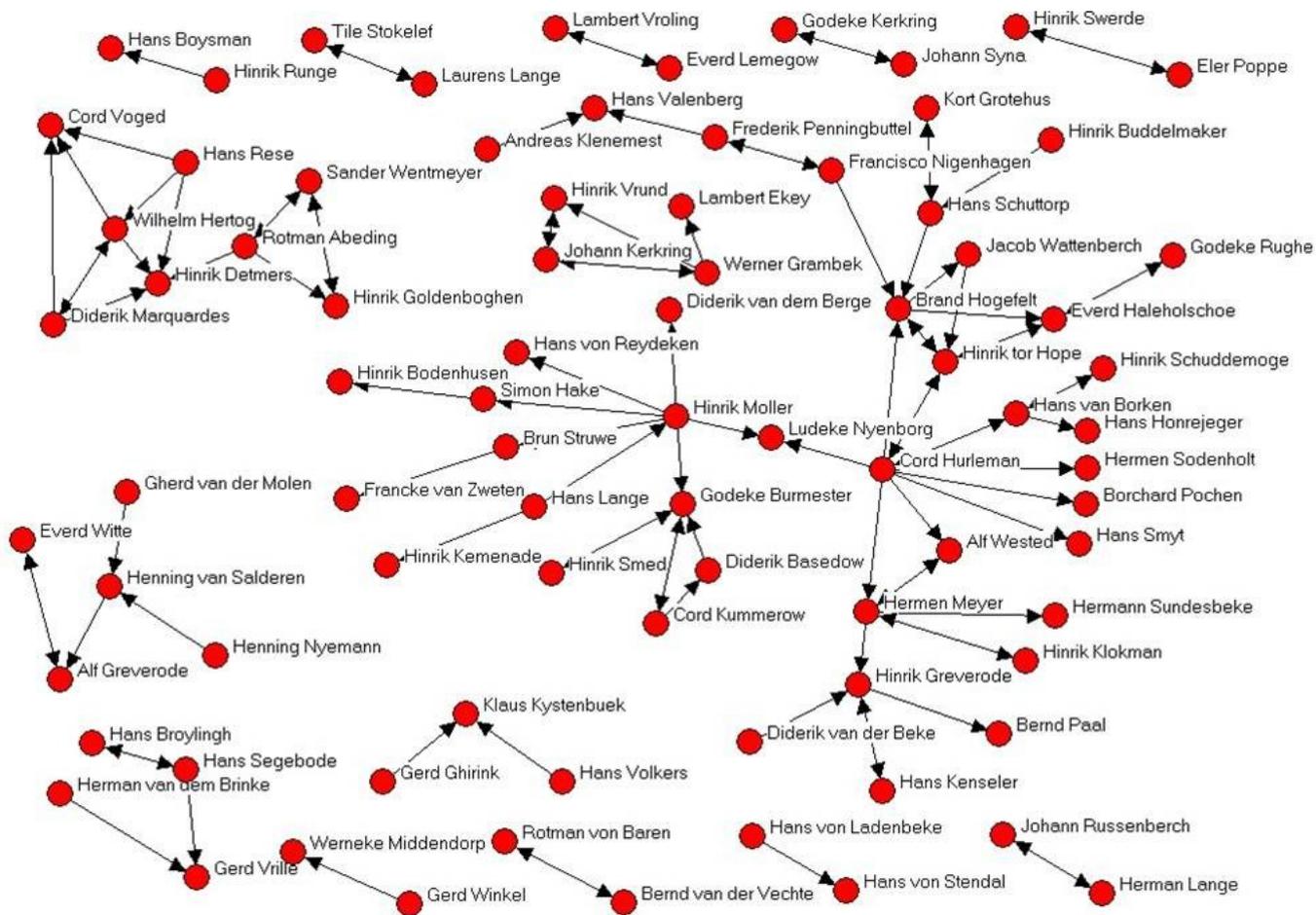


Fig. 5: The network of Bergenfahrrers' short term business deals 1440-1470.

At the change from the 15th to the 16th centuries we get an even more complex picture. A lot of nodes are linked to each other by different actions, thus creating a stable and dense network of short term business relations. Here we determine a real network with several central agents and a very strong integration of many participants with more than two links to other merchants. Again kinship was only a marginal factor in the establishment of this type of relations.

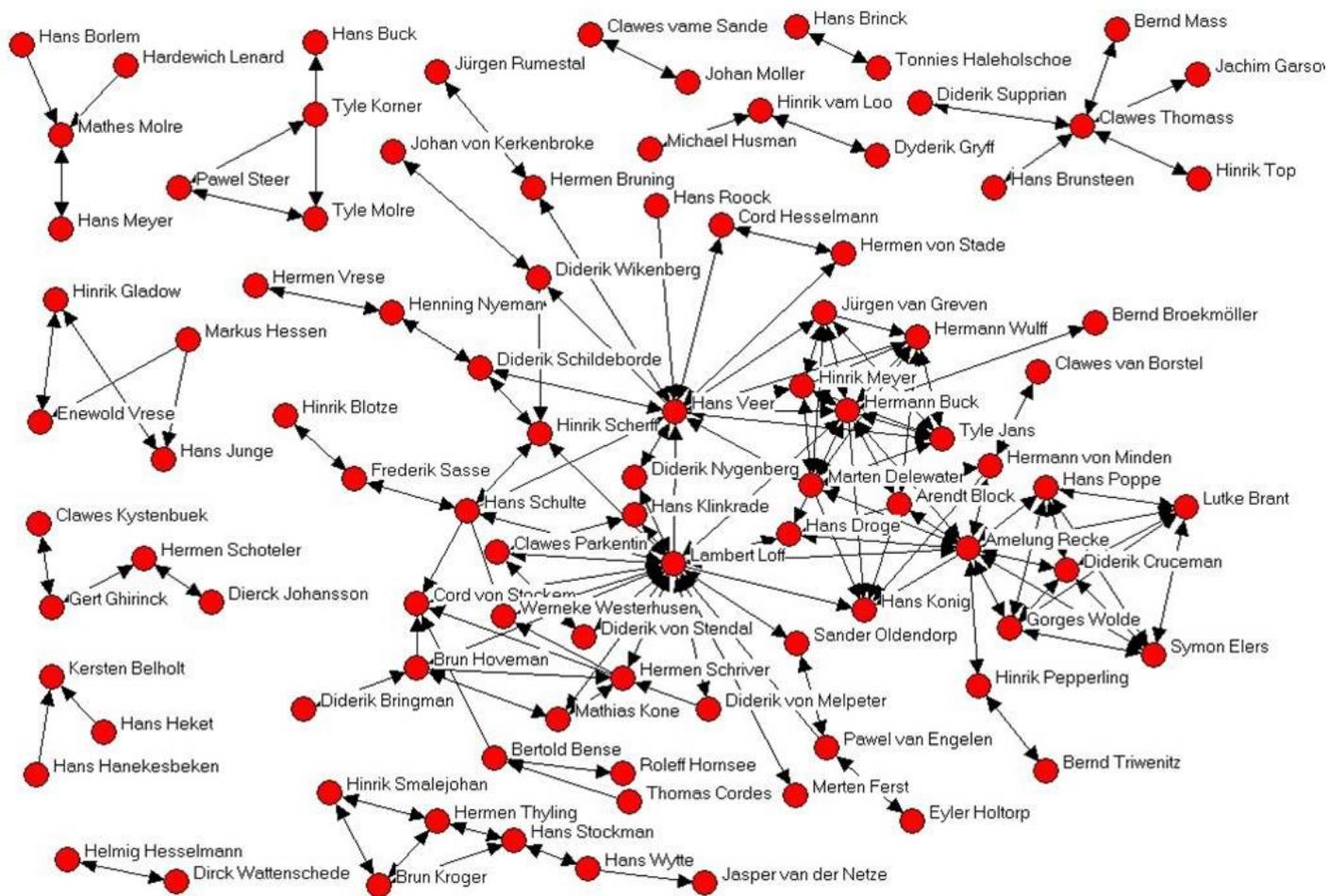


Fig. 6: The network of Bergenfahrs' short term business deals 1440-1470

On basis of the presented data we can recognize a change in the way Bergenfahrs organized their trade in the Late Middle Ages. In the second half of the 14th century, kinship seemed to be very important in establishing a long-term business partnership. Merchants without a kinship relation mostly entered into short-term business contacts and only sometimes these cooperations resulted in the founding of a permanent corporate business. In the middle of the 15th and the beginning of the 16th centuries the market was much more open to non-kinship based business relations. If a merchant wanted to start a business it was no longer necessary to fall back on relatives as partners. Hanseatic merchants had established other means of social control in order to ensure contract security. One of these was the principle of "Treu und Glauben".⁶ Another one was the stronger integration of the individual in social organizations, brotherhoods and guilds. Even a change in economical mentality might be visible, a higher readiness to take on risks, that made it possible to start a company with any other merchant. The breaking up of the stiff company system and the use

⁶ Engl.: faithfulness and trust. Reputation and certification by a third party were essential parts of this instrument.

of more flexible forms of cooperation, probably an answer to the success of the Dutch and English competitors, offered higher earnings and the possibility to react much quicker to changes in the markets or the political situation.

Another important constituent part in a medieval merchant's economical net was made up by loans. The Bergenfahrers were very active especially on the capital market in Lübeck, the main money trading centre in the Baltic region.

	Bergenfahrer from Non-Bergenfahrer	Non-Bergenfahrer from Bergenfahrer	Loans between Bergenfahrers
1360-1400	10 (167.14 m.l.)	7 (118.33 m.l.)	7 (489.00 m.l.)
1440-1470	72 (169.30 m.l.)	107 (279.40 m.l.)	80 (386.71 m.l.)
1490-1510	14 (71.75 m.l.)	16 (1,103.00 m.l.)	35 (803.00 m.l.)

Table 1: Number and average amount (in Mark lübsch – m.l.) of loans at the Lübeck capital market with proven participation of Bergenfahrers.⁷

In table 1 we can see, that between 1360 and 1400 ten Bergenfahrers could be proven as debtors to a non-Bergenfahrer. Seven loans were raised the other way round and seven times Bergenfahrers borrowed money from a merchant who also was active in the Bergen market. The average amount of the loans was slightly higher for loans taken by Bergenfahrers than given by them, but among Bergenfahrers much more money was borrowed. In the period between 1440 and 1470 72 Bergenfahrers raised a loan from non-Bergenfahrers and 107 gave money to a person that did not invest in the Bergen market. 80 times loans were given to other Bergenfahrers. While the average loan from non-Bergenfahrers was nearly as high as in the second half of the 14th century, loans to them got much higher in the middle of the 15th century. Still loans among Bergenfahrer were raised with the highest average sum. At the turn from the 15th to the 16th century fewer loans outside the Bergenfahrer circle could be established. The average sum of loans taken from non-Bergenfahrers became very low, while the amount of money that was lent out to non-Bergenfahrers rose considerably. Also the average loan among Bergenfahrer got much higher in that period.

⁷ The information are gathered from: Archiv der Hansestadt Lübeck (AHL), Niederstadtbuch.

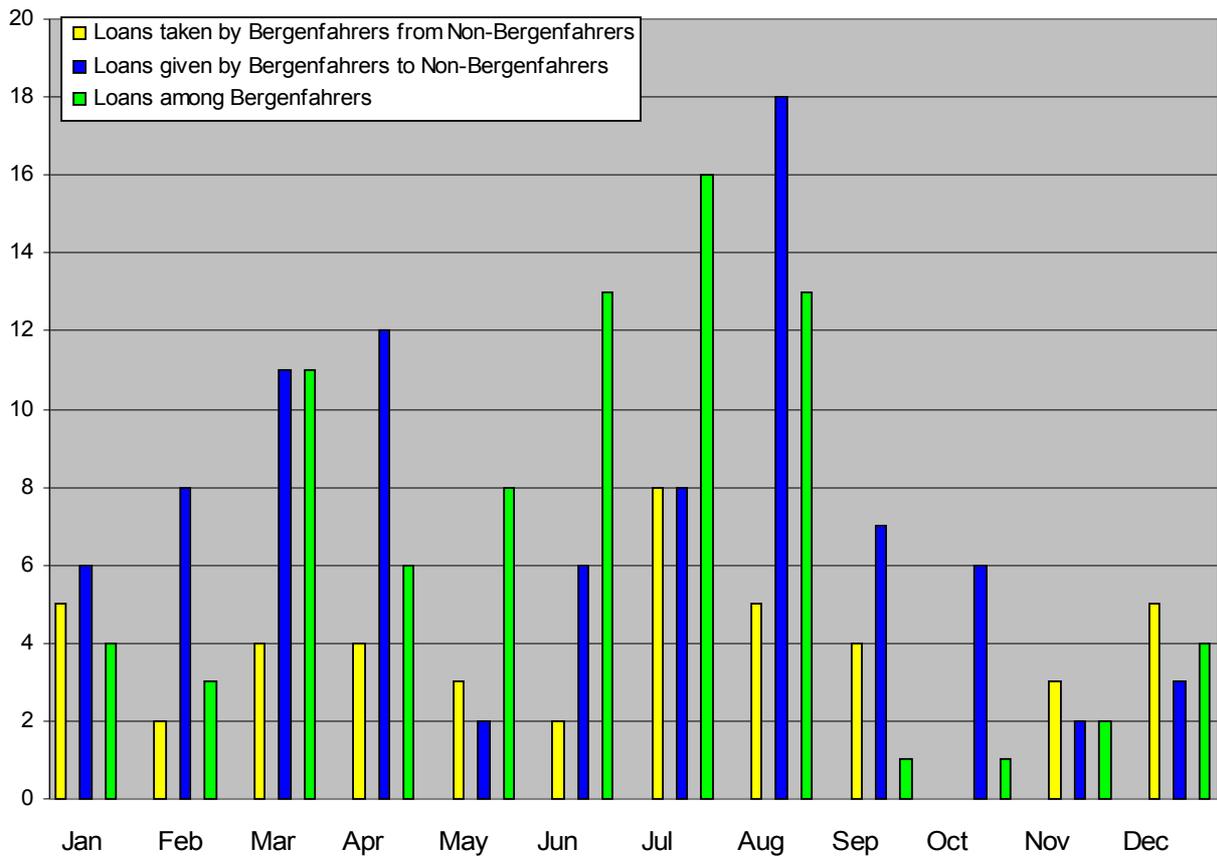


Fig. 7: Distribution of loan business under participation of at least one Bergenfahrs at the Lübeck capital market 1440-1470.

For the period 1440 to 1470 we can also date enough loans to see when the main financial business was done in Lübeck. Loans to non-Bergenfahrs were mainly given in spring and late summer. Loans from them were raised in winter and late summer, while loan among Bergenfahrs was mainly taken between March and August.

The Bergenfahrs were active on the Lübeck capital market the year long. Most of the loan business was done in spring, when all merchants had to make their investments, and summer, when the profits from the voyages earlier in the year came in and were available for another round of investments. The Bergenfahrs had access to a lot of capital and were an active player on the Lübeck capital market, as borrowers but at least as much as lenders, too.

5. Social Networks

Besides the economical relations, a medieval merchant tied a lot of social contacts as well. Although some of them were necessary to maintain economical success, we must take care not to reduce the person to his professional sphere. Social contacts were also important to gain influence with the opinion-building process in the community and last but not least for a person's well-being. One type of document which gives us a lot of information about the position of an individual within the community are last wills. Not only do the wills remember a lot of people that can thus be connected to the testator, but also the choice of executors indicates the importance of a person and the relations that he was able to activate.

In the selected three periods the number of last wills that can be ascribed to Bergenfahrers is very unequal. For the time between 1360 and 1400 we have 52 wills of 43 different merchants. The numbers for the middle of the 15th century are 58 wills by 54 persons. In the period from 1490 to 1510, however, there are only eight testaments to be found. The data have been completed by information from other sources, but it is still difficult to compare the last phase with the other two. Still we go to have a look on the meshes that are made up by the Bergenfahrers' choice of will executors.

In the second half of the 14th century we can see a very balanced graph with some nodes a bit more central than others. Merchants, who also have been important in other areas, as Eberhard Paal, Lambert Sluter or Ludeke von Osnabrück, have been chosen as last-will executors several times. But also more unknown persons have acted as executors to different Bergenfahrers, thus creating a solid and interwoven network. Interestingly kin-relations didn't seem to be of importance in the choice of last-will executors. One reason for this difference to trading companies might be that wills have been made later in life. Then the merchant had a much larger net of relations in the community, compared to the beginning of his career, when he made up long lasting trading companies and had to fall back on relatives because of the lack of other reliable contacts.

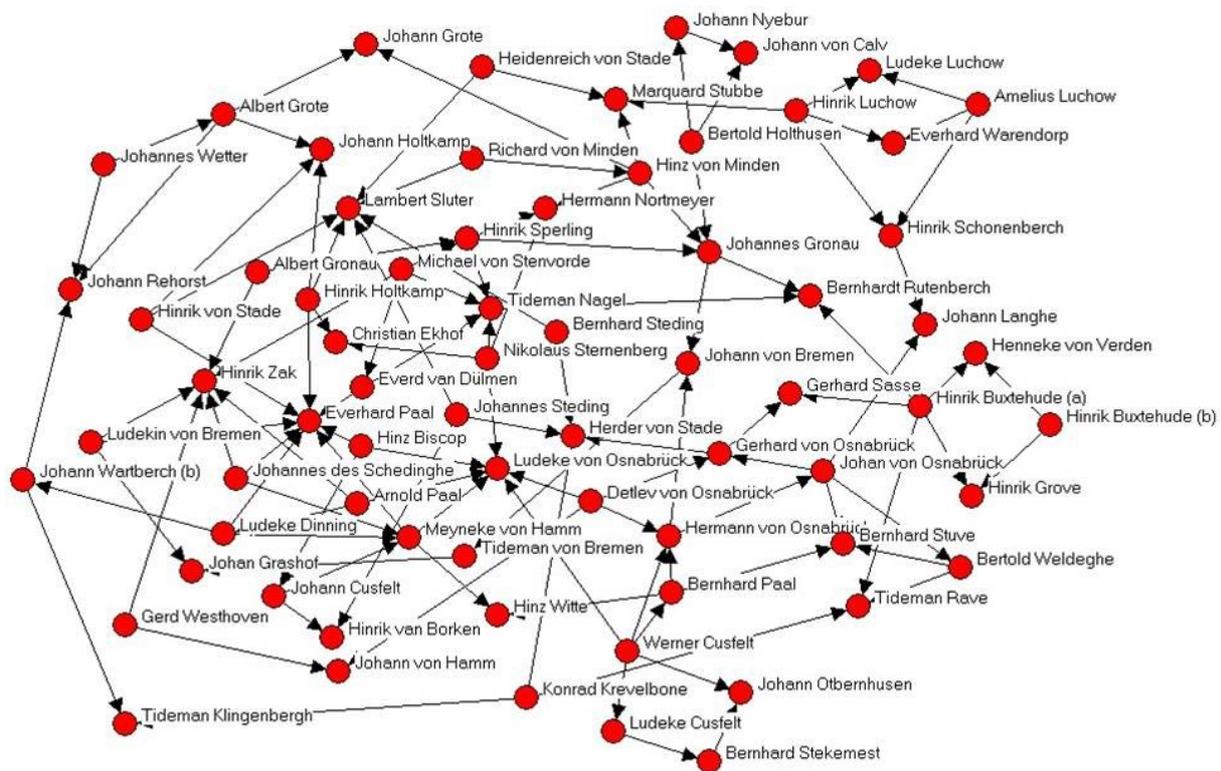


Fig. 8: The Network of the Bergenfahrers' Last Wills based on the choice of Last Will Executors, 1360-1400.

A similar pattern can be detected in the middle of the 15th century, although the network is somehow more concentrated on Brun Struwe as a strong regional star. Brun Struwe is known to us as an important Bergenfahrer. He served as Elderman of the kontor in Bergen 1451/52⁸ and as its delegate in one of the numerous quarells of the kontor's merchants with the German shoemakers in Bergen in 1451.⁹ He was also well-integrated figure in mid-15th-century Lübeck, as his position as Elderman of the Hl. Leichnams-Bruderschaft in 1444¹⁰ and 1451¹¹ indicates. For other regional stars in the network of last-will executors, such as Hans Lange, Claus Parkentin and Lambert Wykinghoff, however, there is hardly more source evidence than their engagement as last-will executors. They didn't seem to have had a strong impact in Lübeck's or the kontor's social and political life. Thus, even for the middle of the 15th century, we can conclude that an important position in the town's society was not the only reason why a person was chosen as last-will

⁸ Urkundenbuch der Stadt Lübeck, herausgegeben vom Verein für Lübeckische Geschichte und Alterthumskunde, 11 vol., Lübeck 1843 – 1932 (UBStL) vol. VIII, nr. 125.

⁹ UBStL IX, nr. 60.

¹⁰ Archiv der Hansestadt Lübeck (AHL), Personenkartei.

¹¹ UBStL IX, nr. 68.

executor by a Bergenfahrer. Personal trustworthiness, a good reputation, and insight into the Bergenfahrers' business were at least just as important.

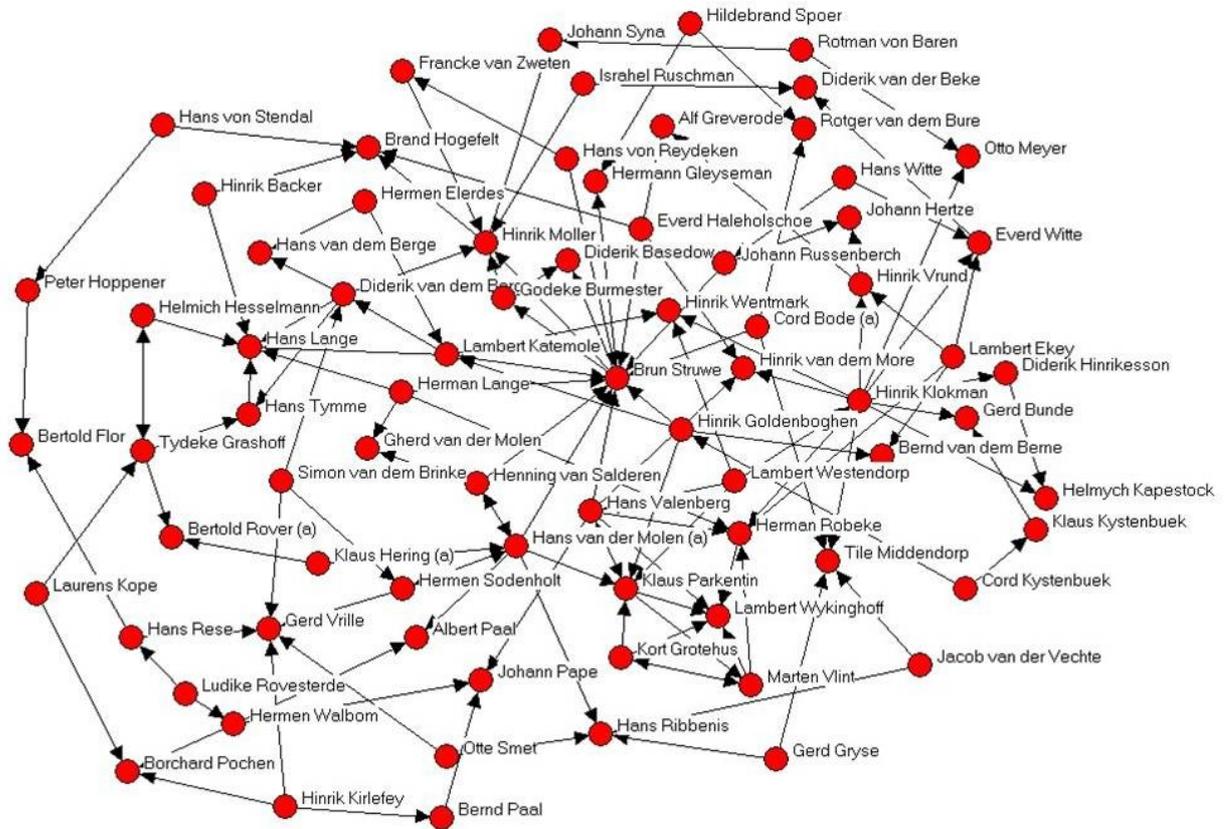


Fig. 9: The Network of the Bergenfahrers' Last Wills based on the choice of Last Will Executors, 1440-1470.

The graph of last reference period is totally different, but taking into consideration that only eight last wills could be examined the networking is quite well-developed. Many Bergenfahrers could get influential merchants to become executors of their last wills, but the source material is too small to get any evidence for interwoven meshes in the choice of last-will executors in this time.

The examination of the Bergenfahrers' last wills shows that traders who were active in the Bergen market had very good connections in the most powerful groups in Lübeck. In all three reference periods they could not only get a considerable number of persons to act as last-will executors. Moreover, many of these were respected and influential members of Lübeck's late medieval town society and successful merchants also in commercial fields other than the Bergen trade.

Im Bergenhandel aktive Lübecker Ratsherren 1350-1510

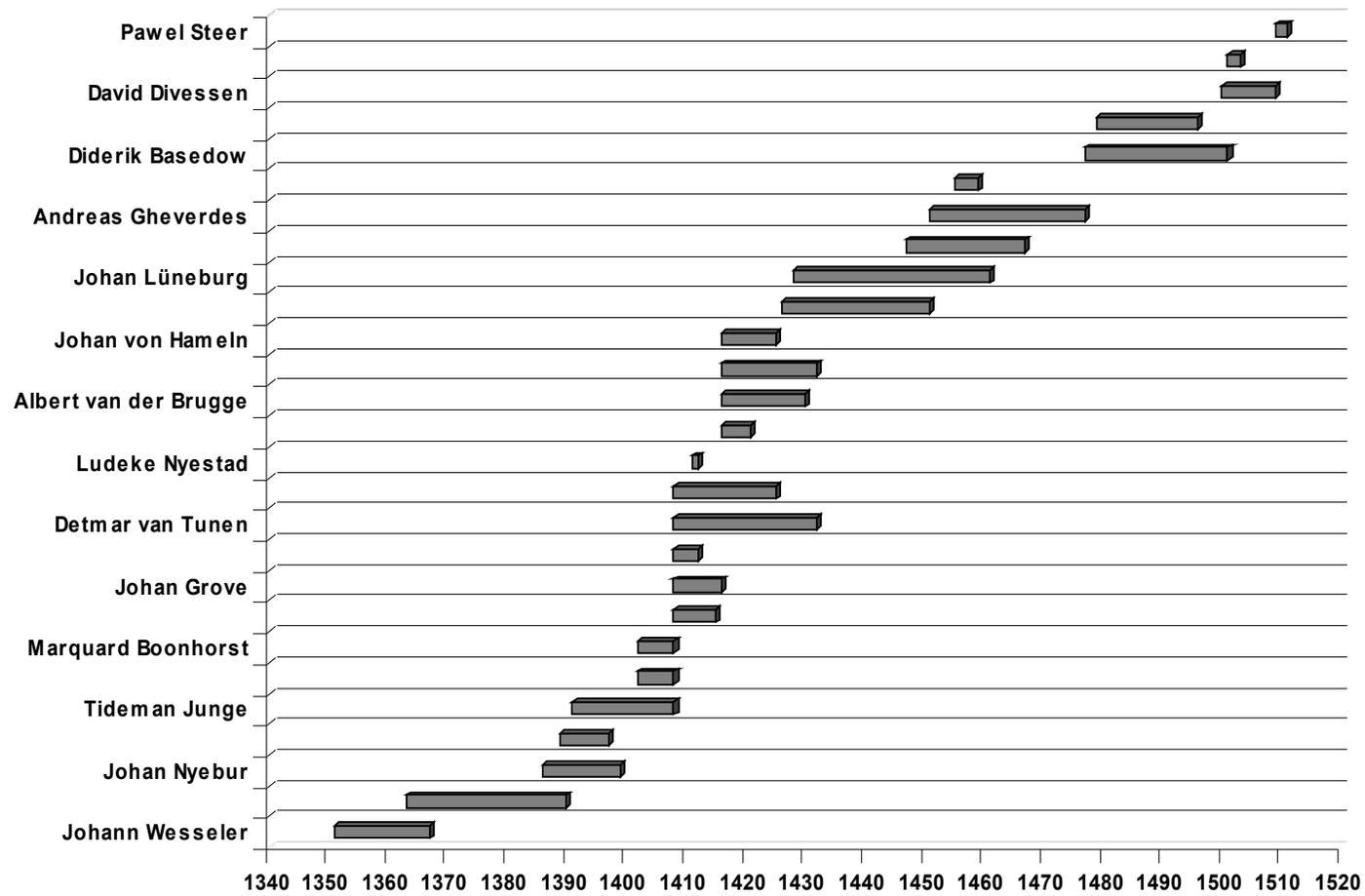


Fig. 11: Members of the Lübeck town council with proven engagement in the Bergen market 1350-1510.

In addition to that, between 1350 and 1510 there were 25 Bergenfahrers, who served as councilmen in Lübeck. This figure means that almost 10% of all persons who became councillors in this period were active in the Bergen trade. If we have view the long-term development, the influence of the Bergenfahrers becomes even more visible. Between 1360 and 1510 there was no single year when there was not at least one Bergenfahrer active in the city council. They had the strongest representation in the first half of the 15th century, but also in the other phases of the Late Middle Ages their voice could always be heard in the political decision-making process. Thus, the often-made statement that the Lübeck Bergenfahrers were not such an influential merchant group with poor reputation needs to be revised.

Finally, let's take a brief look at the activities of the Bergenfahrers on Lübeck's real-estate market. Differently from the traditional partition of the town along to the parish borders, I divided Lübeck into four quarters according to their importance to long-distance merchants. The first quarter, represented by red color, is made up by the streets that surrounded the town hall, St. Mary church and the market, and those, which lead from there directly to the harbour at the river Trave. The second quarter, blue, are the streets leading from the top of the hill in westward direction to the northern part of the Trave. Quarter three, yellow, is made up by the streets south of the most important area. They lead to the southern part of the river Trave. Area four, represented by green color, is made up by all the streets with eastward direction towards the river Wackenitz. Here mostly craftsmen had their homes and workshops.

As we can see in the diagrams in all three periods Bergenfahrers purchased houses mainly in the most reputed quarters, both when it comes to long and short-term investments. Still, buildings in areas C and D were interesting for shorter investments. Especially houses in the craftsmens' quarter of the town accounted for about 20 per cent of all building purchases by Bergenfahrers in the Late Middle Ages. However, when Bergenfahrers owned houses for a longer time, these were mostly situated in the best and consequently more expensive areas, where also councillors and other rich merchants had their dwelling houses. The ability of the Bergenfahrers to buy living houses in the best areas of Lübeck is not only a sign of their economical success. It also makes clear that one main prerequisite for the establishment of long-term relations was met – spatial nearness. By using the same institutions, attending the same church services, meeting everyday at the street the merchants that lived in the same quarters had more in common than just business. This led on the one hand to a sense of unity, and made it on the other hand easier to assess the others economical

and personal liability. In the end these conditions made two merchants living in the same quarter of the town more likely to become business partners than others.

Fig. 12: The Bergenfahrers' purchases of real estate in Lübeck 1360-1400.

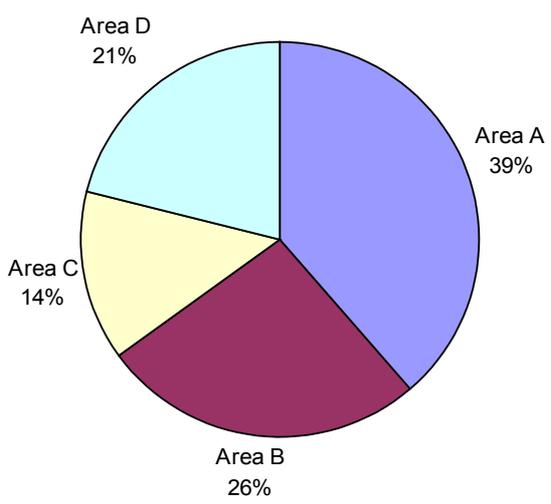


Fig. 13: The Bergenfahrers' long term purchases of real estate in Lübeck 1360-1400.

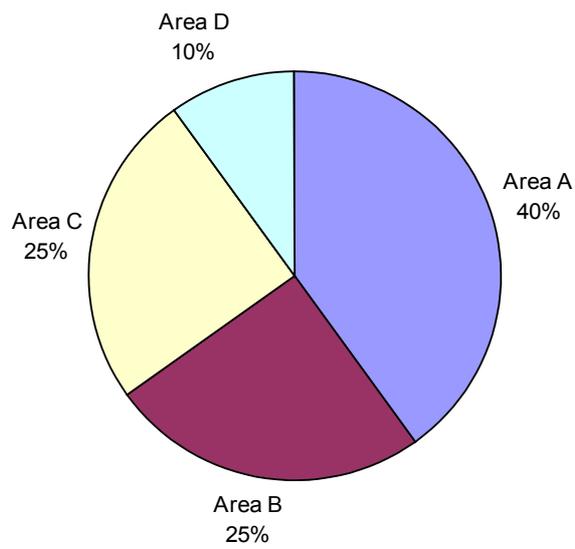


Fig. 14: The Bergenfahrers' purchase of real estate in Lübeck 1440-1480.

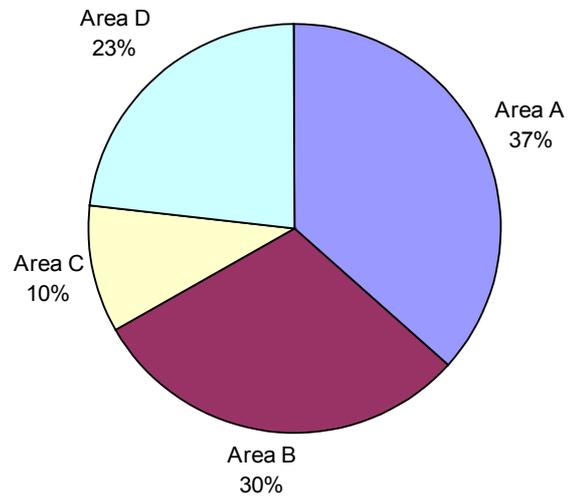


Fig. 15: The Bergenfahrers' long term purchases of real estate in Lübeck 1440-1480.

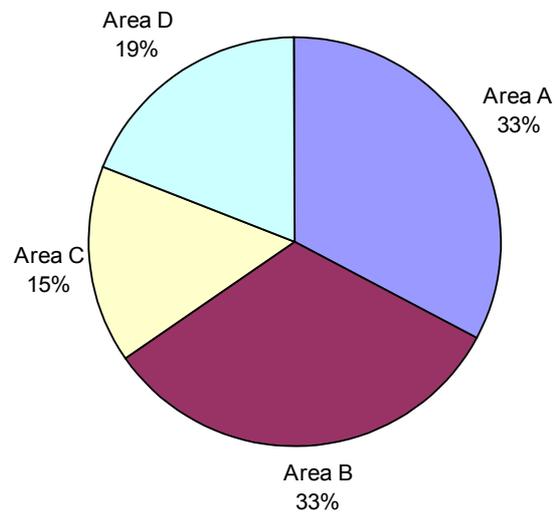


Fig. 16: The Bergenfahrers' purchases of real estate in Lübeck 1490-1510.

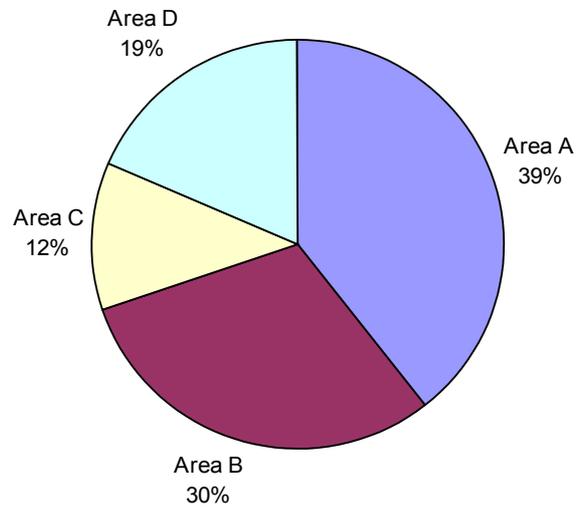
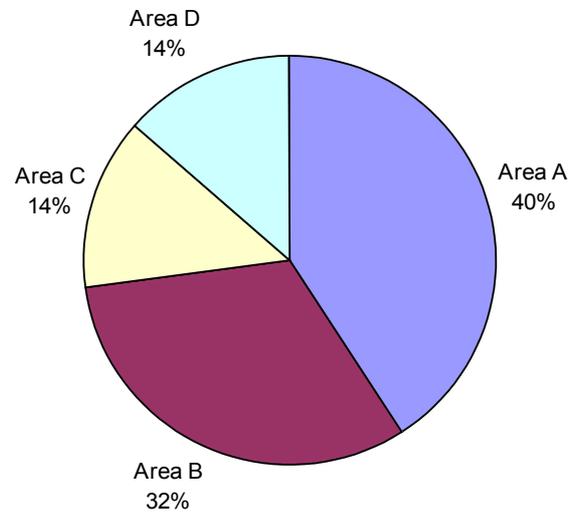


Fig. 17: The Bergenfahrers' long term purchases of real estate in Lübeck 1490-1510.



6. Total Networks

In this article I was only able to present some snapshots of the social and economical relation net that could be found in the investigation about merchants in the late medieval Bergen market. I skipped some aspects, which are equally important as those presented here. One difficulty, that I was unable to overcome, was the source situation outside the Hanse area. I could prove about 25 personal economical contacts between Hansards and merchants from other areas, both England, Holland, and Southern Germany. Additionally there are about a dozen other documents that mention such relations, but they all are too loose to be connected to the trading network of the Hanseatic merchants.

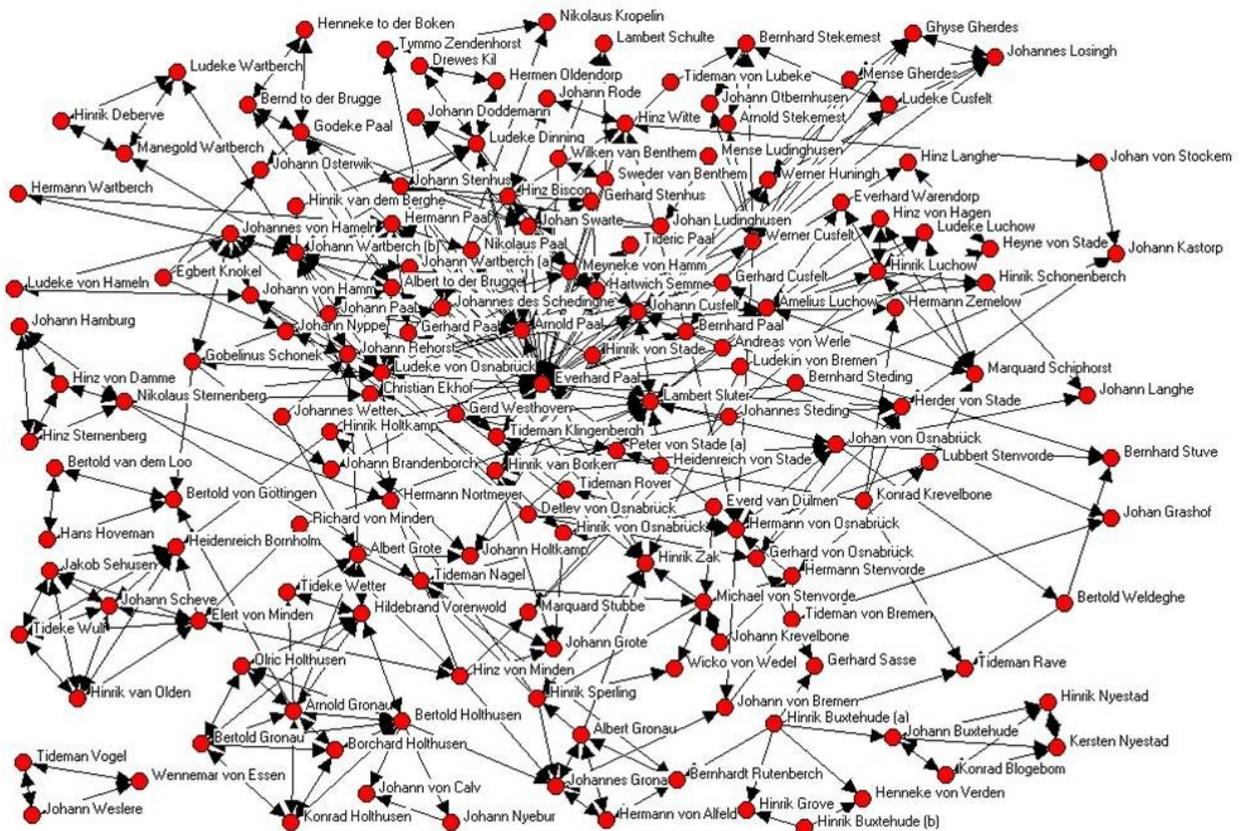


Fig. 18: The Bergenfahrers' network 1360-1400.

Looking at the total networks showing all the Bergenfahrers' relations to other merchants that could be found in the sources, we see very dense patterns in all three periods.

Very dense clusters in the centre are surrounding regional stars and some periphery clusters make the networks very stable. Even the more loosely connected nodes at the edges have often more than two connections to other parts of the network. Thus, the loss of one agent would not exclude many others from the resource flow in the mesh.

We can see that the Bergenfahrers could get information and other important resources through different channels and had the ability to contact a lot of other merchants. Social and economical networks overlapped each other, but were not identical. Furthermore, the Bergenfahrers could exercise influence on the political decision-making process in Lübeck through memberships in the reputable religious guilds, societies, the town council and their manifold personal relations to other influential persons and groups in the town.

The dense network made it unnecessary to create large and cost-intensive firms, as were to be found in Italy and Southern Germany in the Late Middle Ages. Business success was about efficient communication and cooperation rather than the type of organization.¹⁴ The strength of the Hanse merchant was his inclusion into a large merchant network that gave him access to important information and potential trade partners - and vice versa.

¹⁴ See: McNeill, J.R.; McNeill, William H., *The Human Web. A bird's-eye view of world history*, New York 2003, p. 5ff.