Food Systems in European Cities

Deliverable 6.2 Analysis of the roles and relationships of different actors in the food chain

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Executive Summary

The project “FoodE - Food Systems in European Cities” aims to make local food production and consumption more sustainable. In doing so, it aims to accelerate the growth of sustainable and resilient urban food systems by bringing together citizen-led local food initiatives across Europe. So-called City-Region Food Systems (CRFS) include all the actors, processes and relationships involved in the food chain (from production, through processing, to the distribution, marketing and consumption of food) in a given geographic region and are therefore important sites for facilitating interactions between rural, peri-urban and urban areas. A CRFS might encompass the territory of a city, a metropolitan area or a region. The subject of this report is the analysis of CRFS networks in the European area, in order to be able to promote the transformation of the food system. This was done by means of the Net-Map tool, which aims to map different relationships between actors. This interview-based tool helps to map the complexity of the networks in an understandable way in order to be able to develop solutions for the respective CRFS.

The results are based on the findings from 46 Net-Map interviews in seven European cities used as case studies: Dortmund (Germany), Bologna and Naples (Italy), Oslo (Norway), Romainville (France), Lansingerland (The Netherlands), and Tenerife (Spain). In each CRFS, a research question was selected that reflects current issues and developments. The inquiry focused on:

- actors around a newly formed Food Policy Council in Dortmund,
- actors around the farmers’- market network in Bologna,
- actors working towards the transformation of the CRFS in the Metropolitan City of Naples,
- actors that are working to develop sustainable job opportunities within the CFRS in Oslo,
- actors surrounding the pilot CRFSI around local food producing and access in Romainville,
- actors in the de-fossilisation of greenhouse horticulture in Lansingerland,
- actors in the Small-Scale Fisheries value chain in Tenerife.

The results show for all cases, notwithstanding the differences in the details, a strong cross-sectoral network of actors supporting each other but at the same time, a perceived need for further networking and strengthening of existing relationships. In all locations, government bodies (especially local and regional government) and civil society organisations were named as the most influential in transforming CRFS. At the same time, bureaucratic hurdles and sluggish administrations were mentioned as obstacles to transformation in nearly all cases.

The Net-Map tool proved to be a very useful and practical tool for visualising CRFS, both in terms of research practicability and in terms of providing a new perspective and generating results that are concrete and immediately useful to the local CRFS practitioners.

1 Introduction

Sustainable urban development is increasingly becoming a focus of today's social and political debates regarding (urban) food systems. The urgent need for transforming these systems stems from their environmental impacts - agriculture is responsible for more than one third of global greenhouse gas emissions (FAO 2021), is one of the main drivers of biodiversity loss (IPBES 2019), and causes other damage such as degradation of soil and water quality and pollution with pesticides and fertilisers (UBA 2019). Due to increasing production intensity and the associated environmental impacts, a rethink at the political level and among the population has been observed in recent years (ibid). There is a growing desire among consumers for sustainable and regional as well as for fairly produced food (ibid). Also, due to current global crises and conflicts such as wars and climate change, this desire is becoming more and more explicit (EU 2022; Hassen & Bilali 2022; Vittuari et al. 2021). In this context, numerous civil society initiatives such as Food Policy Councils have emerged aiming at the transformation of urban food systems. These efforts by grassroots initiatives as well as municipalities have been politically consolidated by the Milan Urban Food Policy Pact (MUFFP) (Food and Agriculture Organization of the United Nations – FAO) underlining the great potential to transform urban food systems (ibid; UBA 2019; Carey & Cook 2021). For achieving change at the municipal level, the City-Region Food System (CRFS) as a whole has to be considered, taking into account a multitude of actors and their linkages (UBA 2019). A transformation of these systems can only succeed if all actors are included in the planning processes, resulting in cross-sectoral policies (ibid).

Regarding the state of research on network analysis of food systems, it can be seen that there are analyses of the food system in general, which disregard the spatial reference (Zhang et al. 2019; SWAC/OECD 2021). For example, studies have analysed which general components of the food system such as food industry, farmers, consumers, or political frameworks influence the system and are important for improving it. Existing empirical research on local food systems primarily focuses on the analysis of food flows differentiated by product type, product quantity and spatial origin. The underlying actor structures at the municipal level are hardly or only indirectly captured (Sipple & Schanz 2019). However, there is also an increasing amount of research dealing with alternative food networks and solutions (Doernberg et al. 2019; Feagan 2019; Tucci 2020; Baldy & Kruse 2019; Blay-Palmer et al. 2019; Biel 2016). For example, research by the University of Stuttgart (2021) on the transformation of urban food systems in Leipzig and Nantes, found that urban food networks are organized on a very small scale and do not have broadly based options for action available due to the lack of political support. According to the study, taking alternative food system initiatives into account in policy making would open up new opportunities for action and implementation, enhancing their transformative potential (Kropp & Da Ros 2021). Another study that focused on local food systems explored the concept of food democracy by analysing a particular food initiative in Missoula, Montana to identify key dimensions of food democracy (Hassanein 2008). In addition to general analyses, network analyses have also been conducted in the food context with spatial reference. However, these often refer to the African context such as Zambia (Schiffer 2018) and the focus of the studies is often on food security. In the European context, the potential of network analyses to improve urban food systems has also already been recognized through research in Leuven (Belgium) (EIT Food 2020). Thus, there is already a scattered body of research on the benefits of network analysis of CRFS in Europe, but these relate only to a single study area and do not consider different CRFS and European areas. This European network analysis of CRFS within FoodE, combining cases from six European countries thus will help to fill an existing research gap by identifying the roles and relationships of actors in the food chain. Our research describes the relationships within different types of CRFS networks in Europe. Detecting the strengths and

weaknesses in the actors' relationships helps us to identify factors within the networks, that are either supporting or hindering for the sustainable transformation of the local food chains.

WP6 of the FoodE project examines enablers and especially barriers that can have various impacts on the planning, implementation and management of sustainable CRFS. Those barriers may occur at different levels and stages of the food chain (see **Figure 1**). They may exist directly on the project level and influence its implementation, but they can also have an impact at national and European level. This work package highlights the differences and commonalities among the different spatial levels in terms of inhibiting and facilitating policies and, in addition, the different regulatory frameworks among different European cities and regions. As the barriers to urban food production in various European cities are not sufficiently known and investigated, this work package aims at 1) analysing these barriers to CRFS and, 2) making recommendations regarding the successful promotion and implementation of CRFS, based on best practice examples and the analysis of these different policies. The overall aim is to foster the sustainability of the food systems towards approaches that are beneficial for operators as well as for consumers and the society as a whole.

In Task 6.1, policies at different levels (local, regional, national and supra-national) were analysed to identify areas of need for action resulting seven policy factsheets in seven policy factsheets which provide an overview on EU and national regulatory framework conditions and policies, which are relevant for the development of sustainable CRFS, present current constraints and challenges of CRFS in the respective policy field as well as examples, possible solutions and recommendations (Deliverable 6.1).

This second Deliverable 6.2 analyses the roles and relationships of different actors in the food chain, building on an interview-based mapping tool to understand and visualise the state of existing networks in the case studies cities.

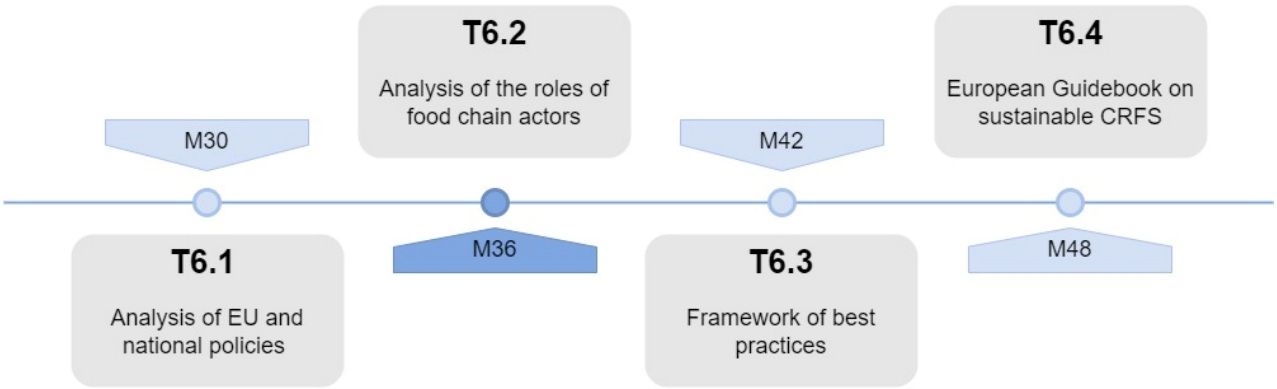

Figure 1: *Structured and chronological overview of WP6. This report covers the second phase of WP6 (task and Deliverable 6.2) due in month 36 of the FoodE project (figure: ILS/FoodE)*

2 Methodology

In order to analyse and understand the networks of the individual CRFS, the "Net-Map" tool was chosen for social network analysis (SNA). This method facilitates the visualization of food networks with their constituent actors and their interrelationships. In the following sections, the Net-Map tool is explained and defined in general and more specifically in relation to food systems. The mapping of stakeholders was limited to seven CRFS within the FoodE consortium where local FoodE partners from higher education institutions (HEI) and municipalities were able to conduct the Net-Map interviews and analysis (for details see section 3).

2.1 Net-Map Tool

Net-Map is a tool to gather data for social network analysis. SNA is a scientific method to capture and analyse social behaviour or networks through relationship structures (Herz et al. 2014). The aim of SNA is to show the relationship structures between actors. This analysis tool may differ in terms of analytic perspectives taken, which can look at both the overall network and egocentric networks, but it always has the same components regardless of these perspectives: Nodes, Ties and Network (ibid; Borgatti et al. 2018; see **Figure 2**).

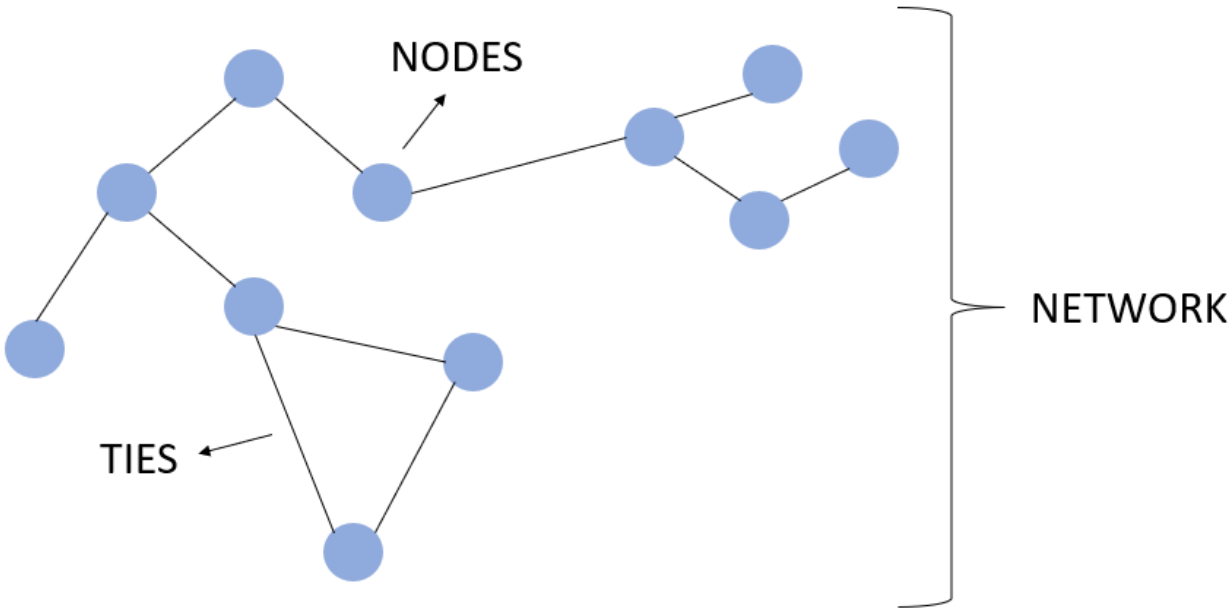

***Figure 2**: The components of the Social Network Analysis (figure: ILS/FoodE)*

The nodes represent the single actors, which can be both individual and collective (Borgatti et al. 2018). The ties represent the connections between the actors mapped. These connections can include different types, such as social relations or flows such as resources. The two components together form the result of the SNA, namely the network (Borgatti et al. 2009). Network maps and thus the visualization of social relationships represent the intended outcome of this analysis tool (Herz et al. 2014).

The tool used in this project is a specific form of SNA, the Net-Map tool. It is an innovative interview-based and participatory mapping tool that includes both qualitative and quantitative research

elements (Schröter et al. 2018). This tool can be used to make the complexity of networks visible and understandable and highlight the structures as well as the conflicts and potentials in a network in order to be able to work out strategies and concepts regarding an improvement of the network (Schiffer & Hauck 2010). To carry out the tool, it is indispensable to establish an overarching research question on which the entire process is based. This question should precisely formulate the purpose of this network mapping (ibid; Borgatti et al. 2009). The process of the Net-Map tool follows four steps (see **Figure 3**).

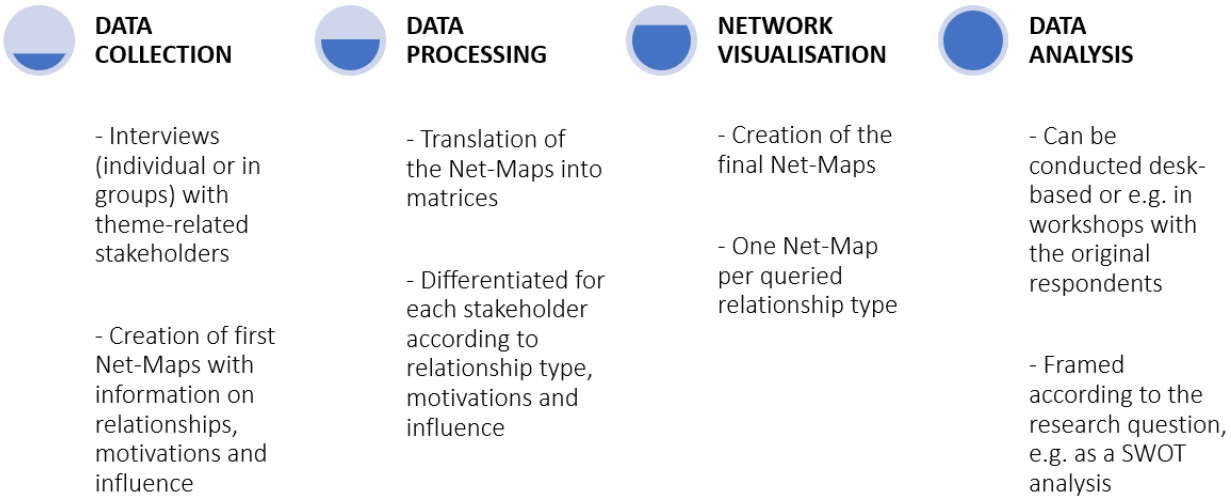

Figure 3: *Overview of the steps of the Net-Map tool in general (figure: ILS/FoodE)*

The **first step** consists of one-on-one interviews, in which individual Net-Maps are created together with the interviewee. The interviews can be conducted both online and face-to-face. To achieve an overall picture of the network, it is important to interview one representative of every actor group (Schröter et al. 2018; Schiffer 2007), such as public bodies, civil society initiatives or business. For further qualitative analysis of the networks expanding on the visual output, the conversations that take place during the mapping interviews are recorded and transcribed. To be able to answer the overarching research question, the interviews are structured by and conducted along four supplementary research questions. According to Schiffer (2007), these four questions are generally as follows:

1. Which actors are included? **(Actors)**
2. In what ways are these actors linked? **(Relationships)**
3. How influential are these actors in the network? **(Influence)**
4. What are their goals or motivations in this context? **(Motivations)**

Accordingly, the first area to be worked on together in the interviews is the identification and recording of actors who, from the point of view of the interviewee, are relevant or existent in relation to the topic. The identified actors are then written down on cards. If the interviews are conducted online, this can also be done with virtual post-it notes using an online whiteboard. These selected actors then form the basis for the three further questions (Schiffer 2007; Schiffer & Hauck 2010). Subsequently, the relationships and linkages between the selected actors are systematically queried and recorded. Arrows are used to symbolically reflect the direction of relations. Different types of connections can be queried, such as existing supportive or obstructive relationships, as well as currently absent relationships that the interviewee considers would be beneficial. These are

represented by different coloured arrows (ibid; Schröter et al. 2018; Borgatti et al. 2018). After looking at all the actors in relation to each other, the next two steps will take a closer look at the individual actors. First, their respective influence in the network (with regard to the overall research question) will be assessed and recorded by means of an influence tower – a stack of coins or similar items. The height of this tower would then represent the level of influence (Schiffer 2007). In the last step of the interviews, the motivation of the chosen actors for engaging in the network is assigned from the perspective of the interviewee (ibid; Schiffer & Hauck 2010).

After the interviews have been conducted and the data collection is completed, the **second step** is to transfer this data into matrices (e.g., in spread sheets), which form the basis for the chosen visualization program (ibid). Separate files are created for each supplementary research question and its content, accumulating the information gained in the separate interviews into a joint spreadsheet. In the area of ties between the actors, a differentiation is also made according to the individual categories of ties (Hauck & Schiffer 2012; Borgatti et al. 2018). Consequently, the result of the data transfer is one sheet for the motivations, one for the influence and one for each selected relationship category.

The **final step** of the tool is the electronic visualization of the networks. This is done with a visualization software. For this purpose, the spreadsheets created in the previous step are loaded into the respective programme to combine the individual Net-Maps into one overall network map incorporating the views of all interviewees on the system. Through the final visualization, an analysis of the network and its individual parameters can be carried out with regard to the overarching research question. It can help to better understand the connections in the network and the network itself, and thus to map the dynamics in it (Schiffer & Hauck 2010).

In the literature, advantages as well as disadvantages of this tool are described. On the one hand, the tool supplements the classic SNA with qualitative data and thus offers more possibilities for analysis. In addition, the visualization of the results creates a tangible basis for discussions within the networks, as the results are easier to understand than in a classic SNA (Schröter et al. 2018). On the other hand, large and complex networks may be difficult to map, and the analysis can be confusing and even obstructive at times (ibid.).

2.2 Net-Map process for seven European CRFS networks

The Net-Map tool was used in this Deliverable to visualize and analyse examples of European food systems. It was applied in seven cities and their CRFS: Romainville (France), Dortmund (Germany), Bologna and Naples (Italy), Lansingerland (The Netherlands), Oslo (Norway) and Tenerife (Spain). These seven cities and regions were selected because of their varied characters that created specific CRFS and focal points in terms of food system transformation:

- they represent a range of sizes, from a small, rural municipality such as Lansingerland up to large metropolitan regions with several million inhabitants such as Naples
- they include coastal/island as well as inland locations and a wide geographical range from the very North to the very South of Europe
- they cover a diversity of socio-economic conditions, from low- to high-income areas, industrial and agricultural, as well as highly touristic to mostly self-contained
- they provide insight into a variety of aspects of CRFS, such as different products (fisheries, horticulture), types of marketing (farmers' markets) and socio-political aspects (education, innovation and networking).

The choice allows for a differentiated view on food system actors' networks in Europe. For this purpose, the three steps of the described Net-Map tool (see section 2.1) were applied. In addition, a step for preparation as well as a step for subsequent completion were added (see **Figure 4**).

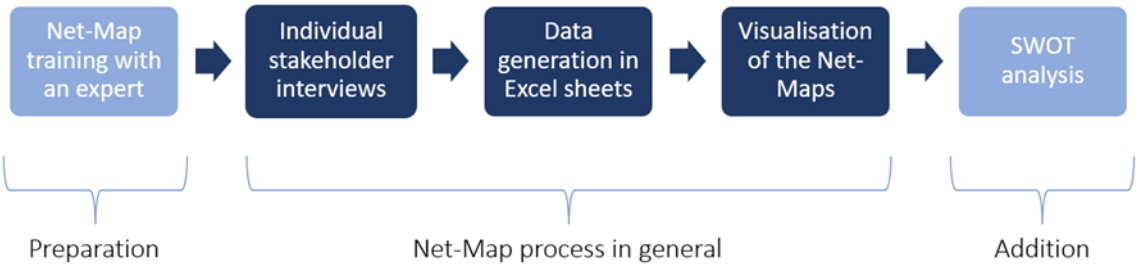

Figure 4: *Overview of the methodological steps in Task 6.2 (figure: ILS/FoodE)*

2.2.1 Net-Map Training

As can be seen from **Figure 4**, a preparation phase was carried out beforehand. For this purpose, a training in the form of a two-day workshop was conducted in September 2022 with a well-known expert in the Net-Map tool, Dr. Barbara Schröter. During this training, the Net-Map tool in general was introduced to all participants, followed by a set of exercises in small groups. The workshop also offered a space to formulate the individual research questions of the respective cases studies for the subsequent interviews. Furthermore, the team agreed on the types of relationships and motivations to be mapped, and how to represent them. This training thus contributed to a common understanding within the research group and established framework conditions and components for the subsequent steps.

2.2.2 General and location-specific research questions

During the Net-Map training, the research questions were developed. The main general research question "Who are the important actors in developing a sustainable CRFS in [city name] nowadays/in the year 2022 and what are their motivations, roles and relationships?" was asked among the FoodE partners to find a specific local focus.

For each case city and their CRFS the research questions were adapted to better fit the different site-specific CRFS framework as follows:

- **Dortmund:** Who are the important actors working towards the transformation of the food system in Dortmund in 2022? And what are the obstacles and challenges in terms of their relationships?
- **Bologna:** What is the governance related to farmers' markets in Bologna, and how is it influenced by related policies at city level? Who are the stakeholders involved in the farmers' market in Bologna and how are they related to each other in terms of influence, networks and power dynamics?
- **Naples:** Who are the important actors working towards the transformation of the food system in the Metropolitan City of Naples in 2022? And what are the obstacles and challenges in terms of their relationships?

- **Romainville:** Who are the important actors surrounding the pilot CRFSI around local food producing and access in Romainville in 2022? What are their motivations?
- **Oslo:** Who are the important actors who are working to develop sustainable job opportunities within the CRFS in Oslo in 2022?
- **Lansingerland**: Who are the important actors, motivations and relationships in the CRFS (greenhouse horticultural sector) in Lansingerland to start a sustainable transition towards fossil-free horticulture in 2022? Who are the actors, motivations and relationships in the greenhouse horticultural sector in Lansingerland to make the sector economically (i.e., viable), environmentally (i.e., fossil-free, emissions free), socially (i.e., employment, food security) sustainable?
- **Tenerife:** Who are the important actors in the Small-Scale Fisheries value chain in Tenerife in 2022? How do they promote a sustainable system and what are their motivations?

2.2.3 Individual Stakeholder interviews

The second step, conducting the individual stakeholder interviews, finally introduced the Net-Map tool. As already explained in section 2.1, individual interviews were conducted with stakeholders from different backgrounds. By including people from different professional spheres as interview partners, an overall picture and different perspectives of the network could be mapped. These were actor spheres such as public administration, but also the civil society and the local business sphere. The interviews were conducted by the respective research teams with a focus on their specific research question but following the same process. In order to provide a quick entry point for the discussion of the food networks, the research teams pre-selected about 20-40 actors based on previous research by thoroughly scanning the CRFS networks. The 20-40 actors were then introduced to the interviewees. From this selection, the interviewees were asked to name other actors who had not been mentioned before. From these identified actors, the next step was to select actors whom they considered particularly relevant or influential to the food system in their city or region. In some cases, a minimum number of 5-10 actors was selected for this step, while in other cases no minimum number was set for selection. The restriction to a limited number of actors reduced the length of the interviews and kept the complexity of the networks manageable although in some cases the number of actors named exceeded 10 by far. After the interviewees had selected their actors, relationships between them from the interviewee's point of view were queried. The four relationship types defined in the training, *Support, Commercial, Hindering and Desired*, were applied to each pair of actors. Subsequently, each selected actor was assigned motivation(s) by means of symbols. Interviewees could choose between the motivations *Common Good, Commercial, Awareness & Education* and *Strengthening regional food system* with multiple answers possible. Finally, the interviewees also assigned the respective influence on the food system to the actors. For this purpose, the influence tower discs with a scale of 1-5 were used (see section 2.1) with 1 representing a very low influence, while 5 shows the highest influence.

2.2.4 Data processing

After the interviews with the individual stakeholders had been conducted, the data collected on their maps was entered into Excel sheets as described in part 2.1. The data generation process followed the same three steps in all categories. First, Excel sheets were created for each individual interview.

In the second step, the results from the individual maps were entered into the files and in the last step, a summary Excel sheet was created for each category.

Motivations and influence:

The Excel files for the motivations and the influence contain the lists of actors that formed the starting point at the beginning of the individual interviews. It is important that these actors are entered in the same order in all individual files. Since not all interviewees chose the same actors, the actors that were not named by anyone are not filled in the file, but were not removed from the list. At this stage, the results from the individual Net-Maps were entered along the four types of motivations with a scale of 0-2 (0 = is not present, 1= is present, 2 = primary motivation). Finally, the results were then summed up in a separate sheet. Regarding the influence, the values assigned in the interview from 1-5 of the influence markers were assigned to the respective actors. The results for the influence were then also summed up. The influence and motivations assigned to the actors were visualised with simple bar charts.

Relationships:

Regarding the category of relationships, the relationship types (supportive, desired, hindering and commercial) were generated separately, i.e., there are four different Excel files at the end showing the relationships. The actors were listed in the exact same order on the x-and y-axis of the Excel sheet in order to enter their relationships. The record of the relationships that have been mapped by the interviewees is then entered with a scale of 0-1 (0= no relationship and 1= relationship present). This procedure was repeated for all four relationship types.

2.2.5 Visualization of the Net-Maps

To generate the final network charts for the individual CRFS, the described Excel sheets containing the relationship types were transferred to the visualization program and analysis tool Gephi 6.0 (Bastian et al. 2009; Leimkühler 2023), which created four different network graphs per CRFS from the raw data, from which all specified connections were finally visible and thus an analysis of these networks could be carried out. In the visualization of the maps, the three different actor spheres were differentiated by color-coding them (civil society actors in green, local economy actors in blue and the public administration/government actors in yellow). This colour differentiation allows for drawing conclusions from the maps regarding the interconnectedness of these spheres. Basically, the Gephi 6.0 program represented the relations between the actors by connecting arrows. The wider the stroke width of these arrows, the higher the number of mentions for that relationship. In addition to the purpose of analysis by the research teams, the maps also could serve as a basis for discussing the picture of the network that emerges in a workshop with the interviewees. The data on motivations and influences, also collected in the individual network maps, were presented in the form of diagrams. Furthermore, a qualitative analysis of the interviews was included based on a coding of the transcribed interviews. In addition to the Net-Maps, it was thus possible to obtain further information “between the lines” and thus understand reasons for individual assignments by the interviewees (Leimkühler 2023).

Furthermore, it has to be mentioned that different conditions prevailed in the individual CRFS and certain degrees of freedom were given in order to better adapt the tool to the corresponding conditions and to be able to carry out the Net-Map tool appropriately. Accordingly, the tool was handled flexibly in the different cases.

2.2.6 Analysis of Strengths, Weaknesses, Opportunities and Threats (SWOT)

In addition to the previously described Net-Map steps, a SWOT analysis was carried out for each CRFS as final step. In order to analyse the materials based on the interviews and the network analysis, the strengths, weaknesses, opportunities and threats were identified and compiled in a table.

The SWOT analysis was carried out either by the research team or, given the willingness of the interviewees, in a small stakeholder workshop. This was the case in Dortmund, where one stakeholder from each sphere (civil society, food economy and public administration) took part in the discussion. For this purpose, the results, which include the network maps as well as the charts of motivations and influences, were presented to the participants. The group was first asked what their impressions were, very generally, and then guided through a process looking at the maps and diagrams in more detail. This created an opportunity to express new ideas and problems, and discuss possible solutions (Leimkühler 2023). Through the ideas and suggestions that were summarized in the SWOT table the stakeholder workshops offered the opportunity to collect further aspects that would contribute to the improvement of the respective CRFS. As said, in most case studies, the SWOT analysis was carried out by the research team itself, based on the qualitative analysis of the individual interview transcriptions.

3 Net-Mapping Results of the CRFS

As mentioned in section 2, the Net-Map tool was performed for seven city-regions. An overview of these seven case studies and their research questions, which provided the framework for the tool, can be seen in **Table 1**.

#	Country	CRFS	Research question
1	Germany	Dortmund	Who are the important actors working towards the transformation of the food system in Dortmund in 2022? And what are the obstacles and challenges in terms of their relationships?
2	Italy	Bologna	What is the governance related to farmers' markets in Bologna, and how is it influenced by related policies at city level? Who are the stakeholders involved in the farmers' market in Bologna and how are they related to each other in terms of influence, networks and power dynamics?
3	Italy	Naples	Who are the important actors working towards the transformation of the food system in the Metropolitan City of Naples in 2022? And what are the obstacles and challenges in terms of their relationships?
4	Norway	Oslo	Who are the important actors who are working to develop sustainable job opportunities within the CFRS in Oslo in 2022? What are the roles, motivations and relationships of actors in Oslo who are working to develop sustainable job opportunities within the CRFS?
5	France	Romainville	Who are the important actors surrounding the pilot CRFSI around local food producing and access in Romainville in 2022? What are their motivations?
6	Netherlands	Lansingerland	Who are the important actors, motivations and relationships in the CRFS (greenhouse horticultural sector) in Lansingerland to start a sustainable transition towards fossil-free horticulture in 2022? Who are the actors, motivations and relationships in the greenhouse horticultural sector in Lansingerland to make the sector economically (i.e., viable), environmentally (i.e., fossil-free, emissions free), socially (i.e., employment, food security) sustainable?
7	Spain	Tenerife	Who are the important actors in the Small-Scale Fisheries value chain in Tenerife in 2022? How do they promote a sustainable system and which are their motivations?

Table 1: *Overview of the case studies (figure: ILS/FoodE)*

For each of the seven case studies, a background description is first given on the respective cities and their CRFS, as well as their focus and general implementation. This is followed by an analysis of the network maps in addition to the motivations and influences. Finally, the network analysis and the additional interview material are used to draw up a SWOT analysis for each CRFS in order to create an overview that shows opportunities and potentials as well as obstacles and problems for a transformation of the food system in consideration of these aspects.

3.1 Dortmund (DE)

The city of Dortmund is located in the west of Germany in the federal state of North Rhine-Westphalia. Its CRFS is the subject of this case study. A characteristic of the city and thus of the CRFS is that it is embedded in the polycentric agglomeration of the Ruhr Valley with its post-industrial urban structures. These structures are also reflected in the CRFS, as industrial agriculture and its marketing structures dominate in the city. In contrast to other metropolitan areas, the Ruhr Valley is a patchwork of urban and peri-urban spaces, with a relatively high percentage of agricultural land, overlaid with another patchwork of local government structures (4 districts and 11 towns and cities, of which Dortmund is the biggest with about 590.000 inhabitants as of June 2022) (Volmerich 2022). The fact that each urban centre in the Ruhr Valley has retained at least some of its peri-urban agricultural area is reflected in the boundary drawn by the local informants around their CRFS: all actors considered in the mapping are located within the city limits. While the area has retained a relatively high number of active farms, this local production does not currently translate into high levels of direct marketing and consumption of mostly local produce.

A rethinking of the CRFS is taking place in the city, materializing in various initiatives and recently introduced policies. The *Klima und Luft 2030* (Climate and Air 2030) plan passed by the City Council in 2021 emphasizes the importance of food and agriculture activities (Stadt Dortmund Umweltamt 2021). As a part of this plan, the city of Dortmund has collaborated with civil society in setting up a local Food Policy Council with the aim to provide a platform for a network of local actors to work on improving the sustainability and regionality of the city´s food system (ibid.). Due to the fact that the Dortmund Food Council has started its activities already and is working on creating a network of local CRFS actors, it could be of importance for network building in Dortmund.

Another goal of the city of Dortmund is to improve local and regional production and marketing (ibid). For this reason, the focus for Dortmund is placed on all actors in the city area who are relevant for the final network formation and for the improvement of production and marketing. In addition to identifying the relevant actors, the connections between them were to be examined more closely in order to highlight obstacles or problems in the existing network and to show potential for improvement (growth and strengthening) by the Dortmund Food Policy Council or other actors. The following research question has emerged against this background:

> Who are the important actors working towards the transformation of the food system in Dortmund in 2022? And what are the obstacles and challenges in terms of their relationships?

For this purpose, a total of six individual interviews were conducted in digital format according to the Net-Map tool (see section 2.1) and additionally transcribed for further qualitative analysis purposes. The interview partners were selected with a view towards achieving a holistic view of the CRFS in Dortmund, by including the equal participation of respondents from different spheres: civil society, food economy and public administration. The final set of interviewees represents initiatives embedded in the CRFS, local agriculture business as well as municipal departments dealing with the topic of food. In addition to the individual interviews, a group workshop was conducted, involving a representative from each stakeholder sphere. In the context of this workshop, a SWOT analysis was conducted in addition to the discussion of the Net-Map results. The aim was to reflect upon the combined Net-Maps and discuss strengths and weaknesses, as well as future opportunities in order to develop solutions to improve the current CRFS.

The following section presents results from the Net-Map analysis. First, the supporting relationships of the network are described and analysed, followed by the desired, the hindering and the commercial relationships. Then the motivations and influences ascribed to the actors are examined in more detail. Finally, approaches to solutions and difficulties for the transformation of the CRFS for Dortmund are highlighted by means of a SWOT analysis. As the different actors in the four Net-Maps are displayed with their German names, a list of these with their translation and description in English has been included in Annex 7.1.

Supportive relationships in the network

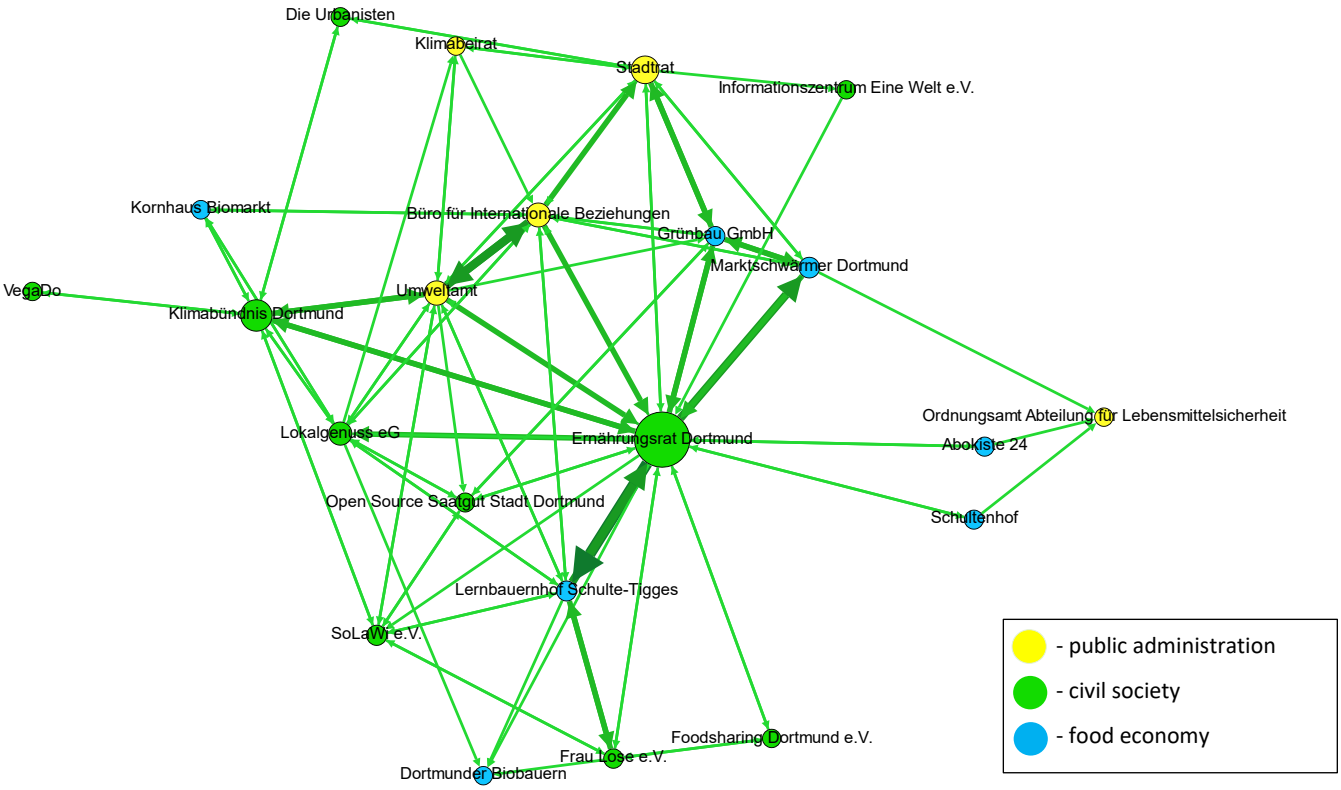

Figure 5: *Net-Map of the supportive relationships in the CRFS in Dortmund (figure: ILS/FoodE)*

The visualization of supportive relationships (see **Figure 5**) – which can include information exchange, networking, cooperation or promotion – shows, where and in what form networking between the different actors already exists and which actors currently play a central role. Basically, the map shows that all three spheres of actors are interconnected. But there are also links within the spheres, especially visible among the institutions of public administration. This can be derived from their intra-administrative cooperation. Overall, the public administration actors are considered to have a very high level of influence (see **Figure 5**), which ascribes to them a great responsibility or opportunity regarding the transformation of the food system. However, despite their great influence and strong links to each other, it is a civil society actor, the recently established *Ernährungsrat Dortmund* (Dortmund Food Policy Council), that acts as the central key actor for the CRFS network in Dortmund. On the one hand, it has the most connections to other actors (the size of the node reflecting its betweenness centrality) and on the other hand, it was also assigned the highest influence due to its networking (see **Figure 5**). This is an initial indicator for the Food Policy Council

by and large fulfilling its function and task of creating and further expanding a food network in Dortmund. Its relevance is also recognized by the city authorities and promoted through close cooperation with public bodies such as the *Umweltamt* (Environmental Agency) or the *Stadtrat* (City Council). This support is also exemplified by the city´s intention to create a staff position that will further support the Food Policy Council.

In the area of economic actors, the *Lokalgenuss eG* (Food Co-Op) is assigned an important networking function. It plays a special role in the regionalization of food in Dortmund. As mentioned above, public administration actors have a particular opportunity to influence the improvement of the CRFS (see **Figure 5**). In this group of actors, the City Council is the key position, as it is the political decision-maker. It is responsible for creating the framework conditions for a transformation and is thus responsible for its implementation. By supporting the Dortmund Food Policy Council and setting up a *Klimabeirat* (Climate Advisory Council), the City Council demonstrates its awareness of the importance of a food transition and the political will to actively promote this. Among the economic actors, the *Lernbauernhof-Schulte-Tigges* (Educational Farm “Schulte-Tigges”), which combines the themes of food and agriculture with the field of education and pedagogy, also is assigned the greatest influence (see Figure 5). In the interviews it was also highlighted that the Educational Farm is the only economic actor in the Dortmund network that combines nutrition and education. In this group, *Marktschwärmer* Dortmund (Food Assembly Dortmund) also is seen as an important and unique player, as it helps to bridge the gap between farmers and the urban population, which often exists in urban areas.

Overall, it can be deduced from this first Net-Map that there is a fundamental networking and cooperation between the different actors in Dortmund and that there is also a willingness to support each other and transform the food system.

Desired relationships in the network

Even though a wide-ranging network of relationships already exists in Dortmund, some gaps and desired future relationships were also noted in the interviews (see **Figure 6**). The desired relationships encompass (new or increased) information exchange, networking, bundling of interests, financial and other material support, and the creation of synergies.

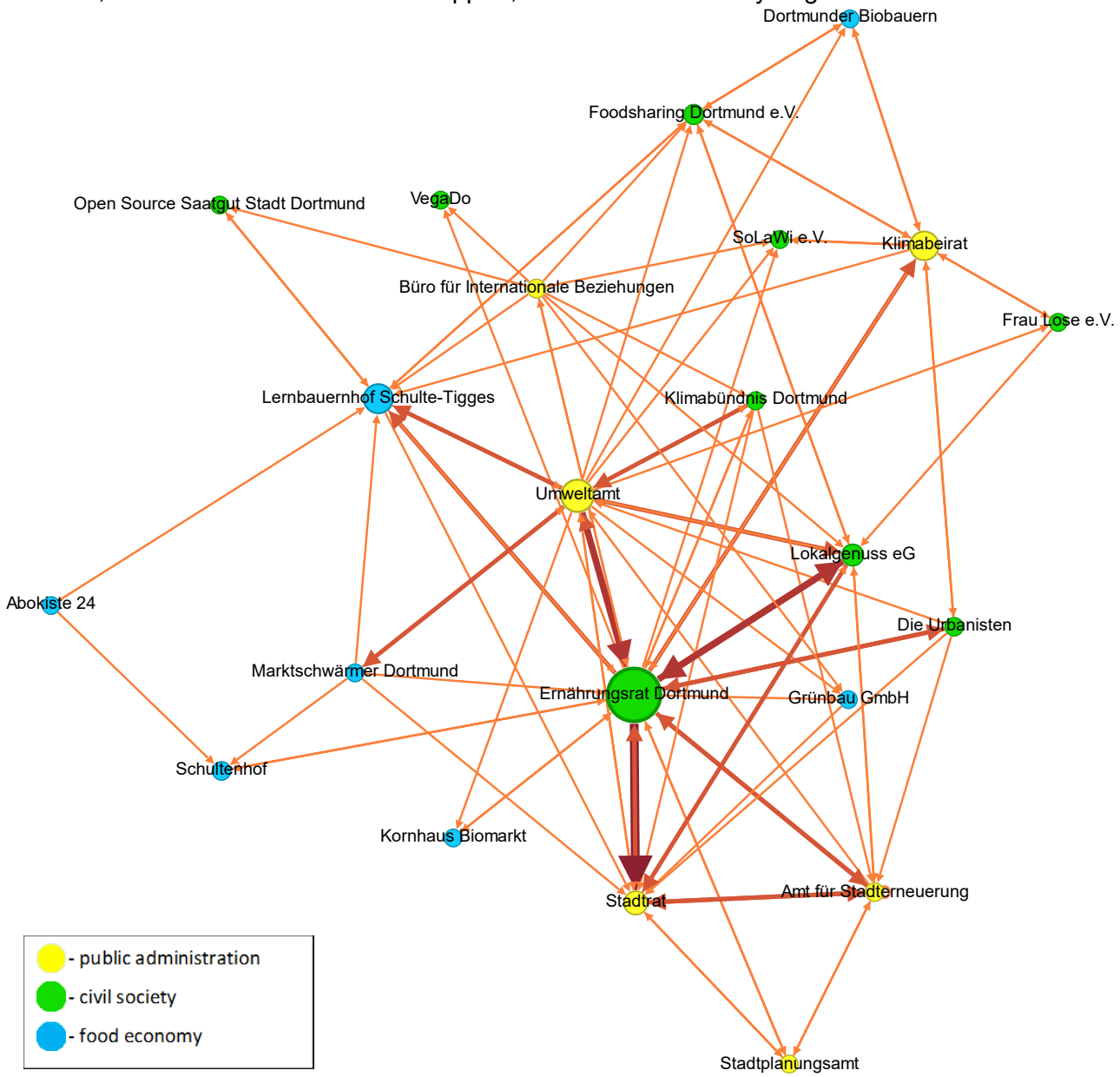

Figure 6: *Net-Map of the desired relationships in the CRFS in Dortmund (figure: ILS/FoodE)*

Here, again the Food Policy Council is in the main focus of the desired relationship. This reflects in part its recent creation – although the Food Policy Council has managed to establish some links with other actors, these are not yet considered strong enough, and building an even larger network is considered desirable. Since the Food Policy Council was assigned the greatest influence in the network and was thus supposed to have the highest potential for transformation, its networking activities as most central actor could be enlarged. In addition, the City Council was seen to have a very strong influence, so that a desired closer cooperation with the Food Policy Council could successfully advance the transformation of the food system. This desired link between these two key players was most frequently mentioned.

Since the previous results showed that both the Food Policy Council and the Food Co-Op are important networking actors within their stakeholder sphere, the interviewees highlighted a desired connection between the two, as this would allow two important and central stakeholder spheres to work together in a more coordinated manner. As both initiatives have been established only recently, this may happen in the future.

Regarding the desired relationships, the networking of the Educational Farm in general and especially with the Food Policy Council is also mentioned. According to the interviewees, this additional networking would more strongly involve and promote the educational component, which plays a central role in the transformation regarding the meaning and understanding of the CRFS. This could form a basis for getting more people interested in the topic of food and thus mobilizing more people in this area in the future. But there is also a desire or a need for cooperation between the other economic actors. For example, cooperation between initiatives such as the Food Co-op and *Frau Lose* (Zero-Packaging shop) would allow for a more efficient design of food chains and thus processes.

However, even within the government sphere, stronger and more coordinated cooperation is desirable from the point of view of the respondents. Intensified cooperation between municipal authorities would make it possible to implement grants and permits more efficiently and faster, thus speeding up the transformation process. It becomes clear that actors who already occupy a key position in the actor network in the status-quo in terms of support, also occupy a key position in terms of desired connections.

Hindering relationships in the network

In addition to the desired relationships, the existing hindering connections between the actors were addressed, which affect the transformation of the CRFS. Looking at these hindering relationships mentioned by the respondents, it becomes apparent that in contrast to the two Net-Maps described so far, fewer interconnections have been highlighted (see **Figure 7**). Obstacles may include bureaucratic hurdles such as slow-moving or non-transparent approval processes and regulations, but also deficits in human and financial resources. Conflicts arising from different interests and concerns as well as the lack of cooperation can also be manifestations of this category.

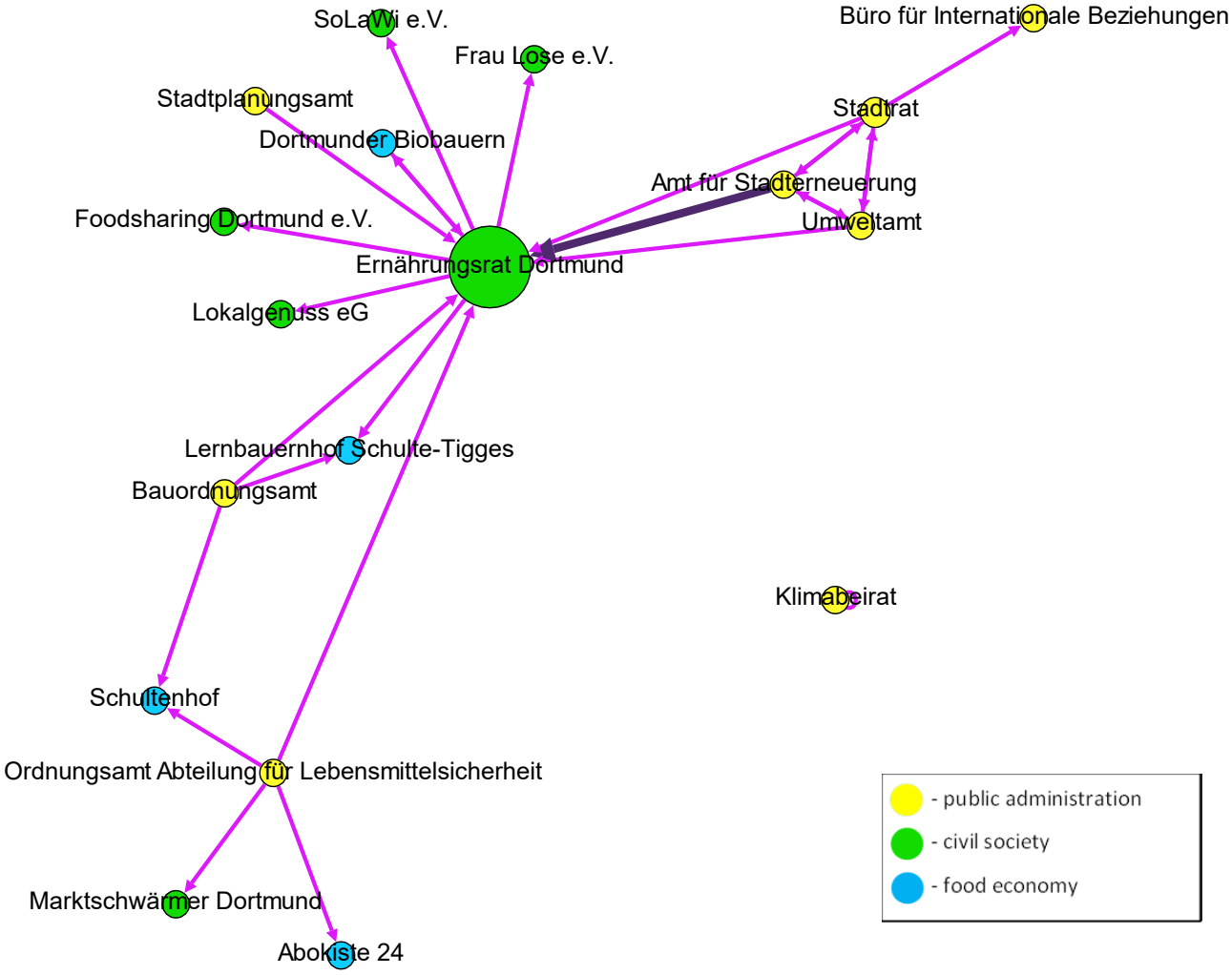

Figure 7: *Net-Map of the hindering relationships in the CRFS in Dortmund (figure: ILS/FoodE)*

Basically, for all three spheres, hindering relationships have been mapped. However, many of the actors displayed in the other Net-Maps are not represented in this relationship category. A central finding of this map is that the Food Policy Council is also the central actor here and thus has the highest presence in the network in this respect. Among other things, the respondents attribute this to a lack of organization and time resources.

But also, the public administration actors are often seen as central actors and thus responsible for hindering the transformation of the CRFS. This is evident from the "relationship triangle" created between the City Council, the *Amt für Stadterneuerung* (Urban Renewal Department) and the Environmental Agency. This triangle thus represents the mutual obstruction of these actors and consequently within the existing administrative structures and processes. The reasons for this are deficiencies in internal administrative communication, inflexibility regarding the implementation of

regulations, and slow approvals of projects. However, the lack of a specific contact person or a central contact point on the part of the city was also pointed out as a reason. Another striking feature of this network is that the Climate Council is located outside the network. This is due to the fact that this actor is hindered by its own structures in that its members come from different disciplines and thus follow other interests than establishing a CRFS. This makes it difficult to reach a consensus within the structures, and therefore hinders the transfer of the CRFS.

Commercial relationships in the network

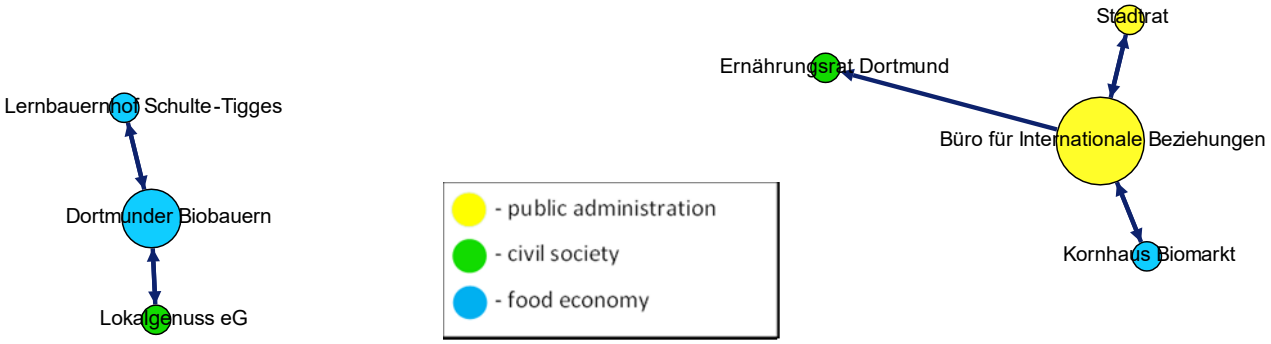

Figure 8: *Net-Map of the commercial relationships in the CRFS in Dortmund (figure: ILS/FoodE)*

The last Net-Map, which provides results for the analysis of the network of actors in Dortmund, shows the commercial relationships (see **Figure 8**). These include fees and sales activities such as catering booking and their monetary flows.

The map shows that business relationships are not strong in the Dortmund network, as only seven players are in such a relationship with each other. There are two independent dynamics, which are centralized by one actor each: an economic actor, the *Dortmunder Biobauern* (Dortmund organic farmers), and an actor of the public administration, the *Büro für internationale Beziehungen* (International Relations Office). The Dortmund organic farmers focus on commercial intentions in the form of selling their products. In this context, they have links to the Food Co-Op and to the Educational Farm “Schulte-Tigges”. At the International Relations Office, which has relationships with the City Council, the Food Policy Council and the *Kornhaus Biomarkt* (“Kornhaus” organic shop), these connections are expressed through the awarding of fees and catering bookings for events. This shows that civil society actors do not have any commercial links. This result is also reflected in the stated motivations of this stakeholder sphere: at only 11%, economic aspects do not play a major role (see **Figure 9**). This Net-Map shows that there is no strong networked and active organization of the commercial relations between the food system actors working towards the transformation of the CRFS in Dortmund.

Motivations and Influence of the actors

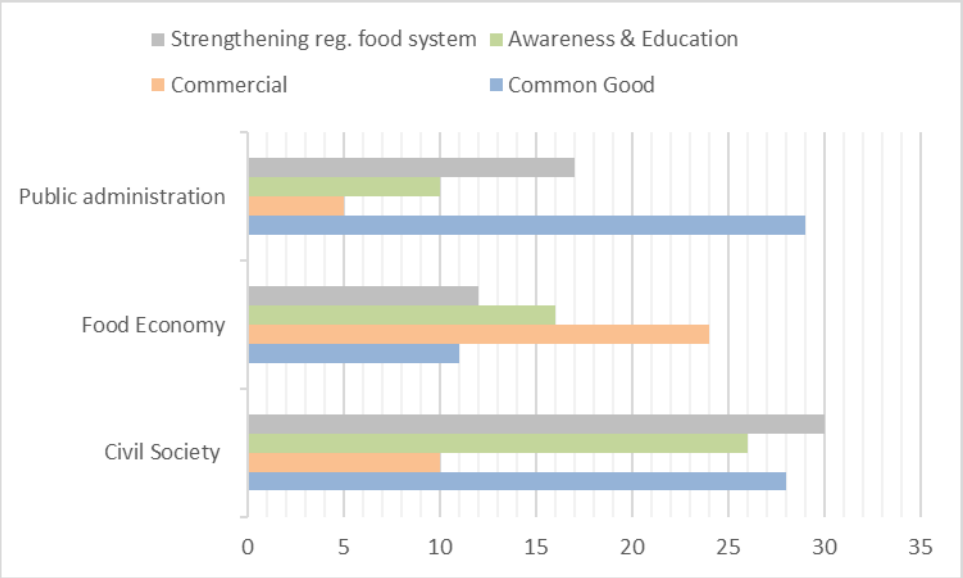

Figure 9: *Motivations ascribed to the actors in the Dortmund CRFS differ according to sector. (Figure: ILS/FoodE)*

In addition to the relationships between the individual actors, the motivations of these were also evaluated and presented for the three actor spheres in a bundled form, and an overall evaluation was also prepared (see **Figure 9**). Basically, it can be seen that the commercial aspect is only a major focus for the food economy actors, while the principal motivations for the other two spheres are the common good and strengthening the regional food system. The overall evaluation bar (in total) shows that the three spheres of actors complement each other overall, as the types of motivation, with the exception of commercial motivation, are equally significant in the network and are also represented in equal proportions.

Figure 10 shows the influence on the transformation of the CRFS in Dortmund the respondents ascribed to the individual actors, which are again divided into the three spheres by colour. When taken in context with the Net-Maps, the public administration actors such as the Environmental Agency and the City Council are assumed to have a high influence on the CRFS (**Figure 10**), but are also seen as obstacles to its transformation at the same time (**Table 2**). Thus, these actors and their structural improvement are of great relevance. The same applies to the Food Policy Council. This is assigned the greatest potential with regard to food system transformation. Despite already existing connections it is necessary that it further strengthens its networking capacity (**Table 2**).

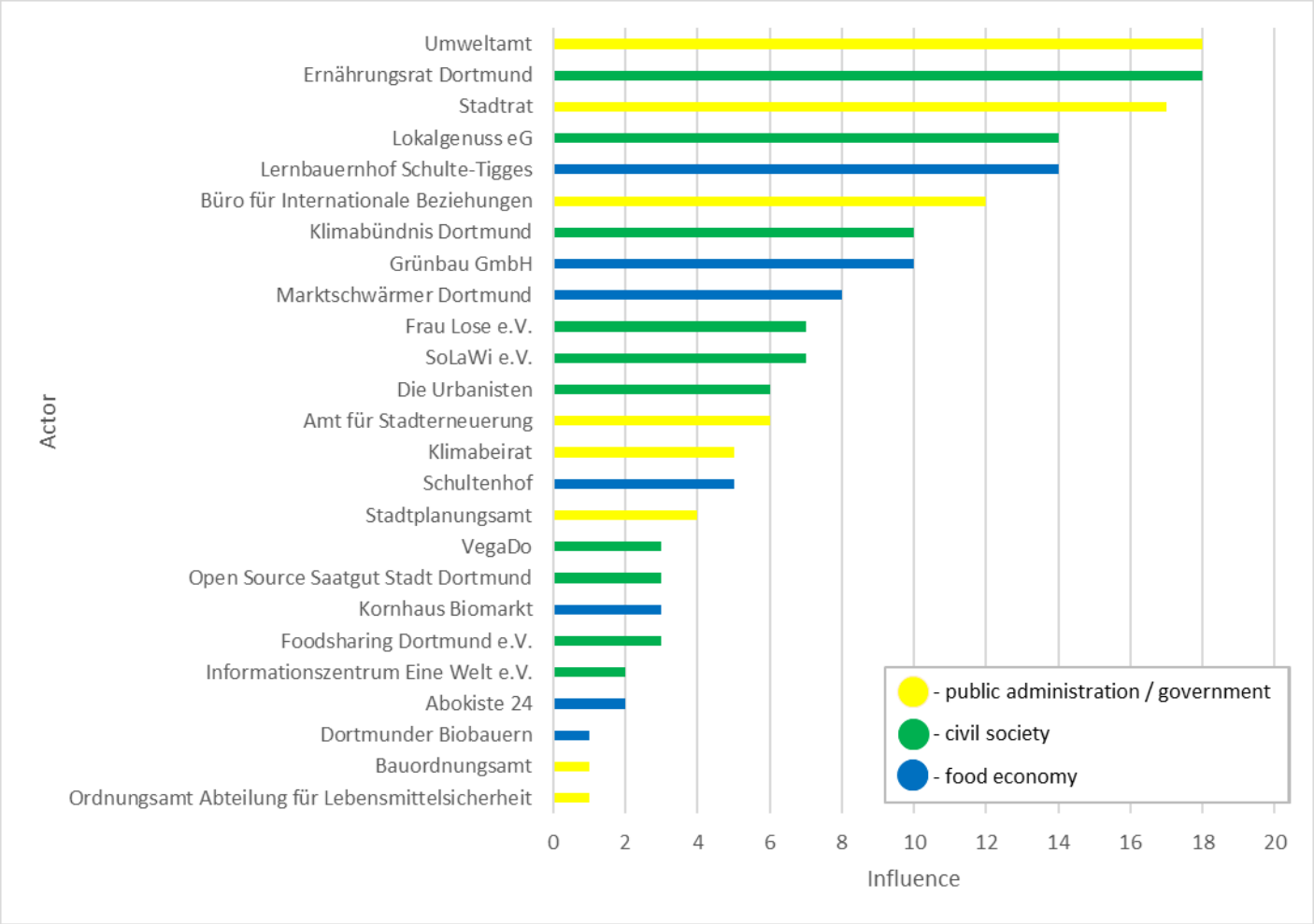

***Figure 10**: Influence ascribed to the individual actors in the network: Dortmund CRFS (figure: ILS/FoodE)*

In Dortmund, feedback on the results of the Net-Mapping process was sought from the interviewees. Three participants were presented with the maps and graphs included in this chapter and were asked their impressions and interpretations. These were discussed and documented in the form of a SWOT analysis (see section 2.2). The results for each area are shown in **Table 2**.

STRENGTHS of the stakeholder network	**WEAKNESSES** of the stakeholder network
- High level of mutual support among the actors in the network - Awareness among the actors active in the food system - Events promote networking - High degree of consistency in the commitment of the actors - The Food Policy Council is seen as a key player - Confidence in the city administration/policy - Active municipal administration - Personal active network	- Network relies in many places on personal connections - Lack of institutional capacity of the Food Policy Council - No unified definition of the concept of "food system transformation" - Lack of coordination - Lack of visibility - Lack of funding - Food Policy Council wishes to be seen as a partner on an equal footing with the city administration - Not all actors link up with the Food Policy Council

- Actors have knowledge of each other and are partly in exchange with each other	- Lack of overview of members still needed in the nutrition council - Lack of time resources of the actors
POTENTIAL and **SOLUTIONS**/ Opportunities of the stakeholder network - Strengthening the Food Policy Council in its central position - Establishment of a coordination body - Initiation of committee (Public administration, civil society and food economy) - Platform for stakeholders to come together - Consolidation of smaller projects - Strengthen the political presence of the Food Policy Council	**THREATS** / Risks of the stakeholder network - No specific threats were mentioned

Table 2: *SWOT analysis of the Net-Map results of the CRFS in Dortmund (figure: ILS/FoodE)*

Conclusion

Overall, it can be deduced from the Net-Maps and interviews that a CRFS network already exists in Dortmund and that many relationships already exist between the different actor spheres and also between individual actors within these spheres. The Food Policy Council is seen as a central and important actor, which already has a broad network, but still requires stronger networking to become a driver of the transformation of the CRFS in Dortmund. This lack of stronger linkages is therefore regarded as a weakness with regards to the ability to effect changes to the CRFS. The relevance of the public administration sphere was also highlighted by the analysis. They should become more involved in the overall network, but also improve networking and cooperation among the different departments of the public administration. Furthermore, it is clear from the maps as well as from the statements of the interviewees that the structures and processes within an individual actor as well as within a whole sphere of actors can make them a hindrance to themselves and thus also the transformation of the CRFS. Thus, a good basis already exists for the transformation of the CRFS in Dortmund, which could be moved forward primarily by individual actors and their structural improvement.

3.2 Bologna (IT)

The City of Bologna, the capital of the region Emilia-Romagna and one of the biggest cities in Italy with about 400,000 inhabitants, was chosen as a case study. Albeit being a highly urbanised setting, it is considered a medium-sized city in the European context (OECD 2012), not to be confused with the Metropolitan City of Bologna, where more than 1 million people live. Bologna is surrounded by and well connected to the countryside and farms in the second Italian region for income from agricultural business (CREA 2021).

The City of Bologna is mostly a residential area, with a high population density (more than 2,000 people per km^2), while the industrial and commercial areas develop into the lowland areas of the territory around the city (Dipartimento per gli Affari Regionali 2017a). The City of Bologna has a high soil consumption rate (between 20 and 30%), ranking among the cities with the highest per capita soil consumption, but aims to reduce that, following the European target zero net land consumption by 2050. The average income is more than 25,000€/year/per capita, slightly above the Italian average (Ministero delle Finanze 2020). Bologna is mostly a student city, a picture that eludes the official data, where an older population emerges (Dipartimento per gli Affari Regionali 2017a).

The Metropolitan City of Bologna represents the third richest territory in Italy in terms of added value per capita, which was 34,251€ in 2014, against a national average of 23,840€ (ibid.). The Bologna economy stands out as one of the most flourishing of the Italian production system, employing 2% of the national workforce (about half a million individuals) (ibid.). The food industry represents a consistent part of such value added, being both culturally and economically important to the city. In particular, the food and beverages sector is the largest in terms of manufacturing exports, the catering sector is growing, and the primary sector in the City's surroundings supplies raw materials to Bologna's flourishing food industry (where the large food cooperatives have their headquarters) (ibid.).

Given the complexity of Bologna's CRFS, researchers decided to focus on one specific aspect. The catering and hospitality industry in Bologna historically represents a unique touristic, cultural and gastronomic offering. Several famous and valuable foods are produced in the Metropolitan City of Bologna: 26 traditional agri-food products, 25 mountain products and three Slow Food Presidia (Slow Food Bologna 2020). However, albeit the gastronomy of Bologna being culturally important and famous worldwide, the attention to sourcing local products is still low. Out of the 623 agri-food companies registered with the Chamber of Commerce of Bologna, only a tiny fraction of them source from local producers (ibid.).

To the contrary, farmers' markets represent a strong urban-rural connection, where direct sales of food are supported. Moreover, the current research is relevant for Bologna, as it has 17 farmers' markets and the City Council has recently approved a new Regulation (DC/PRO/2022/76 of November 2022) to update the old one. The "Regulations for conducting direct sales markets of agricultural products" recognises many values to the farmers' markets, including the following: farmers' markets promote social innovation activating social ties, foster local and urban development creating a relationship of trust between consumer and producer, including by promoting a greater knowledge of quality local productions. On the one hand, they guarantee producers the payment of a fair price and on the other hand, they guarantee consumers, through direct relationships with producers, the quality of the products and the right value for money, also recognising the seasonality of local products and the value of healthiness of the food.

This new Regulation, albeit promoting some innovations compared to the previous one, received cautious welcome from the stakeholders affected. On one hand, on-site food consumption, which

was solicited by farmers' markets organisers, is now allowed but, on the other hand, the tables where people eat must be paid by farmers' organisations. The tax concessions on waste and public land occupancy were not granted in the amount desired by several stakeholders. Given that farmers' markets operate on narrow margins, such concessions are vital, while they are marginal in the City's budget.

The following research question has emerged against this background:

What is the governance related to farmers' markets in Bologna, and how is it influenced by related policies at city level? Who are the stakeholders involved in the farmers' market in Bologna and how are they related to each other in terms of influence, networks and power dynamics?

For this purpose, a total of eight individual interviews were conducted in person according to the Net-Map tool (see Chapter 2.1) and additionally transcribed for further qualitative analysis purposes. Interviewees were representatives of the associations organising farmers' markets in Bologna (6), the City's agricultural union (1), and the public administration at municipal level (1). Actors were selected based on previous research by thoroughly scanning the farmers'-markets network in Bologna. The final set of interviewees represents the variety of farmers' markets of the City of Bologna, with their different instances and points of view. Such variety is also represented by the interviewees' different backgrounds. All of them manage farmers' markets by holding different positions: three of them are farmers, while three work as coordinators (volunteer or paid). Such diversity is reflected in the farmers' markets' identity: some of them strictly deal with food selling, while others include street food vendors and children-friendly areas, becoming a full experience.

The following section presents results from the Net-Map analysis. First, the supporting relationships of the network are described and analysed, followed by the desired, the hindering and the commercial relationships. Then the motivations and influences ascribed to the actors are examined in more detail. Finally, approaches to solutions and difficulties for the stakeholders of farmers' markets in Bologna are highlighted by means of a SWOT analysis carried out by the research team's analysis of the interview transcripts. The full list of actors identified by interviewees is in Annex 7.2.

Supportive relationships in the network

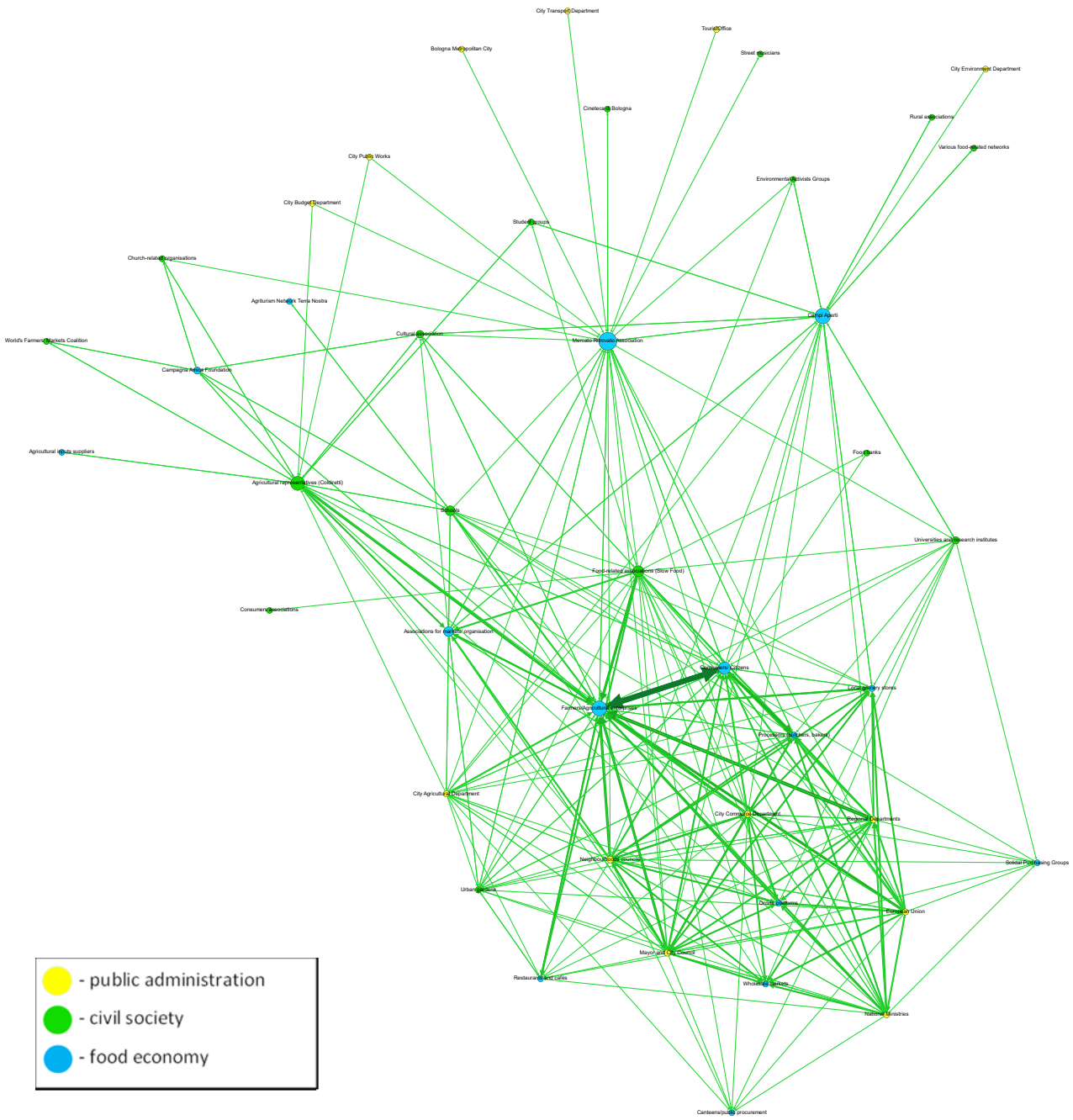

Figure 11: *Net-Map of the supportive relationships in the farmers' markets in Bologna (figure: ILS/FoodE)*

The visualization of supportive relationships (see **Figure 11**) – which include help, cooperation, information exchange and/or promotion – shows a strong and dense network of relationships. Almost all the mentioned actors are present, and the main link is between farmers and citizens, who are central to the whole system. Around them, the other actors, representing equally the three spheres (food economy, public administration and civil society) are distributed.

All three sectors are interconnected but food economy and public administration appear to have the strongest relationships, both within and among them. In the food economy, around the central dyad (constellation of two actors) *Farmers-Citizens* appear processors, local grocery stores and associations for markets' organisations. Among the latter, *Mercato Ritrovato* and *Campi Aperti* have a node of their own, having a high number of connections. The level of support and cooperation among administrative bodies is also quite evident from the map and it includes several levels of

governance, from the European Union to neighbourhood councils. As it happens with governance, the synergy with administrative bodies – especially those at local level – is often based on single individuals and their relationships, rather than on established pathways and processes, making the support relationships precarious.

The dyad *Farmers-Citizens* has both the highest number of connections and the highest influence (see **Figure 11**). The pair is also central in the commerce map (see **Figure 14**), as the exchange among these two actors is the main function of markets. However, in the case of farmers' markets the relationship between agricultural producers and consumers goes beyond the commercial exchange, which would not be the case if middlemen were involved. The distinctive feature of direct selling, prime characteristic of farmers' markets, allows for a connection between the two main actors that is unique to this context.

The relevance of farmers' markets for the city of Bologna is recognised by the city authorities and promoted through close cooperation with public bodies such as the Mayor and City Council, and city departments, mainly those in charge of Agriculture and Commerce. This support was recently implemented through collective meetings held during the drafting of the new Regulation DC/PRO/2022/76. On this occasion, City authorities aimed to explore stakeholders' wants and needs to improve the farmers' markets' management and organisation. Albeit the good intentions, however, a fully shared vision was not reached and additional bilateral meetings are being held after the new regulation approval to amend the contested sections.

For one particular actor (*Slow Food*) institutional support does not mean a direct relationship with a specific institution (i.e., the European Union) but with the association's own offices in Brussels, who have direct contact with the European authorities. The same happens at national level.

In the sphere of Civil Society, actors are less clustered, but create an outline around the key actors mentioned above. Albeit their collateral presence in farmers' markets – as they are not involved in the commercial exchange –, they help creating the community of citizens with shared values who linger around farmers' markets. In particular, activities with schools, where students go on field trips to the farmers' markets, help create awareness among future consumers.

To conclude, the support map shows that there is a distinct and dense network of actors involved in the farmers' markets in Bologna, therefore making cooperation towards common objectives easy.

Desired relationships in the network

Even though a dense and wide-ranging network of relationships already exists around farmers' markets in Bologna, some desired future relationships were mentioned by interviewees (see **Figure 12**). The desired relationships encompass mainly commercial relationships, but also information exchange, networking, financial and other material support. The number of relationships present in this map is the lowest compared to the other three, showing a satisfactory *status quo* for interviewees.

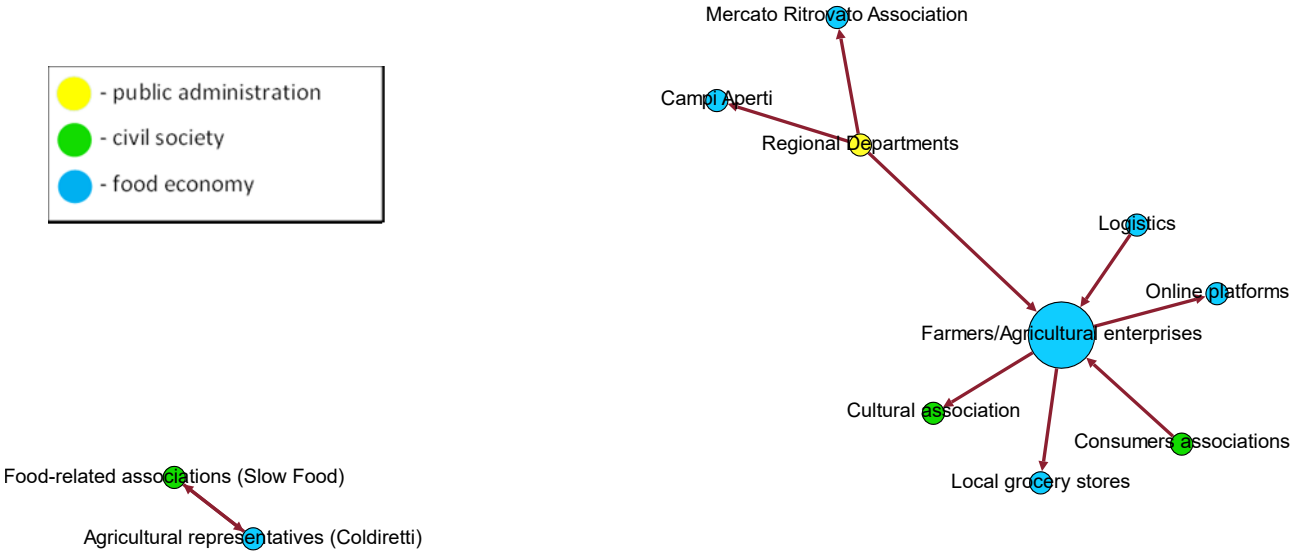

***Figure 12**: Net-Map of the desired relationships in the farmers' markets in Bologna (figure: ILS/FoodE)*

The key actors are farmers, who are again at the centre of the map. This reflects in part the commercial nature of farmers' markets, but also how the innovative power is mainly in their hands. Desired relationships are mainly with other food economy actors, who could improve the business performance of agricultural enterprises. For example, more help by logistics operators is wished for by farmers, who could improve transport operations, such as parking, etc. Local grocery stores and online platforms are considered new possible outlets to be exploited by farmers' markets, and particularly by agricultural producers.

As far as the administration and politics sphere is concerned, it is only the regional authorities that appear in this map. Their financial and – more generally – material support is desired by agricultural enterprises and by the two main associations organising farmers' markets (*Campi Aperti* and *Mercato Ritrovato*). Although such associations have managed to establish strong links with city-level authorities, the same cannot be said about the regional level, where building a stronger relationship was considered desirable.

Another desired relationship exists separately from the main network and it only involves two actors. Since *Coldiretti* (an agricultural union) and *Slow Food* (a food-related organisation) are a point of reference for producers, the interviewees highlighted a desired connection between the two, as this would allow two important and central stakeholder spheres to work together in a more coordinated manner. As both stakeholders have shown interest in a bidirectional relationship, this is likely to be happening in the future.

Hindering relationships in the network

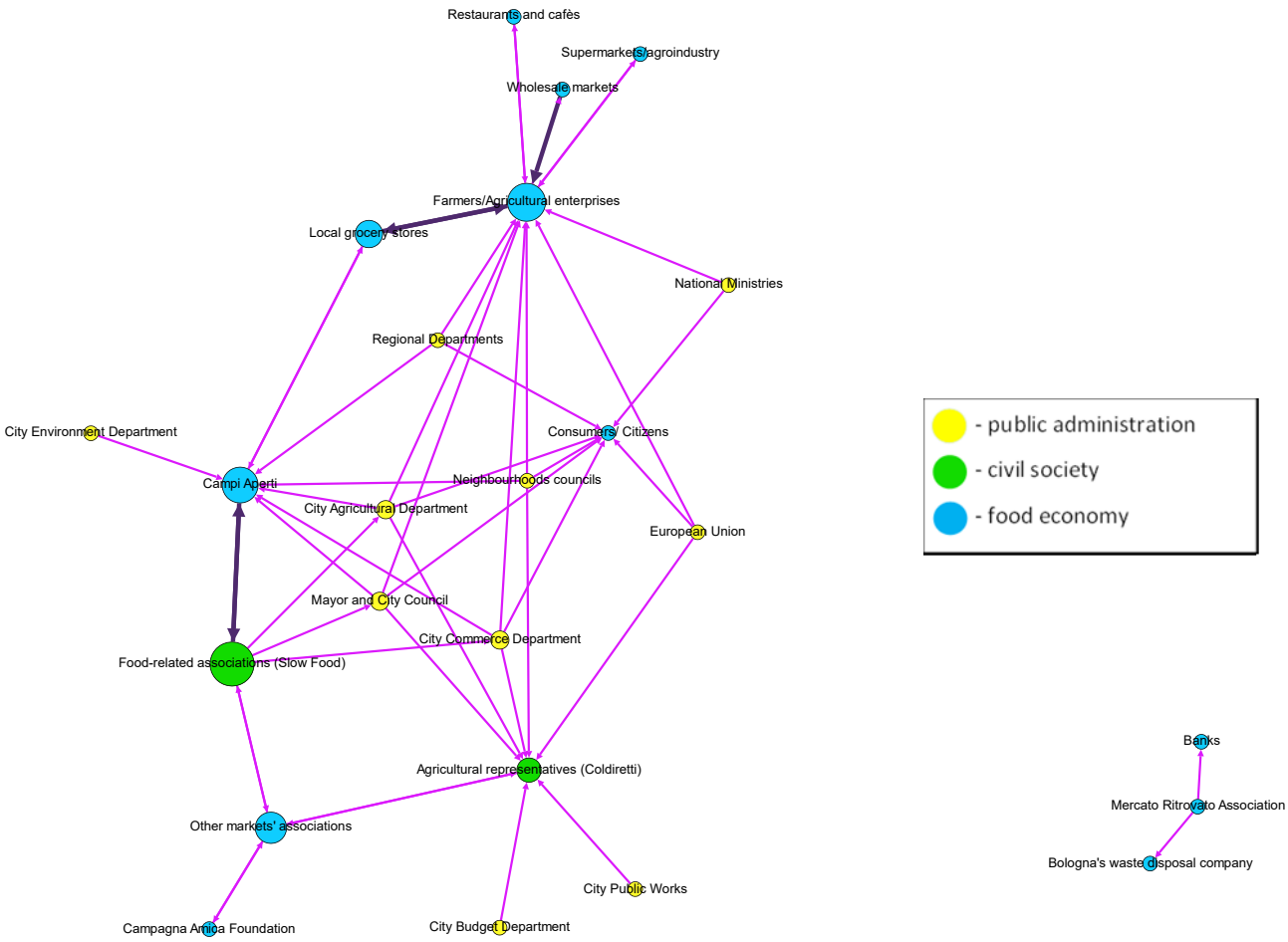

Figure 13: *Net-Map of the hindering relationships in the farmers' markets in Bologna (figure: ILS/FoodE)*

In addition to the desired relationships, the existing hindering connections between the actors were addressed, which affect the development of farmers' markets (see **Figure 13**). The map shows that hindering relationships are not strong in Bologna, as they are mainly in the form of conflicting commercial interests, as well as bureaucratic hurdles such as slow-moving processes and permits.

Hindering relationships are not clustered in a single node, but form a quite even map, where about half of the total number of actors are present. The three main conflicts are of a commercial nature and they involve farmers, local grocery shops, wholesale markets, and two associations organising markets (*Campi Aperti* and *Slow Food*). Agricultural enterprises have potential conflicts of interest with both local grocery stores, with whom they often share urban spaces, and the wholesale market of Bologna (the CAAB) which represents an opposite paradigm of food systems, where food supply chains are characterised by a number of intermediaries.

Sometimes, associations for the organisation of farmers' markets can be in competition among each other when they compete for the same space in public tenders. The high number of these associations in a relatively small city such as Bologna exacerbates such competition. Such variety of associations is seen by some interviewees as an added value, whereas for others it confuses consumers who tend to believe that farmers' markets are all the same.

Another striking feature of this network is a small group of hindering relationships separate from the main network, involving only three actors: *Mercato Ritrovato* (one of the associations organising

farmers' markets), *Hera* (Bologna's waste disposal company) and *Banks*. Rather than an open conflict, this relationship was indicated as more of a motivational discrepancy, as the latter operate guided by a merely financial motivation rather than a solidary one, as *Mercato Ritrovato* does.

Commercial relationships in the network

Figure 14 shows the network created by the commercial relationships around farmers' markets in Bologna. These mainly include produce and monetary flows, but also service provisions.

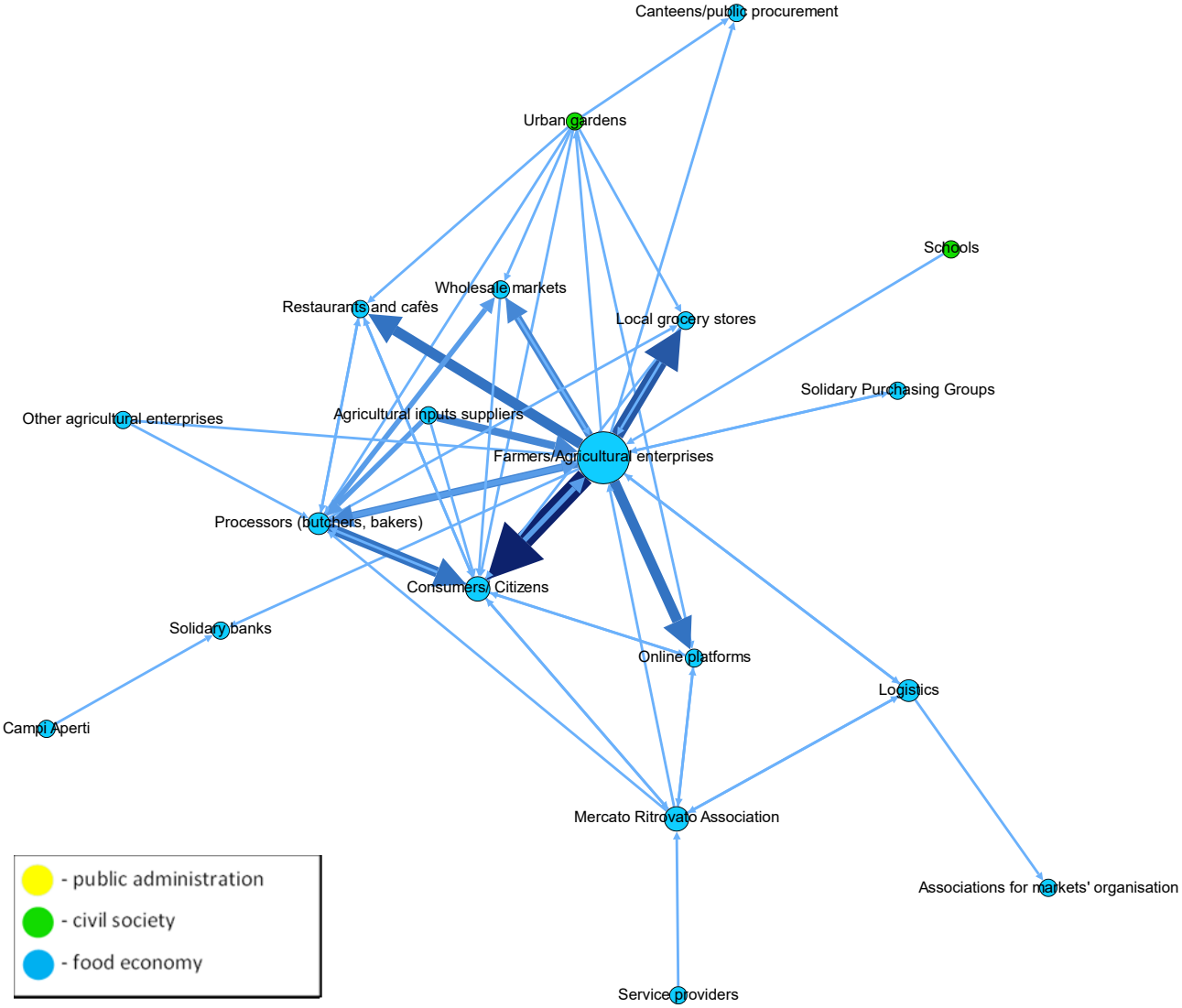

Figure 14: *Net-Map of the commercial relationships in farmers' markets in Bologna (figure: ILS/FoodE)*

In this map, farmers are the key actors and thus central in the business relationships that characterise farmers' markets, where direct selling poses agricultural producers in the most prominent position.

Relationships shown in the map follow the food supply chain typical development: agricultural suppliers provide inputs, such as seeds and pesticides, to farmers, who in turn produce food to feed urban dwellers. Actors that would be prominent in conventional food supply chains are in this case marginal or not present. Supermarkets, for example, were present in the initial list drafted by researchers, but were not included by any of the interviewees, not even as a competitive actor. It was a common belief that consumers shopping at supermarkets were driven by a different set of

values compared to those going to farmers' markets, therefore excluding the retailers from the map. Wholesale markets, which would also be more prominent in a conventional food supply chain, only have a secondary role, as the amount of produce sourced outside the farm that can be sold at farmers' markets is limited. Producers can have single commercial relationships with local grocery stores or restaurants and cafés, but it is not something that applies to the farmers' markets. Similarly, input suppliers were only mentioned by farmers, who by being directly involved with them, recognise their value, which was not the case for the other actors.

Public administration actors are excluded from this map, as there are no commercial relationships between them. Some of the public authorities, such as the *European Union* and the *Regional Departments* provide financial support to farmers, especially to improve sustainability, but that type of relationship was included in the support map. Only two actors from civil society are included: urban gardens and schools. The latter carried out paid activities with one of the *Association for farmers' organisations* to familiarise children with farmers' markets.

Motivations and Influence of the actors

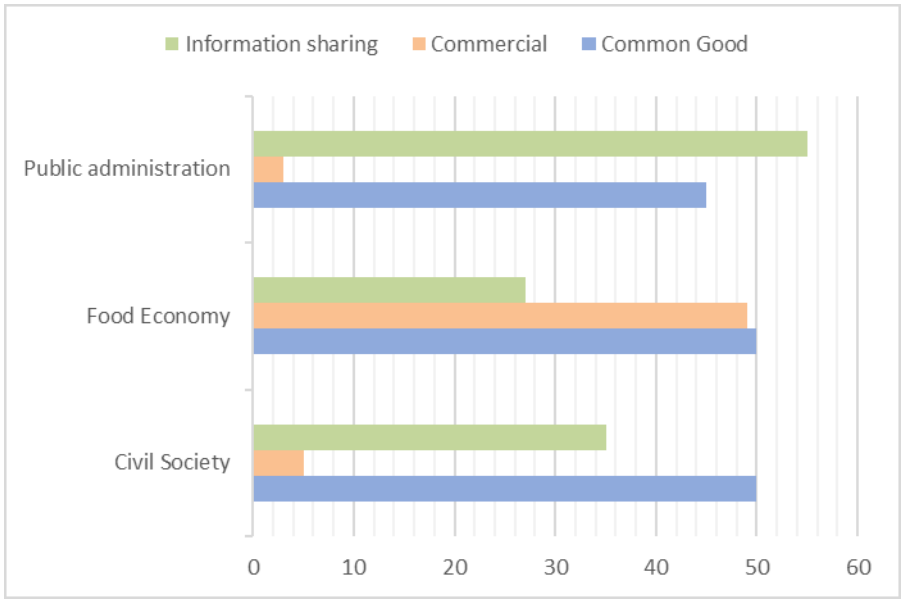

***Figure 15**: Motivations ascribed to the actors differ according to sector: Bologna CRFS (figure: ILS/FoodE)*

In addition to the relationships between the individual actors, their motivations in joining the farmers' markets system of Bologna were also evaluated. **Figure 15** shows the three main motivations (Information sharing, Commercial, Common Good), grouped by the three actor spheres.

It emerges that the commercial aspect is only a major focus for the business actors, while the principal motivations for the other two spheres are the common good and information sharing. To be precise, for actors involved in the food economy, economic and common good motivations are almost equal. This shows how farmers' markets belong to the category of Alternative Food Networks, which promote a different food production and consumption system based on direct relationships and local proximity. In this context, consumers were mentioned by interviewees as political actors, motivated by the common good, who therefore can have both supportive and hindering relationships with the local administration. Some actors, such as *Coldiretti* (a farmers' association) and *Slow Food*, stressed their role as of education and awareness raising among consumers, as opposed to their more common perception among the public, which is of an economic nature.

Figure 16 shows the influence the respondents ascribed to the individual actors, which are again divided into the three spheres by colour. As mentioned above, the dyad farmers-consumers is the most influential, followed by all the administrative authorities at city and neighbourhood level, confirming the high involvement of public authorities in farmers' markets' improvement, as the new City Regulation shows. *Slow Food* and *Coldiretti* are the most influential associations, being backed also by their own strong national and international network.

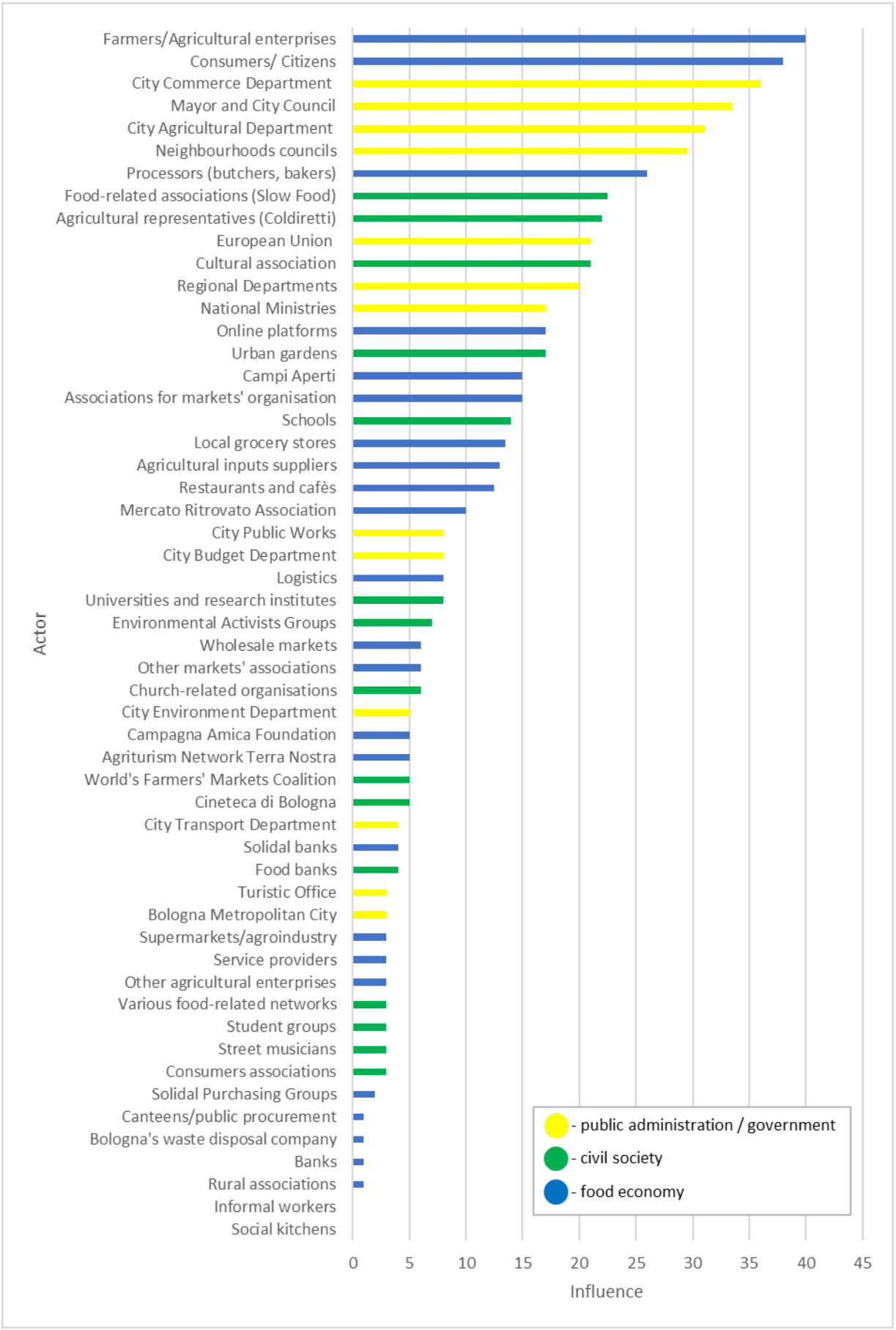

Figure 16: *Influence ascribed to the individual actors in the network: Bologna CRFS (figure: ILS/FoodE)*

To summarise the representation of the farmers' markets system of Bologna, the interviews results are presented in the form of a SWOT analysis in **Table 3**.

STRENGTHS of the stakeholder network - High level of mutual support among the actors in the network - Awareness among the actors active in the food system - High degree of consistency in the commitment of the actors - Farmers' markets seen as a key player by the municipality - Active municipal administration - Brand new regulation on farmers' markets	**WEAKNESSES** of the stakeholder network - Network often relies on personal connections - Variety of farmers' markets instances and visions that hinder a coordinated response to the local administration - Lack of funding/tax concessions - Some farmers' markets have weaker relationships with Civil Society - Economic feasibility of markets for producers
POTENTIAL / Opportunities of the stakeholder network - Strengthening farmers' markets' role in urban food provisioning - Strengthening farmers' markets' role in Bologna's food policy - Strengthening the political presence of the associations for farmers' markets organisation - Consolidation of farmer's markets relationships with Civil Society	**THREATS** / Risks of the stakeholder network - Exacerbation of conflicting interests of farmers' markets organisations - Possible favouritism of Bologna's municipal authorities towards one farmers' markets organisation over the others - Bologna's municipal authorities underestimating the transformative potential of farmers' markets and focussing on other policy areas i.e., tourism, urban redevelopment)

Table 3: *SWOT analysis of the Net-Map results of the farmers' markets in Bologna (figure: UNIBO/FoodE)*

Conclusion

To conclude, the maps and interviews show that the farmers' markets network in Bologna is well developed in terms of connections and support. Several relationships exist between the different actor spheres and among the actors within the spheres. In Bologna, the farmers' markets system has a horizontal type of governance where most actors at city level cooperate in a synergic way. Other levels of governance are of minor importance, as they influence farmers' markets only to a limited extent. Overall, the number of conflicts is limited and there are no big hindrance factors that prevent farmers' markets development, therefore making it easy to support them towards a common objective. What is specific to Bologna is a strong and active municipal authority, well linked to both food economy and civil society actors. Their relationship with farmers' markets organisations is not always straightforward and disagreements can happen, but such an active and interested municipal administration is a strength of this network. This is further supported by the fact that the second most influential actors are not business actors, but the local administration. Thus, local regulations strongly influence farmers' markets governance, but associations for markets organisation are often at the forefront, anticipating issues and solutions, and providing advice to the public administration.

Overall, the status quo of the network and its governance seem satisfactory for most interviewees. Where needed, change is expected from an institutional level, especially through an increased

awareness of the transformative potential of farmers' markets in urban food systems and contribution of farmers' markets to the local communities networking.

3.3 Naples (IT)

The Metropolitan City of Naples was chosen as a case study. The metropolitan area counts 2.953.627 inhabitants as of January 2022 (ISTAT 2022). It is considered one of the most densely populated urban areas in Europe. The municipality of Naples is located within the metropolitan area, it is the capital of the Campania Region and the third biggest city in Italy with about 914.873 inhabitants. Since the ancient Greeks' and later Roman domination period, the area has been inhabited thanks to its fertile volcanic soil and mild climate. Nowadays, due the high density of population and uncontrolled urban expansion the metropolitan area of Naples suffers from high soil consumption. However, different areas are still untouched by urbanisation and represent a unique mix of natural and agricultural biodiversity. In fact, different Slow Food Presidia and Protected Designation of Origin (PDO) certified products are produced in the area. Most of the traditional plant varieties and typical products of the area are still grown and preserved to this day.

The area suffers, especially in the suburbs, from a high unemployment rate and low average income - the mean annual income is 15.128 € (Dipartimento per gli Affari Regionali 2017b). This is in line with a high rate of poverty and food insecurity, forcing people to consume high-calorie and low-nutrient food.

Despite the various difficulties related to the urban context, unemployment rate, organized criminality, the City of Naples and its metropolitan area flourishes in bottom-up initiatives lead mainly by local associations and groups of people willing to contribute to reshaping the food system and food habits. However, the lack of communication and common policy in the area impedes the creation and valorisation of these initiatives.

The following research question has emerged from this background:

> Who are the important actors working towards the transformation of the food system in the Metropolitan City of Naples in 2022? And what are the obstacles and challenges in terms of their relationships?

According to Net-Map tool, each interviewed choose 10 cards, from a pool of 20 cards, the cards where representative of different actors present in the area of the metropolitan city of Naples and were related to stakeholders from the public administration authorities, Food economic sector and lastly from the civil society. Based on the selected cards, the interview was carried out considering only the 10 cards. the swot analysis has been carried out highlighting the opinion and perception of each interviewed through transcripts analysis.

For this purpose, six individual interviews were conducted online according to the Net-Map tool (see Chapter 2.1) and additionally transcribed for further qualitative analysis purposes. Interviewees were representatives of the urban farmers, farmer's union organisations present in the area, associations working on the largest estate, namely a farm, confiscated from the "Camorra" in the metropolitan area of Naples, a network of associations working with psychiatric patients in farming activities, Slow Food Campania and one representative of the Municipality of Naples. The final set of interviewees represents the variety of actors involved in the Metropolitan City of Naples, with their different positions and points of view (see list in Annex 7.3).

The following section presents the results from the Net-Map analysis. First, the supportive relationships in the network are described and analysed, followed by the desired, the hindering and the commercial relationships. Then the motivations and influences ascribed to the actors are

examined in more detail. Finally, some approaches to solutions and difficulties for the transformation of the CRFS in the Metropolitan City of Naples are highlighted by SWOT analysis.

Supportive relationships in the network

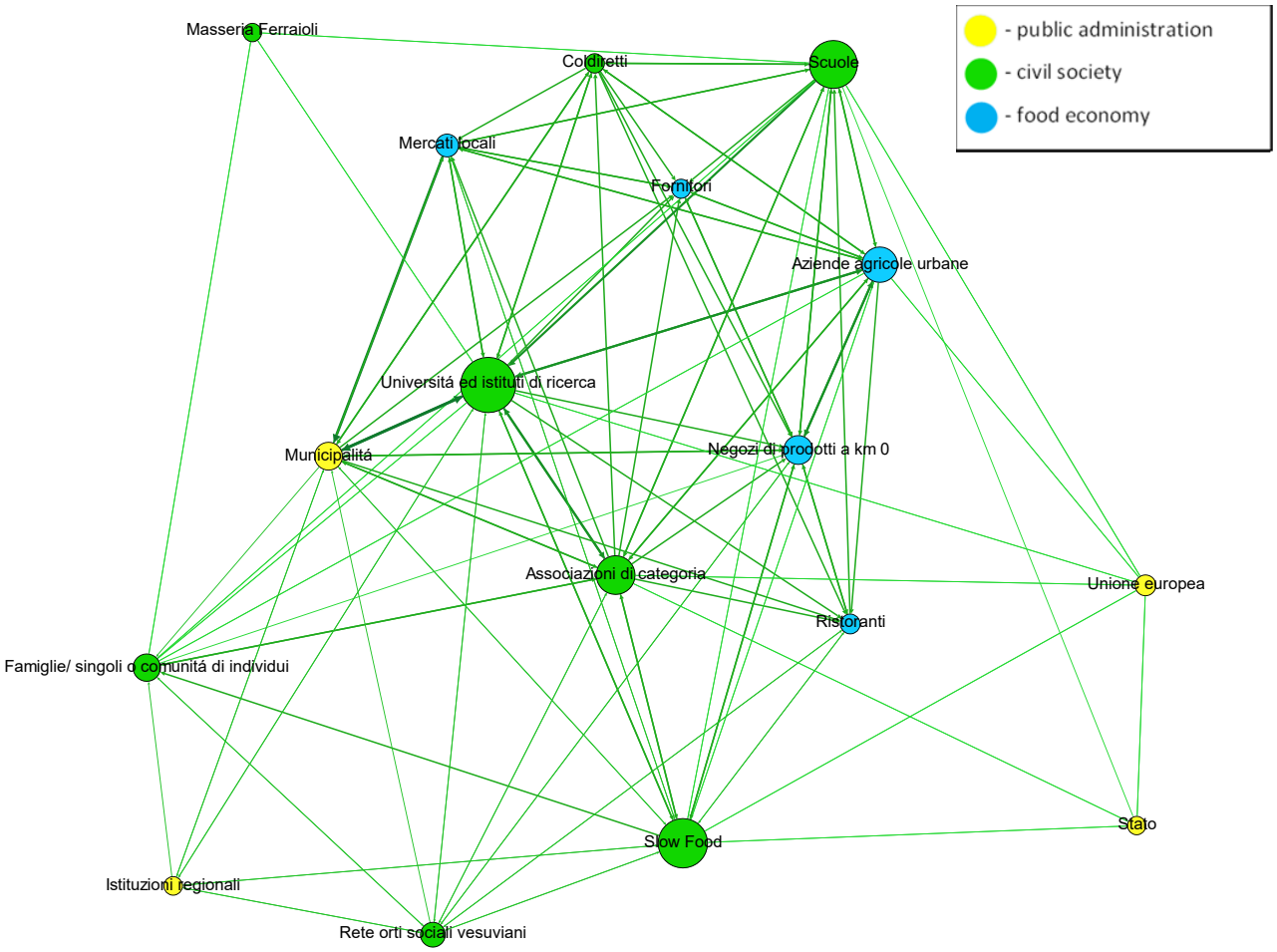

***Figure 17**: Net-Map of the supportive relationships in the Naples CRFS (figure: ILS/FoodE)*

The visualization of supportive relationships (see **Figure 17**) – which can include information exchange, networking, cooperation, or promotion – shows, where and in what form networking between the different actors already exists and which actors currently play a central role.

Basically, this map shows that all three spheres of actors are interconnected. However, there are also links within the spheres, especially among the civil society organizations. From the map it is clear that in the perception of the interviewed subjects the universities, research institutions, Slow Food and schools (*Scuole*) play a central role in the interconnection and support of all the initiatives in the area.

Overall, the main perceived supporting actors appear to be university and research institutions, since they are perceived as essential in reshaping the food system by supporting relations with all the three categories (civil society, local economy and government). The only supporting link missing is the one with the national government (*Stato*), which is not perceived as a support for universities and research institutions. The second denser node within the support network is represented by Slow Food, which supports universities, citizens (*Famiglie/singoli*…), social initiatives lead by associations (*Rete horti sociali*) and local producers (*Aziende Agricole urbane*), creating connections

to (among others) government bodies at local (*Municipalità*), regional (*Istituzioni regionali*), national and European level (*Unione Europea*). The third main actor is represented by the schools, which are perceived as essential actors in the network between civil society initiatives, local commercial activities and government institutions. Concerning the perception of commercial activities in support to reshape the food system, urban farmers and local shops selling km 0 products (*Negozi di prodotti a km 0*), they are perceived as the main actors with different connections with the civil society and government institutions. Last in the list is the perception of different government institutions in the support of the local food system transformation. In the perception of the interviewed, the local administration and the European Union seem to play a major role compared to the national government and regional institutions.

Overall, it can be deduced from this first Net-Map that there is a fundamental networking and cooperation between the different actors in the Metropolitan City of Naples and that there is a strong willingness to support each other in the transformation process of the food system.

Desired relationships in the network

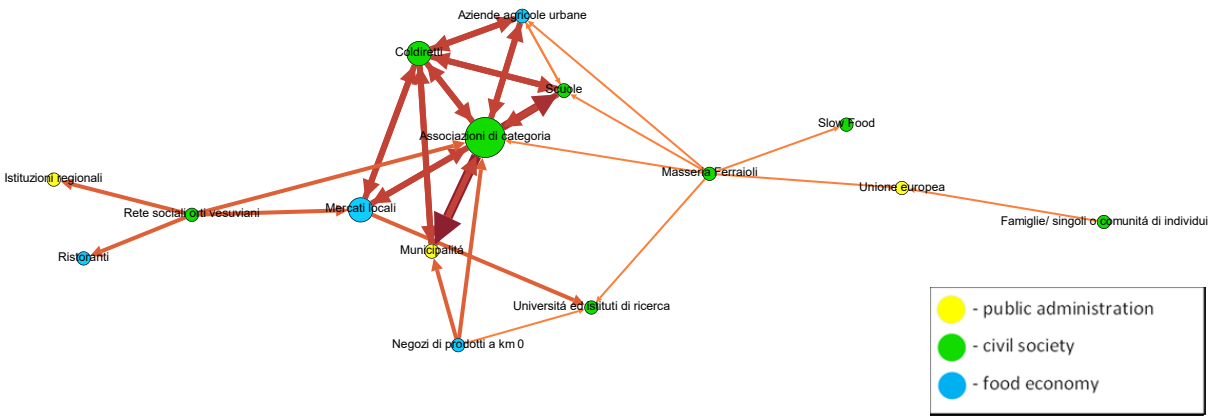

***Figure 18**: Net-Map of the desired relationships in the Naples CRFS (figure: ILS/FoodE)*

Even though a wide-ranging network of relationships already exists within the Metropolitan City of Naples, some gaps and desired future relationships were also noticed in the interviews (see **Figure 18**). The desired relationships encompass new or increased information exchanges, networking, bundling of interests, financial and other material support, and the creation of synergies.

Here, again, the main focus of the desired relationship is related to civil society initiatives. The core of the desired network relationship is represented by the farmer's unions, namely *Coldiretti*, which is one of them. In the perception of the interviewees, desired relationships between farmer's unions are highlighted in both directions with the municipalities, with a main prevalence of the farmer's union needing to interact more with them. Further desired relationships of schools and other trade associations like *Coldiretti*, are the connection with local markets and urban farms, that is perceived as crucial. Within the civil society initiatives, *Masseria Ferraioli* desires to create or improve already existing relationships with universities and research institutions, schools, farmer´s unions, Slow Food, other urban farms in the metropolitan area and with the European Union. With regard to families, singles or communities of people (i.e., citizens), the interviews highlighted the desire and the need to have a stronger relationship with the European Union, since this institution and its actions are perceived as far removed from peoples' needs. Other desired relationships are mutual between urban farms and schools, and unidirectional between shops selling local km 0 products with the municipalities, universities and farmers' union. Lastly the social network of Vesuvian gardens (*Rete*

sociali horti Vesuviani) is willing to establish or improve already existing relationships with regional institutions, farmer's markets, restaurants and farmer's unions.

Hindering relationships in the network

In addition to the desired relationships, the existing hindering connections between the actors were addressed, which affect the transformation of the CRFS (see **Figure 19**). Looking at these hindering relationships, three cores hindering relationships are highlighted within different actors.

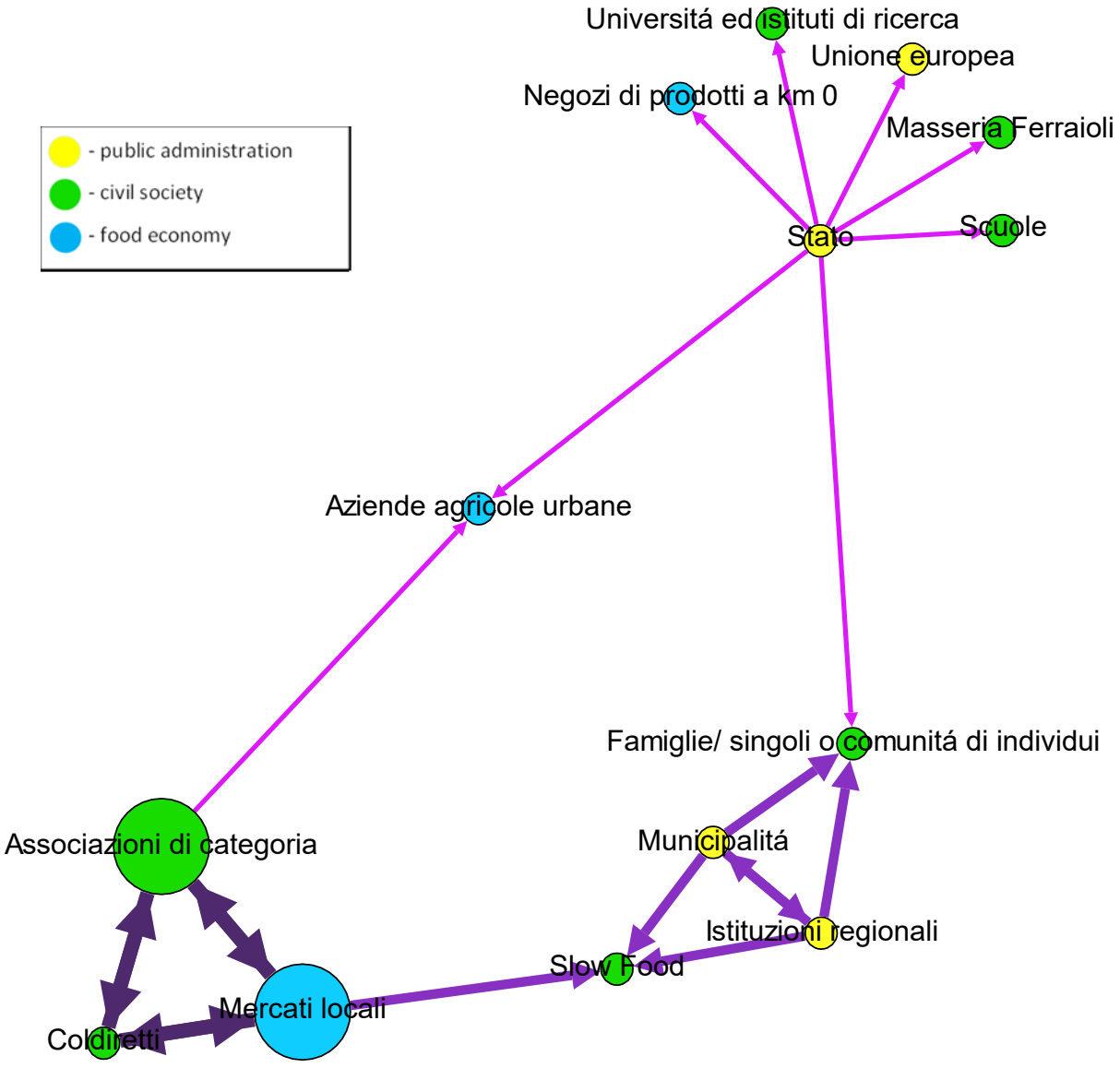

Figure 19: *Net-Map of the hindering relationships in the Naples CRFS (figure: ILS/FoodE)*

The most influential ones are mutual between *Coldiretti*, the farmer's union and local markets and within the different farmer's union organizations. The main reasons highlighted by the interviewees are due to competition in similar activities and lack of diversification in representing agricultural sectors, that create conflict with a negative impact on the whole food system. In addition, local markets perceive Slow Food and its market initiative "*Mercato della Terra*" as a competitor; furthermore, Slow Food is perceived as an obstacle due to lack of a proper support or communication from the municipalities and regional institutions. These two actors are perceived hindering each other

as well and do not support citizens with proper services or policies. The urban farms are perceived to be hindered by the farmer´s union due to their conflicts within this category and by the state, due to a lack of proper policies supporting their activities. The state represents the third core of hindering relationships in the development of local shops which sell local products. Finally, the state is perceived to hinder, through lack of consistent and sufficient support, the activities of universities and research institutions, the European Union, the schools and confiscated Camorra estates like *Masseria Ferraioli*.

Commercial relationships in the network

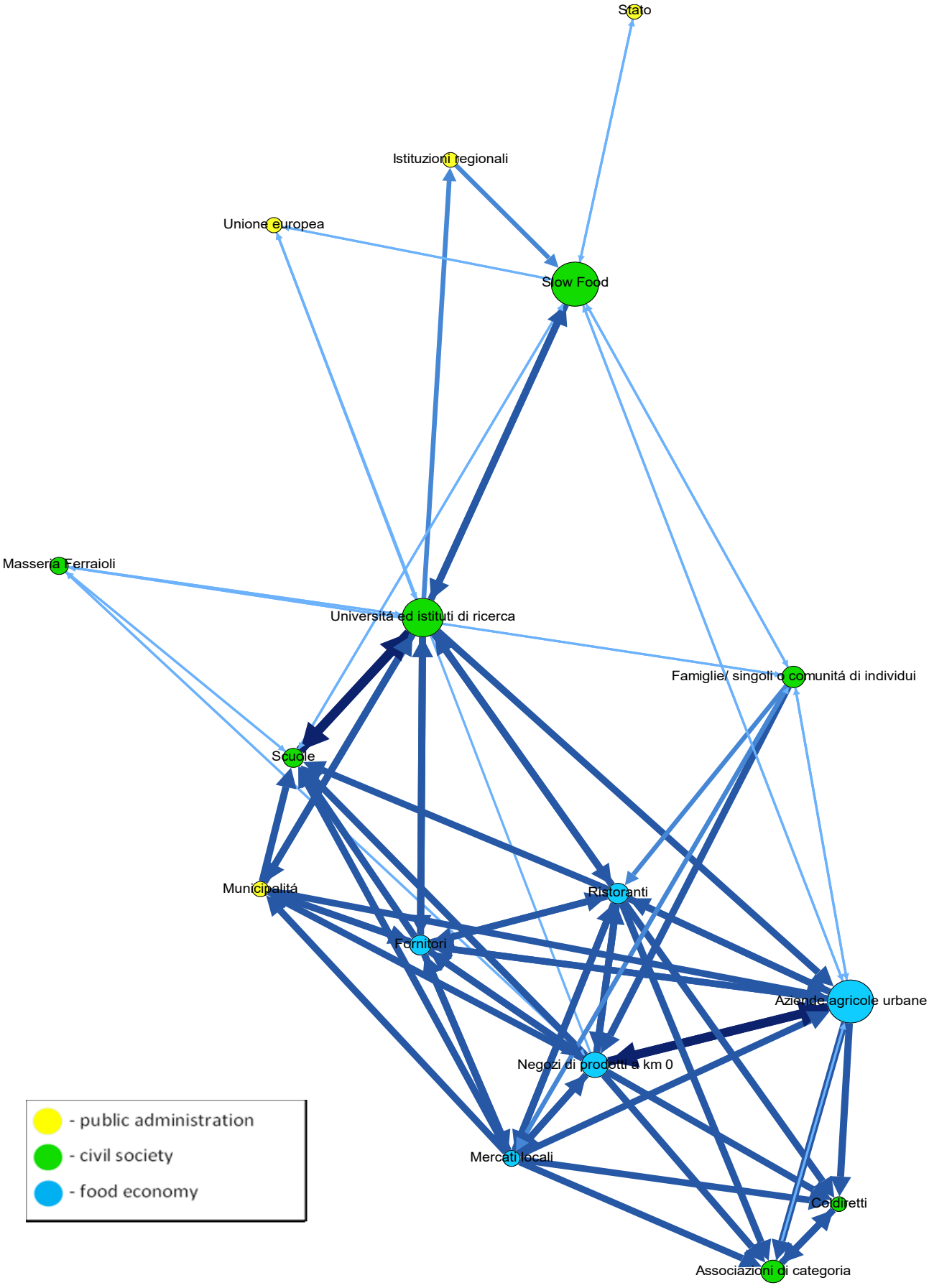

Figure 20: *Net-Map of the commercial relationships in the Naples CRFS (figure: ILS/FoodE)*

The last Net-Map provides results on the commercial relationships obtained by the analysis of the network of actors in the Metropolitan City of Naples (see **Figure 20**). These include fees and sales activities, funding and financial support in the development of the local food sector.

The most influential and dense commercial nodes in the network are represented by urban farms, universities and research institutions, and Slow Food. Considering the commercial sector, all the listed actors have mutual relationships among them and with the civil society, while among the government bodies, only the municipality is perceived as a commercial connection by the commercial sector, mainly due to fees or rent of goods. Regarding the urban farms, the main commercial relationships are with the local shops selling km 0 products, and this relation is mutual. Other mutual commercial relationships between urban farms and the other actors are with restaurants due to food providers, municipality, in case of renting fields or estates whose owner is the municipality, local markets for resale activities, and suppliers of goods (*Fornitori*). Other mutual commercial relationships are highlighted with the schools and with farmer's union organizations. Less important commercial relationships are between urban farms and citizens. In this case, the relation is mutual, however, compared to local markets and shops they are perceived to be less accessible to the community. The last commercial relationship is between urban farms and university and research institutions, and lastly between Slow Food with their presidia and markets.

Considering the second most dense node (universities and research institutions), in the perception of the interviewed actors, they have mainly commercial relation with schools, followed by suppliers, restaurants, urban farms and Slow Food, this last mainly by joint fundraising for research projects on sustainability and agrobiodiversity preservation. Other connections are linked with citizens, representing registration fees for bachelors or master's degrees courses, the European Union and regional administrations have commercial relationships, mainly in the form of funding for universities and research institutions and Slow Food. Slow Food, instead, perceive an essential commercial relationship with the universities and schools in the form of participatory projects. The confiscated Camorra estate *Masseria Ferraioli* see as an essential commercial relationship the one with schools, universities and research institutions, citizens and local shops selling km 0 products. The state is perceived as a commercial partner in mutual perception, mainly with Slow Food due to funds for projects.

Motivations and Influence of the actors

In addition to the relationships between the individual actors, the motivations of these were also evaluated and presented for the three actor spheres in a bundled form, and an overall evaluation was also prepared (see **Figure 21**).

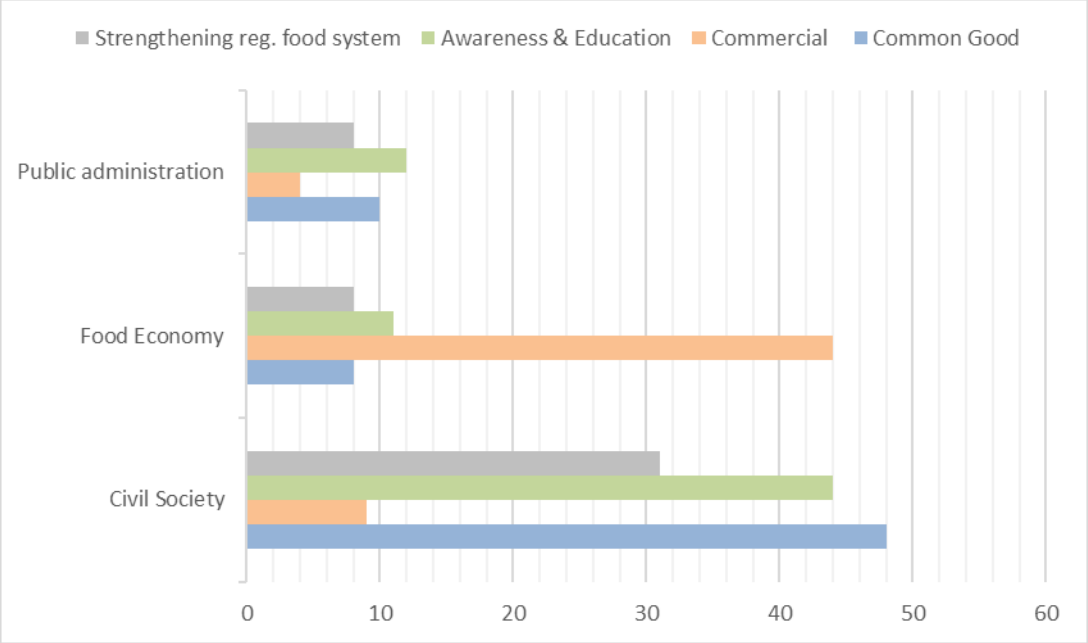

***Figure 21**: Motivations ascribed to the actors in the Naples CRFS differ according to sector. (figure: ILS/FoodE)*

Basically, it can be seen that the Commercial aspect is only a major focus for the Local Economy actors (with a score of 44), followed in importance by Awareness & Education (with a score of 11) while the Common Good and strengthening the regional food system are perceived equal with a score of 8. The civil society motivation in reshaping the local food system sees as a priority the Common Good (score of 48), especially biodiversity preservation, sustainability and urban regeneration. It is followed by Awareness & Education and Strengthening the regional food system with a score of 44 and 31 respectively, while the Commercial aspect is perceived less important in the civil society (score of 9). Lastly, compared to the civil society and economic sector, the government institutions received lower scores on all the different motivations, and the most important one is Awareness & Education (score of 12) followed in order of score by Common Good, Strengthening the regional food system and Commercial with a score of 10, 9 and 4 respectively.

Figure 22 shows the influence on the transformation of the CRFS in Metropolitan City of Naples the respondents ascribed to the individual actors, which are divided into the three spheres by colour. The universities and research institutes are perceived to have a major role in reshaping the food system based on their research activities bringing innovation into the sector at the local level as well as educating people on sustainable topics and habits. The local shops are seen as essential due to their direct contact with the community. The farmer's union is perceived as an influential actor able to canalize the valorisation of the local products as well as supporting farmers in various ways. Schools are seen essential as well since they educate youth and increase awareness on sustainability and on the importance of healthy habits. The municipalities are the only government actor perceived as influential, since they have the power to enact policy at the local level and are the closest form of government institution people are in direct contact with. Restaurants, local markets and *Coldiretti* are perceived as influential due to their ability to valorise local products and support the development of local farms. The urban farms are seen as essential actor mainly due their

valorisation of the territory, products and opportunity to improve the urban green space. Slow Food is seen as influential due to their mission and action in supporting and valorising local producers, preserve local varieties and provides food that is “good, fair and clean”. All the other actors are perceived as less influential compared to the aforementioned ones – especially the government institutions at regional, national and European level.

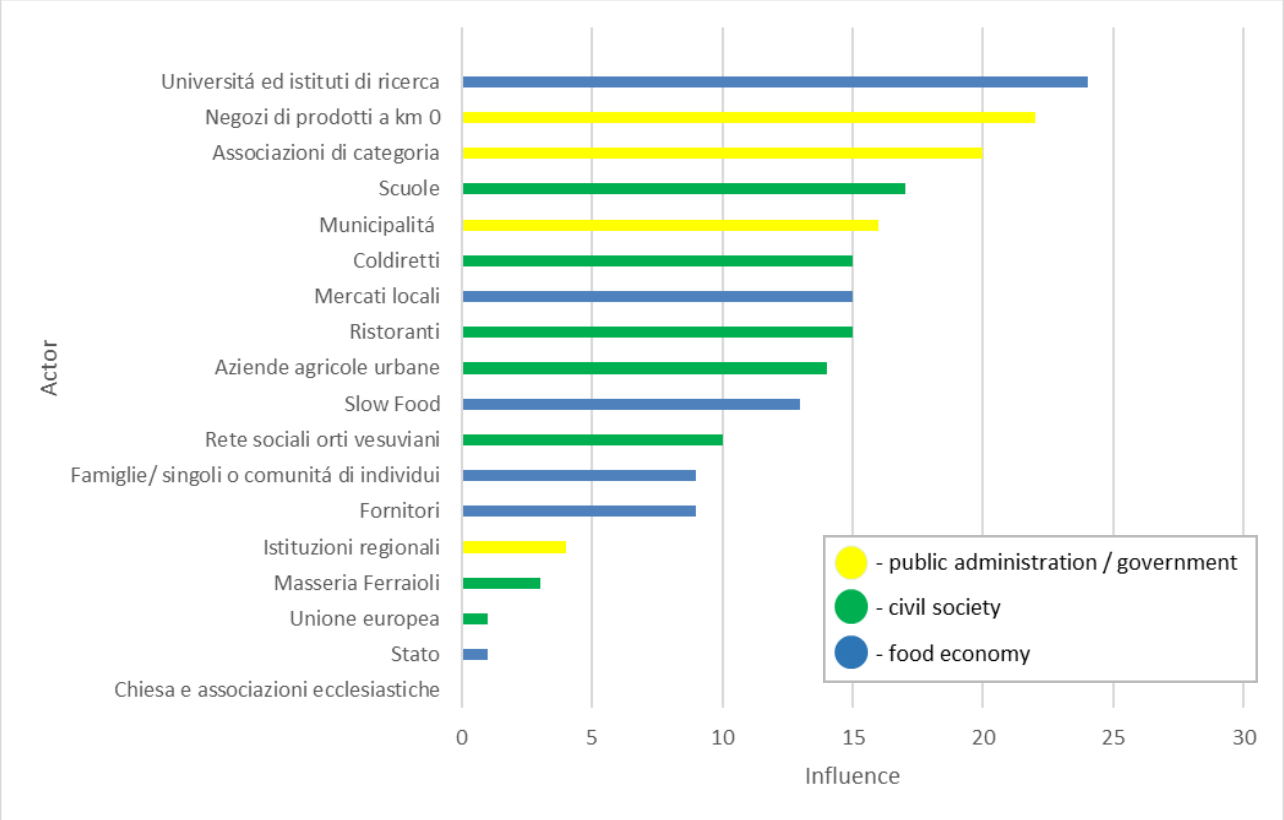

Figure 22: *Influence ascribed to the individual actors in the network: Naples CRFS (figure: ILS/FoodE)*

The results presented here were discussed and interpreted in the form of a SWOT analysis (see section 2.2). The results for each area are shown in **Table 4**.

STRENGTHS of the stakeholder network	**WEAKNESSES** of the stakeholder network
- High level of mutual support among the actors in the network - Awareness among the actors active in the food system - Different motivation and scope to reach a common goal - High motivation in supporting the food system transformation - Stakeholders are more motivated by the common good, the need to increase awareness and strengthening the food system than by economic aspects	- Competition in actions and scope between different farmers’ union organizations - Absence of transformational policy by government institutions at local and regional level - Lack of proper support and hindering attitude from the national state towards universities, European union, local shops, schools, universities and urban farms and citizens - Lack of coordination - Lack of visibility - Lack of funding - Lack of communication and ability to work for a common goal

POTENTIAL and **SOLUTIONS**/ Opportunities of the stakeholder network	**THREATS** / Risks of the stakeholder network
- Strengthening communication between the farmers' union, slow food, urban farmers, local markets and citizens - Creation of local policy to valorise urban agriculture - A more active role of universities and research institutes bringing innovation and knowledge to the territory - Major support from the state and regional institutions - Active involvement and dialogue between citizens and the economic sector to match population and economic needs - Valorisation of small producers - Valorisation of social and environmentally sustainable producers	- No specific threats were mentioned

Table 4: *SWOT analysis of the Net-Map results of the Naples CRFS (figure: UNINA/FoodE)*

Conclusion

In conclusion, from the previous maps, it is clear that a network already exists among the different actors, with both mutually supportive and commercial relations. The university is perceived by the interviewees as the most influential actor in contributing to transform the food system, while the state and other governmental institutions are seen as less able to support this transformation or at least as the less available to do it. On the contrary, the municipality seems to have a crucial role, since it is perceived as a direct government contact. Based on the desired and hindering relationships, from this study, it is clear that opportunities to improve the network and dialogue between the actors are pivotal, especially in reference on the development of local urban farms and related activities and to create a common well-organized strategy able to transform the food system.

3.4 Oslo (NO)

The city of Oslo is Norway's capital, located in the south-eastern region surrounded by the Oslo Fjord to the south and the nationally-protected forest *Marka* to the north, east and west. Its CRFS is the subject of this case study.

Norway is not a member of the European Union and therefore not a part of the Common Agricultural Policy. As such, the CRFS of Oslo should be understood through national and local policies regarding food production. Norway has less than 3% arable land, with the majority of that 3% being in the Oslo region. With strong regulations around urban planning, much farm land around Oslo is protected from development. National policies for densification around transport hubs also helps reduce farmland loss. Norway is one of the least food secure countries in the world. With such a small amount of farmland available as well as an extremely harsh climate, the potential to grow large amounts of food are not present. Additionally, the relatively high cost of labour adds to the complexity of higher-value food production which tends to require more specialized handling before distribution.

Oslo has been quite slow to adopt local and organic food consumption when compared to its neighbours Sweden and Denmark. The strength of the 'made in Norway' brand among Norwegians is extremely strong, leading many to falsely believe that animal welfare or pesticide use are better than food that is imported, or at least not far from organic standards. This belief in the 'purity' of Norwegian production is likely a contributing factor to slower adoption of organic or sustainable labelled foods. The distance from Oslo to the north of Norway is almost the same distance as from Oslo to Rome. As such, 'made in Norway' does not typically fit most activist standards for 'local' for many consumers. Additionally, with poor road infrastructure due to extreme terrain and climate, distribution of food is complex in the country. Most vegetables are packaged heavily in plastic to extend shelf life and reduce waste.

The introduction of farmers' markets and direct to consumer channels, such as *REKO-Ringen*, has also not caught on to the same extent as, for example, in Sweden. Perhaps some of this is related to the already high prices of food in Norway due to high production costs, high labour costs, tariffs on imports to protect Norwegian industry, and high distribution costs. Additionally, Norway has a relatively new restaurant culture - it was quite uncommon to eat outside the home only 15 years ago. Although this is changing, the high cost of labour, ingredients and space, particularly in Oslo, makes restaurant experiences significantly more expensive when compared to the rest of Europe. Another significant challenge of CRFS in Oslo is the collective three-week holiday that is taken by the majority of Norwegians in July. With this being the peak of the growing season, many urban gardens go without attention, and farmers' typical distribution channels disappear as much of the population of Oslo leaves to go to their cabins or abroad.

The City of Oslo has worked to increase production of local food in its territory through a number of strategies and programs including the "Sprouting Oslo" Strategy (Oslo kommune 2017). Funding is available to help start and support urban agriculture projects as well. Yet challenges exist with scaling up as well as finding space in a city with a booming real estate market. As such, the focus of this research was built around the nurturing and expansion of CRFS initiatives, in terms of support and hindrances. This is evident in the research question for this study:

Who are the important actors who are working to develop sustainable job opportunities within the CFRS in Oslo in 2022? What are the roles, motivations and relationships of actors in Oslo who are working to develop sustainable job opportunities within the CRFS?

For this purpose, a total of eight individual interviews were conducted in digital format according to the Net-Map tool (see Chapter 2.1) and additionally transcribed for further qualitative analysis purposes. The interview partners were selected with a view towards achieving a holistic view of the CRFS in Oslo, by including respondents from different spheres: civil society, the local food economy and public administration. Interview participants were asked about the same list of ten actors within Oslo's CRFS as selected by FoodE researchers in Oslo. The goal of this was to develop a more reliable data set in terms of comparing strength of connections within the network. This plan worked well except of one interviewee from the University, NMBU. This person included their own organization in the interview and as such we include it here for the sake of transparency.

The following section presents results from the Net-Map analysis. First, the supporting relationships of the network are described and analysed, followed by the desired, the hindering and the commercial relationships. Then the motivations and influences ascribed to the actors are examined in more detail. As the different actors in the four network maps are displayed with their Norwegian names, a list of these with their translation and description in English has been included in Annex 7.4.

Supportive relationships in the network

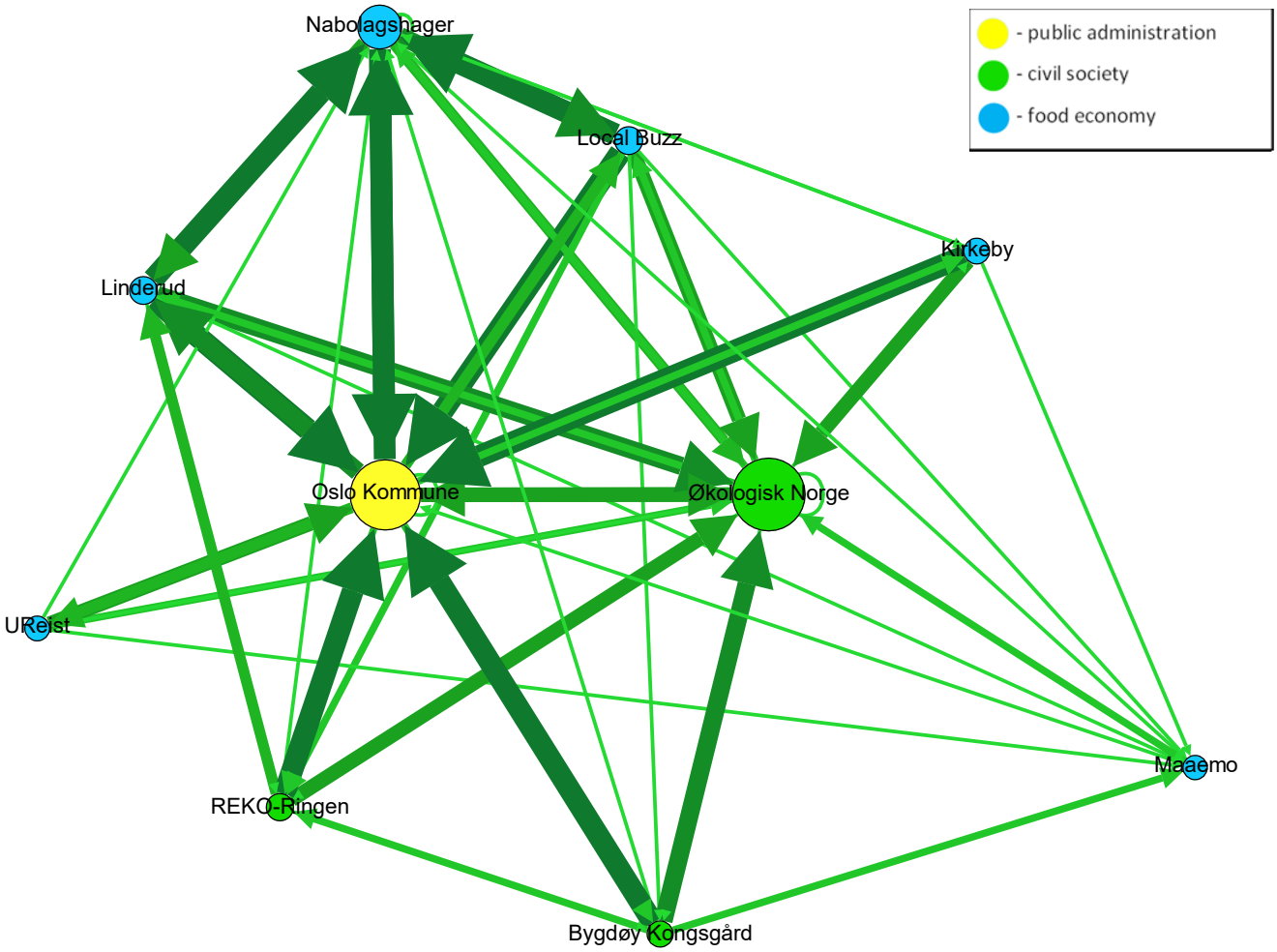

Figure 23: Net-Map of the supportive relationships in the CRFS in Oslo (figure: ILS/FoodE)

The visualization of supportive relationships (see **Figure 23**) - which can include information exchange, cooperation or promotion – shows, where and in what form networking between the different actors already exists and which actors currently play a central role. Actors in Oslo are interconnected across the three spheres of food economy, civil society and public administration. Central to the supportive relationships in Oslo is the municipality or City of Oslo (*Oslo Kommune*), whereby support is given to and received by the public administration. This describes high levels of cooperation from not only the administration to support Oslo's CRFS, but also local economic and civil society actors providing support to the City of Oslo. Thus, the City of Oslo is a central actor for the CRFS in Oslo and in turn, is considered to have the highest level of influence (see **Figure 28**). The City of Oslo has strong connections to other actors in the CRFS network in Oslo.

The City of Oslo is not the only actor with strong connections within Oslo's CRFS network. There are several supportive relationships which are reciprocal. *Økologisk Norge* (Organic Norway) emerged as another central civil society actor. Organic Norway's support and high influence (see **Figure 23** and **Figure 28**) is two-way and is recognized by most of the actors in the network, including the administration and other actors, such as *REKO-Ringen* (a sales channel for locally produced food direct to consumers), *Local Buzz* (a beekeeping group) and the community farms of *Kirkeby, Linderud* and *Bygdøy Kongsgård.* In turn, the relevance of Organic Norway is reflected in

the direct or indirect support of other actors in the network, either as being members of the organization, or through the promotion, purchasing of organic goods or the carrying out of organic practices. This suggests that Organic Norway is fulfilling its function as a member-based organization that supports organic production of food in Norway.

Other strong reciprocal relationships within Oslo's CRFS network are between *Nabolagshager* and *Local Buzz,* as well as *Nabolagshager* and *Linderud.* Whilst supportive relationships of this nature are important, these actors were not ascribed a high level of influence as seen in **Figure 28**. This suggests greater opportunities for strengthening support between actors with higher levels of influence and responsibility in the transformation of Oslo's food system.

REKO-Ringen is a key and unique actor in Oslo's CRFS network (see **Figure 23** and **Figure 28**), supporting many different actors within Oslo's CRFS and providing a networking function to the network. *REKO-Ringen* directly facilitates the strengthening of relationships between farmers and urban consumers in Oslo. However, there is more opportunity for support to be provided from the City of Oslo, which at present receives support from *REKO-Ringen* but is not strongly reciprocated. The City of Oslo is a key decision-maker in the network, with opportunities for increased responsibility for creating the policy conditions and promoting awareness that make it possible for a transformation in Oslo's CRFS.

Overall, this first Net-Map demonstrates that there is a fundamental networking and reciprocal support between the different actors in Oslo and that there is also a willingness to support each other and transform the food system.

Desired relationships in the network

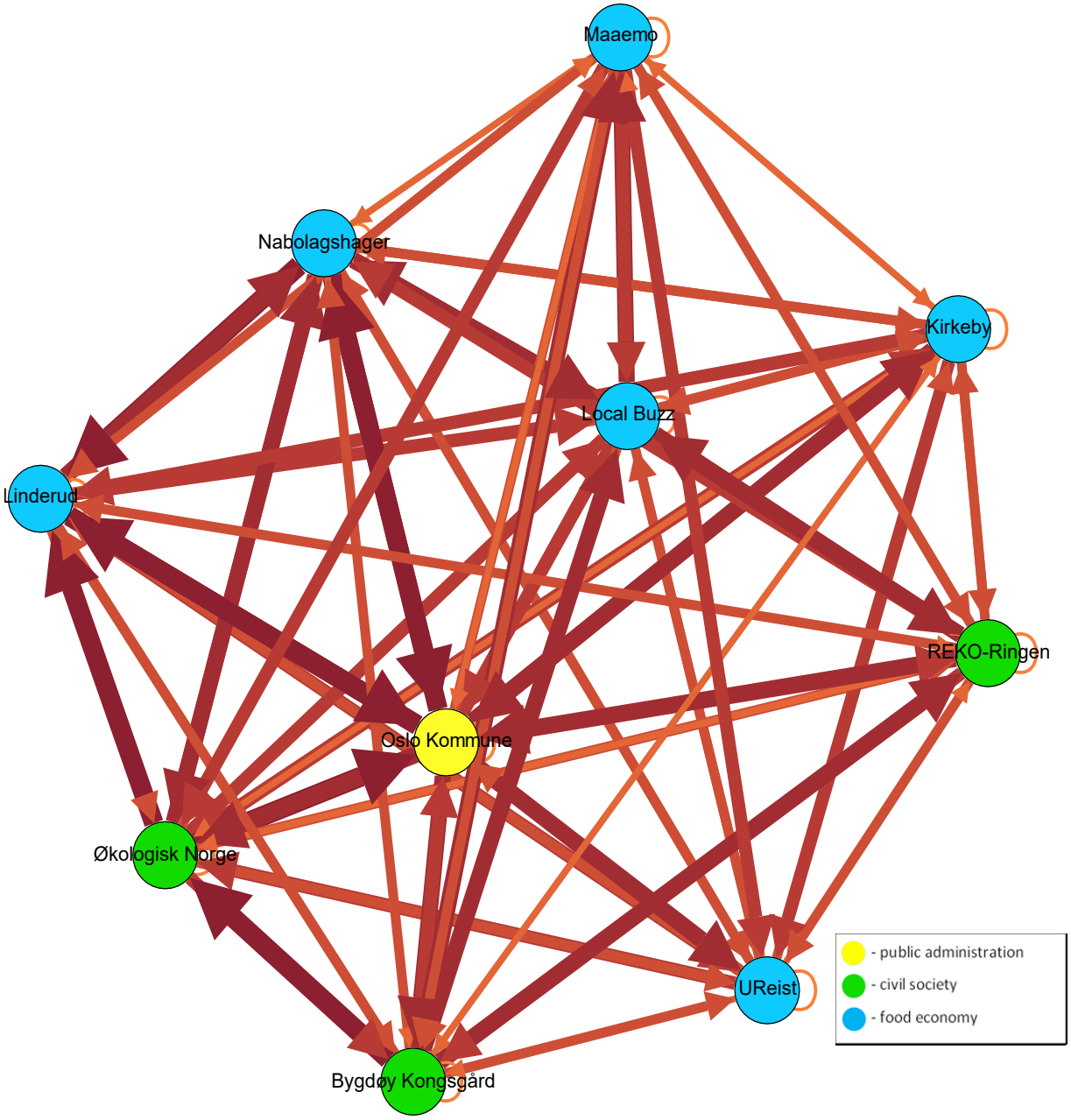

Figure 24: *Net-Map of the desired future relationships in the CRFS in Oslo (figure: ILS/FoodE)*

Even though a network of relationships already exists in Oslo, desired future relationships were still identified in the interviews (see **Figure 24**). The desired relationships encompass (new or increased) information exchange, networking, financial and other material support, and the creation of synergies.

It was revealed in interviews that most actors desire to see some form of relationship with each actor in the network, be it strengthening existing relationships or forming new connections. The City of Oslo was identified as the greatest influence in the network (see **Figure 24**) and, given their political positioning, the highest potential for influence on transformation. This also correlated to actors desiring a strengthening of the City of Oslo's relationship with other actors in the network. As can be seen in **Figure 23**, although the City of Oslo received support from actors within the network, this wasn't

perceived as strong enough and not always reciprocal. In **Figure 23** it is demonstrated that stronger two-way relationships are desired.

The City of Oslo and Organic Norway were identified as the greatest influences in Oslo's CRFS network. Whilst they are currently supportive of one another at present, there is a desire amongst actors for their increased cooperation, allowing these two central actors to work more closely together. Within the administration itself, stronger policy support and more coordinated cooperation is desired by respondents.

Of additional interest is the way in which this Net-Map (see **Figure 24**) looks quite similar to the previous Net-Map (see **Figure 23**) presented in this report. The similarities bring to light the fact that Oslo has an extremely cooperative CRFS. While network relationships in economic contexts can be understood to not always be friendly, but rather based on necessity and exchange. However, of interest in Oslo is the way in which desired relationships closely mirror the existence of supportive relationships. This brings to light the more activist nature of CRFS in Oslo, as opposed to a more economically-dominated exchange.

Hindering relationships in the network

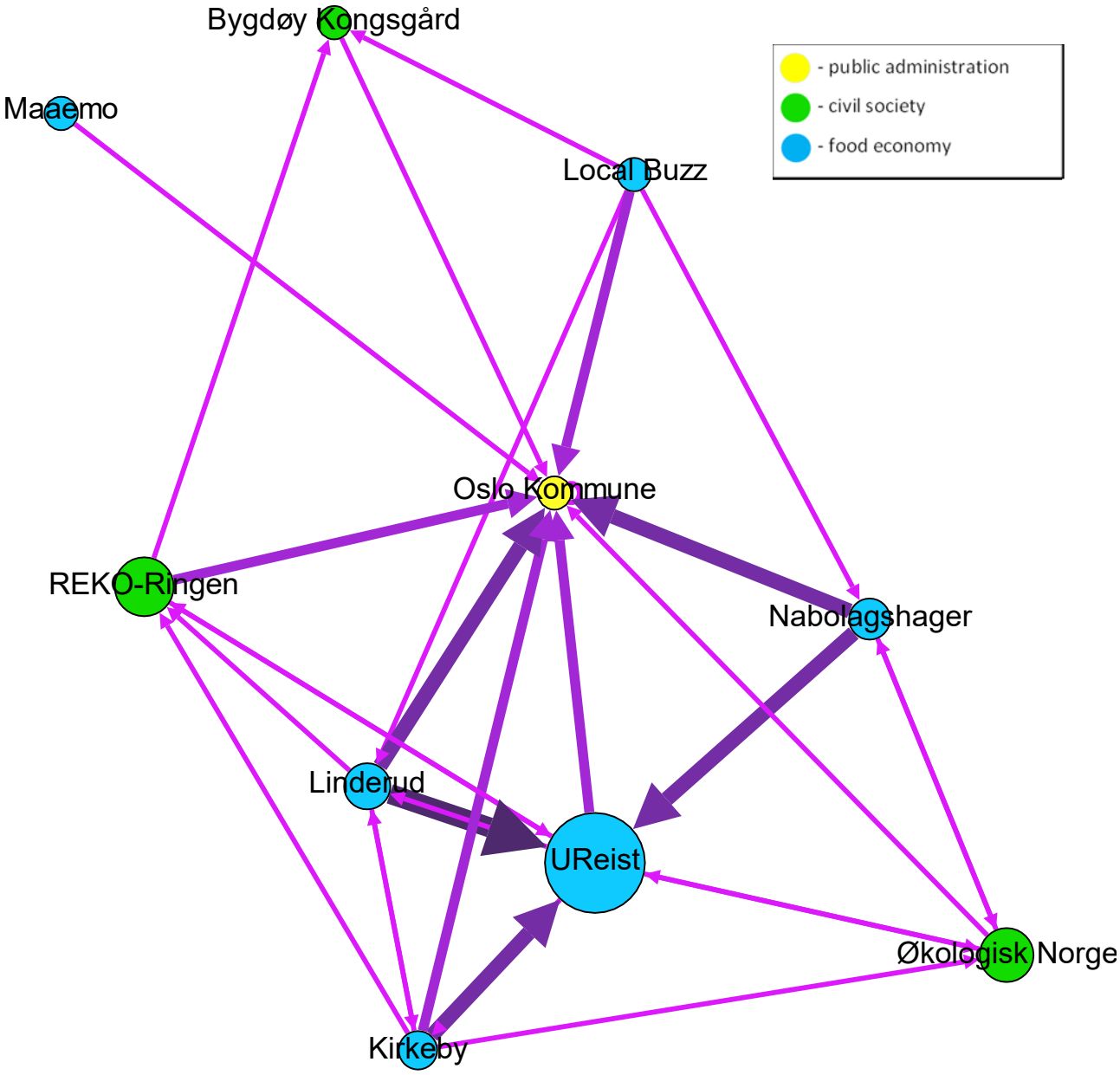

Figure 25: *Net-Map of the hindering relationships in the CRFS in Oslo (figure: ILS/FoodE)*

In addition to the desired relationships, the existing hindering connections between the actors were addressed, which affect the transformation of the CRFS. Looking at these hindering relationships mentioned by the respondents, it becomes apparent that in contrast to the two network maps described so far, fewer interconnections have been highlighted (see **Figure 25**). Obstacles mentioned include competition in small markets and rules and regulations.

There are two actors who appear to create significant hindrances within Oslo. The first is the City of Oslo. As already established, the City was deemed the most influential actor by the actors of this study. The City of Oslo was also one of the most supportive actors in the supportive relationships Net-Map. While the City of Oslo offers many incentive programs and support for CRFS initiatives, they have also made decisions that some find unpopular including restricting public land from being

used to generate private profit, even for CRFS actors. We theorize that this dual role of both support and hindrance is not unique for public sector actors.

The second significant hindering actor *UReist* ("Short Travelled" a for-profit organization building and running urban food production facilities) can be understood as one of the most commercial actors in the Oslo CRFS within the context of this study. Many speculated that *UReist*'s attempt to commercialize and expand the reach of urban food production hindered other smaller actors who were working on similar projects. However, the scale and professionalism of *UReist* is not so easily matched by many actors who were thought to be hindered by them. This likely means that *UReist*, while being perceived of as hindering, is actually expanding the market potential of Oslo.

Commercial relationships in the network

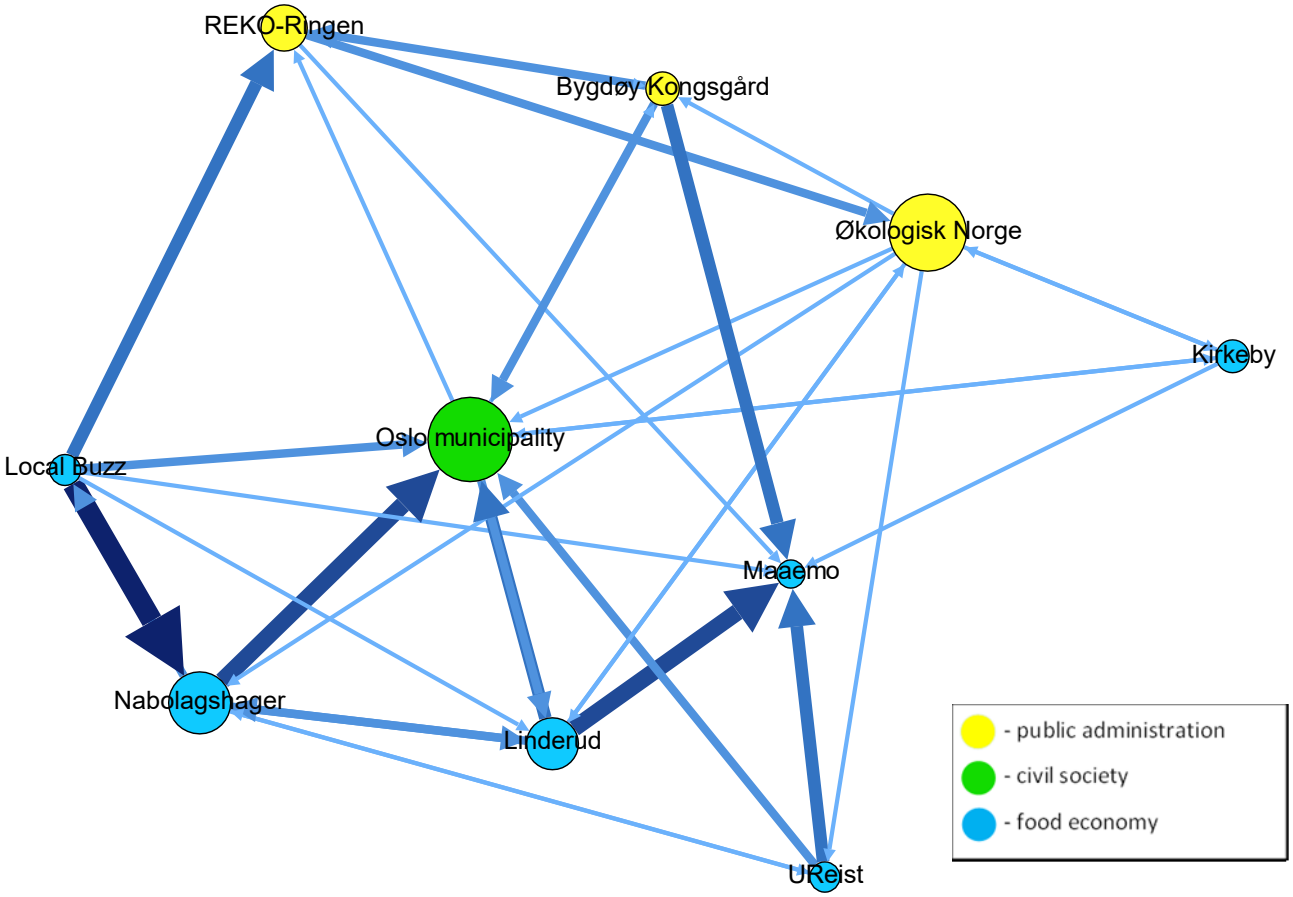

***Figure 26**: Net-Map of the commercial relationships in the CRFS in Oslo (figure: ILS/FoodE)*

The last Net-Map, which provides results for the analysis of the network of actors in Oslo, shows the commercial relationships (see **Figure 26**). These include monetary flows such as funding, fees and sales of goods and services.

Economic actors identified in the Oslo CRFS are *Nabolagshager, Local Buzz, Linderud, UReist, Kirkeby Andelslandbruk* and *Maaemo (a farm-to-table restaurant)*. The map in **Figure 26** shows that whilst there are some strong business relationships in the Oslo network, many of the existing relationships are not commercially driven. It is also worth noting that not all of the aforementioned actors identified as 'economic' have strong commercial ties with other identified actors within the network. For example, *Kirkeby Andelslandbruk* has a minor commercial relationship with The City of Oslo and *Økologisk Norge,* but no other connections within the sample were identified in the

interviews. This of course does not preclude the existence of such relationships, however highlights the potential for commercial relationships to be strengthened in a manner that is reflected in **Figure 24**, should it be desired. This is consistent with the findings highlighted previously in relation to future desired relationships (see **Figure 24**), with the current state of play reflecting the more activist nature of CRFS in Oslo, as opposed to commercially-dominant exchanges.

On the other hand, the strong commercial relationships that are present are between *Nabolagshager* and *Local Buzz,* whereby *Nabolagshager* receives funding that supports *Local Buzz's* activities and vice versa, *Local Buzz* provides important research data that can feed back into research projects. *Nabolagshager* also has a strong relationship with the City of Oslo, whereby the City of Oslo provides resources for *Nabolagshager* to carry out local research projects and placemaking activities within the various districts of Oslo.

It is important to note that *REKO-Ringen* whilst identified as a civil society actor, does have some economic or commercial elements as part of its operations, given they coordinate to connect local farmers with consumers (Civil Society) to sell produce. Thus, there are some commercial connections with *REKO-Ringen* identified in this Net-Map, the strongest relationship being with *Local Buzz,* an Oslo honey producer.

Motivations and Influence of the actors

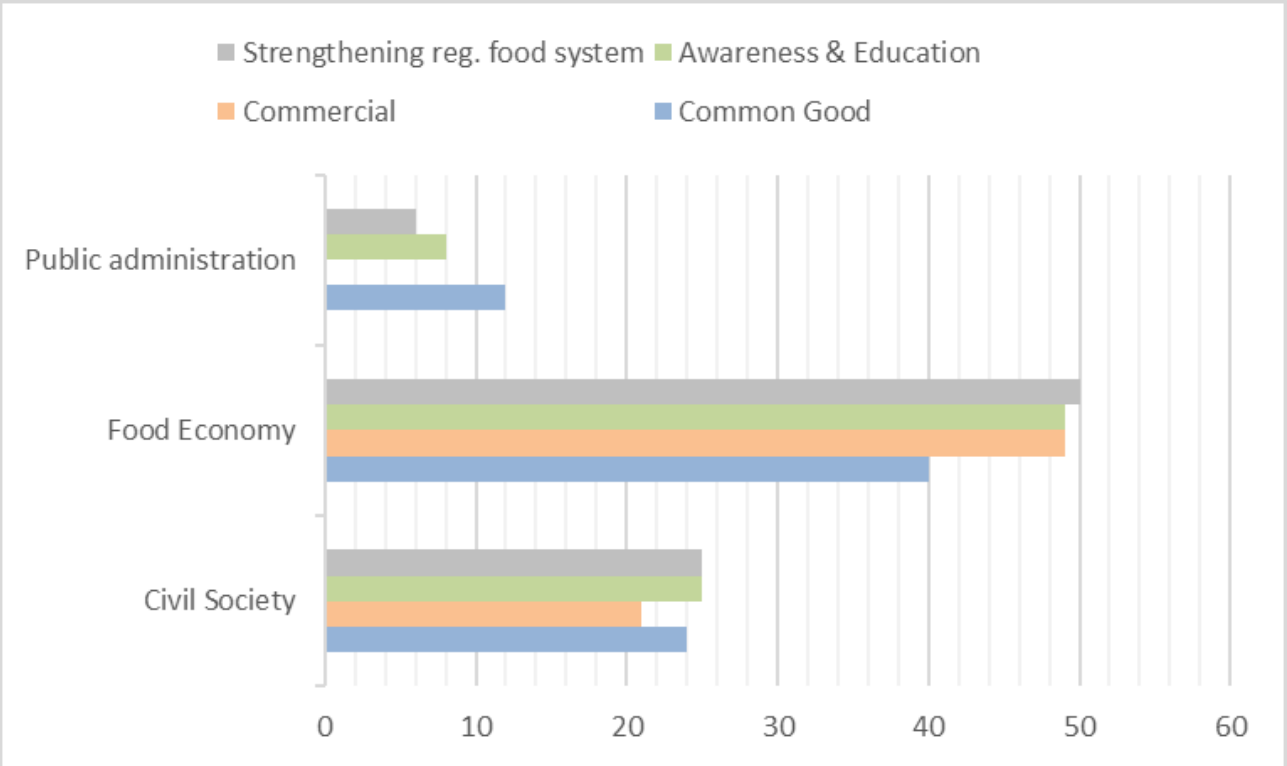

Figure 27: *Motivations ascribed to the actors in the Oslo CRFS differ according to sector. (Figure: ILS/FoodE)*

In addition to the relationships between the individual actors, the motivations of these were also assessed for the extent to which they act out of common good, awareness & education, commercially and to strengthen regional food systems (see **Figure 27**). Overall, it appears motivations are somewhat equally distributed across the categories. Commercial motivations tend not to dominate Oslo's CRFS networks and where commercial activities are one of the main motivations of an actor, this appears to be coupled with another motivation that is not economically focused.

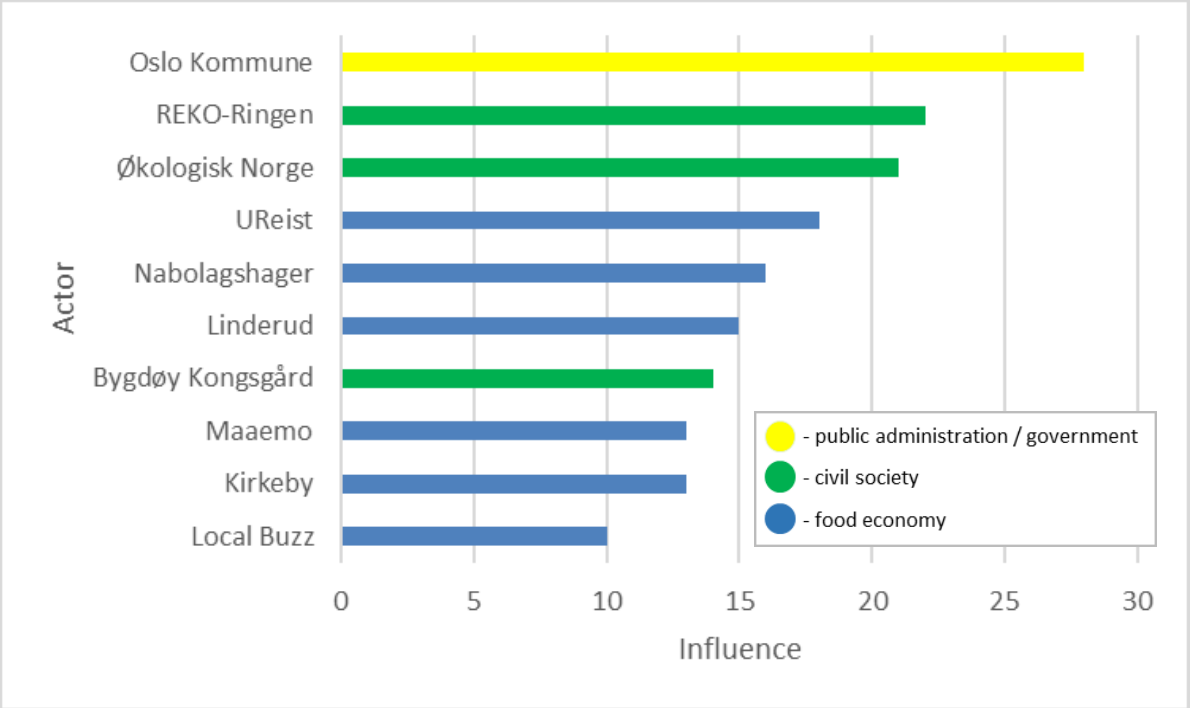

Figure 28: Influence ascribed to the individual actors in the network: Oslo CRFS (figure: ILS/FoodE)

Figure 28 shows the influence the respondents ascribed to the individual actors, which are divided into the three spheres by colour (yellow for public administration actors, green for civil society and blue for economic actors). This Net-Map shows that the City of Oslo is assumed to have a high influence on Oslo's CRFS, which correlates with the Net-Maps produced at previous figures. This influence is not always assumed to be positive, as interviewees suggested this could also reflect hindrances or obstacles to the transformation, as previously described. Thus, this actor and their structural improvement are an important area of focus. A similarly high level of influence is also ascribed to both *REKO-Ringen* and *Økologisk Norge,* suggesting high levels of potential with regard to food system transformation. Despite these actors already having strong existing connections, it is necessary that these connections are further strengthened to increase its networking capacity.

Conclusion

To summarize, one can understand that the CRFS in Oslo is well developed in terms of connections as well as support networks. The City of Oslo stands out as the most important actor within the context of this study. This is in keeping with other research conducted by FoodE partners in Oslo which shows that high levels of trust in government within Norway translate to looking to the City of Oslo to create change within the CRFS. This is further supported by the fact that second and third most influential actors within this study are civil society actors, not private actors. It would seem that most interviewees are expecting change to come from an institutional level, not through innovation in the private sector. Oslo's CRFS still has lots of room for improvement, as is seen in the desired connections mapped in this study. We hope to utilize this data to better shape work within Oslo through the remainder of the FoodE project and beyond.

3.5 Romainville (FR)

Romainville is a city located near Paris, in the Seine-Saint-Denis department and the Ile-de-France region. Romainville counts more than 30.000 inhabitants, in a highly urbanised setting. The city has the particularity of experiencing strong population growth, with a majority of new arrivals being high-income households. Despite this development, the population of Romainville remains more disadvantaged than the national average: 38% of people having a low standard of living, 26% of people living below the poverty line and with a 16% unemployment rate. Romainville also has a high diversity of population, with 25 % of immigrants (Musso 2022; Ville de Romainville 2022).

In the Ile-de-France region and the Seine-Saint-Denis department, the food system is unbalanced with much higher consumptions than production. Faced with intense competition for land from industrial activities and residential development, the Seine-Saint-Denis agricultural sector has been considerably reduced. More than 90% of the surface area of this department is now artificialized. Seine-Saint-Denis also has a relatively low number of agri-food and food transformation activities; but a relatively high density of food shops. Local food consumption trends are in line with what is observed on a national scale (Musso 2022).

The Cité Maraîchère is a pilot in the frame of the FoodE project and a CRFS initiative, created in 2021. It is a municipal facility for urban agriculture, a vertical farm that plays host to a whole series of facilities and activities under one roof (La cité maraichère 2023):

- A market garden production area and in a cellar, production of endives and mushrooms;
- Educational spaces for the general public where trainings, workshops, meetings and cultural events take place;
- Outdoor spaces with gardens for learning, a communal square and a neighbourhood composter;
- *Les Cheffes*, a 50-seat cafeteria.

The Cité Maraîchère aims to develop an environmental education programme alongside sustainable food, promoting access to fresh, healthy and seasonal produce for all. In order to promote access to quality food for all Romainville residents, the local authority is applying a household income-based pricing system for the sales of the market garden production. It will also act as a means to create jobs in the area and provide support to those having difficulties finding employment.

The research question for the Romainville Net-Map process of Romainville focuses on the role of CRFS initiatives in the CRFS in Romainville and what their motivations are within the network. Of further interest is the way in which these are connected to each other and how this is designed. Accordingly, the research question is as follows:

> Who are the important actors surrounding the pilot CRFSI around local food producing and access in Romainville in 2022? What are their motivations?

First of all, we have compiled an exhaustive list of all the actors – 177 – currently working with the Cité Maraîchère; and divided them into 3 categories: economic, civil society and government institutions. Then, we have reduced this list to the most important actors, with 14 stakeholders for each category. These 42 stakeholders are the ones that were presented to the respondents at the beginning of the face-to-face interviews.

Finally, we have chosen six organisations, represented by seven people, for the interviews: (1) The Cité Maraîchère itself – Adrianna Le Goff, head of promotion, and (2) Yuna Conan, director; (3) *Coccinelle*, a traditional supermarket – Benjamin Telliez, the owner; (4) *Est Ensemble*, the intermunicipal institution – Héloïse Balhade, project manager on urban agriculture; (5) *Les Jardins familiaux de la Corniche des Forts*, family allotments gardens – Kristin Jonsdottir, President of the association; (6) *Le Secours Populaire*, NGO that helps disadvantaged people – Joël Mangalam, President of the Romainville committee; (7) *Les Cheffes*, the restaurant at the Cité Maraîchère – Hawa Touré, cook and co-owner.

These seven stakeholders were selected because they are local citizens and food actors, have relevant knowledge regarding the research question and represent the three different actor categories, and also – due to the short timing – were available. For each interview and Net-Map process, and according to the research question, the "Cité Maraîchère" post-it was placed at the centre of the paper sheet. During the seven interviews, 25 different actors were chosen, so of the initial set presented to the respondents, 16 were not included in the resulting maps at all and another 16 were only mentioned by one respondent. The 25 stakeholders break down into the three actor groups as follows: eight are economic actors, ten are part of the public administration or are actors of the local governance and 6 belong to the civil society. All the actors are specific structures/organisations; apart from two of them which represent a group of people or institutions: Romainville's inhabitants (*Habitants de Romainville*) and the schools of the city (*Établissements scolaires*).

However, some of the interviewees viewed the selected stakeholders as representatives of a bigger group - for example, a specific city department stands in for public administration generally or a local shop for food retailers. Moreover, the chosen actors were sometimes not well known and, so, people had difficulties to characterise or explain their relationships into the network. The translated names and descriptions of these actors are available in annex 7.5.

Supportive relationships in the network

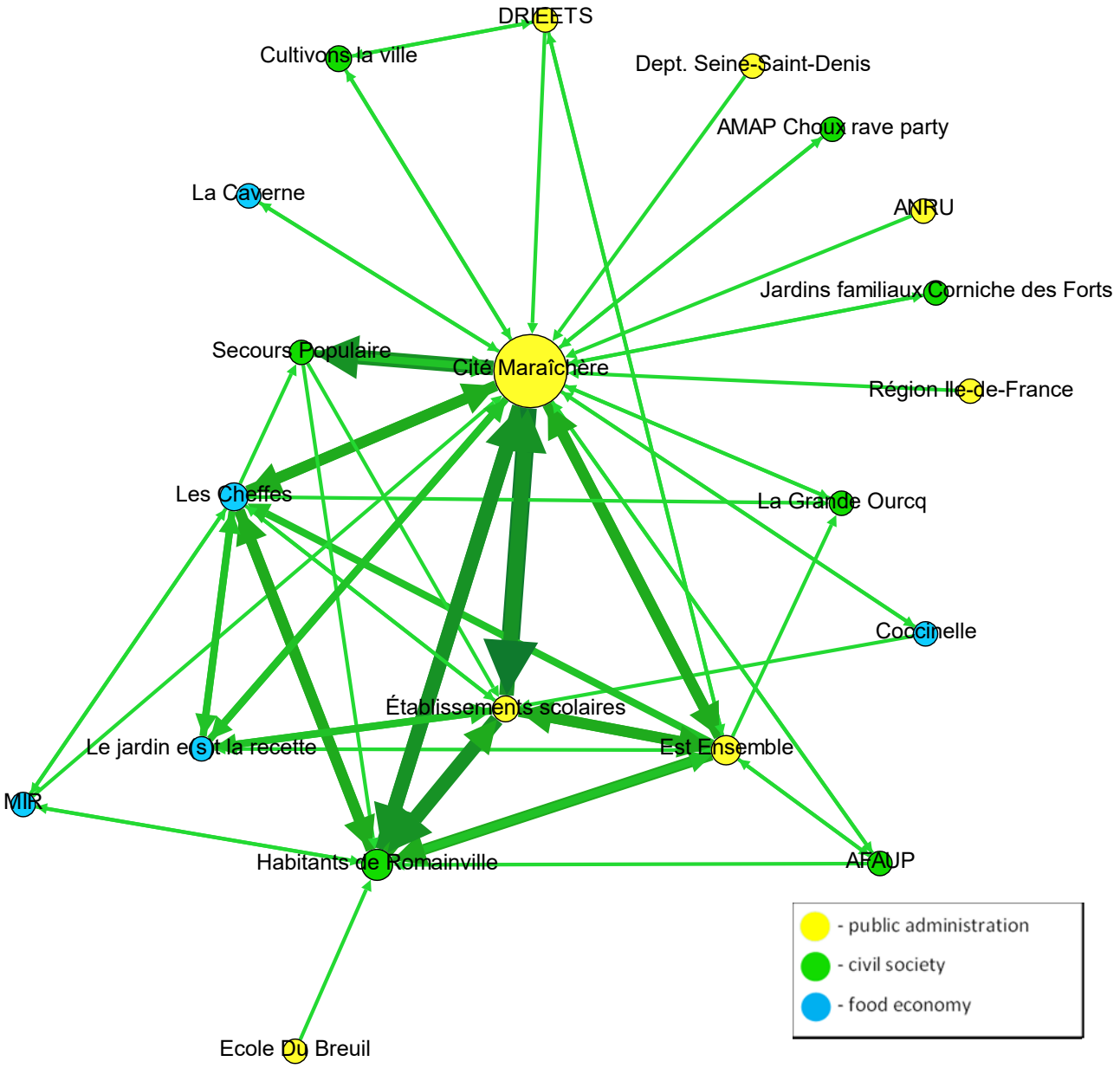

Figure 29: *Net-Map of the supportive relationships – Romainville and Cité Maraîchère (figure: ILS/FoodE)*

For the supportive relationships, we can see that 19 of the 25 actors are represented, with the three categories present but with a slight under-representation of economic stakeholders (which is probably due to a higher representation of these actors in the commercial relationships, so not necessarily relevant).

In the Net-Map it is shown that the *Cité Maraîchère* has a key role in the supporting network and many activities are facilitated through this actor (see **Figure 29**). We can find a tight group of highly interconnected actors around the *Cité Maraîchère*, consisting of the inhabitants and the schools, the intermunicipal public administration, and the two businesses sharing the *Cité Maraîchère* building (*Les Cheffes* and *Le Jardin e(s)t la recette* – "The garden is the recipe", a small business producing spices and condiments). This core group reflects the main activities of the *Cité Maraîchère*.

The supportive links between the *Cité Maraîchère* and their partners mainly concern: participation in workshops and events, exchange of information or knowledge or network, communication relay. For the relationships with the Food bank (*Secours populaire*), it's almost only gifts. And for the public

institutions, this also concerns grants. The strongest and mutually supportive relationships are between the *Cité Maraîchère*, the schools and the inhabitants. Each one gives and receives support to each other. There is also a "second circle" of interconnected stakeholders but with noticeably weaker links. It comprises two local shops and two local associations. In the lower part of the map, more interconnections are shown, including relatively few civil society stakeholders.

Finally, several actors are located at the periphery of the map and are only connected to the network via the *Cité Maraîchère*. These stakeholders were less frequently chosen by the people interviewed, as they were considered as less important for the *Cité Maraîchère* and the CRFS (see **Figure 33**), but also as they were less well-known by the interviewees.

Commercial relationships in the network

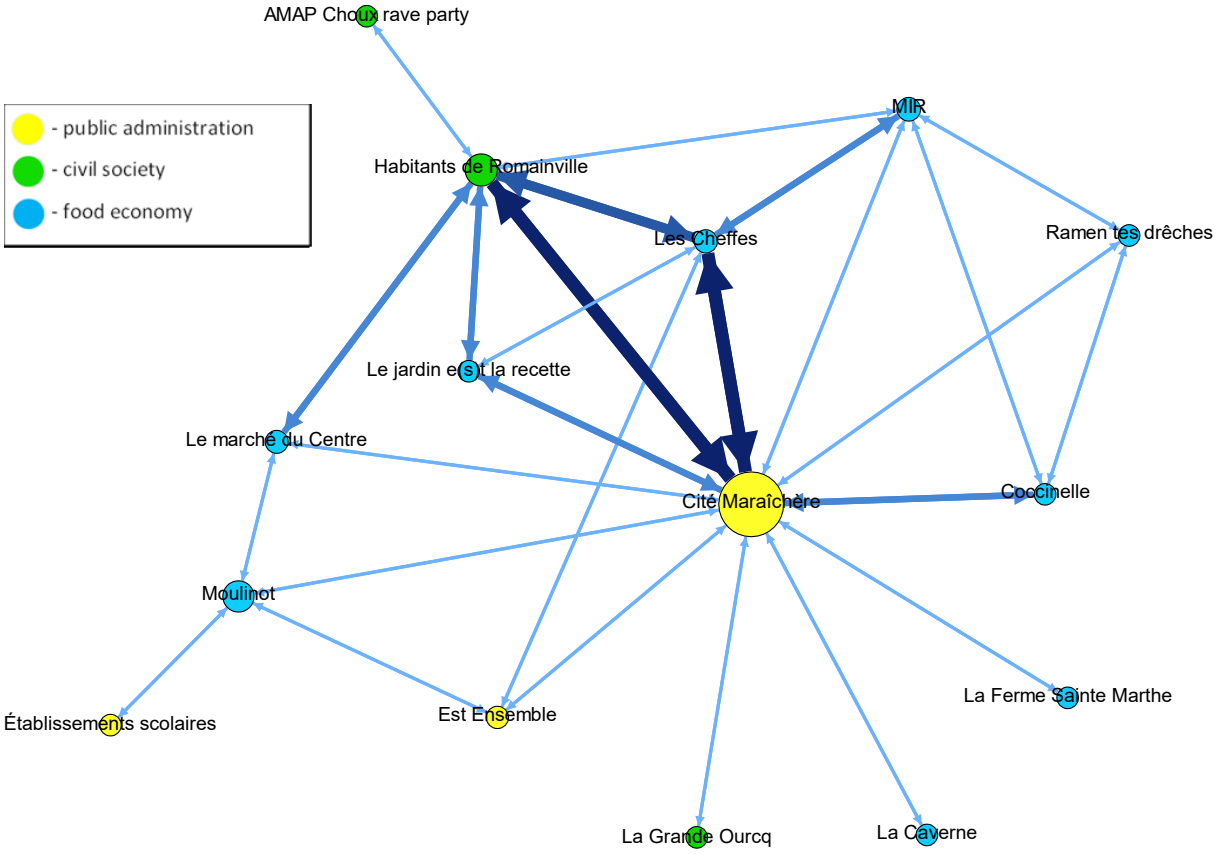

Figure 30: *Net-Map of the commercial relationships – Romainville and Cité Maraîchère (figure: ILS/FoodE)*

As mentioned for the supportive map, and not surprisingly, the economic actors represent the majority of this commercial map (see **Figure 30**). There are many relationships between the economic actors. Visible is also the strong triangulation between *MIR* (*Made in Romainville*, a craft brewery), *Ramen tes drêches* ("Ramen/return your spent grains") and *Coccinelle* (a supermarket), representing a flow of basic ingredients (brewery waste) from *MIR* to *Ramen tes drêches*. *Ramen tes drêches* produces noodles and flour from spent grains, including spent grains of *MIR*, Romainville's brewery. *MIR* sells products of *Ramen tes drêches* and *Coccinelle*, sells *MIR* beers.

We find, again, a strong interconnection between the Cité Maraîchère and the two companies located in the same building (*Les Cheffes* and *Le jardin e(s)t la recette*); and with the inhabitants, who are the first beneficiaries of the activities and products of the Cité Maraîchère. It is interesting to note that the *Cité Maraîchère*, although a public facility, has many links with economic actors. The

two public actors (Schools and *Est Ensemble*) were mostly mentioned in the context of the food waste management.

In total there are two providers of the *Cité Maraîchère* represented on the map but only in a commercial relationship with the *Cité Maraîchère*: *La Ferme Sainte Marthe*, an organic seed company, for seeds, and *La Caverne* (The Cave), a subterranean urban farm in Paris, for mushrooms substrate.

Desired relationships in the network

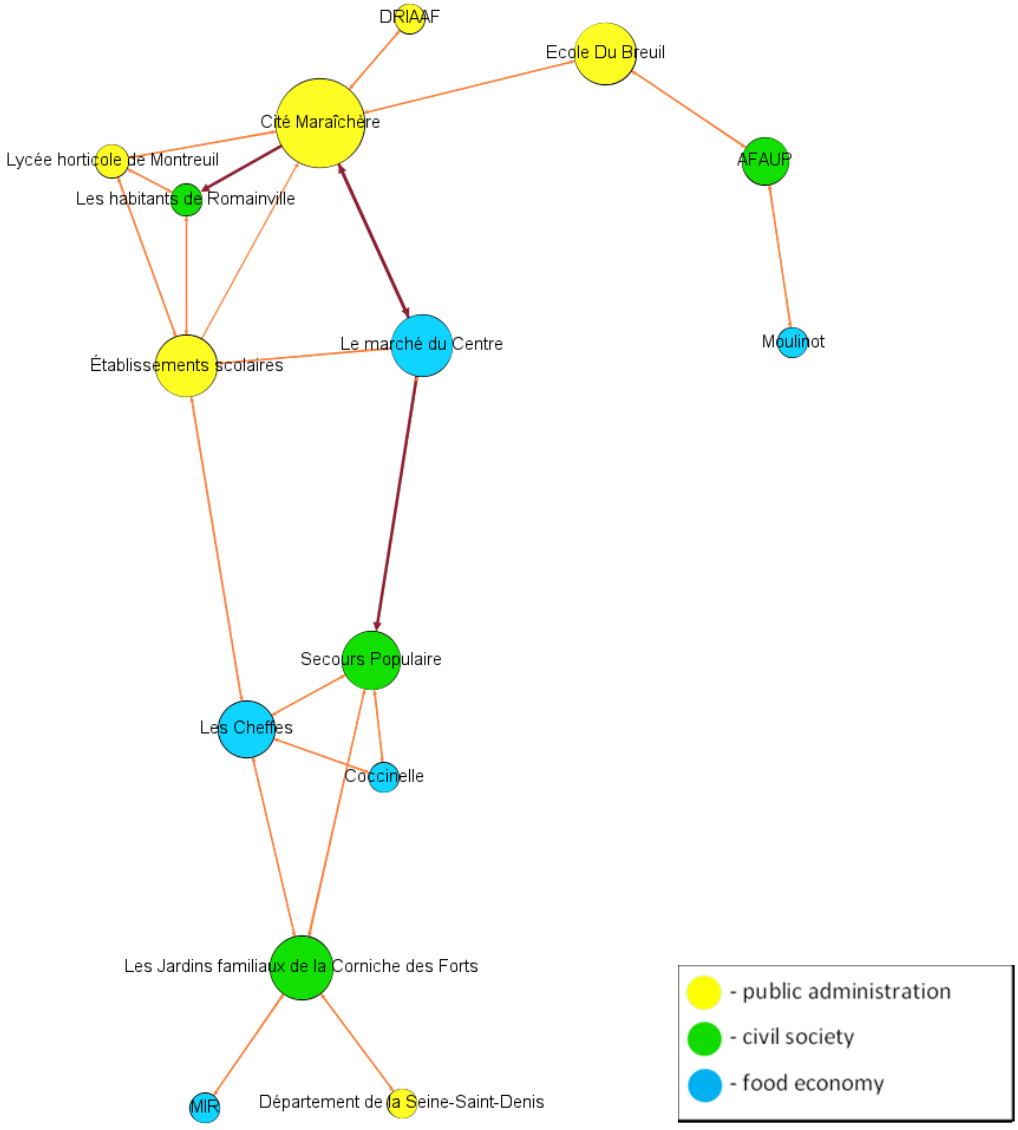

Figure 31: *Net-Map of the desired relationships – Romainville and the Cité Maraîchère (figure: ILS/FoodE)*

The desired links were less often drawn than the other types of relationships during the interviews and, sometimes, they were used to describe more an unknown link or the wish to see a stronger relationship between two actors. So, maybe that the map doesn't reflect the fact that almost all the people interviewed talked about their wish to develop relationships.

As can be seen on the map (see **Figure 31**), relationships are desired between actors, some of which have already been mentioned in the supporting and commercial network. Visible are the desired relationships between the actors *Cité Maraîchère*, the city's schools and the inhabitants. It is also evident that the relationship between public administration actors is desired. Nevertheless, the map shows a high diversity of actors involved in the desired relationships.

Hindering relationships in the network

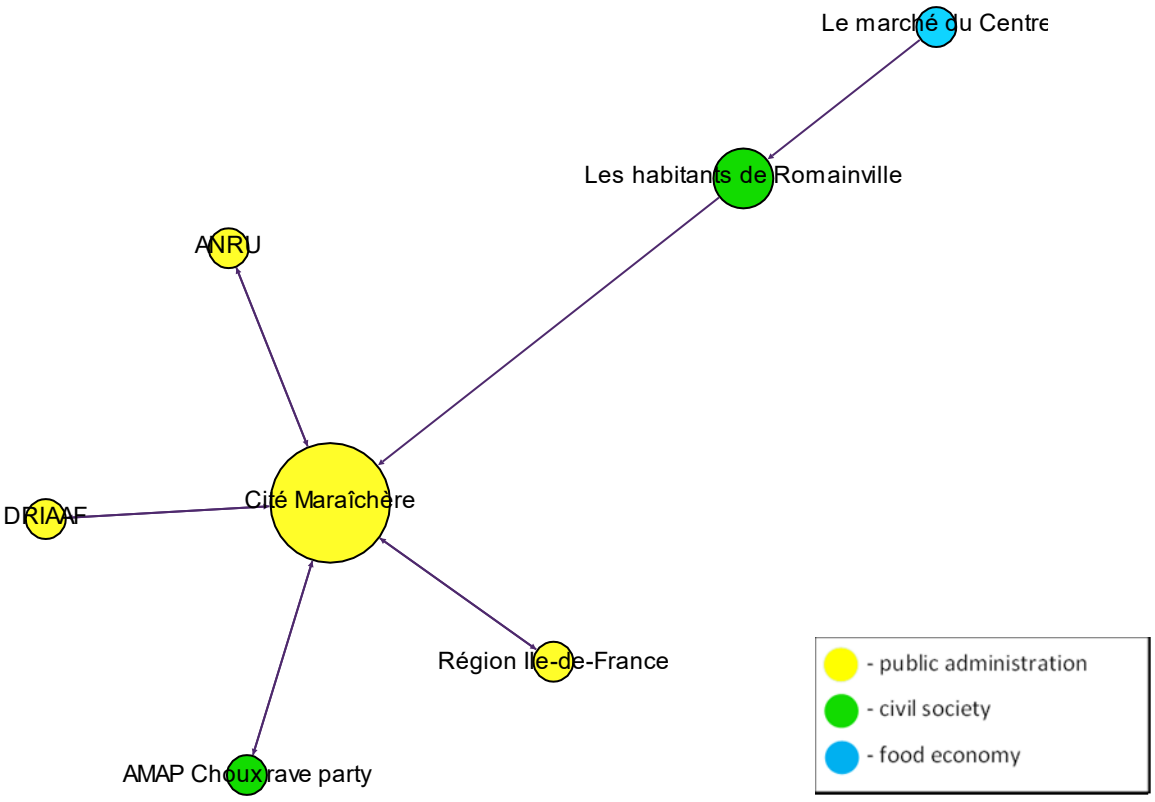

***Figure 32**: Net-Map of the hindrance relationships – Romainville and Cité Maraîchère (figure: ILS/FoodE)*

Relatively few hindering relationships were mentioned in the actor network (see **Figure 32**): the hindrance links were not at the front of the interviewees' minds and due to the fact that they had to select a limited number of actors to map what were from their point of view, the most important actors, they didn't have hindering relationships in mind. Nevertheless, it can be noted that three public institutions were mentioned during one interview, as a possible hindrance because of a lack of support; the people interviewed described this hindrance link as representing possibly not strong enough help – mainly financial – given to innovative projects such as the *Cité Maraîchère*.

During the interviews, the hindrances arising from the inhabitants were explained by a possible opposition to the *Cité Maraîchère* project and a lack of social mix among the users. The hindrance with the *AMAP* (Community supported agriculture) was mentioned in the same idea, a possible barrier for low-income households to dare "go through the doors" of the *Cité Maraîchère*.

Motivations and Influence of the actors

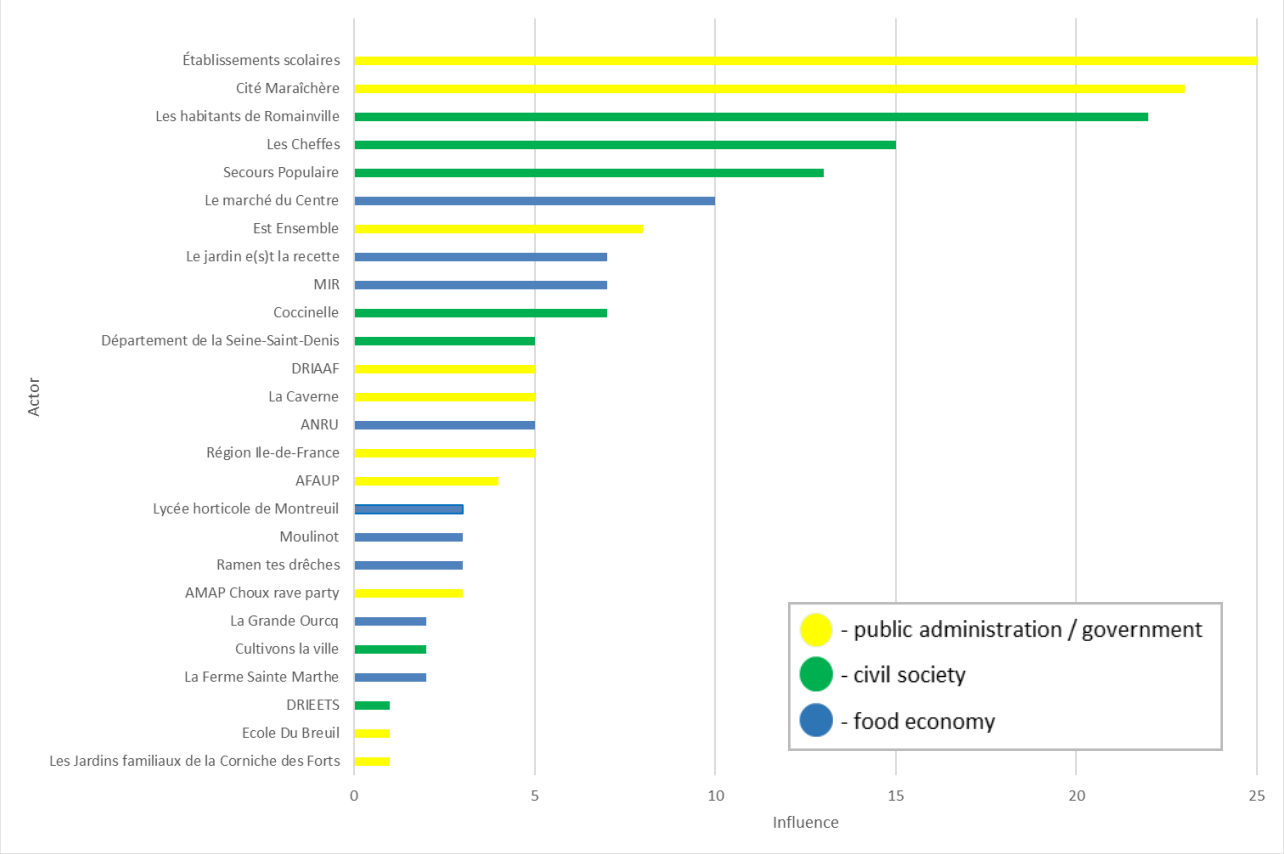

Figure 33: Influence ascribed to the individual actors in the network: Romainville CRFS (figure: ILS/FoodE)

Figure 33 reflects well the supportive map (see **Figure 29**): the three most influential actors – the schools, the *Cité Maraîchère* and the inhabitants – are also the most interconnected. The influence score of the *Cité Maraîchère*, however, can be put into perspective because it was automatically put on the individual map resulting in a higher score. The schools and the inhabitants each represent a large number of individual actors, which can explain their high score. In the interviews, these two actors were seen as having a high level of influence in the network. The important role of inhabitants was explained in a sense that they are essential for the *Cité Maraîchère* project: it was created for them, they participate in the activities, they are customers of the cafeteria, they influence the proposed services, etc. For the schools, the people interviewed mentioned the importance to educate young minds on food sustainability, for the future; but also, the role of the school canteen (exemplary purchasing).

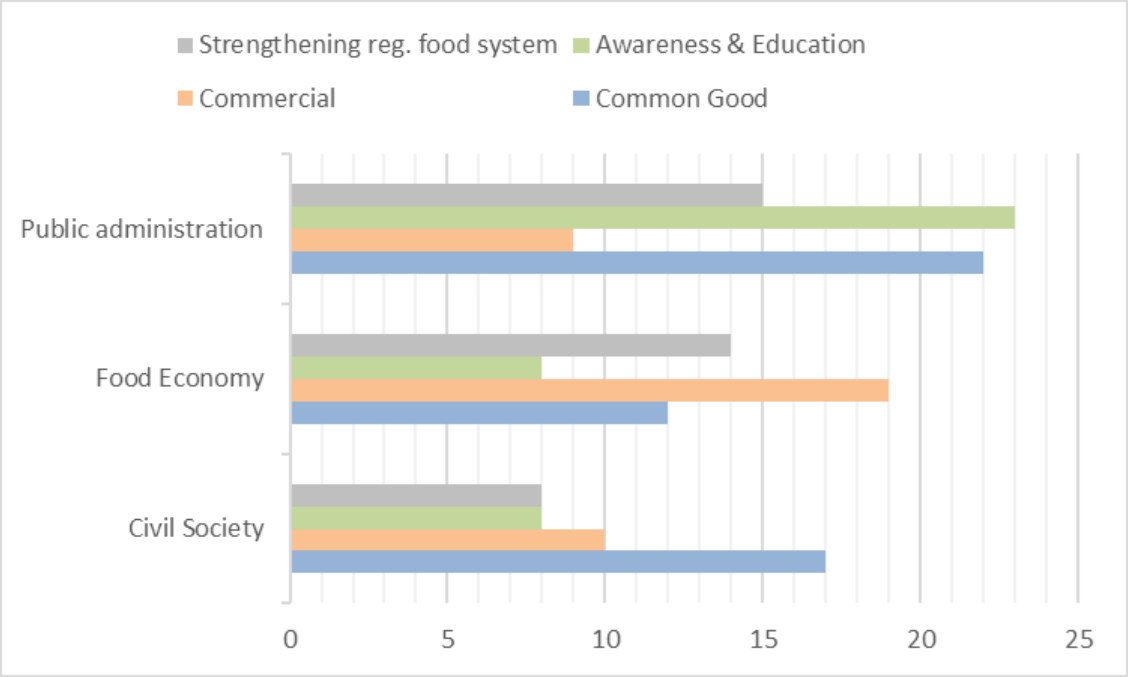

Figure 34: *Motivations ascribed to the actors in the Romainville CRFS differ according to sector. (Figure: ILS/FoodE)*

The indications of motivations according to the three main categories of actors correspond to the expectations: more motivations for the common good for public administrations and associations, and more economic interest for commercial actors. But we can see that all the motivations are present for each category (see **Figure 34**). The “commercial interest” for civil society stakeholders was mainly mentioned for inhabitants, in a sense that they have financial interests in their purchasing behaviours. The people interviewed always mentioned the four motivations for the *Cité Maraîchère*. The issue of the economic viability of this public facility has been raised many times.

STRENGTHS of the stakeholder network - Small local network with actors who know and support each other, interact, have common activities, etc. - Recognized importance of the role of educational actors and inhabitants - Supportive role of public administrations - Diversified network (representation of the three categories)	**WEAKNESSES** of the stakeholder network - Lack of knowledge of some actors and their roles, including the *Cité Maraîchère* - Lack of communication between stakeholders - Slighter representation of local shops - Not enough social mix among the public of the *Cité Maraîchère*
POTENTIAL / Opportunities of the stakeholder network - Increase the communication about the *Cité Maraîchère* activities - Committed and motivated local actors, with the desire to create or strengthen the links between them	**THREATS** / Risks of the stakeholder network - Lack of time, human resources to enforce the network or to contribute to it - Not enough food production to allow more commercial partnerships - Oppositions (or less participation) of inhabitants, who are main actors - Central role of the *Cité Maraîchère*; risk for the local network?

Table 5: *SWOT analysis of the Net-Map results of the CRFS in Romainville (figure: Romainville/FoodE)*

Conclusion

In conclusion, the exercise showed that the *Cité Maraîchère*, although only recently established, already has an important network of local actors. It is also considered to be an influential stakeholder in the development and promotion of sustainable food in Romainville, mainly through the many events and awareness-raising activities it has implemented. However, its influence is perceived as limited and micro-local, due to the low volume of market garden production and a lack of social diversity of its users. The analysis of the network of actors has also highlighted the interconnections between a small number of actors in Romainville involved in food issues, and the desire of these actors to strengthen these links. In this sense, the *Cité Maraîchère* could be an accelerator and facilitator in the consolidation of this network.

Furthermore, it can be noted that public administrations are seen as a key type of actor for the development of a CRFS, and that their lack of commitment may lead to fears that this development will be hindered.

3.6 Lansingerland (NL)

Lansingerland is a municipality that was created on January 1, 2007 from the merger of the three small towns of Berkel en Rodenrijs, Bleiswijk and Bergschenhoek in the Dutch province of South Holland. The municipality has 64,129 inhabitants as of 31 January 2022 (CBS 2022). Lansingerland is part of the Rotterdam-The Hague metropolitan area and the Greenport West Holland, a regional network organization bringing together the regional government, urban and rural municipalities, research institutions and the horticultural sector with the aim of developing and transforming greenhouse agriculture in the region. Within the region, different actors collaborate to strengthen each other and achieve agglomeration advantages. The province of South Holland accounts for approximately 21% of the total economy of the Netherlands (Provincie Zuid Holland 2022).

Lansingerland has developed into a thriving business community with (among other things) various business parks and a logistics hotspot. Above all, Lansingerland fulfils a unique role in the greenhouse horticulture sector. The so called "*glastuinbouwcluster*" (greenhouse horticulture cluster is one of the leading spaces of this kind globally.

For example, the world's leading greenhouse horticultural institute, the Research Institute for Horticulture & Flower Bulbs of Wageningen University & Research (WUR), is located in Lansingerland. WUR has been pioneering the reduction of fossil fuels in greenhouse horticulture for two decades. On the one hand through energy saving methods in the greenhouse, on the other hand through research into alternative energy sources. Their KAS2030 (Greenhouse 2030) project tests and showcases the most recent technical developments (WUR 2021). In this greenhouse, the emphasis is on climate-neutral and emission-free production of vegetables, fruit and ornamental crops. In addition, greenhouse horticulture companies and suppliers from Lansingerland play a major role in the breeding of and world trade of vegetables, fruit, and ornamental plants. The municipality of Lansingerland has 789 hectares of greenhouses in which vegetables (54% of the area) and flowers and ornamental plants (56%) are grown (see also the illustration in Annex 7.6) (Gemeente Lansingerland 2022). This makes it the second largest greenhouse horticulture municipality in the Netherlands after Westland. The clustering of innovative companies has led to a strong knowledge network for the entire (greenhouse) horticultural complex. The *Horti Science Park*, with Delphy and WUR as prominent research organizations, several world market leaders (e.g., Anthura, Bayer Crop Science and Koppert Biological Systems) and several other leading Greenport companies, has been further expanded in recent years. The top 10 Greenport companies have a turnover of 1.7 billion euros. The total export value of the Greenport in Lansingerland is 1.1 billion and the added value is more than 700 million euros. With 8,500 jobs, the greenhouse horticulture cluster is Lansingerland's largest employer (1 in 3 jobs) (Jukema et al. 2021).

At the same time, the traditional Greenport is under pressure. Currently, most of the sector is engaged in bulk production (i.e., tomatoes, cucumbers and bell peppers), which is cost-driven. If this path continues, the industry's business model is in jeopardy. A stronger focus on fundamental and applied innovation would broaden its economic base. The transition to fossil-free will play a crucial role in this in the longer term (2040).

Current situation

Making cultivation more sustainable is crucial for the sector. To limit global warming and reduce costs, the use of fossil fuels must be reduced or eliminated. In addition, climate change requires innovation in cultivation techniques in order to be able to ensure continued production. The 2014-2020 Multi-Year Agreement on Energy Transition for Greenhouse Horticulture (Schepers & Rooijers 2015) expresses the ambition for greenhouse horticulture to be climate-neutral by 2040, provided several preconditions are met, and to have a fully sustainable and economically viable energy supply

in 2050. In view of this, strong measures such as more energy-efficient cultivation methods, more efficient greenhouses, heat reuse, and use and production of sustainable energy are needed. Depending on the crop and region, various solutions are possible, such as connection to a district heating network, use of geothermal energy or flexible use of electricity at times when there is low-cost solar and wind energy available. Greenhouse horticulture must also continue to reduce the use of plant protection products. This presents greenhouse growers with a number of major challenges. The question is how to respond to this situation: it requires the adoption of far-reaching measures that can have an impact on countless aspects of their work, such as job satisfaction, routines and interactions, business goals and revenues.

For example, the sector has set a goal of halving current gas consumption by 2030 compared to the 2017 baseline. Greenhouse horticulture must also comply with stricter laws and regulations, and making cultivation more sustainable is also a means of controlling costs. Fossil energy prices are erratic and at the same time, a crucial factor in profitability; currently, about 25-30 % of the cost price of a tomato is energy costs. The extremely high gas prices in the autumn of 2022 are illustrative of this volatility. That is another reason why it is important that the sector moves away from the volatile security of natural gas supply. At the same time, the reality is that the climate is increasingly changing. This manifests itself in periods of drought, periods of heat, extreme rainfall events and changes in local biodiversity. This forces the sector to respond promptly to these changes.

For this reason, it was decided to focus on the energy transition for Lansingerland as CRSF in this case. The following research question was formulated:

Who are the important actors, motivations and relationships in the CRFS (greenhouse horticultural sector) in Lansingerland to start a sustainable transition towards fossil-free horticulture in 2022? Who are the actors, motivations and relationships in the greenhouse horticultural sector in Lansingerland to make the sector economically (i.e., viable), environmentally (i.e., fossil-free, emissions free) and socially (i.e., employment, food security) sustainable?

For this purpose, a total of 5 individual face-to-face interviews were conducted according to the Net-Map method (see section 2.1) and additionally transcribed for further qualitative analysis purposes. The interview partners were selected with a view towards achieving a holistic view of the CRFS in Lansingerland, by including the equal participation of respondents from different spheres: research institutions, representatives of sector organisations, business and public administration.

The following section presents results from the Net-Map analysis. First, the supporting relationships of the network are described and analysed, followed by the commercial and the hindering relationships. Then the motivations and influences ascribed to the actors are examined in more detail. Finally, approaches to solutions and difficulties for the transformation of the CRFS in Lansingerland are highlighted by means of a SWOT analysis. As the different actors in the four Net-Maps are displayed with their Dutch names, a list of these with their translation and description in English has been included in Annex 7.7.

Supportive relationships in the network

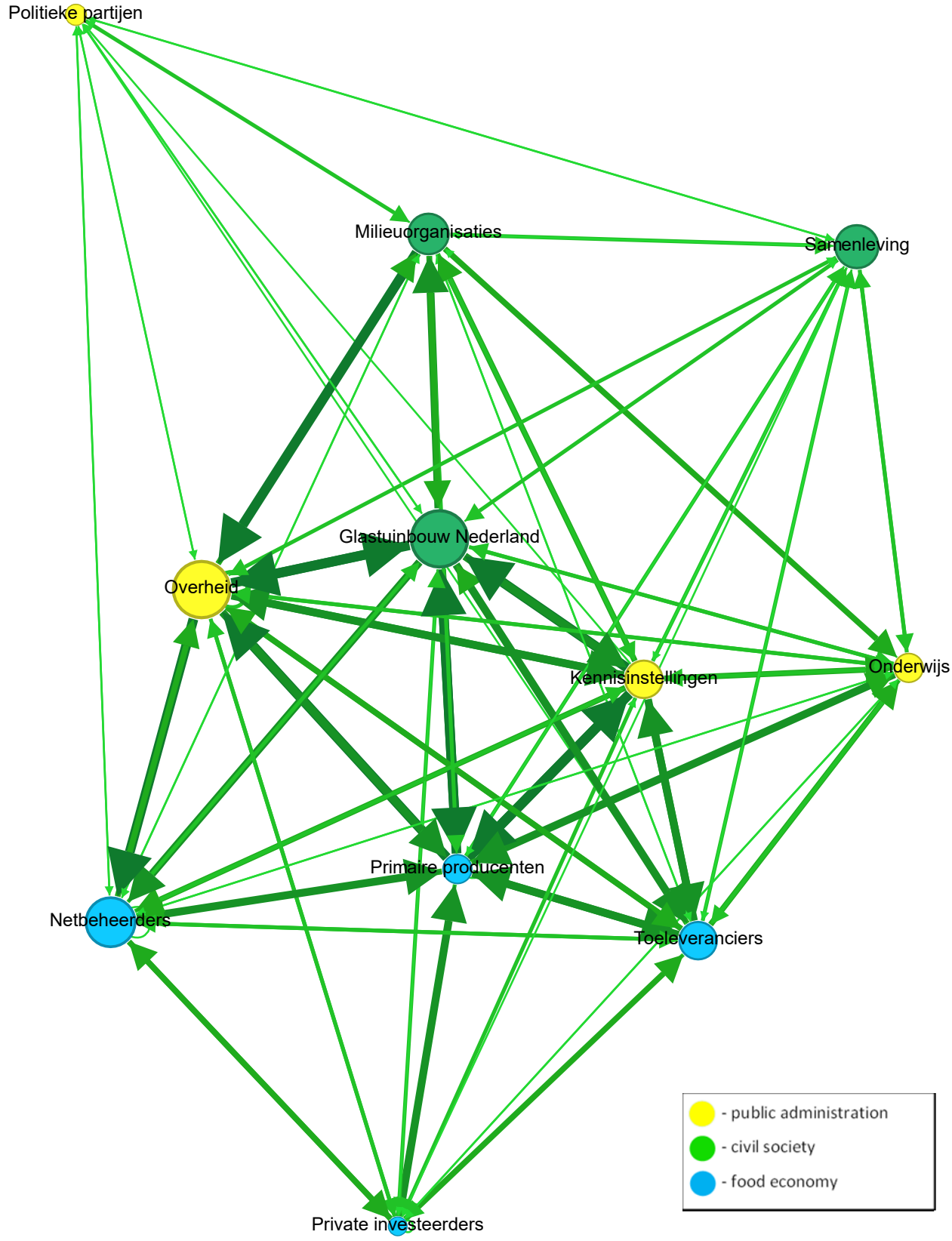

Figure 35: *Net-Map of the supportive relationships in the CRFS in Lansingerland (figure: ILS/FoodE)*

The visualization of supportive relationships (see **Figure 5**) – which can include information exchange, networking, cooperation or promotion – shows where and in what form networking between the different actors already exists. The map results in a dense network of relationships and appears rather symmetrical. All the mentioned actors from the three spheres (i.e., food economy,

public administration and civil society) are present, with connections within and between the spheres. It can be evinced from the thickness of the arrows that the strongest (reciprocal) connections are between the *Overheid* (different levels of government), *Kennisinstellingen* (research institutions), *Glastuinbouw Nederland (Greenhouse Horticulture Netherlands*, a trade association in which 75% of Dutch greenhouse growers are organised*)*, *Netbeheerders* (energy providers), *Primaire producenten* (greenhouse producers) and *Toeleveranciers* (Suppliers). Smaller, but still relevant, are the connections with *Private investeerders* (private investors), *Onderwijs* (education), *Milieuorganisaties* (environmental organizations) and *Samenleving* (civil society). It should be noted that *Politieke partijen* (political parties) were added by only one respondent as an entity other than the government. This explains the peripherality and weakness of this actor within the map compared to the others.

The interview with *Glastuinbouw Nederland* showed that many operators, no matter their company size and personal stance on the question of sustainability, are actively engaged in 'solving' the energy issue, insofar as this is within their power. For example, a large number of growers' associations are looking for opportunities to produce fossil-free products. In some cases, by integrating savings and in some cases by discussing innovations with fellow greenhouse growers and other parties involved, such as advisers and/or banks or relevant civil servants from municipalities and provinces. According to *Glastuinbouw Nederland*, it also appears that almost all parties support the transition to fossil-free production.

Commercial relationships in the network

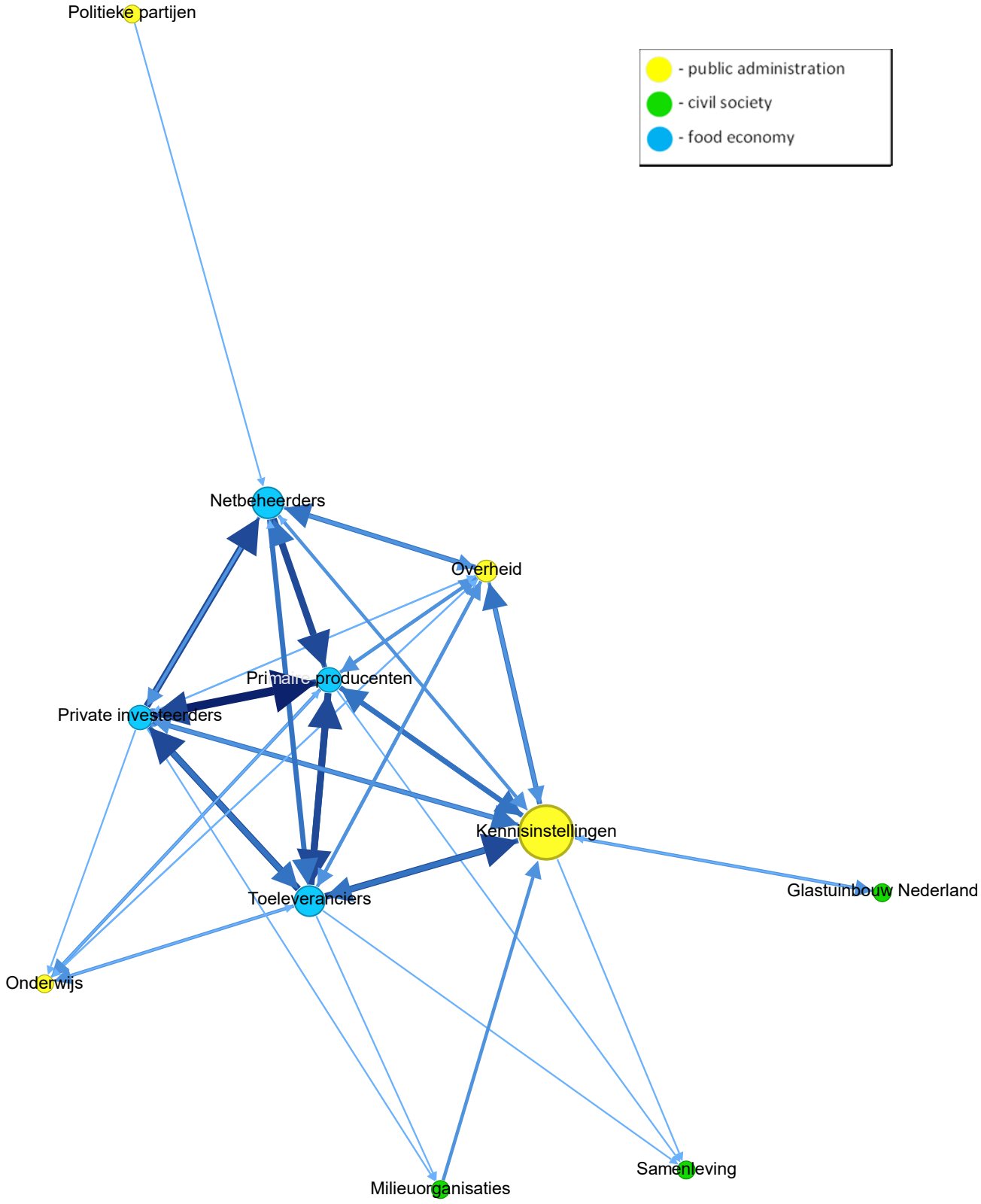

Figure 36: *Net-Map of the commercial relationships in the CRFS in Lansingerland (figure: ILS/FoodE)*

The net-Map in **Figure 7** provides results for the analysis of the network of actors in Lansingerland in terms of their commercial relationships. It can be seen from the map that commercial relationships on the topic of energy transition mainly concern the spheres of food economy and public administration. Primary producers have well established (and mutual) connections with private investors, energy suppliers, suppliers and research institutions. In addition, research institutions (such as WUR, and Delphy), seem to play a key role as connectors for the network as a whole and especially serving as a bridge with the sphere of civil society.

Hindering relationships in the network

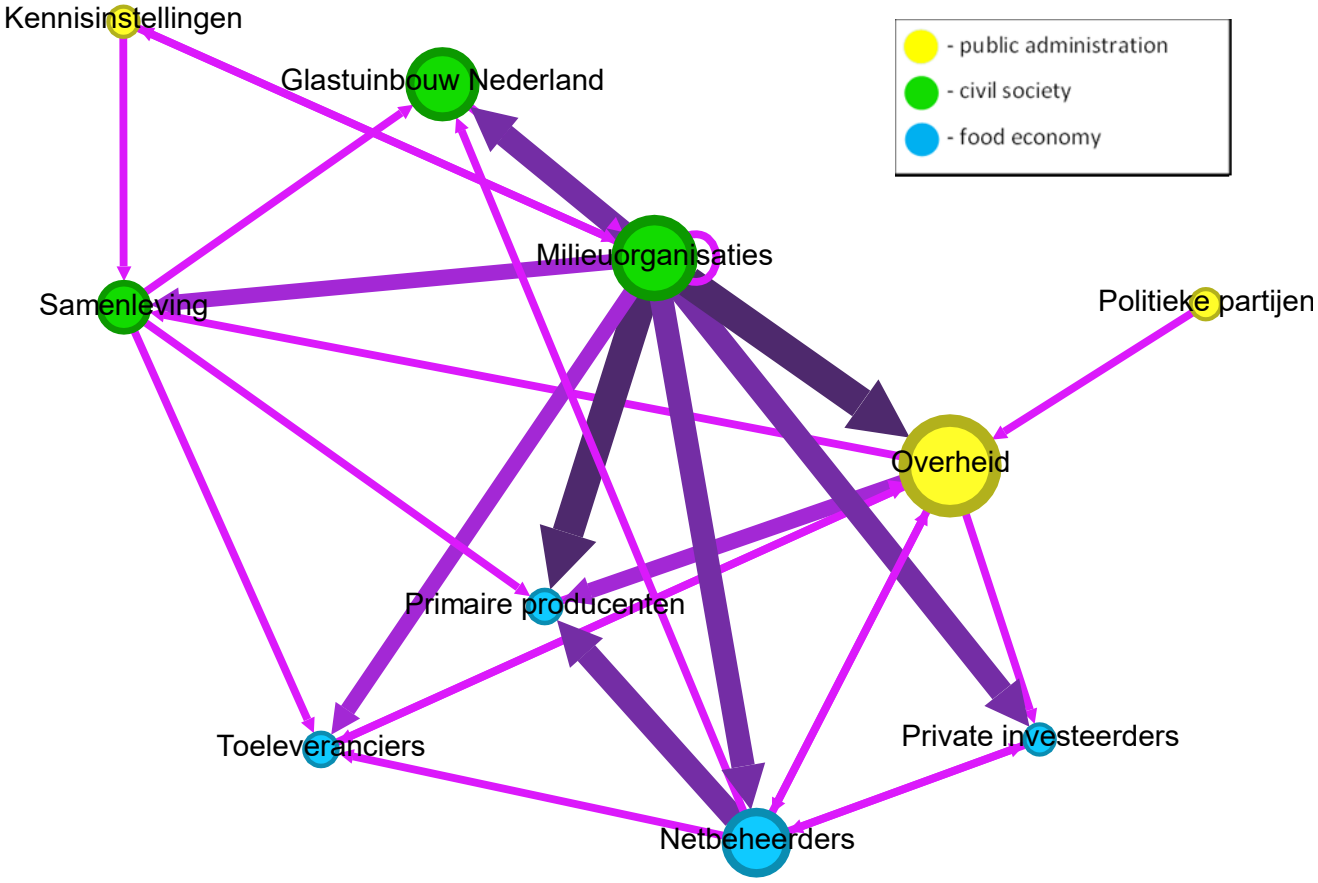

Figure 37: *Net-Map of the hindering relationships in the CRFS in Lansingerland (figure: ILS/FoodE)*

In addition to supportive and commercial relationships, the existing hindering connections between the actors were addressed, which affect the transition of the greenhouse horticultural sector to fossil free energy (see **Figure 37**).

In discussion with greenhouse horticultural entrepreneurs about fossil-free production, the government is regularly mentioned as an uncertain factor. The map shows that hindering relationships are rather strong in Lansingerland and are attributed to one actor in particular, namely the environmental organisations. In fact, in some cases the economic stakeholders experience the environmental organisations as obstructive. After further questioning, it appears that the relevant interviewees are referring to radical environmental organizations based on their own experiences. It should be noted that members of environmental organisations were not included in the interviews, so future research should include for better consistency and robustness of analysis.

In addition, the interviewed greenhouse growers perceive various levels of government as an obstacle: they find it difficult to create a long-term strategy for their company if there is no stable regulation at national level that continues to support innovations over the longer term. They also sometimes mistrust local governments because of slow permitting procedures for innovations that can support fossil-free production, and because of changes in the zoning plan, as a result of which certain investments may have been for nothing afterwards. It arouses their suspicion if the local government does not cooperate or cooperates slowly when companies want to contribute to national government policy through investments. When greenhouse horticulturists talk about an 'unreliable government', they often do not distinguish between the municipal, provincial or central government.

From the perspective of greenhouse operators, the main barriers to transition are a lack of stable regulations that continue to support innovations over a longer period of time, slow permitting procedures and changes in the zoning plan. Greenhouse horticulture operators are advocating not to completely abandon gas, if only to be able to cope with emergencies if other energy sources cannot fully meet the demand for heat, electricity and CO_2.

In line with the previous point, the economic stakeholders see a lack of a concrete strategy and action plan for the transition to fossil-free greenhouse horticulture. Producers also say that moving to fossil-free production methods quickly is beyond their financial capacity because their company is too small, or cooperation with other companies in the region is not possible.

Stakeholder *Greenhouse Horticulture Netherlands* stated that considerations regarding costs and benefits vary per company, depending on the type of cultivation, the heat required and the available alternative energy sources from which operators can choose. These considerations are always made against a background of uncertainties. Producers are uncertain on all kinds of aspects; for example, about the best time to invest. This causes some to postpone their investments.

The interviews show that the present actor network is mature. In the sense that the different stakeholders know each other, and have been in discussion about the energy transition for several years by now. For example, none of the interviewees mentioned any desired relationship (a relationship that is still missing). This means that the connections between stakeholders are already well established. However, almost all those interviewed would like some stakeholders to cooperate more intensively, particularly between the government parties and between the government and the energy providers.

Motivations and Influence of the actors

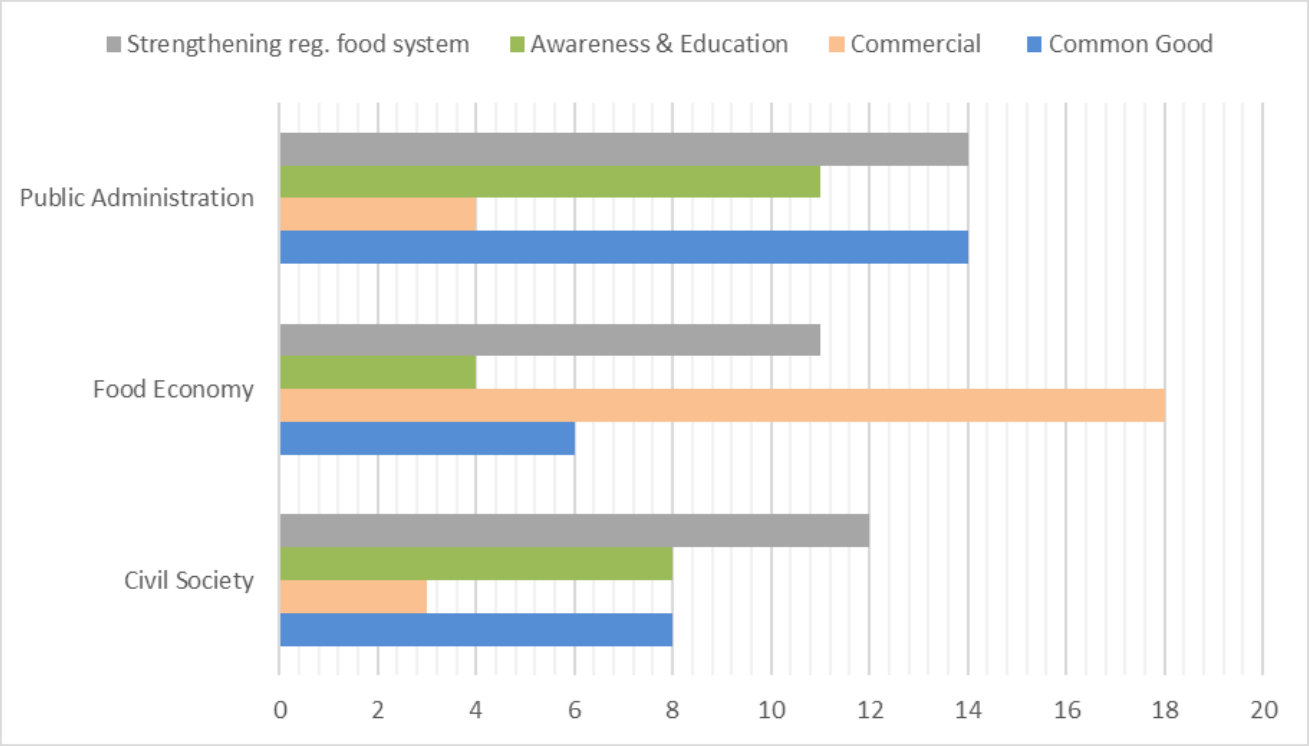

***Figure 38**: Motivations ascribed to the actors in the Lansingerland CRFS differ according to sector (figure: ILS/FoodE)*

In addition to the relationships between the individual actors, their motivations in joining the transition of the greenhouse sector to fossil-free energy were also evaluated. **Figure 15** shows the four main motivations (strengthening the regional food system, awareness raising & education, commercial interest and the common good), grouped by the three actor spheres. The strengthening of the regional food system is the principal motivation of government and civil society and the second main motivation for the food economy stakeholders. Common good and awareness / education are the second main drivers of government and civil society while it emerges that the commercial aspect is only a major focus for the business actors.

In general, the vast majority of (large and small) operators are willing to take steps to make the transition to sustainability, for example by investing in alternative heat and energy sources that can replace the gas boiler or CHP (Combined Heat and Power), or in solar panels. Or to replace plastic packaging with sustainable materials and use sustainable pesticides. Nevertheless, they also often choose to postpone such investments and go for less drastic ways to save without requiring immediate investments.

It is also striking that all stakeholders label the private investors as a commercial party that does not serve the public interest. They are not labelled as a positive link, but rather as a necessary evil to get the transition going.

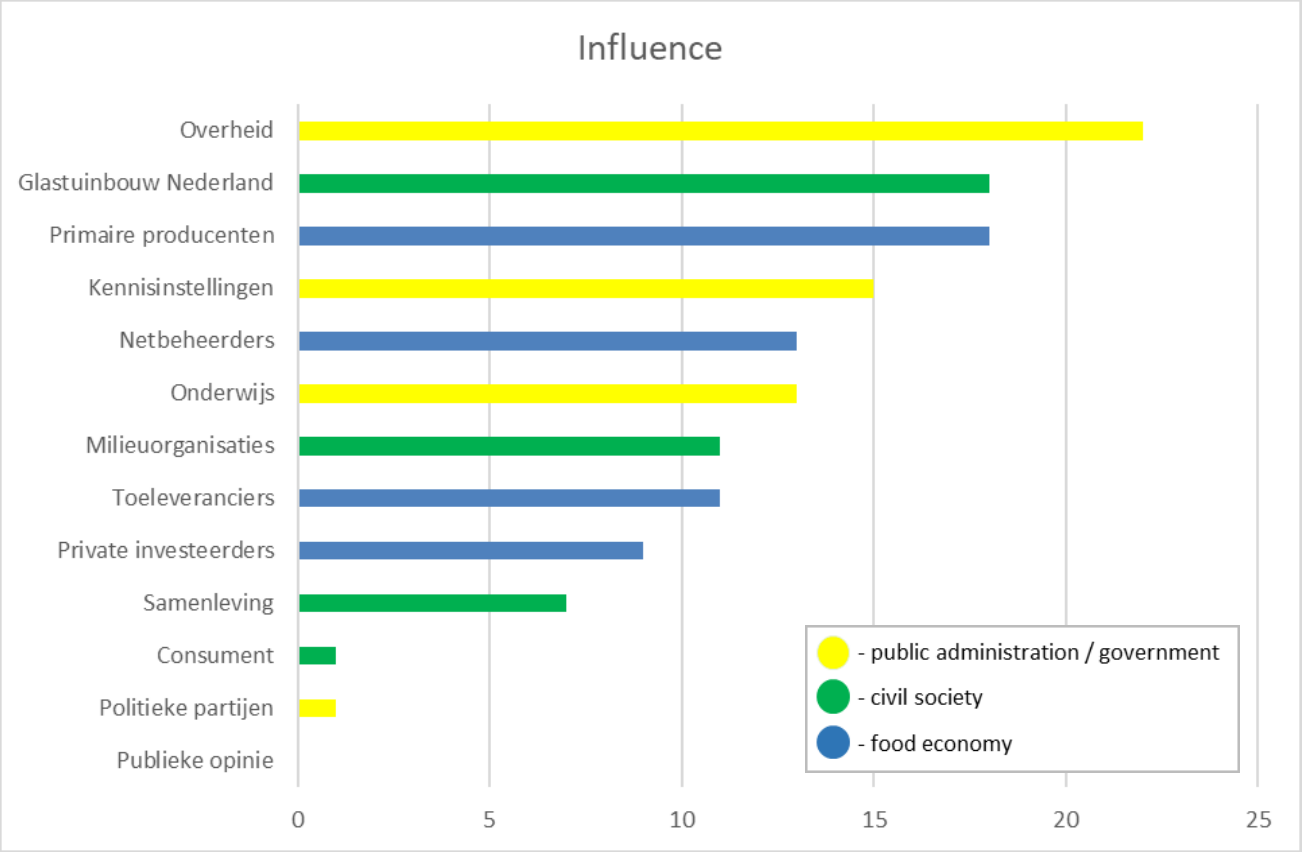

Figure 39: Influence ascribed to the individual actors in the network: Lansingerland CRFS (figure: ILS/FoodE)

Figure 39 shows the influence the respondents ascribed to the individual actors, which are again divided into the three spheres by colour. There is a clear gradient of influence that grows going from public opinion to government. The government, the sector association Greenhouse Horticulture Netherlands, the primary producers and research institutions are considered as the most influential for this process. In other words, these stakeholders are assumed to have a high influence and potentials on the energy transition theme. However, clearer direction is needed in the long run in order to create a stable environment for producers, investors and suppliers to make decisions (clear and consistent rules and regulations). As mentioned for political parties before, the stakeholder *Consument* (Consumers) were added by only one respondent. Therefore, data are not sufficient to draw conclusions on the influence of those two groups in the whole energy transition. Future research may investigate and clarify those aspects. Fossil-free production is an important topic for Dutch greenhouse horticultural entrepreneurs. However, when asked what concerns them most, they bring other themes to the fore. The interviews show that sales (therefore earning capacity) are the most prioritized theme. The sector has already taken measures that contribute to fossil-free production. The most commonly used measures mentioned are the use of two or more energy screens and one gas-fired Combined Heat and Power (CHP). In addition, there are producers who take innovative collective measures. Examples are connecting to a geothermal heat project, connecting with a heating network and connecting to a CO2 network. Alternative measures to generate energy are taken slightly less often, with the exception of the use of solar cells to generate electricity (all growers) and the application of wind energy (potted plant growers).

However, the desire to hand over the world well to the next generation is rarely the decisive reason for producers to take measures at their company. Generally speaking, greenhouse horticultural operators will not act purely out of concern for the climate. In the end they weigh the advantages and disadvantages of different innovations (e.g. gas-free, emission-free and production with residue-free

pesticides) against the expected costs to the company in the short and long term, the effects on quality of the resulting product and acceptance by the retailer or consumer. In general, alignment with societal values was not of primary importance to the corporate strategy, unless it fits with the company's goals. Where producers expect that they can distinguish themselves with their product if they can show added social or environmental value, or if customers (such as retailers) ask for it, they consider this to be more important. Combating climate change is one of these social values and plays a role in the values perspective of some larger entrepreneurs, but not in all of them. It also appears that all stakeholders – notwithstanding their distrust of and perceived unreliability of the government – see the government as a party that pursues the common good in this case at all times. As mentioned earlier, they do ask for the next step: direction and guidance.

The interviews also show that the greenhouse operators experience that the costs are higher than the benefits when it comes to fossil-free production. They believe large investments in fossil-free production are not financially feasible because the company is too small, the region is not suitable or they find cooperation difficult or impossible. With regards to education and awareness raising it appears that mainly non-commercial stakeholders take responsibility for driving the transition, including by raising awareness. In particular the stakeholders Greenhouse Horticulture Netherlands, the government and environmental organizations are seen as being motivated by this.

The term “strengthening the regional food system” required further explanation before the interviewees could answer the question. After the explanation, it appears that the majority of stakeholders perceive that the stakeholders contribute to the food system with these transitions.

The analysis of the influence ascribed to different stakeholders once again shows that government bodies are seen as able to have the greatest impact. This is mentioned by food economy stakeholders because they create the regulatory and funding frameworks for their activities. This is an interesting observation, since a great amount of action is already possible under the current framework, without further government intervention. This would be a topic for further investigation in a follow-up analysis. The research institutions also perceive themselves as having an impact with their research, thereby assuming that they can accelerate the transition by also offering differentiated alternatives.

To summarise the representation of the energy transition of the greenhouse horticultural sector in Lansingerland, the Net-Map and interview results are presented in the form of a SWOT analysis in **Table 2**.

STRENGTHS of the stakeholder network	**WEAKNESSES** of the stakeholder network
- The stakeholders are well informed about the network - Entrepreneurs often have a network of advisors, suppliers, buyers, representatives of interest groups and fellow greenhouse growers. This applies more to large than to small companies. - High level of mutual support between the actors in the network - The government is seen as an important player - All stakeholders want to make the transition (albeit for different reasons).	- the government gives little direction and is not providing a stable environment for producers, investors and suppliers to make decisions (clear & consistent rules & regulations), resulting in uncertainty - the stakeholders do not have a shared view of who should carry out which tasks, responsibilities and investment - no multi-stakeholder forum for actors from different spheres to collaborate on the transformation

	- producers still believe that costs of transitioning away from fossil fuels (esp. gas) are higher than the benefits
POTENTIAL and **SOLUTIONS**/ Opportunities of het stakeholder network - Government that takes control remains on course - Awareness is increasing more and more, so that the question is no longer if they are cooperating in the transition, but rather how. - The current cooperation has been formalized. It is important that this cooperation is actively pursued. - There might be waste streams from other sectors of the economy (e.g. waste heat) that might be utilized – this needs cross-sectoral facilitation and regulation - regulation is already in place that calls for the sector to become zero emission by 2040 - technological innovations (e.g. Greenhouse 2030) are being developed by research institutions	**THREATS** / Risks of the stakeholder network - Erratic energy pricing can delay transition.

Table 6: *SWOT analysis of the Net-Map results of the CRFS in Lansingerland (figure: ILS/FoodE)*

Conclusion

The most important results of the research are that many growers and investors are willing to take steps towards fossil-free production and that a number of them are already working on this. There are well established relationships among the three spheres of actors with mutual support as well as the government is perceived as major player. However, the greenhouse producers do not fully believe that it is possible to produce completely fossil-free. The lack of an action plan to be able to start fossil-free production is a frequently mentioned obstacle. Greenhouse horticulture operators therefore want to start producing fossil-free, but they feel that they can only get there part of the way. It is also important that the existing cooperation between stakeholders is actively pursued. The regulations that are already in place that call for the sector to become zero emission by 2040 should be broken down into a realistic roadmap and clear guidance. Among potential measures, cross-sectoral collaboration can be promoted and facilitated by regulations. Technological innovations developed by research institutions can provide real data with respect to the state of the art and potentials of what is really feasible and in what time frame.

3.7 Tenerife (ES)

Tenerife, with 2.034 km², is the largest island in the Canary archipelago, located at 28°35'15"- 27°59'59" north and 16°5'27"- 16°55'4" West, in the Atlantic Ocean. This Spanish archipelago, an outermost region of the European Union, had 2.172.944 inhabitants in 2021, 927.993 of them on the island of Tenerife (INE 2021). In the first quarter of 2021, there were 346.790 registered jobs in Tenerife, of which 299.368 corresponded to the service sector, 21.568 to construction, 16.029 registered in industry, and 9.825 in the primary sector. Registered jobs in the primary sector only account for 2.8% of the total, and fishing and aquaculture for 0.15% (ISTAC 2021). Despite its modest contribution to GDP, fishing has always played an essential role in food security and the identity of the island's inhabitants (Pascual-Fernández et al. 2019).

The rates of fish consumption in the island are low in comparison with the national average, and the scarce intake of these products by kids and teenagers is specially alarming. Moreover, important problems have been detected in the small-scale fisheries value chain, partly due to the fact of a growing map of actors in all fields. A vast number of public administrations with legal competency in fisheries complicates the legal framework, and thus, compliance, while globalization effects multiply competition. Local artisanal fishers struggle in a market with more and bigger operators, a wide presence of imported products, and local groups such as illegal fishers increasing the pressure with the introduction of illicit products in the commercial circuit. The number of actors aware of these effects and willing to intervene in growing as well, as the positive side of the scenery. Some governmental organizations are getting close to the fishing sector in order to introduce actual and current necessities in the public policies, and research institutions are developing important studies in the field to clarify the scenario. A list of all actors including the new incomers, their description and translation can be found in Annex 7.8.

It is important to highlight the SWOT analysis described below, and its potential contribution to the development of appropriate public policies that could favour the correction of weaknesses, the tackle of threats, the maintenance of strengths and the exploitation of opportunities for artisanal fishers in Tenerife.

Who are the important actors in the Small-Scale Fisheries value chain in Tenerife in 2022? How do they promote a sustainable system and which are their motivations?

The research question aimed to characterise the island's local fishery products value chain main actors. Its relevance is notorious for facing a sustainable and fair market development, especially for small-scale fishers. Their capacity to sell their fish, receive remunerative prices and add value to their catches is particularly relevant to securing their livelihoods. Still, too often, these artisanal products' superior freshness and quality do not lead to better prices or higher demand. Frequently, local fishing catches are not adequately differentiated from large-scale fisheries, aquaculture, imports, or furtive fishing. Artisanal fisheries adopt different strategies to add value and improve the market penetration of their catches, but these strategies must embrace a wide range of actors and issues (Pascual-Fernández et al. 2019). Therefore, a clear picture of this wide actor game board would clarify the decision-making and the adoption of appropriate adaptative strategies in the artisanal sector.

The research approach in the case of Tenerife was based on face-to-face interviews. The fishing sector is not characterised by its technological development, and the small/ medium size of the

territory made the visits of the researchers to the different venues feasible. Furthermore, a tangible board was used to facilitate the interviewees to conceive the idea that was intended to recreate.

The sample aimed to represent the main groups of the small-scale fisheries value chain, looking for interviewees with deep and global knowledge of the field. Therefore, the following persons were interviewed: (1) Researcher of Universidad de La Laguna (researchers and social society); (2) Technical staff of the Cabildo de Tenerife fisheries area, insular government (public administrations); (3) Manager of the main Producers Organization on the island (small-scale fishing sector/market/producers); (4) Manager of one of the main private companies managing medium-size boats and trading with artisanal fish catches on the island-exporting to the mainland (market); (5) Poacher fisherman of the north of the island (extractor); (6) Fisherman and C*ofradía* representative (C*ofradías*: fisheries organizations with a status of public law institutions, see Bavinck et al. 2015) (fishing sector representative/market/producer).

Supportive relationships in the network

Supportive relationships (information exchange, networking, cooperation or promotion) among the different actors playing central roles in the small-scale fisheries value chain in Tenerife, are shown in **Figure 40**, giving a clear image of the current networking scenario.

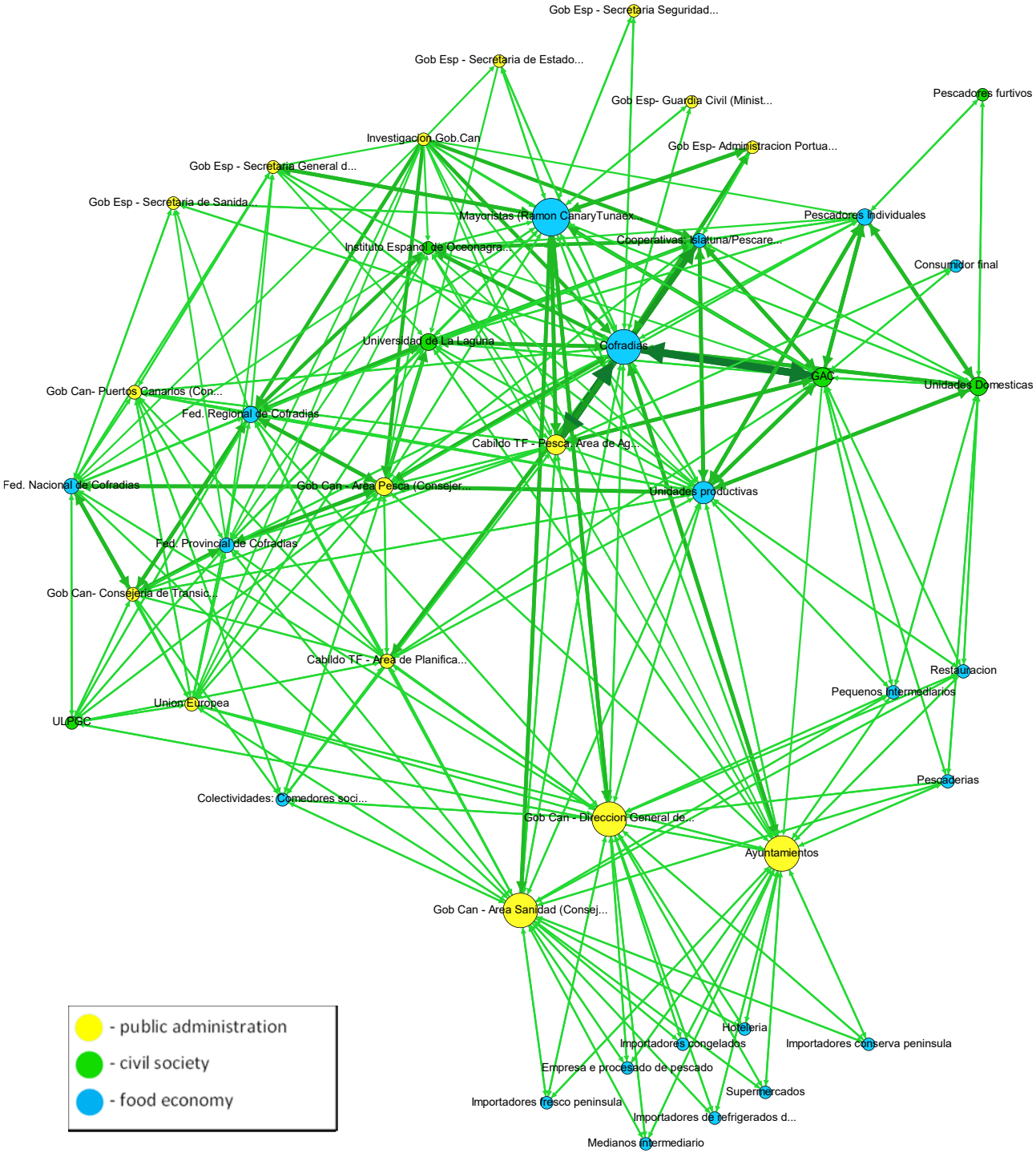

Figure 40: *Net-Map of the supportive relationships in the Tenerife CRFS (figure: ILS/FoodE)*

The supportive relationships visualization shows the highest number of links in comparison with hindering, commercial and desired relationships among stakeholders. The number of relations is vast among actors from the same groups as well as among actors from different groups, proving a strong interdependent panorama in the commercialization of artisanal fishery products. This

entangled scenario displays a complicated sector where views, policies and laws should be defined considering multiple perspectives.

The central node is composed by actors form the fishing sector, with a relevant role of some wholesalers/producers (*Mayoristas/productores*), production units (*Unidades productivas*) and cooperatives (*Cooperativas: Islatuna & Pescarestinga*). Even though these wholesalers were originally set up as trade agents only, instead of producers of the fishing sector as well, they have been included, as some actors proposed, in the fishing sector itself also as producers, because they own boats and thus, produce fishery products themselves. The high volume of artisanal products handled by these actors grants them a special position in the map. Therefore, a main part of the core is represented by the producers of the fishing sector. Nevertheless, *Cofradías*, the main local representative bodies of fishermen, play a central role, defending their rights in different venues and against other groups, such as public administrations. Administrative assistants of the *Cofradías*, usually female, play a central role in these organizations and are acknowledged by the respondents. Other representative bodies such as Federations of *Cofradías* (*Fed. regional/provincial/nacional de Cofradías*) at the regional, provincial and national level, have many supportive relationships with other actors and groups, but are not as relevant as *Cofradías*, to whom their local dimension and proximity with fishermen themselves multiply the interactions. Also, conflicts among Federations could have undermined their capacities, and thus, the impact of their activities.

The highlighted connections of the fishing sector with the social dimensions, especially domestic units (*Unidades Domesticas*), are implied in the fact that these families comprise the productive units, core of the productive sphere of the artisanal sector. It is necessary to mention, regarding the Civil Society, the central role of the *Grupo de Acciòn Costera (GAC)* (Fisheries Local Action Groups/FLAG) and the vast number of collaborations in which it is involved. The FLAG, as an association of the Civil Society, handles the funding of the European Maritime, Fisheries and Aquaculture Fund (EMFAF), and has therefore several supportive relationships with all groups of actors, many of them derived of the funding it offers to the fishing sector and the trade agents. These connexions of the FLAG, however, diminish the apparent weight of the European Union, which is fundamental in the field for the development of the sector. However, some stakeholders consider the support of the European Union inefficient, and the marginal role of sustainable small-scale fisheries in the Blue Economy Strategy moves the institution away from the artisanal fishermen.

The group of public administrations surrounds the map, with strong collaboration links with the fishing sector as well as with the group of trade agents. Many of the connexions involving public administrations are funding links. The concept of value chain has proven to be confusing and diffused to several interviewees, who included initially in the value chain strictly the different stages of the process where the product is involved increasing its value, hesitating about the inclusion of public administrations. Nonetheless, the aim of the mapping is to characterize the whole commercialization process, where public administrations define the frame where all the process occur, being therefore crucial for the establishment of the conditions of its evolution. In this sense, local administrations are the most supportive bodies, especially the various departments of the regional government of the Canary Islands (several entries on the maps with "*Gob. Can.*"), Municipalities (*Ayuntamientos*), and the insular government (*Cabildo de Tenerife*). Some municipalities on the island are very supportive, while others are not. However, the atomization of the national government shows a high number of connexions involving the different departments, reflecting its overall importance.

The trade agents' group has links mostly with public administrations, which frame in what terms they can act and the boundaries of the gameboard. On the other hand, research institutions, *Universidad de La Laguna* and *Instituto Español de Oceanografía* in particular, are linked with all groups of actors, which gives these institutions a central position on the networking map due to the wide scope of their collaborations.

Desired relationships in the network

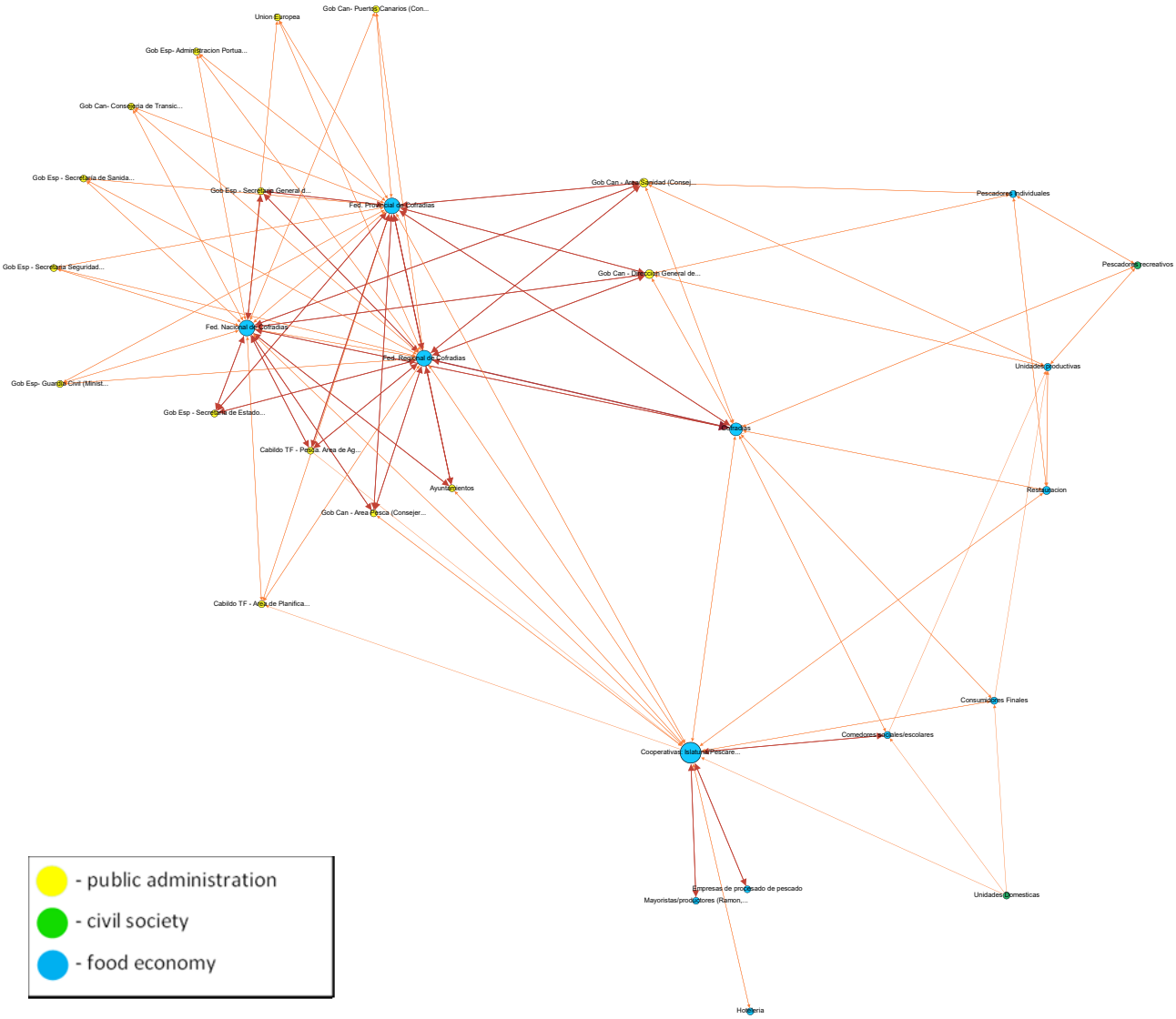

***Figure 41**: Net-Map of the desired relationships in the Tenerife CRFS (figure: ILS/FoodE)*

Some gaps in the network were detected in the interviews. In this case, again, the desired relationships (see **Figure 41**) are focused on the fishing sector. All representative organizations of the artisanal sector have a central position, with a clear intensity of the links among them, which emphasises the delicate situation of the collective action and the necessity of fishers to work together with a common voice in order to defend their mutual interests and rights against public administrations and other stakeholders, such as recreational or illegal fishermen (*Pescadores recreativos, Pescadores furtivos*).

Moreover, desired relationships of public administrations with the fishing sector, especially with their representative organizations, and the trade agents were highlighted, which could determine a more rational development involving the voices of all groups and all stakeholders.

Finally, desired relationships among trade agents themselves were pointed out, in order to structure the fish products commercialization system responding to the common good of local agents, and not depending so much on the global markets and global operators. It was highlighted that the aim was not to create a lobby or a price setting strategy, but walking instead together towards common goals

with collective action as a central tool. Possible common strategies to process local food to compete with big operators in different market segments would be effective.

An improvement of the relationships of the fishing sector and trade agents with the final consumers is desired, especially regarding information and awareness raising. Final consumers and the public in general are not properly informed about which are local fishery products and the nutritional, environmental and social benefits associated with these local fish catches.

Hindering relationships in the network

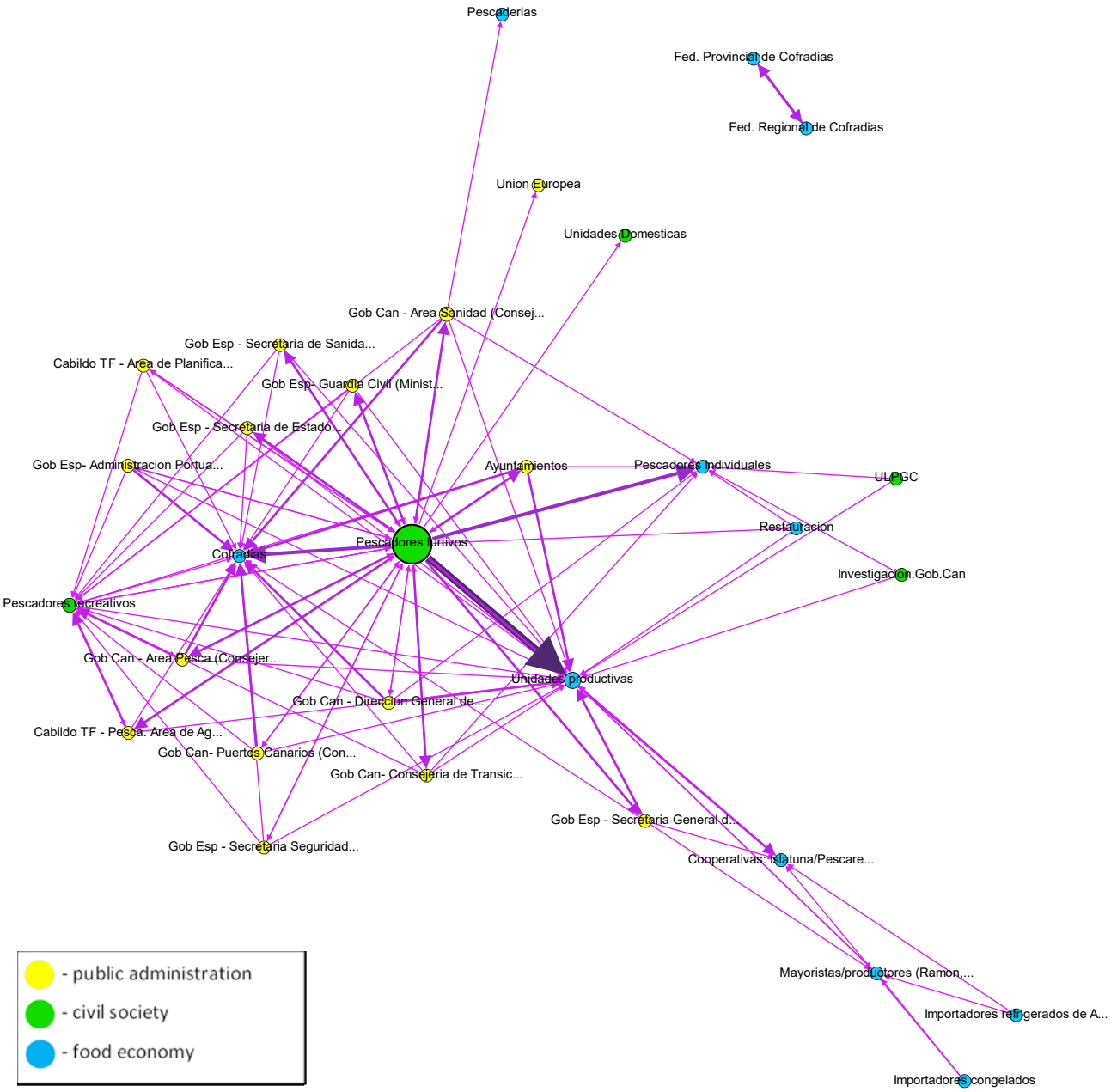

Figure 42: *Net-Map of the hindering relationships in the Tenerife CRFS (figure: ILS/FoodE)*

The central role of illegal fishermen (poachers) is evident in this field, having strong hindering connections with legitimate producers of the fishing sector, and with public administrations overall (see **Figure 42**). Poaching is apparently a crucial problem for the sector. Apart from the intensity, the wide range of problems created and actors involved generates a conflictive climate that hinders a fair commercialization and the capacity to add value to fishery products. Illegal products introduced in the commercial circuit impact directly in the price setting, distorting the positioning of local fish and seafood on the market, and forcing marketing strategies far from the optimal and sustainable supply of goods. In this aspect, the different impact of poaching depending on the stakeholder and on its size and characteristics has been highlighted. Poachers are focused on demersal and some seafood species, not affecting therefore agents targeting for example blue fish or shrimp. Agents producing and trading large volumes of tuna are not affected either, taking into account the small amounts captured by illegal fishermen of these species. Nevertheless, small producing units focused on demersal species are especially affected, and the belligerent atmosphere and social disturbances generated in the communities involving different stakeholders are particularly worrying.

Within the fishing sector, apart from the central role played again by the *Cofradías*, hindered by public administrations and poachers, the hindering relationship between the *Federación Regional* and the *Federación Provincial de Cofradías* is relevant, underscoring again a confronting relationship between two actors that in theory should fight in the same direction, defending the rights and interests of their partners, the artisanal fishermen.

Again, public administrations surround the whole map, due to their role defining the rules and boundaries of the system. While the poacher interviewed found laws and bureaucracy as hindrances, actors in the legal spheres identified them as ordinary limitations to regulate the framework. Anyhow, the establishment of quotas, in particular for bluefin tuna and big eye tuna, by the ICCAT (International Commission for the Conservation of Atlantic Tunas), was identified by the majority of the respondents as a hindrance for producers with an important impact on the wellbeing of artisanal fishermen, favouring the interests of big companies and other stakeholders.

Hindrances among trade agents were also highlighted, something relatively normal within competitors on the same market. In this aspect, imported and illegal products complicate the fair trade of local species, sometimes representing a strong unfair competition for local producers.

Commercial relationships in the network

The last Net-Map provides results for the commercial relationships in the artisanal sector; therefore, public administrations and researchers are not represented, while producers, trade agents and final consumers are the main actors (see **Figure 43**).

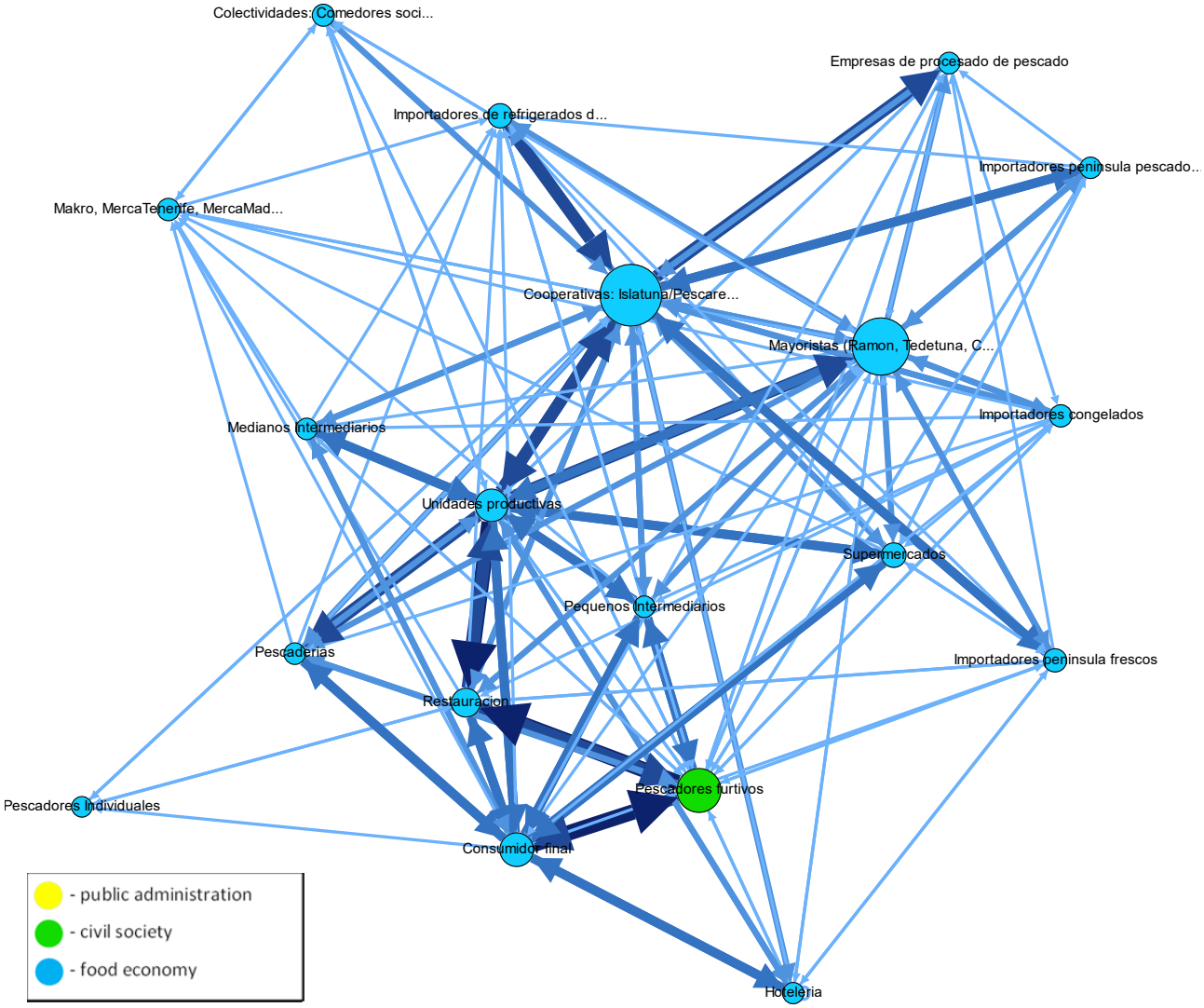

Figure 43: Net-Map of the commercial relationships in the Tenerife CRFS (figure: ILS/FoodE)

Productive units and wholesalers/ producers hold a central role as extractors of all the legal products injected in the circuit, establishing strong commercial relationships with the rest of the actors in the chain. Cooperatives and wholesalers are very relevant in the trade agents' side, especially because of the amount of product handled. Restaurants (*Restauración*) and fishmongers (*Pescaderías*) are a basic link of the chain, and middlemen are considered important, while hotels have less presence in the map.

The prominent role of poachers on the commercial map is concerning, establishing vast commercial links with final consumers and restaurants, which in the end, are the main buyers on the local market for demersal fish.

The external market is very relevant as well, with importers in mainland Spain of fresh local Canarian products (*Importadores peninsula frescos*) acquiring big percentages of the local production, especially of tuna. Some of these actors offer lower prices, in particular when the volumes are high, something that can occur frequently with key species as the skipjack tuna, which are captured seasonally.

Motivations and Influence of the actors

Basically, the motivations of the actors evaluated depend on the group they belong to (see **Figure 44**). The motivation of producers and trade agents was obviously commercial, with a secondary motivation in some cases related to the strengthening of the sector. Anyhow, this strengthening motivation has a commercial background: a strong sector would impact directly in their commercial benefits.

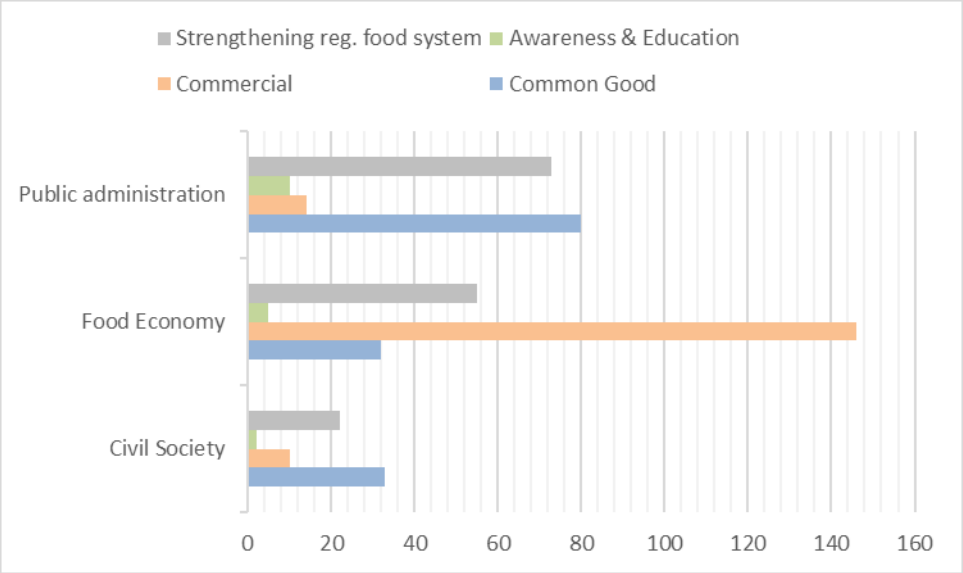

Figure 44: *Motivations ascribed to the actors in the Tenerife CRFS differ according to sector. (Figure: ILS/FoodE)*

The motivation of the representative bodies of the fishing sector, public administrations and research institutions are divided evenly into “common good” and “strengthening the sector”, with a low presence of “awareness and education”.

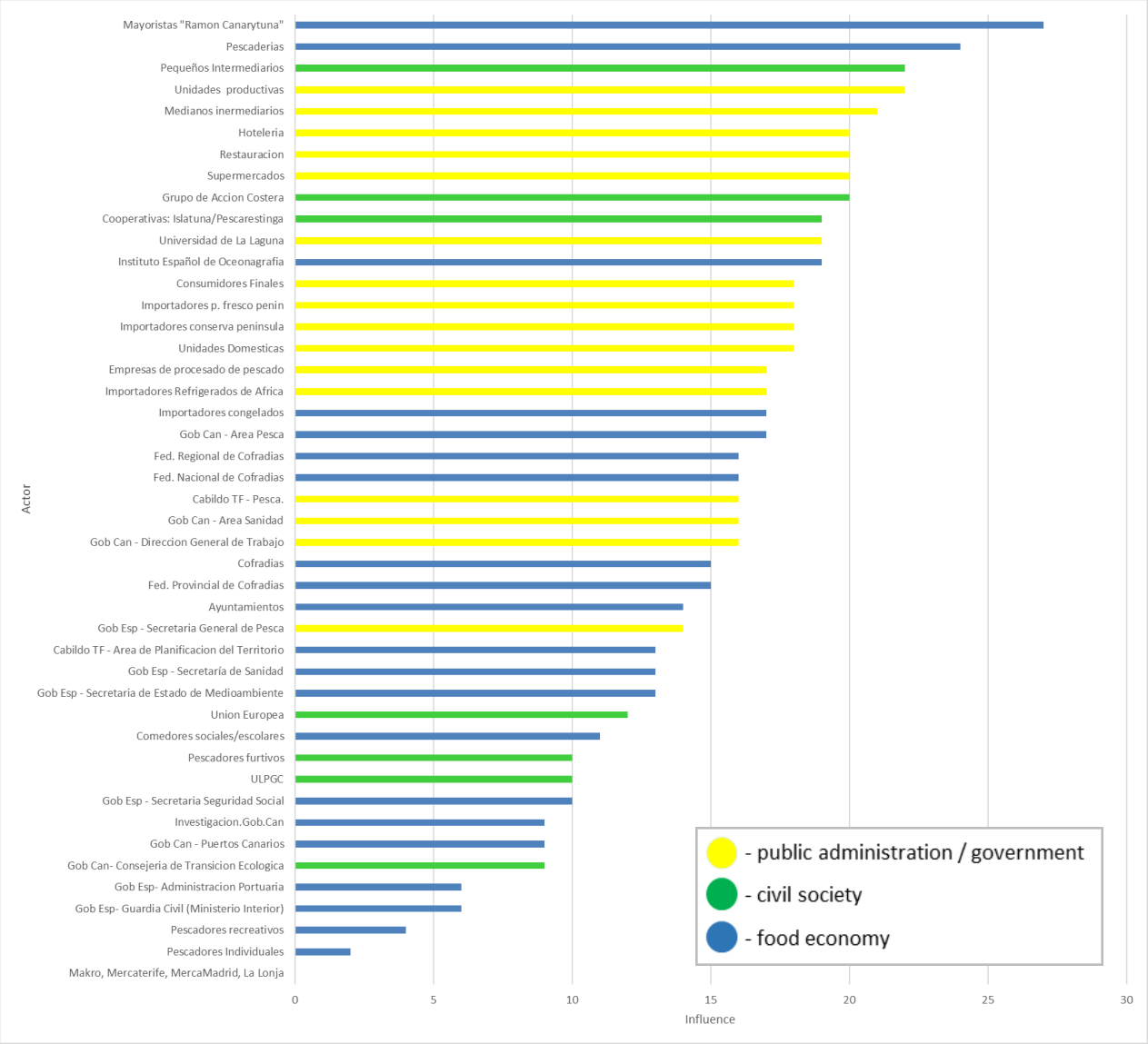

Figure 45: *Influence ascribed to the individual actors in the network: Tenerife CRFS (Figure: ILS/FoodE)*

Figure 45 represents the influence ascribed to the different stakeholders in the development of the small-scale fishery products value chain on the island, which are divided into three spheres by colour: green for civil society, blue for the food economy and yellow for public administration. Trade agents and productive units are considered significantly the main actors of the system. The FLAG and research institutions are considered as very relevant as well. In the first case, the FLAG could be included among the relevant actors because they handle the priority four European funding of EMFAF, which gives the association a key role in the potential positive development of the system. In the case of the research institutions, the role of researchers as interviewers could be the cause of the bias, being overrepresented. On the other hand, public administrations are not considered especially relevant, despite their central role defining the rules and their capacity to communicate and to promote the sector. Poachers, overall, are not seen as relevant, due to their limited capacity derived from the low amounts captured and the impact only on demersal and some seafood species.

STRENGTHS of the stakeholder network	**WEAKNESSES** of the stakeholder network
– Many actors of different groups and within the same group are working in the same fields and in the same direction. – Supportive local administrations. – High support of research institutions – Female assistants of *Cofradías* and women with responsibilities in finances in the production units are acknowledged.	– Different administrations with responsibility in the same territory – Stakeholders' voices are not properly considered by public administrations, with a resulting legislation far from reality. – Entangled bureaucracy and legislation. – Representative bodies of the fishing sector weak and in conflict. Too many representative organizations for one voice. – Final consumers do not know which are local products and their benefits. – Big impact of poaching in the demersal and some seafood species market. Social disturbances. – Familiar and vicinity relationships of poachers with professional fishermen. – No local product processing or other strategies to add value are developed. – High amounts of local fishery products are exported. – Old conflicts among groups and within the groups. – Lack of collective action at all levels. – Seasonality of key species lead to high amounts of catches in small periods of time, thus lowering the price unless it is processed or conserved.
POTENTIAL and **SOLUTIONS**/ Opportunities of the stakeholder network – Strong funding of the EU (even though EU funding is often related with the FLAG, thus not acknowledging the EU). Managed by an active FLAG. – Civil servants in the local administrations (*Gobierno de Canarias* and *Cabildo*) with capacity and good will. – Some *Cofradías* interested in getting involved in commercialization and conscious of the benefits of adding value and strengthening the organizations. – All actors could improve SSF products promotion and information about nutritional, environmental and social benefits of local fishery products. – New managers in the sector without old conflicts willing to cooperate. – A more applied focus of the research institutions to tackle real problems would be desirable. – Local food process or conservation to add value and compete in different market segments is being consider by local operators.	**THREATS** / Risks of the stakeholder network – Blue Economy Strategy of the EU does not clearly involve SSF. – Strong conflicts among administrations and other stakeholders undermine their relationships (offshore wind power, tuna quotas, etc.) – Dependency of the public administration performance on the responsible politician or civil servant. – Strong competition of imported and processed fish.

Table 7: *SWOT analysis of the Net-Map results of the Tenerife CRFS (figure: ULL/FoodE)*

Conclusion

The Net-Map and the interviews show a vaster net of supportive relationships with more intense connections than the others (hindrance, commercial or desired). There are different actors rowing in the same direction, providing a relatively optimistic scenario regarding the commitment of key actors, which could be crucial for the future of the artisanal sector.

Local administrations seem to be close and supportive with artisanal fishermen and apparently, they hold a high degree of consistency in their commitment. Anyhow, these public institutions are very dependent on the person in charge. National and European administrations seem less supportive to the respondents. The high number of competent institutions at different levels complicates the legal and administrative framework. A higher level of coordination among administrations would be desirable in all fields.

The representative bodies of the artisanal fishers are many and in constant conflict, thus complicating an efficient representation. A unique voice would be better taken into account to develop legislative measures considering fishers demands. *Cofradías* seem to be more supportive and effective.

The capacity of producers and traders to add value to the products is low, in a market with a high level of competition. Collective action is low among the fishing sector and the trade agents, giving negotiation power to external agents and big operators Processing and conservation methods are necessary in globalized markets, and collective action and common strategies are helpful in that sense.

Poachers represent a dishonest competition in the demersal segment for the production units focused on those species, creating an overall conflictive atmosphere and social disturbances within the communities.

Final consumers and the general public are not aware of the characteristics of the local fishery products and markets. An intense work of information and awareness raising should be done in that aspect by all actors involved. Some respondents highlighted the fact that the field and the reality have little to do with theory, so more applied approaches should be considered by all actors, especially researchers and public administrations.

4 Discussion of the Net-Map tool and the study limits

Albeit the diversity of the CRFS case study backgrounds in this research, the Net-Map tool could be applied in all case studies. The Net-Map tool provided a real-time view of a network of actors that helped analyse their roles, relationship patterns, and influences. In doing so, the maps brought out the key relationships of the actors involved as well as their tacit knowledge about different relationship patterns. By looking at the interview data and the shared perceptions of the participants during the Net-Map process, the understanding of the dynamics and roles in the network could be embedded in the context of the case studies.

The Net-Maps reflect the individual perceptions of the stakeholders. One specific advantage of the method is that the participants are actively involved in the learning process, e.g., they visualize their statements during the interview, evaluate it and reflect on it together with the researcher. Thus, relationship patterns and roles can be recognized and interpreted at the same time. Net-Map is a very flexible tool, its implementation is simple and cheap, it does not need to be applied face-to-face and is therefore not location dependent. The Net-Map tool enabled an understanding of the complex relationships, strengths and weaknesses of the networks. Both the research team and the participants in the interviews gained new insights about the existing CRFS and starting points for improvements.

However, research capacities in the consortium as well as the available time were limited so that a limited number of CRFS cases could be examined. Due to the capacities, the Net-Map tool was applied in a condensed form to provide a snapshot of actor networks in the CRFS at the current moment: the number of interviews as well as the number of actors represented on the Net-Maps had to be limited in most cases due to time constraints. The limited number of key actors who were interviewed did not cover the full diversity and depths of different perceptions within the network - in theory, this would have required interviewing all of the actors active in the respective CRFS which would have been very time-consuming. The teams tried to overcome this limitation by balancing the spheres of the interviewees (policy-makers, civic society, economy) but the assignment to the actor groups was not always clearly possible. In addition, the Net-Map tool was able to cover the CRFS in Europe, but again, due to time and capacity constraints, no representation of Eastern Europe could be included.

The information gained through the Net-Maps depends on the individual knowledge of the participants who have more or less knowledge about individual actors and their activities, relations, and goals in the network. This highly participative approach might have an impact of the final results. One area where limiting the number of actors covered may have led to a less complete picture is that the group of actors selected at the outset with the research question in mind was more relevant to the questions on supportive relationships than to the other types. Casting the net more widely might have resulted in maps with separate focus areas where supportive, commercial, hindering and desired relationships were concentrated. Nevertheless, the research led to tangible results concerning the usefulness of the method and the knowledge gained about the stakeholder networks.

5 Overall conclusions

The task in this Deliverable was to analyse the roles and relationships of actors in the food chain based on a visualization of their roles in stakeholder maps. This analysis was conducted in six case studies presenting a diversity of CRFS. We examined:

- actors around a newly formed Food Policy Council in Dortmund (Germany),
- actors around the farmers´ market network in Bologna (Italy),
- actors working towards the transformation of the food system in the Metropolitan City of Naples (Italy),
- actors that are working to develop sustainable job opportunities within the CFRS in Oslo (Norway),
- actors surrounding the pilot CRFSI around local food producing and access in Romainville (France),
- actors in the de-fossilisation of greenhouse horticulture in Lansingerland (Netherlands)
- actors in the Small-Scale Fisheries value chain in Tenerife (Spain).

Given this diversity, results differ along the examined cases studies (see conclusions per case in Section 3) but some overall results were found in several of the case studies:

- For all networks examined, highly supportive relationships were reported between the different actor spheres and also between individual actors within these spheres but in general it was noted that stronger networking is required to advance the transformation of the CRFS. Participants reported that the interviews raised their awareness about existing gaps and needs for improving communication and information; in some cases, participants agreed on taking action immediately to work on this.
- A need for stronger communication and cooperation was mostly identified between city officials and civil society initiatives, as well as among different departments of the municipal administration. From this, it can be concluded that the need for a one-stop-agency at municipal level to enable the collaboration of all stakeholders towards establishing sustainable CRFS has been confirmed.
- While local public authorities in general were perceived as being a supportive part of the CRFS networks, the relationships with regional, national or EU level authorities were mostly regarded as being weak. There are significant differences among the cases concerning the overall importance and roles assigned to the city´s administration which seems to depend on the level of trust in governance experienced. E.g., from the Oslo case a very high trust in the work of the city´s officials was reported while this was lower in other cases (e.g., Naples). One weakness of the described relationships between other stakeholders and local government is that these relationships are often between individuals, rather than organisations as such, which makes them both vulnerable and also less effective to leverage for change processes.
- The identification of commercial actors as key participants in transforming the local CRFS differed widely between the different case studies – in the case of Dortmund, the perception was that it was mostly civil society initiatives and the local government driving the process, while no mainstream actors from the food economy were selected for mapping (the commercial actors named were all small, recent, alternative food production and marketing initiatives). A similar picture emerges from the cases of Romainville and Oslo. In the case of Tenerife and Bologna, on the other hand, commercial actors feature in larger numbers, including in the Tenerife case large, mainstream wholesalers and supermarkets, and in the

Bologna case, many smaller operators often featuring alternative business models. One interesting phenomenon that can be seen across all cases is that when it comes to the influence ascribed to different actors over changing the CRFS, the tendency is for government bodies and civil society organizations to be rated as more influential than commercial actors.

- In some cases, too many organizations seem to be involved in advancing the CRFS, resulting in confusing processes and hampering communication, which is the more if these speak with different voices, as reported from the Tenerife case study.
- Bureaucratic hurdles and slowly acting administrations were mentioned in nearly all cases.
- Awareness-increasing activities promoting local food production were mentioned as an important tool for advancing CRFS. In this context, the importance of the educational sector for advancing CRFS has been acknowledged in some case studies, this encompasses schools but also universities and research bodies.

This report provides an initial overview of the approach taken and the resulting case studies. A comprehensive analysis will be published in the form of one or more scientific peer-reviewed papers.

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7 Annex

7.1 List of actors on the Net-Map of the Dortmund CRFS

Original name	Translation	Description
Ernährungsrat Dortmund und Region e.V.	*Dortmund Food Policy Council*	Initiative and instrument to promote food change and to improve networking in the city.
Klimabündnis Dortmund	*Climate Alliance Dortmund*	Association of associations and initiatives on the topic of climate protection in the city. Expertise in individual fields of action is exchanged and developed in working groups and monthly plenary meetings. Members include VegaDo, Die Urbanisten, SoLaWi e.V..
Lokalgenuss eG	*Food Cooperative*	Producer-Consumer Community of Dortmund. Promotes sustainable production of food in Dortmund by bringing producers together under a common label and, where appropriate, storage and further processing, as well as the sale to Dortmund consumers of regional food. Supported by Kornhaus Naturkost.
SoLaWi e.V.	*Dortmund CSA*	Operation of urban and sustainable agriculture and access to local food for consumers. On the area of the educational farm “Schulte Tigges”.
Die Urbanisten e.V.	*Participatory Urban Development NGO "Die Urbanisten"*	Non-profit association that develops and implements projects in urban space. A network for the co-creation of the city and urban coexistence.
Frau Lose e.V.	*Zero Packaging shop "Frau Lose"*	Zero Packaging shop that promotes short delivery routes, offers rescued food for donation and organizes actions and workshops around the topic of nutrition.
Foodsharing Dortmund e.V.	*Food Sharing Dortmund*	Association that rescues food from business, located in Dortmund.
VegaDo	*Vegan association “VegaDo”*	Community educating about veganism, developing a local network, and offering a public vegan brunch once a month.
Informationszentrum eine Welt e.V.	*Information centre “eine Welt e.V.”*	Shaping a good life locally and globally through education for sustainable development, empowerment and through solidarity networks.
Open Source Saatgut Stadt e.V.	*Local Seedsavers’ Association “Saatgut Stadt e.V.”*	Association initiated by the Environmental Agency Dortmund and the Association for Ecological Diversity e.V. for the cultivation of open-source licensed tomatoes.
Stadtrat	*Dortmund City Council*	The City Council forms the municipal representation of the City of Dortmund.
Umweltamt	*Environmental Agency, City of Dortmund*	The Environmental Agency in Dortmund has the task of developing and promoting ecological and sustainable development in the city.
Büro für internationale Beziehungen	*International Relations Office, City of Dortmund*	The Office for international relations in Dortmund acts in the areas of international affairs, Europe and sustainable development of the city society as well as within the city administration. The office acts according to the Dortmund sustainability quadrilateral (economy, ecology, social affairs and Civil Society) and the 17 UN SDGs.
Bauordnungsamt und das Stadtplanungsamt	*Building Regulation Office, City of Dortmund*	This Office is responsible for procedures under building law, for the realization of building projects and is the contact for people wishing to build.
Amt für Stadterneuerung	*Urban Renewal Department, City of Dortmund*	The Office of Urban Renewal is responsible for implementing projects, strategies and concepts with the aim of making neighbourhoods fit for the future.

Ordnungsamt- Abteilung für Lebensmittelsicherheit	*Food Safety Authority, City of Dortmund*	Monitoring of compliance with legal conditions by all food distributors in the City of Dortmund.
Klimabeirat	*Climate Advisory Council*	The Climate Advisory Council is intended to establish the link between the city society and the city administration. It accompanies and discusses municipal activities on the topic of climate protection and climate change adaptation. Members include VegaDo and the Climate Alliance Dortmund.
Kornhaus Biomarkt	*Organic store "Kornhaus"*	Organic store as a local supplier and meeting place for healthy food from organic and regional agriculture.
Marktschwärmer Dortmund	*Food Assembly Dortmund*	Platform for selling regional food.
Grünbau GmbH	*Social enterprise "Grünbau GmbH"*	Is committed to helping disadvantaged people find their place in (professional) life in the areas of youth welfare, school-related services and labour market services. Founded the Green Woman nursery for food production and social participation. This is supported by the urban renewal program "Socially Integrative City – Urban Redevelopment Hörde".
Lernbauernhof Schulte-Tigges	*Educational Farm "Schulte-Tigges"*	Solidarity, regional and organic farm in cooperation with SoLaWi. Operates educational work with the concept of BNE (concept of education for sustainable development).
Schultenhof	*Organic farm "Schultenhof"*	Organic farm with organic farming, a farm store and a butcher store.
Abokiste 24	*Vegetable subscription box "Abokiste 24"*	Delivers regional, organic food from regional producers to consumers in Dortmund.
Dortmunder Biobauern	*Dortmund organic farmers*	All organic farmers operating within the city limits.

7.2 List of actors on the Net-Map of the Bologna CRFS

Original name	Translation	Description
Associazioni di Rappresentanza degli Agricoltori (Coldiretti, etc.)	*Agricultural Representatives (Coldiretti, etc)*	Associations that represent and safeguard the interests of enterprises in the agricultural economic area.
Associazioni Legate al Cibo (es. Slow food)	*Food-Related Associations (e.g. Slow Food)*	Associations that are involved and active in food-related topics, like food security, awareness creation among the consumers, producers safeguard, environmental and cultural protection, food valorisation, etc.
Associazioni Culturali	*Cultural association*	Non-profit organizations that focus on cultural and educational aims.
Banco Alimentare	*Food Banks*	Assistance programs that collect leftover food in order to redistribute them to disadvantaged people and families.
Orti Urbani	*Urban Gardens*	Urban areas that are usually collectively managed with the goal to create additional green spaces for public use. Often turned into small community-managed vegetable gardens.
Organizzazioni Ecclesiastiche	*Church-related organizations*	Associations and movements recognized by the Church and that usually have educational and charity purposes
Cucine Sociali	*Social Kitchens*	Non-profit associations that collect and cook leftover food to provide meals to disadvantaged people
Università e Istituti di Ricerca	*Universities and Research Institutes*	Public and privately funded research institutes
Gruppi di Attivisti Ambientali	*Environmental Activists Groups*	Social and political movements that focus on environmental protection and awareness
Gruppi Studenteschi	*Student Groups*	Union of students, usually belonging to high schools or universities, who share interests in some specific topics or activities
Scuole	*Schools*	Primary, secondary, and high educational institutes
Associazioni di Consumatori	*Consumers Associations*	Associations that deal with consumer rights. They usually offer information regarding products and services.
Unione Europea	*European Union*	The supranational political and economic union of 27 member states, located mostly in Europe
Ministeri Nazionali	*National Ministries*	National governing bodies
Assessorati Regionali	*Regional Departments*	Regional governing bodies
Consiglio di quartiere	*Neighbourhood councils*	Municipal body of citizens' direct representations. In Bologna, there is one for each neighbourhood.
Città Metropolitana di Bologna	*Bologna Metropolitan City*	A local governmental body that comprehends the city of Bologna and its connected provinces.
Sindaco e Consiglio Comunale	*Mayor and City Council*	Municipal governance bodies. While the Mayor is responsible for the municipal administration, the city council deals with the political-administrative direction and control. They are both elected by the citizens.
Assessorato Comunale al Commercio	*City Commerce Department*	Member of the municipal executive governing body. They have supervisory functions in the municipal offices that deal with neighbourhood economy and trade.
Assessorato Comunale all'Agricoltura	*City Agricultural Department*	Member of the municipal executive governing body. They have supervisory functions in the municipal offices that deal with agriculture and agribusiness, but also schools and environmental education.
Assessorato Comunale al Bilancio	*City Budget Department*	Member of the municipal executive governing body. They have supervisory functions in the municipal offices that deal with municipal financial statements.

Assessorato Comunale all'Ambiente	*City Environment Department*	Member of the municipal executive governing body. They have supervisory functions in the municipal offices that deal with the coordination of the ecological transition and the climate pact, and European funds' management.
Assessorato Comunale ai Lavori Pubblici	*City Public Works*	Member of the municipal executive governing body. They have supervisory functions in the municipal offices that deal with public works, the city's maintenance and cleaning, and toponomy.
Assessorato Comunale ai Trasporti	*City Transport Department*	Member of the municipal executive governing body. They have supervisory functions in the municipal offices that deal with the city's mobility, infrastructures, liveability and care of public spaces, and enhancement of cultural heritage.
Agricoltori/Imprese Agricole	*Farmers/Agricultural enterprises*	All the farmers and agricultural enterprises that participate in the Bologna farmers' markets. Most of them are based in the Bologna Metropolitan City or in the Emilia-Romagna region.
Trasformatori (Macellai, Panettieri, etc.)	*Processors (butchers, bakers, etc.)*	All the enterprises that deal with the raw product transformation and participate in the city markets. In most markets, they are also required to be the actual producers of the raw products, or they must source them within the circuit.
Fornitori di Input Agricoli	*Agricultural inputs suppliers*	Companies and agribusiness that manufacture and/or sell goods and services to farmers, such as seeds, fertilizers, pesticides, soil testing, irrigation systems, etc.
Grande Distribuzione Organizzata	*Wholesale markets*	A business model that relies on buying large quantities of a product directly from the producer, warehouse them, and resell them.
Supermercati/Agroindustria	*Supermarkets/agroindustry*	Large retail markets specializing in food and household goods/Agricultural value chain developed along industrial lines.
Negozi Alimentari Locali	*Local grocery stores*	Small local shops that mostly sell food items.
Piattaforme Online	*Online platforms*	Digital services used to facilitate the interactions between the market's producers and consumers. They are mostly developed as online shopping services.
Logistica	*Logistics*	Transportation and storage of goods from the point of origin to the point of consumption.
Ristoranti e Bar	*Restaurants and cafés*	Ho.Re.Ca. sector
Mense/appalti pubblici	*Canteens/public procurement*	Public procurement services in schools and other public institutions.
Consumatori/Cittadini	*Consumers/ Citizens*	People that buy and use food and other products from the city's farmers' markets.
Associazioni per l'organizzazione dei mercati	*Associations for markets organization*	Associations that organize and manage the farmers' markets in Bologna. They all have different statutes and internal organization systems.
Altre Imprese Agricole	*Other agricultural enterprises*	Farmers and agricultural enterprises that do not participate in the city's farmers' markets. Most of them are locally based.
Fornitori di Servizi	*Service providers*	Companies and enterprises that provide external contributions to the markets in various organizational aspects (e.g. communication, bureaucracy, etc.).
Gruppi di Acquisto Solidali	*Food Cooperatives*	System of collectively purchasing goods. Usually set up by groups of consumers in order to buy food or other products directly from the producers at a fair price.

Fondazione Campagna Amica	*Campagna Amica Foundation*	Foundation promoted by Coldiretti in order to enhance the role of local farmers and agriculture. It concretizes in the organization of several farmers' markets in Italy and represents a wide network of medium-small Italian farmers.
Network di agriturismi Terra Nostra	*Agritourism Network Terra Nostra*	National environmental association promoted by Coldiretti, which promotes agritourism activity with environmental protection and valorisation perspective.
Associazione Mercato Ritrovato	*Mercato Ritrovato Association*	Non-profit association of producers that manages one of Bologna's farmers' markets. All the producers share a set of values and regulations, with a focus on the short and local food supply chain and direct sales. The market is developed as an aggregational space for the citizens.
Campi Aperti	*Campi Aperti*	Non-profit association of producers and consumers that manages seven Bologna farmers' markets. They focus on short and local food supply chains and direct sales, while they promote the interconnection between producers and consumers. The markets are autonomously managed by the participants who also follow a participatory control system.
Ufficio turistico	*Tourist Office*	Offices that supply information to the city's visitors.
Musici di Strada	*Street musicians*	Street performers called to entertain the citizens during the markets.
Cineteca di Bologna	*Cineteca di Bologna*	Place of archival conservation, promotion, and diffusion of cinema and audio-visual. Among the public activities that they organize, they collaborate with Mercato Ritrovato Association by providing the space for market realization.
Banche	*Banks*	Private institution that carries out the markets' monetary and credit operations.
Azienda di smaltimento rifiuti di Bologna	*Bologna's waste disposal company*	Private company that manages the market's final wastes.
Lavoratori Informali	*Informal workers*	Street vendors that provide small goods and services to the markets when in need.
World's Farmers' Markets Coalition	*World's Farmers' Markets Coalition*	Coalition composed of farmers' market associations from all over the world that come together to share best practices and ideas.
Banche Solidali	*Solidal banks*	Banking institutions that operate on the financial market with an aim inspired by a model of sustainable human and social development.
Altre reti legate al cibo	*Various food-related networks*	Other networks built around the markets that deal with food security and food sovereignty.
Associazioni Rurali	*Rural associations*	Food-related association with a focus on rural areas.

7.3 List of actors on the Net-Map of the Naples CRFS

Original name	Translation	Description
Masseria Ferraioli	*Masseria Ferraioli*	A property confiscated from the Camorra where, since 2017, a network of associations and cooperatives have established 300 urban vegetable gardens, an orchard of 3,000 trees and a wood of 1,000 trees.
Coldiretti	*Coldiretti*	Italian farmers' federation is one of the different Farmer´s trade union representatives organisation present in the Italian territory
Associazioni di categoria	*Farmers' unions*	Farmer´s trade union representatives organisation. They provide support to farmers in all Italy and represent their instance at local, national and at European level
Università ed istituti di ricerca	*University and Research institutes*	
Famiglie/ singoli o comunità di individui	*Families/single and community of people*	Households of different types
Chiesa e associazioni ecclesiastiche	*Church and other ecclesiastic associations*	
Slow Food	*Slow Food*	Slow Food foundation is an international foundation which promotes through different initiatives local producers of different
Scuole	*Schools*	Primary, secondary, and high educational institutes
Rete orti sociali vesuviani	*Vesuvian social garden network*	Social cooperative working through garden therapy with psychiatric patients in collaboration with the local health authority. The products of this cooperative are sold through a system of collectively purchasing good by the consumers
Aziende agricole urbane	*Urban agricultural farms*	Farms located within the urban and peri-urban area of the metropolitan city of Naples
Negozi di prodotti a km 0	*Local shops of km0 products*	Local shops selling km0 products
Fornitori	*Suppliers*	Suppliers of different types of goods
Ristoranti	*Restaurants*	Restaurants present within the metropolitan area of the City of Naples
Mercati locali	*Local markets*	Local markets present in the metropolitan city of Naples
Municipalità	*Municipality*	Local branch for municipal administration of a neighbourhood, there are different in the city of Naples
Stato	*State*	National government
Unione europea	*European Union*	
Istituzioni regionali	*Regional government*	Regional administration authority, in specific Naples is located in Campania region that is one of the 21 region which Italy is divided.

7.4 List of actors on the Net-Map of the Oslo CRFS

Original name	Translation	Description
Økologisk Norge	*Organic Norway*	Support network and certifier of organic food
REKO-Ringen	*The REKO ring*	Direct sales channel between farmers and consumers
Bygdøy Kongsgård	*(Name of a farm)*	State-owned organic farm which allows visitors and offers courses
Nabolagshager	*Neighbourhood gardens*	Research and advocacy
Local Buzz	*Local Buzz*	Beekeeping group
Linderud	*Name of a place*	Group of farmers in a start-up program together
UReist	*Short Travelled*	For-profit organisation building and running urban food production facilities
Kirkeby	*Name of a place*	A Community Supported Agriculture project
Maaemo	*Name of a restaurant*	Farm to table restaurant that helped put Scandi cuisine on the map
Oslo Kommune	*City of Oslo*	The city government

7.5 List of actors on the Net-Map of the Romainville CRFS

Original name	Translation	Description
Les Jardins familiaux de la Corniche des Forts	*Community garden*	Family community gardens in Romainville, run by an association.
Secours Populaire	*Name of a NGO*	Romainville branch of a national NGO dedicated to fighting poverty and discrimination.
AMAP Choux rave party	*Community Supported Agriculture Choux Rave party*	CSA with direct sales from the farmer to the Romainville inhabitants
Habitants de Romainville	*Romainville's inhabitants*	
AFAUP - L'association Française d'Agriculture Urbaine Professionnelle	*French Association of Professional Urban Agriculture*	*Farmer's union for Urban Agriculture*
Cultivons la ville	*Associative network around sustainable urban agriculture and food*	Is committed to helping disadvantaged people find their place in (professional) life in the areas of urban agriculture in the Paris region
La Grande Ourcq	*Recycling association*	"Ressourcerie", recycling place located in Romainville
Coccinelle	*Supermarket*	Traditional supermarket, Romainville
MIR	*MIR (Made in Romainville)*	Craft brewery, Romainville
Les Cheffes	*Les Cheffes, restaurant*	Restaurant located in the Cité Maraîchère
La Ferme Sainte Marthe	*The Sainte Marthe Farm*	Organic seed company
Le jardin e(s)t la recette	*Privately owned processing company*	Small company hosted in the Cité Maraîchère, transformation of garden plants
Le marché du Centre	*Central market*	Traditional street market in Romainville, food and other goods
La Caverne	*Privately owned company*	Subterranean urban farm in Paris. Supplies mushroom substrate to the Cité Maraîchère
Ramen tes drêches	*Privately owned company*	Company located in Romainville. Produce noodles made from spent grains.
Moulinot	*Privately owned company recycling organic waste*	Company that collects food waste
Cité Maraîchère	*Cité Maraîchère*	Pilot, object of the research question

Est Ensemble	*Est Ensemble, intermunicipality*	Grouping of several municipalities, including Romainville
Les établissements scolaires de Romainville	*Romainville's educational institutions*	All schools: nursery, primary, secondary, lycées
Région Ile-de-France	*Ile-de-France region*	"Région" is one of the main administrative divisions in France. "Ile-de-France" is the large region around Paris
ANRU – Agence Nationale pour la Rénovation Urbaine	*National Agency for Urban Renewal*	Gives grants for transformation of neighbourhoods in which social, economic and urban difficulties are concentrated
DRIAAF - Direction Régionale et Interdépartementale de l'Alimentation, de l'Agriculture et de la Forêt	*Regional directorate for agriculture, food and forestry*	Devolved State service
Département de la Seine-Saint-Denis	*Seine-Saint-Denis department*	"Département" is on the main administrative divisions in France. "Seine-Saint-Denis" is the department located in the North of Paris, and to which Romainville belongs
Ecole Du Breuil	*Du Breuil school*	Horticultural school located in Paris and belonging to the Paris municipality
DRIEETS - Direction régionale et interdépartementale de l'économie, de l'emploi, du travail et des solidarités	*Interdepartmental regional directorate for the economy, employment, labour and solidarity*	Devolved State service
Lycée horticole de Montreuil	*Horticultural Highschool at Montreuil*	Montreuil is a city bordering Romainville

7.6 The municipality of Lansingerland and its business activities in the spotlight

Image: Gemeente Lansingerland

7.7 List of actors on the Net-Map of the Lansingerland CRFS

Original name	Translation	Description
Glastuinbouw Nederland	*Greenhouse Horticulture Netherlands*	Association of greenhouse growers in the Netherlands, serving as a knowledge development and exchange platform connecting producers to research organisations, a lobby group representing greenhouse horticulture vis a vis the Dutch government and facilitating collaboration among its members on current topics.
Milieuorganisaties	*Environmental organizations*	
Samenleving	*Society*	
Publieke opinie	*Public opinion*	
Primaire producenten	*Primary producers*	
Toeleveranciers	*Suppliers*	
Private investeerders	*Private investors*	
Netbeheerders	*Network operators*	Energy providers (especially gas)
Kennisinstellingen	*Research institutions*	Universities and public and private research institutes
Onderwijs	*Education*	Schools (all levels)
Overheid	*Government*	Public administration (all levels)
Politieke partijen	*Political parties*	

7.8 List of actors on the Net-Map of the Tenerife CRFS

Original name	Translation	Description
Uniòn Europea (UE)	*European Union (EU)*	European Union (EU)
Gobierno de España - Secretaría General de Pesca (MAPA)	*Government of Spain - General Secretary of Fisheries*	Department of the Spanish government responsible for fisheries issues
Gobierno de España - Secretaría de Estado de Medioambiente	*Government of Spain - Secretary of the Environment*	Department of the Spanish government responsible for environmental issues
Gobierno de España - Secretaría de Sanidad	*Government of Spain - Secretary of Health*	Department of the Spanish government responsible for health issues
Gobierno de España - Secretaría de Seguridad Social	*Government of Spain - Secretary of Social Security*	Department of the Spanish government responsible for labour issues
Gobierno de España- Guardia Civil	*Government of Spain- Civil Guard*	Security agency of the Spanish government
Gobierno de España- Administración Portuaria	*Government of Spain- Port Administration*	Department of the Spanish government responsible for port issues
Gobierno de Canarias - Área Pesca	*Government of the Canary Islands - Fisheries Area*	Department of the regional government of the Canary Islands responsible for fisheries issues
Gobierno de Canarias - Dirección General de Trabajo	*Government of the Canary Islands - General Directorate of Labour*	Department of the regional government of the Canary Islands responsible for labour issues
Gobierno de Canarias - Área Sanidad	*Government of the Canary Islands - Health Area*	Department of the regional government of the Canary Islands responsible for health and food safety issues
Gobierno de Canarias- Consejería de Transición Ecológica, lucha contra el cambio climático y planificación territorial	*Government of the Canary Islands- Ministry of Ecological Transition, fight against climate change and territorial planning*	Department of the regional government of the Canary Islands responsible for environmental issues
Gobierno de Canarias- Puertos Canarios	*Government of the Canary Islands- Port Administration*	Department of the regional government of the Canary Islands responsible for port issues
Cabildo de Tenerife - Área de Planificación del Territorio, patrimonio histórico y Turismo	*Government of Tenerife- Area of Territorial Planning, historical heritage and Tourism*	Department of the insular government of Tenerife responsible for planning, historical heritage and tourism
Cabildo de Tenerife - Área de Agricultura, Ganadería y Pesca	*Government of Tenerife. Area of Agriculture, Livestock and Fisheries*	Department of the insular government of Tenerife responsible for agriculture, livestock and fisheries
Ayuntamientos	*Municipalities*	Municipal governments of the island
Investigación del Gobierno de Canarias	*Research institutions of the Government of the Canary Islands*	Research institutions of the Government of the Canary Islands
Instituto Español de Oceanografía (IEO)	*Spanish Institute of Oceanography (IEO)*	Research institution of the Spanish government responsible for oceanographic issues
Universidad de La Laguna (ULL)	*University of La Laguna (ULL)*	Public university based in La Laguna, Tenerife
Universidad de Las Palmas de Gran Canaria (ULPGC)	*University of Las Palmas de Gran Canaria (ULPGC)*	Public university based in Las Palmas de Gran Canaria
Unidades Domesticas Pesqueras	*Domestic Fishing Units*	Families of artisanal fishers

Grupo de Acción Costera (GAC)	*Fisheries Local Action Groups (FLAGs)*	Fisheries Local Action Groups (FLAGs) are partnerships between fisheries actors and other local private and public stakeholders. Together, they design and implement a local development strategy to address their area´s needs be they economic, social and/or environmental. Based on their strategy, the FLAGs select and provide funding to local projects that contribute to local development in their areas, involving local stakeholders.
Pescadores recreativos	*Recreational fishers*	Recreational fishers
Pescadores furtivos	*Poachers*	Poachers. Fishers (not professional) selling fishery products illegally
Federación Nacional de Cofradías	*National Federation of Cofradias (guilds)*	National representative body for guilds
Federación Regional de Cofradías	*Regional Federation of Cofradias (guilds)*	Regional representative body for guilds. Canary Islands
Federación Provincial de Cofradías	*Provincial Federation of Cofradias (guilds)*	Provincial representative body for guilds. Tenerife
Cofradías	*Guilds*	Fisheries organizations with a status of public law institutions. Representative bodies of fishers. Ten guilds in the island of Tenerife
Unidades productivas	*Production units*	Professional shipowner of one or more ships, and its crew, extracting and trading with fishery products
Pescadores Individuales	*Individual Fishers*	Professional Fishers
Cooperativas: Islatuna y Pescarestinga	*Cooperatives: Islatuna and Pescarestinga*	Cooperatives trading with artisanal fishery products
Supermercados	*Supermarkets*	Supermarkets selling artisanal fishery products
Restauración	*Restaurants*	Restaurants offering artisanal fishery products
Hotelería	*Hotels*	Hotels offering artisanal fishery products
Pescaderías	*Fishmongers*	Fishmongers selling artisanal fishery products
Pequeños Intermediarios	*Small middlemen*	Small middlemen trading with artisanal fishery products
Medianos intermediarios	*Medium middlemen*	Medium middlemen trading with artisanal fishery products
Mayoristas/ productores	*Wholesalers/ producers*	Wholesalers producing and trading with artisanal fishery products
Makro, Mercatenerife, MercaMadrid, La Lonja	*Makro, Mercatenerife, MercaMadrid, La Lonja*	Large hypermarkets and distribution centres trading with artisanal fishery products
Importadores de productos congelados	*Frozen products importers*	Importers of frozen fishery products in the island
Importadores de productos refrigerados de África	*Refrigerated products importers*	Importers of refrigerated fishery products from other countries (mainly Africa) in the island
Empresas de procesado de pescado	*Fish processing companies*	Companies acquiring fishery products to process in the islands
Importadores para conserva península	*Importers from la peninsula of fish products for canning*	Importers of artisanal fishery products in Spain mainland for canning
Importadores pescado fresco península	*Importers from la peninsula of fresh fish products*	Importers of fresh artisanal fishery products in Spain mainland
Colectividades (comedores escolares, cantinas universidades, etc.)	*School canteens, universities canteens, etc.*	School canteens, university canteens and others acquiring artisanal fishery products
Consumidores Finales	*Final consumers*	Final consumers of artisanal fishery products