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Master Thesis

Working together to make it happen –viewpoints
on agri-food system transformation in Austrian
collective action organizations

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Affidavit

I hereby declare that I have authored this master thesis independently, and that I have not used any assistance other than that which is permitted. The work contained herein is my own except where explicitly stated otherwise. All ideas taken in wording or in basic content from unpublished sources or from published literature are duly identified and cited, and the precise references included.

I further declare that this master thesis has not been submitted, in whole or in part, in the same or a similar form, to any other educational institution as part of the requirements for an academic degree.

I hereby confirm that I am familiar with the standards of Scientific Integrity and with the guidelines of Good Scientific Practice, and that this work fully complies with these standards and guidelines.

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Abstract

Practices associated with the Corporate Food Regime (CFR) generate negative environmental, economic, and social impacts. At the same time, the CFR is facing major challenges and showed a high vulnerability and low resilience towards change in the past. There is increasing discontent and criticism regarding its underlying logic and its inherent structures. Collective action organizations promote alternative forms of food production and distribution and aim at providing access to fresh, healthy, and local food. Using Q methodology, three types of organizations have been studied to answer the questions: How do members of collective action organizations in the agri-food system perceive the contribution of their organizations to an agri-food system transformation? How can collective action contribute to this transformation in their view? 16 members of 5 Community Supported Agriculture (CSA), 6 Food Coops (FCs), and 5 agricultural cooperatives participated in this study. Findings include that none of the members presumes a central role of their organization in an agri-food system transformation. CSAs and FCs emphasize their opposition to the CFR more strongly than agricultural cooperatives. CSAs and FCs want to contribute to a transformation process by changing individuals' perspectives and improve their social skills. Via collective action, they aim to empower and enable their members. They use their organizations as protected spaces regarding social and economic selection pressures and experiment with innovative organizational forms. Agricultural cooperatives on the other hand see themselves as part of the mainstream market. While they have many similarities with CSAs and FCs, they are more institutionalized and professionalized. They mainly aim on securing farm viability, but also oppose the CFR by incorporating values such as solidarity and by maintaining business models that aren't competitive in incumbent selection processes.

Kurzfassung

Die im derzeitigen Agrar- und Ernährungssystem (CFR) angewendeten Praktiken verursachen negative ökologische, wirtschaftliche und soziale Auswirkungen. Gleichzeitig steht das CFR vor großen Herausforderungen und hat eine hohe Vulnerabilität und geringe Widerstandsfähigkeit gegenüber Veränderungen gezeigt. Es gibt zunehmende Kritik an der Logik und den Strukturen des CFR. Kollektive Organisationen nutzen alternative Formen der Nahrungsmittelproduktion und -distribution und wollen den Zugang zu frischen und regionalen Lebensmitteln ermöglichen. Mit der Q Methode wurden drei Arten von Organisationen untersucht, um folgende Fragen zu beantworten: Wie schätzen Mitglieder den Beitrag ihrer kollektiven Organisationen zu einer Transformation des Agrar- und Ernährungssystems ein? Wie kann, aus ihrer Sicht, kollektives Handeln zu dieser Transformation beitragen? 16 Mitglieder aus 5 Initiativen der Solidarischen Landwirtschaft (CSA), 6 Food Coops (FCs) und 5 landwirtschaftlichen Genossenschaften haben an der Studie teilgenommen. Keines der Mitglieder geht von einer zentralen Rolle ihrer Organisation in einer Transformation aus. CSAs und FCs betonen ihre Ablehnung des CFR stärker als landwirtschaftliche Genossenschaften. CSAs und FCs wollen mithilfe von kollektivem Handeln die Sichtweise ihrer Mitglieder verändern und ihre sozialen Kompetenzen fördern. Sie bieten Schutz vor sozialem und wirtschaftlichem Druck und experimentieren mit innovativen Organisationsformen. Landwirtschaftliche Genossenschaften verstehen sich als Teil des etablierten Marktes. Sie haben Ähnlichkeiten mit CSAs und FCs, sind aber stärker institutionalisiert und professionalisiert. Ihr vorrangiges Ziel ist die wirtschaftliche Förderung ihrer Mitglieder. Trotzdem unterscheiden sie sich vom CFR, da sie sich auf andere Werte berufen und Unternehmensformen erhalten, die sonst nicht wettbewerbsfähig wären.

1. Introduction

There is increasing evidence that the currently dominating agri-food system is unsustainable and that it is facing an existential crisis that demands a fundamental change (González de Molina et al. 2020; SAPEA 2020). This crisis is created both by external and internal factors that exist within a complex causal network: on the one hand side, the general conditions surrounding agri-food systems are changing. Climate change and resource scarcity generate risks for agricultural production and food safety (Marsden et al. 2018). These risks include changes in plant physiology, losses in biodiversity, and higher probability of extreme weather events (Becklin et al. 2016; Intergovernmental Panel on Climate Change 2018). On the other hand, unsustainable agricultural practices that are associated to our current agri-food system are creating new challenges or are exacerbating external crises. In addition, these practices undermine the capacities of ecosystems to compensate or adapt to those changes. Intensive agricultural practices for example lead to soil degradation, increasing the vulnerability of soils, and the related ecosystems, to extreme drought and rainfall (Tsiafouli et al. 2015). Another example is the intensive application of fertilizer and pesticides which reduces the biodiversity of both agricultural and natural ecosystems and threatens freshwater quality (EEA 2016).

Recent developments have posed new challenges: the Covid-19 pandemic caused travel restrictions and impeded supply chains, leading to limited availability of animal feed and fertilizers (Choudhury 2020), shortages of food supply, and seasonal workers (Hendrickson 2020). The Russia-Ukraine crisis on the other hand revealed the great risks and uncertainties that arise from the dependency on non-renewable energy (Seyed Ehsan Hosseini 2022). From this perspective it becomes clear that the current agri-food system has high vulnerabilities that arise from its core. Global supply chains, strong dependencies on fossil energy and synthetic fertilizers, low crop biodiversity, and an increasing monopolization are all reducing its capacities to respond resilient to the inevitable upcoming challenges (Ajates 2021; IPES-Food 2016).

While there is increasing evidence for the unsustainability and the negative effects of the agri-food system on environmental, economic and social dimensions (Alrøe et al. 2017; Drottberger et al. 2021; Haysom et al. 2019; Marsden et al. 2018), there is also a growing awareness for the resulting risks, not only for the environment, but also for anthropogenic systems (Danielson 2009; González de Molina et al. 2020; Zoll et al. 2018). This awareness shows in top-down policies such as the “Farm to Fork Strategy” (European Commission 2020) but also manifests itself in an ever-increasing number of “alternative organizations” that challenge the logic of the current agri-food system and its inherent structures that sustain it. These organizations reclaim food sovereignty and aim to create an ecological, social, and economically sustainable agri-food system that provides access to fresh and healthy food (Di Masso and Zografos 2014; Drottberger et al. 2021). Besides top-down approaches, these “local initiatives [...] also have their place, with an emphasis on experimentation, adaptive learning and a diversity of sustainability solutions” (SAPEA 2020, p. 158).

While these social movements have overlapping goals, they take manifold forms and focus on different aspects of agri-food systems. Some mainly aim at agricultural production, some at food distribution and purchase, others at shortening supply chains or at reconnecting producers and consumers (Follett 2009; Opitz et al. 2017). Most of the participants engaging in such movements doing so on a volunteer basis and they have different backgrounds, mindsets and personal reasons for participating (Zoll et al. 2021).

The social movements are usually defined by low-hierarchies and are oftentimes only possible because they are collectively organized. In many cases, they rely on collective action in order to achieve social change and alter incumbent structures and institutions

(Bauermeister 2015; McAdam and Snow 2010; McCarthy et al. 2018). Collective action enables groups to join forces and negotiate on higher levels (Laforge et al. 2017), it empowers and motivates individuals (Pel et al. 2020), and can influence values and norms (Zoll et al. 2021).

In this context, the thesis at hand will 1) outline the characteristics of the current agri-food system and elaborate the demand for change; 2) present “alternative movements” in form of collective action organizations; 3), study how members perceive the contribution of their own organization in a transformation process, with a specific focus on the role of collective action, and finally 4) put the findings in a theoretical context and elaborate which transformative strategies are pursued by different collective action organizations.

Accordingly, the research questions are:

How do members of collective action organizations in the agri-food system perceive the contribution of their organizations to an agri-food system transformation? How can collective action contribute to this transformation in their view?

In the following chapter, attributes of the currently dominant agri-food system, including its associated problems, are presented, and the resulting consequences for its future development are elaborated.

2. Key concepts and state of the art

Key concepts and the state of the art regarding the object of research include information on transformation processes and strategies, on food regime theory, and on core characteristics and issues of the Corporate Food Regime as well as on collective action organizations and their potentially transformative attributes.

2.1. The Corporate Food Regime and understanding agri-food transformations

The agri-food system was subject to transformations long before the currently dominating food regime was established in the 1970s (Friedmann 1987; Friedmann and McMichael 1989). To understand agri-food system transformability, this chapter introduces key concepts regarding transformation processes and gives a historical overview of food regime theory. By presenting core characteristics and issues of the currently dominating agri-food system, an important part of the institutional context in which collective action organizations are embedded is presented and the need for an agri-food system transformation is elaborated.

2.1.1. Transformation, resilience, and the adaptive cycle

In order to meaningfully address the research questions of this thesis:

How do members of collective action organizations in the agri-food system perceive the contribution of their organizations to an agri-food system transformation? How can collective action contribute to this transformation in their view?

it must first be clarified what is understood as “transformation” in the thesis at hand and which attributes are considered “transformative” and thus increase the “transformability” of collective action organizations. The following sections serve this purpose: they first introduce the concepts of “resilience” and “social innovation” and put the phenomenon of “transformation” and “transformability” in a theoretical context. Then, starting with the significance of “niches” as protected spaces that enable the cultivation of innovative ideas, different pathways of innovation are outlined: fit and conform and out-scaling, stretch and transform and upscaling, hybridization, and, finally, potential hurdles and challenges that can lead to the process of down-scaling.

“Transformation” and “transformability” can be defined on the basis of the concepts of resilience and adaptation. Resilience describes the degree to which a system can be changed without moving to a new stability domain (Holling 1973). The adaptive cycle (Figure 1) can be used to examine overall resilience of a system. It includes four phases that represent the different states of a system over time, in a “3-dimensional state space defined by system potential, connectedness, and resilience” (Sundstrom and Allen 2019, p. 2). The “front” loop includes the exploitation (R) and conservation (K) phases. They mark a relatively stable period of growth and accumulation of resources and relationships in which systems tend to spend most time (Moore and Westley 2011; Sundstrom and Allen 2019). The “back” loop phases release (Ω) and reorganization (α) are dynamic and rapid and mark the transition to a new exploitation phase (Moore and Westley 2011; Sundstrom and Allen 2019). While change is routine and usually adaptive in r- and K-phases (front-loop), it can be transformative or adaptive in omega and alpha phase (back-loop) and may lead to a system renewal (Gunderson and Holling 2002; Moore and Westley 2011).

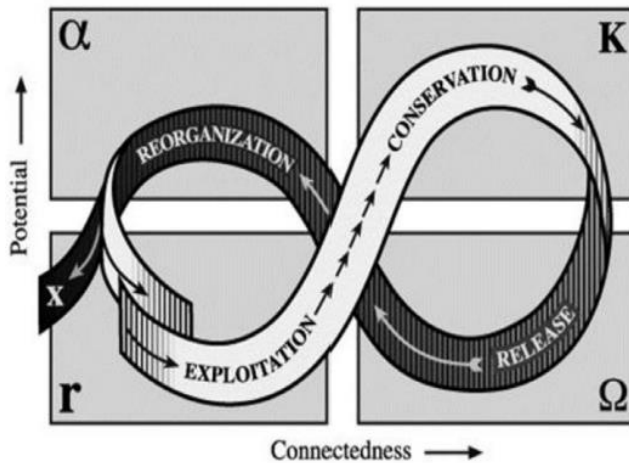


Figure 1: Adaptive cycle with "front" (bright) and "back" loop (dark) (Sundstrom and Allen 2019)

According to this concept, *transformation* only occurs if a system “is pushed close to a threshold that tips the system into a new stability domain” in the back loop (Moore and Westley 2011, p. 2). Otherwise, adaption and learning processes occur, but the system remains in the current stability domain (Moore and Westley 2011). A new stability domain may feature some “old” characteristics, but has different feedback loops and new relationships between the elements (Moore and Westley 2011). Moore and Westley (2011) also mention that both “transformative (radical)” processes (that induce radical change), and “adaptive” processes (that induce incremental change) finally result in change of the *same kind*, but to a *different degree* (Arthur 2009; Moore and Westley 2011). More precisely, adaptive change differs from transformative change “in terms of their breadth of impact and the disturbance they create” (Moore and Westley 2011, p. 2). Only transformative innovation can induce a more fundamental change that also affects rules that govern the system and relationships at different scales (Moore and Westley 2011; Watzlawick et al. 1992).

To deepen the understanding on transformation, further concepts will be introduced in the following. Wilson et al. (2013) differentiate system change in resilient and transformative processes. They understand transformation as a process that ultimately alters goals, feedback processes, structures, and functions of a system and how it is governed (Wilson et al. 2013). In this understanding, transformation may be a reaction to both unexpected or deliberate processes and can have positive or negative effects (Wilson et al. 2013). They imply that either a “positive” transformation can be created purposefully or that tipping points to negative outcomes can be avoided (Carpenter and Brock 2006; Clark and Dickson 2003; Wilson et al. 2013).

Another perspective is introduced by Rotmans et al. (2016) who describe complex adaptive systems as continuously adapting to a changing environment. Transformation can occur when the usually prevailing dynamic equilibrium of a system gets disturbed by an external stimuli that forces the system to change (Rotmans et al. 2016). In a short subsequent phase of instability and chaos, system diversity and heterogeneity (e.g. of components, relations, system behaviors) are key attributes that determine the potential outcomes of transformations (Rotmans et al. 2016). In this understanding, transformations are deliberately initiated shifts from a relatively stable system to a new and fundamentally different system. They furthermore propose that the direction and pace of transformation processes towards a more sustainable state can be purposefully influenced by understanding the underlying dynamics (Rotmans et al. 2016). They also mention that this influencing is only feasible with a directed management process (Rotmans et al. 2016).

2.1.1.1. Social Innovation and agri-food system transformation

After drawing on this fundamental understanding of transformation, the question of how transformation can be practically induced remains. Moore and Westley (2011) refer to transformations that take place in the context of complex adaptive systems, such as the agri-food system, as *social innovation*. Social innovation includes “initiatives, products, processes, or programs that change basic routines, resource and authority flows, or beliefs of any social system” (Moore and Westley 2011, p. 2) and includes learning processes across different institutional logics (Pel et al. 2020). Biggs et al. (2010) add that social innovation meets pressing social needs and that it can be pioneered by a wide range of actors. Social innovation not only includes the creation of an idea or product but also the process of diffusion and adoption that are needed to actually meet social needs (Biggs et al. 2010; McKeown 2008). The ability of a society to continuously generate social innovation can be seen as a main component that shapes its general capacities to transform and adapt (Moore and Westley 2011). Social innovation can furthermore increase these capacities by potentially increasing the internal diversity and heterogeneity of a system, that in turn determines potential outcomes of transformation as described in Rotmans et al. (2016).

Coming back to the adaptive cycle (Figure 1), processes associated to social innovation can be found both on its front and back loop. In the front loop (r and K phase), where skills and resources are accumulated and norms institutionalized (Moore and Westley 2011), the preconditions for social innovation are created. In the following K phase, the system matures and becomes more vulnerable towards disturbances (ibid.). In the back loop (omega and alpha phase), that usually follows a disturbance, there is “a much more diverse and unstructured environment, where the integration of different sources of knowledge is more likely to lead to the emergence of novel ideas” (Moore and Westley 2011, p. 2) and thus to induce social innovation processes.

In the literature, two categories of social innovation can be found: incremental innovation on the one side represents the most common form of social innovation and is characterized by “evolutionary, stepwise improvements to existing ideas, products or processes” (Biggs et al. 2010, p. 3). Chances of success are high and uncertainties regarding the outcome is low (Biggs et al. 2010). Radical social innovation on the other hand introduces new or combines already existing ideas, products or processes in a new way and aim at challenging or disrupting the broader institutional frameworks of social, cultural, political, or economic dimensions (Biggs et al. 2010; Christensen et al. 2006). Similarly, Pel et al. (2020, p. 5) define *transformative* social innovation (TSI) as “a specific type of social innovation process that involves challenging, altering, or replacing the dominant institutions in a specific socio-material context”. Radical, or transformative, innovation “requires larger leaps of understanding and often new ways of seeing a problem. (Biggs et al. 2010, p. 3). Compared to incremental social innovation, there is a higher uncertainty regarding the success because ideas are usually opposed more strongly (McKeown 2008).

2.1.1.2. Niches and their transformative strategies

Besides social innovation, niches are another important factor for transformation processes and are closely linked to social innovation (Drottberger et al. 2021). Niches play a central role for the generation and development of novel ideas and enable the creation of innovation that can potentially induce transformation processes (Drottberger et al. 2021). Niches offer the possibility for innovations to develop outside the socio-economic structures of incumbent systems, thus protecting them from prevailing selection pressures (Drottberger et al. 2021; Smith and Raven 2012). The resulting “protective spaces” are usually temporary and can, for example, be of geographical or political nature (Smith and Raven 2012). In niches, innovation can be configured, developed, and implemented

(Ermann et al. 2018) without having to compete within selection environments of incumbent systems, which is essential especially in the beginning phase (Kemp et al. 1998).

In this beginning phase, niches are beneficial or even necessary for innovation as protected spaces. As long as an innovation remains within a niche though, its scope, in terms of people and actual impact, will remain small and its transformative potential will not be fully realized. Some of the new technological or social structures that can develop within niches and represent innovation have the potential to transit into the incumbent system (or to be implemented) and thus increase its scope (Ermann et al. 2018). For this process, different strategies can (intentionally or unintentionally) be pursued: fit and conform/outscaling, stretch and transform/upscaling, and hybridization. These strategies will be elaborated in the following chapters.

2.1.1.3. *Fit and Conform and Scaling Out*

The concepts “fit and conform” and “outscaling” describe how innovations can generate a transformative impact by expanding their scope beyond their initial niche. By “fitting in” and “conforming to” mainstream socio-economic practices, innovations become competitive on the market (Drottberger et al. 2021; Smith and Raven 2012). This process can be accompanied by “scaling out”, which refers to “the replication and diffusion of an innovation across social boundaries that leads to saturation and conversion” (Moore and Westley 2011, p. 3). By fit and conform and scaling out, the geographical or network scale of an innovation can be increased (Hermans et al. 2016). Instead of changing the system in which an innovation has to compete, it adapts to the prevailing selection environment (Smith and Raven 2012). The resulting incremental innovations don’t necessarily have a lower transformability as disruptive innovations, because they can have a larger cumulative impact due to their broad scale (Fagerberg 2006; Lundvall 1992). Just as described above, incremental change can induce the *same kind* of (transformative) change as disruptive or radical change (Moore and Westley 2011).

It should be mentioned though, that the fit and confirm strategy comes with a particular challenge, that is to avoid the disempowerment of the sustainability of an innovation. In the process of aligning an innovation to systemic norms and structures, it is not seldomly the case that sustainability criteria have to be subordinated to economic or technical factors (Smith and Raven 2012). Another challenge is to maintain sustainability performance, if it is sustained in the alignment process in the first place, because rebound effects and economic growth can have antagonistic effects in this regard (Jackson 2012; van den Bergh 2011).

2.1.1.4. *Stretch and transform and Scaling Up*

The concept of stretch and transform aims at changing the selective environment and structural attributes of the incumbent system to create beneficial conditions for niche innovations (Smith and Raven 2012). This transformation of rules and structures can be realized by transmitting institutional reforms from niches into the incumbent system (Smith and Raven 2012). In order to do so, change has to occur not only within the limits of a niche, but beyond; it has to occur in the broader society as well as the political economy, initiated for example by sustainability advocates (Smith and Raven 2012). Empowered niches can play an important role by providing information in decision processes (Smith and Raven 2012).

The process of *scaling up* also pursues the goal of altering fundamental attributes of a system in order to create favoring conditions for a niche innovation (Moore and Westley 2011). It aims at “identifying opportunities and barriers within institutional structures to properly embed an innovation” in incumbent systems (Hermans et al. 2016, p. 287). In order

to successfully scale up an innovation, the inherent logic of a system, including its relations of power and politics, have to be altered in a particular way (Hermans et al. 2016).

A challenge in the processes associated to stretch and conform as well as scaling up can be to maintain control over an innovation, since multiple stakeholders have to be involved on the way (Hermans et al. 2016). There is also the danger of reducing the transformability of an innovation in the process, e.g. by focusing too much on marketability (Smith et al. 2014).

2.1.1.5. Hybridization

Hybridization aims at creating links between niches and the incumbent regime. By the example of “intentional communities” and low-carbon communities”, Hausknot et al. (2018, p. 380) elaborate that these links could include “hybrid patterns of activities, infrastructures and ideas that are shared by members of both intentional and low-carbon communities”. The idea is to spatially integrate niche innovations (here intentional communities) into the incumbent system (here low-carbon communities). While low-carbon communities are already more “alternative” or progressive in their ambitions, they are, as becomes clear in Hausknot et al. (2018), still part of the incumbent system.

Thus, the idea is to embed social innovation in a way that makes it easily accessible to and tangible for individuals that do not yet share the ideas and practices that are associated with it. By mediation processes, the introduction of new practices to other people by organizing specific events, and by serving as a best practice, the hope is to facilitate a quick transition of innovation, e.g. from collective action organizations, to the incumbent system (Hausknot et al. 2018). This idea will be taken up again in the Discussion section.

To summarize, in this thesis, a *transformation* is understood as a change of fundamental rules and structures that shape a system, here specifically the Corporate Food Regime that will be introduced in the next chapter. The resulting new system has different attributes, including different goals, feedback processes, and functions. Transformation can occur deliberately and transformation processes might be directed purposefully under certain conditions. *Transformability* can be understood accordingly as the ability to induce or initiate changes that lead to a transformation. Beginning with radical and innovative ideas that are oftentimes created in niches (in this thesis: collective action organizations), transformability also includes processes that support the expansion of innovation and enable their transition into incumbent systems (here the Corporate Food Regime), such as the transformation strategies elaborated above. Social innovation can determine potential outcomes of transformation processes.

One additional aspect of the understanding of transformation in this thesis should be elaborated. While transformation is understood as a process that can potentially be directed to some degree (Wilson et al. 2013), it is not the aim of this thesis to identify which direction members of collective action organizations want a transformation to take. A variety of studies has been conducted to partly answer this question though. These studies have focused on goals and motives of members of collective action organizations, some identifying more “transformative”, some more personal goals (Zoll et al. 2018; Pel et al. 2020; Zoll et al. 2021; Koretskaya and Feola 2020; Forssell and Lankoski 2015). Some of these findings have been included in the design of the Q-sample.

2.1.2. Food Regime Theory and past agri-food transformations

Food regime theory (Friedmann 1987; Friedmann and McMichael 1989) differentiates three regimes since the late nineteenth century and thus theorises past agri-food transformations. The three food regimes are distinguished by putting the political economy of the world agri-

food system in the context to the broader historical framework (Schermer 2015). “A food regime encompasses the permanent interaction of value creation, concentration (“accumulation”), and control (“regulation”) along transnational commodity chains [...], ranging from the production and distribution to the consumption (including disposal) of food” (Ermann et al. 2018, p. 19). Accumulation in this sense is a particular assemblage of production, distribution, and consumption (Rosset 2006), which is stabilized through particular types of formal and informal regulation and is also associated with particular geo-political systems of ordering (Schermer 2015).

The first food regime (or *extensive food regime*) was characterized by a central position of the UK and existed from the 1870s to the 1920s (Ermann et al. 2018). It was followed by the second food regime (or *intensive food regime*) in the 1940s to the 1970s (Ermann et al. 2018). This second food regime evolved around the US and was characterized by the trade of agricultural surpluses to Western Europe and Japan as well as to the “third world” (Ermann et al. 2018). The currently dominating food regime is referred to as “Corporate Food Regime” (CFR) (Ermann et al. 2018; McMichael 2009; Schermer 2015). It was established after the Second World War and is now under the economic, political, and monetary hegemony of the United States (González de Molina et al. 2020). The designation as CFR is based on the central role of large food corporations which are favored by the current institutional and regulatory framework as imposed by the World Trade Organization (González de Molina et al. 2020; McMichael 2009; Rosset 2006). It is centered around the World Trade Organization and is characterized by the trade of feeding stuff from the USA and South America to Europe, Japan, East Asia as well as the trade of crops from industrialized to developing countries (Ermann et al. 2018).

The historical perspective shows a dynamic development of the agri-food system in the past 150 years that is characterized by regular system transformations. These transformations occurred after decades of relatively stable regime phases and oftentimes resulted from economic crises or conflicts between states (Ermann et al. 2018). They enabled the renewal and replacement “of old, contradictory modes of accumulation and regulation by new, more coherent regimes” (Ermann et al. 2018, p. 19). The CFR has generated many beneficial effects such as immense increases in agricultural productivity and diversity of products as well as a reduction of the proportion of people that suffer from malnutrition (Ermann et al. 2018). Yet, it is associated to a variety of problems and contradictions that render it untenable to maintain (ibid.). These aspects will be elaborated in the following chapter.

2.1.3. Critique and problems related to the Corporate Food Regime

González de Molina et al. (2020) criticize the central role of large (transnational) cooperations and the associated relegation of (national) government regulation. They argue that those cooperations predominantly pursue economic goals, such as profit maximization and profitability, due to the capitalist context they are embedded in. These large transnational cooperations now have an unprecedented extent of influence and power, even coopting the power of states that regulate in their favor (González de Molina et al. 2020).

This critique of González de Molina et al. (2020) is shared by other authors in scientific literature (Drottberger et al. 2021; Haysom et al. 2019; Laforge et al. 2017; Marsden et al. 2018; Koretskaya and Feola 2020). The IPES-Food report from 2016 (IPES-Food 2016) explains in great detail which negative outcomes are related to the applied practices in the CFR. It specifically describes productivity, environmental, socio-economic, nutrition, and health outcomes related to those practices (IPES-Food 2016). These practices represent an important pillar of the CFR and have developed alongside with the entire food system that is present in the CFR (IPES-Food 2016). The two parts of the CFR are continuously

shaping and influencing each other in vicious cycles and powerful feedback loops (IPES-Food 2016) and are taking place in the context of broader developments such as transport, manufacturing sectors, energy, and finance (IPES-Food 2016).

In order to legitimize the effort undertaken in this thesis, that is, to study collective action organizations as potential alternatives to the CFR, the following sections first draw on problems that are referenced as calling for its transformation. These problems related to the CFR include:

Productivity outcomes:

- Plateauing-effects of yield increases for key crops in industrial cropping systems (IPES-Food 2016, p. 15)
- Vulnerabilities linked to genetic uniformity in monocultures or industrial livestock rearing. Results are economic losses, large-scale suffering, necessity for mass pesticide usage (which itself has numerous negative effects), application of genetically modified crops associated with the application of pesticides (IPES-Food 2016, p. 15)

Environmental outcomes:

- Growing demand for land and outsourcing of food production by “developed” countries (IPES-Food 2016, p. 17)
- The creation of avoidable food waste and associated greenhouse gas emissions: by reducing avoidable food wastes, 0,3t CO₂ could be saved per capita in the EU (Ivanova and Wood 2020; SAPEA 2020)
- Greenhouse gas emission of about one third of all anthropogenic greenhouse gas emissions world wide (Crippa et al. 2021), among other due to deforestation and methane production from cattle (IPES-Food 2016, p. 19; Marsden et al. 2018)
- Increasing land degradation and soil erosion: up to 40% of the planets land is degraded due to mismanaged and misused (UNCCD 2/26/2022), a number that doubled in only 10 years (UNCCD 2012). Land degradation directly affects half of humanity and threatens roughly half of global GDP (US\$44 trillion) (UNCCD 2/26/2022). Overall, unsustainable practices associated with industrial agriculture remain the largest contributor to land degradation (Alrøe et al. 2017; Drottberger et al. 2021; ELD Initiative 2015; Marsden et al. 2018)
- Water contamination, soil erosion, and runoff as a consequence of highly specialized farming, excessive application of nutrients and intensification of agriculture (IPES-Food 2016, p. 20). Four percent of fresh water are used for agricultural production (see also Figure 2).
- Decreased water retention due to poor soil structure associated to industrial agricultural systems and negative effects of large scale irrigation on natural ecosystems (IPES-Food 2016, p. 21)
- Decline of worldwide pollinators, wild biodiversity and ecosystem functioning due to practices associated to industrial agriculture (IPES-Food 2016, p. 22)

Socio-economic outcomes

- Uneven distribution of power along the supply chain in the agri-food system, especially in regard to modern grocery retailing (SAPEA 2020)
- Precarious economic situation of farmers, even highly-subsidized ones, due to high expenses for chemical inputs and risk-based insurance (IPES-Food 2016, p. 22)
- Rising food prices and Increasing numbers of people that cannot afford (sufficient) healthy food products, mainly in low-income and less educated social groups (Bonaccio et al. 2012; Fekete and Weyers 2016)
- Poor employment conditions, especially in tropical countries (IPES-Food 2016, p. 24), but also in Austria, where harvest workers oftentimes have limited

information on their legal situation, suffer from poor working conditions, and receive low wages (Behr 2013; Bolyos et al. 2016; Gétaz 2004; Mende; Penker et al. 2023)

- Trade and export orientation of agricultural export commodities generates risks for countries (especially in the global south) because economies are exposed to price shocks and international poverty traps are being created (UNCTAD 2013)
- Hunger and reduced food security as a consequence of prioritizing export opportunities above domestic needs and low enterprise diversification (IPES-Food 2016; Marsden et al. 2018) (for global numbers on world hunger see also Figure 2)
- Loss of agricultural production areas to industry, commerce and transport infrastructures (Haslmayr et al. 2018; Penker et al. 2023)
- Cultural erosion due to fundamental change of the relationship between humans and nature, including increased industrialization and digitalization of agricultural production, including altered human-animal interactions due to robotics (Ermann et al. 2018)

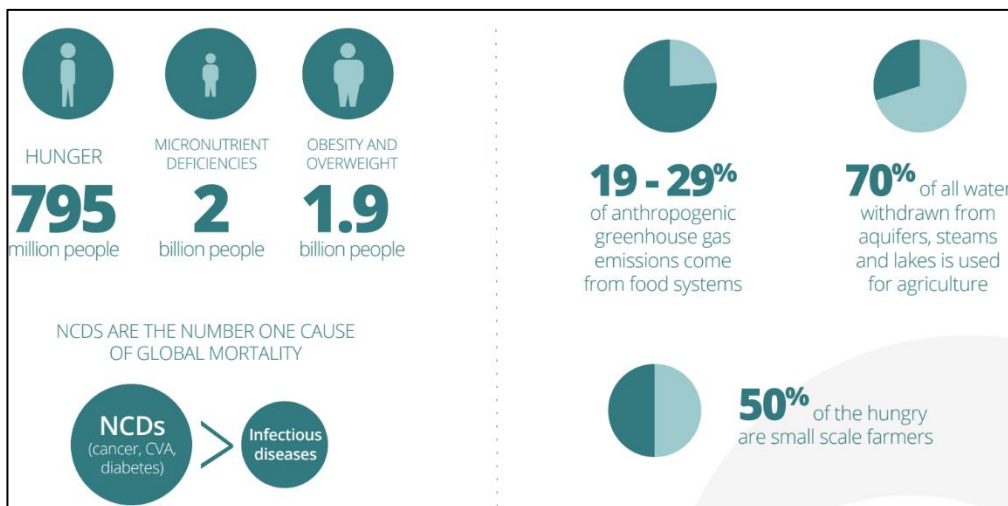


Figure 2: Key Problems in global food systems (IPES-Food 2016, p. 9)

Nutrition and health outcomes

- Unhealthy diets and deficient nutrition that can be associated with one fifth of preliminary deaths in the EU (SAPEA 2020). Austrian eating habits include three times the amount of meat that is considered healthy by the Austrian nutrition pyramid, resulting in further greenhouse gas emissions (Penker et al. 2023)
- Diversity of produce delivered by international trade benefits mainly wealthy consumers in high-income countries, while low-income countries are unable to access the diversity on these markets (Sibhatu et al. 2015).
- Modern varieties of staple crops have low nutritional density (Barański et al. 2014) and the prevalence of energy-rich crops and foodstuffs are a major factor in explosion of obesity, overweight, and the associated health impacts (Wallinga 2010) (for global numbers on micronutrient deficiencies/obesity see also Figure 2)
- Increased risk for agrochemical exposure which has been linked to Alzheimer's disease, asthma, birth defects, cancer, learning and development disorders, Parkinson's disease, and sterility (Owens et al. 2010)
- Zoonotic disease and antibiotic resistance resulting from preventive use of antibiotics in intensive livestock farming (IPES-Food 2016, p. 29)

Further critique includes the vulnerability of long supply chains and unfair distribution of food and of the associated economic benefits from food production in the world (SAPEA 2020) and the high resource and energy consumption that is necessary for global food trade (González de Molina et al. 2020). Some authors point out how industrial agriculture and the associated problems outlined above are connected to the wider political economic context of neoliberal capitalism and its associated characteristics such as free marked trade and the power of multinational cooperations and government policy (Akram-Lhodi 2013; Blay-Palmer et al. 2016; Friedmann 1993). Laforge et al. (2017) also emphasize the role of neoliberalism in today's industrial agriculture and its consequences for alternative models of food production and distribution that don't follow this logic.

2.1.4. The future beyond the Corporate Food Regime

As outlined in the previous chapter, the CFR, industrial agriculture, and current food distribution patterns are associated to a vast variety of problems, injustices, and internally generated problems. But what does this mean for the future of CFR and in regard to the call for its transformation?

It is obvious that the CFR and its associated practices are not sustainable and “that radical system-wide change is required, with ‘business as usual’ no longer a viable option” (SAPEA 2020, p. 13). Thus, for many the question is not “*Is the CFR going to transform?*” but “1) **When** and 2) **how** is the CFR going to transform and what will 3) **trigger and guide** the transformative process?”

1) Ermann et al. (2018) date the peak phase of the CFR to the 1990s to the 2010s and thus imply that the CFR is already in a phase of increasing instability and starting to change. And indeed, an internal transformation of the CFR **is already taking place** to a certain degree (Alrøe et al. 2017), but 2) by far too slow and in a largely incremental and diffuse manner (Burns 2012; Alrøe et al. 2017). This alleged “sustainability transformation” (Alrøe et al. 2017) is seen as being promoted by actors of the CFR who **follow the same (neoliberal) logic** that is largely responsible for the problems, injustices, and challenges that the CFR is facing today (González de Molina et al. 2020). This logic can be seen in the approaches taken by the CFR today, for example in the so-called Green and Blue Revolutions and in corporate greening strategies (Wezel et al. 2018; Marsden et al. 2018). A good example is the “regional production”, a food trend that was also promoted by the Austrian Federal Ministry of Agriculture (Ermann et al. 2018). This trend was internalized by cooperations in Austria and soon became a generalized strategy (Schermer 2015).

The “sustainability transformation” (Alrøe et al. 2017) that is coming from within the CFR is 3) currently being triggered by the necessity to adapt to certain consumer trends or to improve the image in the face of growing criticism by both the public and research (Marsden et al. 2018; Schermer 2015). Other authors share their viewpoint and predict unprecedented challenges that await the CFR in the near future. Marsden et al. (2018) draw on the European project TRANSMANGO (Hebinck et al. 2018), that prescribes Europe's food system to be, to various extent and intensities, stressed and under threat. These threats, that are also included in chapter 1.1.3. “Critique and problems related to CFR”, are aggravated by the fact that certain developments in the food system (such as climate change, environmental degradation and resource scarcity) are perceived as fragmented and working against each other (Moragues-Faus et al. 2017). The resulting multiple crises are an existential threat to the CFR and confirm its longer-term unsustainability (Intergovernmental Panel on Climate Change 2018; Marsden et al. 2018; Swilling and Annecke 2012).

A transformation of the CFR thus seems to be inevitable and business as usual is not seen as an option for the future (Ermann et al. 2018). Yet the current transformation is

only taking place in small steps, even though there is a growing agreement in agri-food literature and policies (European Commission 2020; SAPEA 2020) on the insufficiency of small technology or policy “quick-fixes”, because they do not sufficiently address the lock-in effects apparent in the CFR (Drottberger et al. 2021). Relying on these insufficient “quick-fixes” bears the risk of a more or less sudden systemic collapse (González de Molina et al. 2020) which doesn’t solely arise from internal factors. In addition to the internally created problems, the CFR showed low resilience against external stressors, which partly result from its high levels of dependency and the interrelatedness of global systems in general. This became apparent in both the financial crisis in 2008 (McMichael 2009) as well as in the more current COVID-19 (Anderson 2020; Cattivelli and Rusciano 2020) and the Russia-Ukraine crisis (Seyed Ehsan Hosseini 2022). This further emphasizes the need for a more fundamental systemic transition that also take dynamics of power and equality into account (Drottberger et al. 2021; European Commission 2020; Gliessman 2011; González de Molina 2013; SAPEA 2020).

There are already approaches taken by several countries that are thinking about future forms of the agri-food system *beyond the CFR*. Japan for example introduced their strategy MeaDRI, that aims at implementing a fossil free agricultural system until 2050 with reduced application of pesticides, use of fertilizer, and many other sustainability criteria (MAFF 2021). Also on international level, there are policy approaches promoting the sustainability transformation of the agri-food system (FAO).

In regard to the future of the agri-food system beyond the CFR, Ermann et al. (2018) refer to niches, such as collective action organizations, as drivers of social and technical innovation. They conclude that niche innovation could become a game changer if the pursued path of the CFR, that is, increasing efficiency and implementing technological solutions, doesn’t lead to the expected success (Ermann et al. 2018). In regard to this central meaning of niches for the future pathways of the agri-food system, the following chapters will draw on collective action organizations and their potentially transformative attributes.

2.2. Collective action organizations and agri-food system transformation

As elaborated in the previous chapters, the need for change is expressed by a variety of actors, including politics, research, but also the civil society (Marsden et al. 2018; Nowack and Hoffmann 2020). The following chapters outline what is understood as collective action organizations in this thesis and how their potential contribution to an agri-food transformation is perceived in the scientific literature.

2.2.1. Collective action organizations

Collective action organizations, as understood in this study, differ from other forms of short-term collective action, such as riots or protest demonstrations, by their higher “degree of institutionalization, with group formation processes accompanied by the design of a set of rules to make collective action work” (De Moor 2008, p. 193). De Moor (2008) refers to this type of collective action as “*corporate* collective action” that is “considered the concept suited to describe the exclusive, self-governed autonomous institutions [...] which developed on the idea that a group of people could form a legal body” (De Moor 2008, p. 192). De Moor (2008) ascribes collective action organizations, in her work mainly understood as guilds and commons, great innovative powers and a central role in a “silent revolution” in the late Middle Ages. De Moor (2008) sees the reason for groups of people to apply collective action, that is to “commit pooled resources, including their own efforts, to common efforts” (Tilly and Tilly 1981, p. 19), in a reduction of costs and risks for individuals, in an increase in productivity, and in advantages of scale. Furthermore,

collective action organizations are a suitable way “to combine participation in the market with protection against the negative side effects of that market“ (De Moor 2008, p. 207).

Drawing on other perspectives on collective action, Meinzen-Dick et al. (2004) have noted that no common definition of collective action exist in the literature. What they found though, is that “most definitions have in common [...] that collective action requires the involvement of a group of people, it requires a shared interest within the group, and it involves some kind of common action that works in pursuit of that shared interest” (Meinzen-Dick et al. 2004, p. 200). In the context of social innovation (as described below), collective action can be understood as an important empowerment process within social innovation initiatives (Pel et al. 2020) and it has been identified as “subdriver of transformation” (Zoll et al. 2021, p. 642) by supporting the implementation of new practices and thus a successful engagement of stakeholders in collective action organizations (Evers and Ewert 2015; Jaeger-Erben et al. 2015). In regard to transformation theory as introduced above, collective action can be said to have an adaptive maintenance role by providing the same services or products previously delivered by actors of the incumbent system, such as government or businesses. In the agri-food system, these services and products can for example include the production and distribution of local foods. But collective action can also have a transformative role, when alternative, new solutions for the provision of food are generated (see examples below) and thus the logic of the incumbent system and its main goals are questioned (Schlüter & Herrfahrtdt-Pähle 2011). Collective action can also be seen as a tool to enact change from bottom up (Bauermeister 2015; Drottberger et al. 2021) and it enables different stakeholders to join their forces and thus increase their ability to stand up to higher institutions (Laforge et al. 2017). Collective action can also be seen as a reaction of the civil society and other actors to the demand for practical solutions for unfulfilled social needs (Biggs et al. 2010; De Moor 2008; Münkner 2012; Pel et al. 2020).

The occurrence of collective action has been associated with the formation of a collective identity, the building of coalitions, and networking, which are seen as important preconditions (Bauermeister 2015). In collective action, participants usually participate on a volunteer basis, which distinguishes it from hired labor (Meinzen-Dick et al. 2004). Examples of collective action processes are collective decision-making processes, defining rules of conduct or management rules (Meinzen-Dick et al. 2004).

Collective action is a complex object of research, because it is difficult to distinguish from multiple other variables that potentially influence group processes (Ostrom 2007). It has nevertheless been included as a central object of research in this study and in the Q-sample accordingly, because it plays an essential role in all collective action organizations and contributes significantly to their success. The following chapters deal with specific types of collective action organizations and their associated attributes.

2.2.1.1. Cooperatives as mainstream collective action organizations

Cooperatives, in this thesis more specifically *agricultural* cooperatives, are seen as a mainstream form of collective action organizations in this thesis and have existed for over 160 years (Münkner 2012). They are characterized by their open and voluntary membership, democratic organizational structures, autonomy and independence from external influences, and their focus on community needs (Kaphengst and Velten 2014). Historically seen, the role of cooperatives has been to compensate deficiencies of dominant systems, oftentimes in reaction to crises, and have aimed at fulfilling unsatisfied needs of a society (Münkner 2012; Schröder and Walk 2014).

Compared to corporates of the CFR today, cooperatives are less focused on economic surpluses and are not driven by external forces such as investor interests (Münkner 2012). Instead, the main goals of cooperatives is the long-term promotion of their members (kooperieren.at), including farm viability, and the satisfaction of community needs (Münkner

2012; Mastronardi et al. 2020). Other attributes that distinguish them from the CFR include the regionality and the promotion of local communities (Mastronardi et al. 2020; Schröder and Walk 2014), increased regional stability (Klemisch and Maron 2010), shortening of supply chains, knowledge transfer (Kaphengst and Velten 2014), member empowerment (Tregear 2011), and many more. In comparison to the Alternative Food Networks that will be presented in the next chapter, cooperatives have a much longer history, are more institutionalized and professionalized, and have a bigger market share (Wilson and MacLean 2012).

Limitations of cooperatives include high costs of cooperative governance (Giagnocavo et al. 2012) and their potentially purely functional purpose (McCarthy et al. 2018). Due to their long history, they also have a tendency of becoming too bureaucratic, which potentially reduces the democratic participation of their members (Ajates 2020b). Furthermore, cooperatives are potentially more vulnerable to the influence of established actors of the CFR (Ajates 2021) and partially show an increasing orientation towards the needs of the market (Bijman et al. 2012). While some studies hint towards a reduced potential for inducing a transformative change in the CFR, Ajates (2020b, p. 469) concludes: "I argue that there has not been enough research to unpack how and in what ways agricultural cooperatives are moving away from being a transformative movement to being reduced as a tool to survive market developments".

2.2.1.2. "Alternative Food Networks" as alternative collective action organizations

"Alternative Food Networks" (AFNs) are collective action organizations that have evolved around the issues associated to the CFR (Carlson and Bitsch 2018) as described above. Many AFNs don't see themselves as part of the CFR, but, on the contrary, want to oppose its underlying logic and challenge the relations of power, norms and discourses within it (Carlson and Bitsch 2018; Mert-Cakal and Miele 2020; Moolaert 2013; Pel et al. 2020; Zoll et al. 2021). Because these organizations are diverse and are all individual and independent in nature, related studies have been conducted in different contexts and scientific areas. There are many different concepts (such as case studies) and designations to refer to them and oftentimes they are studied regarding only a specific aspect (Carlson and Bitsch 2018; Drottberger et al. 2021; Mert-Cakal and Miele 2020). AFNs include a variety of types of networks and a short overview of these networks will be given in the following, in order to outline the context of AFNs as one main representative of collective action organizations in the agri-food system today.

AFNs include community supported agriculture (CSA), food assemblages (Marsden et al. 2018), food markets (Guzmán-Pérez et al. 2021), market gardening (Drottberger et al. 2021), multi stakeholder cooperatives (Ajates Gonzalez 2017), agricultural cooperatives (Ajates 2020a), producer organizations (Ajates 2020b), community gardens (Zoll et al. 2018), and Food Coops (Zoll et al. 2021). Research regarding AFNs lacks comprehensive studies (Blättel-Mink et al. 2017) and studies on key issues (Mert-Cakal and Miele 2020), and is disjoint in general (Carlson and Bitsch 2018). Studies have accordingly been published in social innovation literature (Pel et al. 2020), rural development literature (Bowen and Master 2011; Allen et al. 2003), agricultural development (Bauermeister 2015), social sciences (Bauwens et al. 2016), and many other scientific areas. The different types of AFNs listed above differ in many ways, for example their main objective, their members/participants, their size and organizational form.

There are different types of AFN-organizations that define a "network", e.g. all CSA organizations make up the CSA network. Because some characteristics are only applicable to individual organizations though, while other attributes or effects are applicable only in the context of a network, both terms are used in the course of this thesis.

While there are differences between the multiple types of networks, there are also similarities that characterize them as AFNs. AFNs are characterized by collective action of several food producers and or food consumers, they are typically place-based, they have short supply chains, and usually take a non-corporate organizational form (Marsden et al. 2018). The overall aim is to induce positive changes in the quality of food, production and consumption, and the formation or deepening of networks (Opitz et al. 2017; Zoll et al. 2018). Forssell and Lankoski (2015) characterize AFNs based on the perspective on the food products that are produced and distributed in their networks, the production processes they apply, the types of networks that are used for the food distribution and the stakeholders of those networks. It is notable that many characteristics that are used to define AFNs also delineate them from the CFR (Forssell and Lankoski 2015). This can be seen as an “inverted definition” by excluding certain attributes of the CFR. AFNs can, for example, be seen as a countermovement to the tendencies of standardization and industrialization (Bowen and Mutersbaugh 2014) as well as to the corporatization and depersonalization (Rossi 2017) seen in the CFR. In regard to transformation as understood in this thesis, AFNs can be thought of as social innovation because they not only aim at solving a particular social problem, they also create new institutional structures and thus alter the way social problems are approached (Carlson and Bitsch 2018).

Thus, many AFNs do have intersecting attributes that characterize and distinguish them as an “alternative” to the CFR. And some of those attributes can be seen as a potential to induce change in the agri-food system to various extents. Due to the diversity of AFNs, the expression of specific attributes and their potential to induce change can be very different and can only be assessed on the basis of individual organizations. This has to be considered in the methods section, which provides arguments for the selection of two AFNs and the discussion of the limitations of the results of this thesis that have to be confined to the specific AFNs analyzed. Before, an overview of attributes that potentially induce change is given in order to a) assess which characteristics apply to the organizations studied in this thesis and b) to put the findings into context of movements, since some effects will only be relevant on a wider scale. It also helps to understand how the diversity of organizations in itself can be seen as a driver for change. In the following, an overview of attributes of AFNs that have been identified as “transformative” is given.

2.2.1.2.1. Examples of AFNs

Two types of AFNs have been chosen for this study: Community Supported Agriculture (CSA) and Food Coops (FC) (for the selection process see 3.2.3). The two types are presented in more detail in the following sections.

CSA

The concept of Community Supported Agriculture was first practically applied in Japan and Switzerland in the 1970s and spread through North America and then through Europe in the early 2000s (Mert-Cakal and Miele 2020; Wezel et al. 2018). Since then, several networks developed, including the international CSA Network URGENCI in 2008, the Association for the Maintenance of Peasant Agriculture (AMAP), and the CSA Network UK in 2013. According to an official declaration composed by the international CSA Network URGENCI, CSA focusses on building local communities and promoting food sovereignty and provides practical, holistic solutions for the current agri-food crisis (Urgenci 2016). Central values and principles include mutual solidarity and the willingness to take on responsibility (Urgenci 2016). CSA aims to create socially inclusive, economically viable and environmentally sustainable agri-food systems (Urgenci 2016). Furthermore, it is written that the model of CSA is not static but dynamic and grows and develops based of continuous efforts (Urgenci 2016).

In the scientific literature, CSA is described as an innovative idea (Mert-Cakal and Miele 2020), an important step on the way to a food system that works outside the market (Hvitsand 2016) and develops in the interstices of the currently dominating agri-food system (Schermer 2015). Here, the concept of solidarity as described in the CSA declaration (Urgenci 2016) is observed to practically express itself in form of contractual agreements that bind consumers and/or participants of CSAs to buy the agricultural products of CSA farmers for at least one season (Butler Flora and Bregendahl 2012; Hvitsand 2016; Opitz et al. 2017). The income of producers is thus secured for this season and the risk of crop failure, or the like, is shared (ibid.).

Findings of studies on participants of CSA organizations include changes in eating habits and lifestyle changes (Andreatta et al. 2008; Curtis et al.; Ostrom 2007), learning about seasonal crops (Wilkins et al. 2015), impacts on environmental ethics (Hayden and Buck 2012), and increased consumption of fruit and vegetables and health benefits (Cohen et al. 2012; MacMillan Uribe et al. 2012; Minaker et al. 2014; Ostrom 2007; Wilkins et al. 2015). Other positive impacts include higher benefits for lower income members and increased food justice (Galt et al. 2016; Gottlieb and Joshi 2010). There are also studies attributing CSAs to be, at least partially, politically motivated (Cone and Myhre 2000; Zoll et al. 2021).

As explained in the declaration described above (Urgenci 2016), CSA is a dynamic concept and every CSA has its own independency. The evolving diversity is described in Koretskaya and Feola (2020): “CSA can involve a range of enterprise forms. CSA schemes often revolve around privately owned farms; however, differentiation exists concerning the degree to which workers and subscribers are involved in decision-making, ranging from farms that do not have any ‘core groups’ (Cox et al. 2010; Nost 2014; Schnell 2013) to farms with strong member participation in activities such as workload distribution, crop selection, and event planning (Kis 2014; Nost 2014)”. The different labor arrangements are also subject to other studies (Cameron 2015).

Food Coop

Food Coops, or Food Cooperatives, are a mean of satisfying the need for organic food from regional producers or fair products from overseas (sense.lab). They are made up of private individuals who organize themselves on a voluntary basis to collectively buy directly from producers (foodcoopedia). FCs aim to enable economic business models for farmers and to reduce costs for consumers (foodcoopedia). There are different types of FCs, ranging from those who only place their order together, to Warehouse Food Coops that order on stock, and finally there are member shops with paid staff (foodcoopedia). The Food Coop movement is organized in several networks, including the [Federal Working Group of Food Cooperatives e.V.](#). In Austria, FCs developed from producer-consumer initiatives that started simultaneously with the development of organic agriculture (Brunmayr and Dax 2011; Wegerbauer 2018).

According to scientific literature, central elements of Food Coops include interactions around the distribution of labor within the consumer group as well as the supply of food (Opitz et al. 2017). These interactions include regular internal meetings, meetings and contracting with new producers as well as excursions to some producers that are already supplying the Food Coop with their products. Compared to the “conventional” agri-food system or the Corporate Food Regime, FCs are organized in a participatory and non-hierarchical manner (Moragues-Faus et al. 2017). They seek to oppose the dominance of the CFR and to support local economies and introduced many practices that are part of AFNs today (Slocum 2006). Those practices include consumer education, for example about agricultural production problems and insights on the efforts and challenges associated to small scale production and distribution (Brunori et al. 2012; Opitz et al. 2017; Slocum 2006). FCs are thus supporting local farmers and economies, promote organic agriculture, fair trade, knowledge transfer, and consumer education. In addition, the new

social relations between producers and consumers can be seen as “alternative” compared to the CFR.

There can also be found criticisms and hints to the limitations of FCs in the scientific literature though, including a “paradox of exclusivity” referring to the low diversity of socio-economic backgrounds of FC participants (Zitcer 2015). Other studies refer to the lack of common goals within Food Coops (Jaklin et al. 2015) and the currently “subordinate role for Austrian farmers, as only 1% of all farmers who sell products directly trade with food cooperatives” (KeyQUEST 2016; Fikar and Leithner 2021).

2.2.1.2.2. *Potentially transformative attributes of AFNs*

Forssell and Lankoski (2015) have performed a profound work on AFNs in general and identified direct and indirect impacts that are potentially associated to AFNs. They identified three types of characteristics in this regard. Firstly, *background characteristics* include “participants’ non-conventional values and goals” including “morality, commitment to sustainability and the non-industrial logic” that underlies the operating mode of AFNs (Forssell and Lankoski 2015, p. 6).

The most important category are the *core characteristics* that “represent concrete changes to food provision, through types of products, production processes, distribution networks or forms of market governance involved” (Forssell and Lankoski 2015, p. 5). Those core characteristics include (Forssell and Lankoski 2015):

- Higher standards for products and production, including “natural” foods and environmental sound modes of production
- Shorter supply chains/distance between producers and consumers which is linked to the “localness” of the organizations. Three dimensions of reduced distance are conceptualized by Forssell and Lankoski (2015): physical distance, value chain distance and informational distance. Other concepts regarding distances in food systems include different dimensions, such as organizational, institutional, cognitive, and social dimensions with further subdimensions (Edelmann et al. 2020)
- New organizational forms that rearrange production, purchase and the distribution of food which alter the relations of power and the sharing of economic risks

As expected or potential results from AFNs, Forssell and Lankoski (2015, p. 6) lastly identify *outcome characteristics*, which include “strong relationships, exemplified by notions of trust and social embeddedness” which might mostly arise from the reduced distances in AFNs. In contrast to this view, other authors draw on *social* proximity as main driver of mutual trust and social embeddedness (Edelmann et al. 2020; Ermann et al. 2018) and think of reduced physical distances only as an intensifying factor for social proximity (Gugerell et al. 2022).

Further potentially transformative attributes of AFNs include:

- the creation of new/alternative interpersonal relations (Pel et al. 2020) and thus the potential to reconnect agriculture and society (Zoll et al. 2021)
- “activities [that] involve many cultural and social aspects, such as taste, identity, connection with nature and community, that are ignored in financial exchanges” (Baggini 2015; Ajates Gonzalez 2017, p. 3)
- the application of principles of solidarity and mutual aid (Berti and Mulligan 2016; Blättel-Mink et al. 2017; Carlson and Bitsch 2018)
- practices that increase environmental, economic and social sustainability (Kneafsey et al. 2013; Willis 2012)
- altered consumption patterns (Allen et al. 2003), healthy diets, actual changes in nutrition (Andreatta et al. 2008; Wilkins et al. 2015), and a general reconnection with food (Gauder et al. 2019)

- changes in purchase decisions regarding sustainability and seasonality criteria (Allen et al. 2003; Opitz et al. 2017)
- potentials for increased farm income (Galt 2013; McIlvaine-Newsad et al. 2004; Tregear 2011)
- posing a counterexample to CFR that challenges existing market forces and institutional power structures (Calvário and Kallis 2017)
- creation of trust, social inclusion and farmer empowerment (Sacchi 2019)
- short supply chains and reduced transport emissions (Tregear 2011)

2.2.1.2.3. *Criticism regarding AFNs*

Besides the already mentioned phenomenon that AFNs are diverse and no single organization can be expected to exercise all these positive effects, there is also criticism regarding AFNs. This criticism not always refers to the actual impact that a specific organization might have, but also to certain assumptions about AFNs that can be found in the scientific literature and in the public discourse. This criticism includes:

- unconventional values and goals of participants can be very differently pronounced and represented (Tregear 2011)
- even if unconventional values and goals are existent, their mere presence does not induce transformation or increased sustainability (Forssell and Lankoski 2015)
- while changing social relations is an explicit concern in AFNs, many institutionalized relations are not challenged or even reproduced, for example between men and women. The same holds true for other issues regarding gender, sexuality, race and ethnicity (Mert-Cakal and Miele 2020; Pel et al. 2020)
- solidarity and sustainability are context specific and subjective, rules concerning those aspects of AFNs are dependent on perspectives and external constraints (Carlson and Bitsch 2018)
- while there are some positive aspects regarding solidarity and risk sharing mentioned above, there are also studies that identified the risk for increased workload for farmers or AFN participants or self-exploitation (Brunori et al. 2012; Jarosz 2008; Galt 2013; Milestad et al. 2010) and it is unclear how far solidarity of consumers really goes if it comes to a bad harvest (Hinrichs 2000; Feagan and Henderson 2009)
- the actual generation of economic benefits for farmers are challenged by some studies (Brown and Miller 2008; Hinrichs 2000; Ilbery and Maye 2005; Jarosz 2008; Milestad et al. 2010)
- incapability of inducing transformation on higher level (e.g. market vs. state level; local policy changes vs. national ones) because too much responsibility is placed on individuals (Alkon and Mares 2012; Fairbairn 2012; Guthman 2008)
- unclarity whether labor rights are respected in AFNs (Allen et al. 2003; Brown and Getz 2008)
- doubts regarding the generally positively portrayed phenomenon of localism in the form of the “local trap” (Born and Purcell 2006), “defensive localism” (Hinrichs 2003) or “unreflexive localism” (DuPuis and Goodman 2005)
- there might not be a connection between locally produced and affordable food (Hinrichs 2000; Guthman et al. 2006) and AFNs could thus be promoting social exclusion and inequalities (Matacena 2016) and supporting white, privileged middle class consumers (Goodman 2004; Guthman 2008; Renting et al. 2012) rather than opposing those issues
- environmental performance of AFNs may not live up to expectations because a) extensive/organic agriculture is associated to smaller yields which increases environmental effects per unit (Gomiero et al. 2011; Penker et al. 2023), b)

environmental impacts are location-dependent (Born and Purcell 2006; Edwards-Jones et al. 2008), and c) food distribution might be inefficient on small scales (Coley et al. 2009; Mariola 2008)

- reduced transportation distances may not result in fresher food because factors such as uninterrupted cooling chains strongly influence the freshness of products (Born and Purcell 2006). In addition, reduced distances may also not be connected to a decrease in environmental impacts because food miles play a subordinated role than the mode of transportation and the type of product (Coley et al. 2009; Penker et al. 2023).

Overall, the assessment of actual impacts of AFNs on consumption patterns, the supply of the food system, and the environment is difficult due to the small size of AFN participants (Zoll et al. 2018) and the great inherent diversity. In any case, it should be avoided to hide weaknesses or to make general assumptions by romanticizing AFNs or by conflating spatial or structural characteristics with positive environmental or social effects (Born and Purcell 2006; Holloway et al. 2007; Tregear 2011) because those processes hinder conducive reflection that are necessary to build food systems that are actually sustainable (Forsell and Lankoski 2015).

2.2.1.3. Hurdles and inhibitors of transformation

As already mentioned before, collective action organizations face major challenges that potentially hinder them from growing and expanding and thus from being transformative. In order to meaningfully answer the research questions of this work, it is necessary also to identify what hurdles and challenges might limit their transformative potential and could lead to a stagnation or a regressive “down-scaling” process of organizations. The following section thus draws on those challenges that are relevant specifically for collective action organizations.

First of all, it should be mentioned that the biggest challenge to collective action organizations is the circumstance that they exist in an environment with profoundly antagonistic socio-economic selection pressures. These include socio-economic factors that influence their potential for growth and development (e.g. access to financial resources such as fundings (Iles and Marsh 2012; Marsden et al. 2018)), but also the legislation (Laforge et al. 2017) and the values and norms (Guthman 2008) that are relevant for an organization. The majority, but not all, other challenges result from this circumstance.

At the intersection of collective action organizations and the CFR, multiple challenges arise. The *erosion of sustainability goals*, or of the radical core of innovation is a danger that occurs on the way of the alignment of innovations with dominating rules, norms, and structures of the incumbent system (Smith and Raven 2012). *Losing control* over an innovation on this way is also a common challenge, as outlined above (Hermans et al. 2016).

Another risk that has not been mentioned so far is the *cooptation by the incumbent regime*, here the CFR. Cooptation can occur when dominating institutions partly integrate collective action organization’s principles and thus superficially “adapt” to collective action organizations, placing pressure on and challenging their integrity (Forsell and Lankoski 2015; Marsden et al. 2018). Findings suggest that government support, funding, and extension programs can entail the risk of shifting benefits of local food systems to powerful actors of the CFR (Laforge et al. 2017).

An inherent challenge that most collective action organizations face is the fact that they are usually locally-specific but need to increase their scope in order to realize greater impact (Smith et al. 2014). Implementing such, potentially very unique, solutions in other contexts

and with other people can be difficult (Hermans 2011; van de Kerkhof and Wieczorek 2005). Thus, change may only be induced locally, to a limited extent, and only in particular institutions (Pel et al. 2020). And even if this institutional change occurs, it doesn't necessarily represent a transformative change because the majority of institutional contexts may still be reproduced (ibid.). It should also be noted that many practices associated to collective action organizations are knowledge intensive and need time and energy to be implemented. This may hinder scaling up processes (Iles and Marsh 2012). Another challenge that arises from within collective action organizations is also a great advantage of collective action organizations: it is their great diversity. This diversity also refers to the different opinions, values, and ideas. What can be seen as precondition for innovation can also mean a lack of a common systemic transformative purpose (Di Masso and Zografos 2014; Zoll et al. 2018). Some scholars even fear the risk of competition between collective action organizations due to their diversity and fragmentation (Marsden et al. 2018).

It should also be mentioned that even if collective action organizations manage to grow and increase the number of active participants, the mere participation in collective action organizations doesn't guarantee the initiation of a transformative process (Di Masso and Zografos 2014). Finally, Moore and Westley (2011) mention, that a major challenge is to see all these challenges and traps that potentially hinder transformative processes.

3. Q method and the empirical analysis

This thesis aims to analyze the individual perspectives of people that are actively involved in collective action organizations. By using “Q methodology” their unique viewpoint can be captured and analyzed (Brown 1993). Q methodology not only constitutes a qualitative study on their motivation, personal goals, and the structures of their organizations. It also enables a quantitative analysis that combines specific attributes of the individual viewpoints to create new, hypothetical viewpoints (Watts and Stenner 2012). These viewpoints simplify the differentiation of different perspectives and enable an interpretation that sheds light on the research questions. One specific attribute of Q methodology is that it enables the researcher to get a full picture of an individual’s attitude, instead of a fragmented one as is the case with other methods (Stephenson 1935).

According to Zabala (2014) the method is suitable for small sample sizes and explorative studies, also in combination with other qualitative methods. Because the sample size of the thesis at hand was small and not many studies have explored the transformability of collective action organizations in the agri-food system, Q offered the best chances to understand how people from different collective action organizations perceive the contribution of their own organization to a transformation of the agri-food system. In addition to the Q method, short interviews were conducted to better understand the results. The following chapter draws on general aspects regarding Q methodology. In the subsequent chapters, detailed information on how Q method was applied in this thesis can be found.

3.1. Q Methodology

Q methodology has existed for over 80 years and was first presented in the journal “Nature” in 1935 by its creator William Stephenson (Ramlo 2016). The Q method was initially used in psychology, then in political science and in many other fields in more recent decades (Barry and Proops 1999; Zabala 2014). The Q method was originally introduced as a tool for analyzing the internal spectrum of subjectivity of an individual but is now primarily used to analyze the spectrum of subjectivity in a group of people (McKeown and Thomas 2013). It analyzes how people think and shows patterns in their thinking (Webler et al. 2009). Q method has been supported and contested by numerous scholars and many have seen a recent triumph in the general acceptance of the Q method in the mixed methods community (Ramlo 2016).

Q is especially suitable for explorative studies because patterns of views and attitudes emerge from the study instead of having the researcher impose a frame of reference or assumptions (Zabala 2014). Furthermore it is a mixed or semi-qualitative methodology: on the one hand the collected data is analyzed quantitatively, on the other hand its interpretation is extensively qualitative (Ramlo 2011). More specifically, it can be classified as a methodology that fits into a “qualitative-quantitative continuum” instead of perceiving it as a dichotomy of quantitative and qualitative analysis (Ramlo 2016).

There are two central premises regarding Q methodology:

- (1) Individuals are able to express their personal point of view on a certain topic, which is called “subjectivity” (McKeown and Thomas 2013)
- (2) That subjectivity arises within self-reference, meaning individuals evaluate new impressions subjectively based on their personal predispositions and experiences (McKeown and Thomas 2013).

As described above, Q deals with problems associated to human subjectivity in an organized manner (Barry and Proops 1999), which can be understood as how people conceive and communicate their point of view about a subject (McKeown and Thomas

2013). Using a factor analysis, Q objectively groups people based on subjective data with the aim of scientifically group people in order to study their subjectivity regarding a certain topic (Brown 1980; Newman and Ramlo 2010; Stephenson 1935; Ramlo 2016).

The process of Q methodology studies is usually as follows (Hofbauer 2022; McKeown and Thomas 2013):

1. Concourse of communication
2. Q-Sample
3. Q-Grid
4. P-Set
5. Q-Sorting
6. Quantitative Analysis
7. Qualitative Analysis
8. Interpretation

The Q-sort is the process of data collection, meaning that the first four steps are conducted **prior** to data collection.

3.1.1. Concourse of communication

The concourse of communication is the flow of communicability surrounding any topic and it is within this flow that a sample of statements (Q-sample) is drawn for the conduction of a Q sort (Brown 1993). “Concourse is the very stuff of life” (Brown 1993, p. 95) and comprises every information, idea, thought etc. surrounding a specific topic (Brown 1993). For the means of the Q method the concourse of communication is empirically composed (Stephenson 1986). Q is used to reveal the inherent structure of a concourse of communication, how it influences thoughts and ideas and vice versa how it is influenced by them (Brown 1993). In the starting phase of the process of analyzing the concourse of communication, scientific literature is a suitable source of information (Watts and Stenner 2012). The most popular sources to empirically assess the concourse of communication encompass interviews, media or internet contributions (Brown 1993; Zabala 2014). Sources are not limited to words though and can also include artwork, photography and even music (Brown 1993). The concourse of communication can be seen as an equivalent of the basic population of opinions, attitudes and viewpoints surrounding a topic in reality (McKeown and Thomas 2013).

3.1.2. Q-Sample

The concourse provides the raw material for Q methodology but is by far too comprehensive (Brown 1993) since it is basically infinite in magnitude (Brown 2019). This is why, for the conduction of a Q-study, only a subset of statements is taken from the larger concourse (Brown 1993; Ramlo 2016). This subset is called “Q-sample” and its aim is to cover as many opinions, attitudes, and viewpoints of the concourse as possible (Brown 1993). Q methodology is especially suited for covering a broad range of opinions, because the selection of the Q-sample is taken from the range of all possible statements and doesn’t follow a preexisting hypothesis as can be found in other methods (Danielson 2009). It thus “generalizes its results to the universe of statements or ideas about the topic of study” (Thomas and Baas 1992; Danielson 2009).

If the Q-sample is based on design principles as described above, they are called *Structured Samples* (Hofbauer 2022). For structured samples, researchers define certain thematic areas that should be covered by the samples in any case (Watts and Stenner 2012). In *Unstructured Samples* the preceding definition of areas of interest is not as important, but it doesn’t mean that the samples are assembled without a system (Watts and

Stenner 2012). Regarding the number of statements in most studies the Q-sample comprises around 40 to 50 statements, but there is no prescribed number of statements (Ramlo 2016). It is worth noting though that the smaller the Q-sample is, the more general the statements have to be (Hofbauer 2022). The number of statements can be understood as the “sample size” compared to the more common definition of the quantitative representation of the sample size as the number of participants that takes part in a study (Ramlo 2016).

Further principles that should be taken into consideration when using Q methodology is the wording of the statements. The wording should be as natural to for the participants as possible (Hofbauer 2022). In order to assess whether the statements fulfill the premise of self-reference, interviews can be conducted after the Q-sort (Hofbauer 2022). Furthermore, McKeown and Thomas (2013) propose to only include one statement per item, because participants might find contradictions within a statement.

3.1.3. Q-Grid

In order to evaluate the statements (Q-sample) the Q-grid is used. The shape of the grid is not predefined and depends on the size of the Q-sample and on the research topic. The grid is usually bell-shaped though (Figure 3: Exemplary Q-Grid that is used for sorting the Q-Sample (Zabala 2014, p. 146)), because it can be assumed that fewer statements cause a strong engagement (Brown 1980). It thus corresponds to a normal distribution.

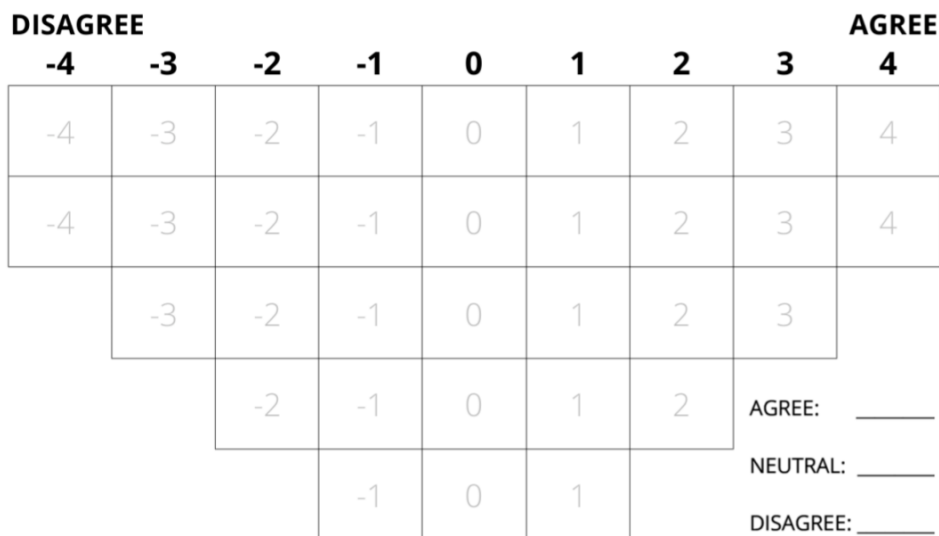


Figure 3: Exemplary Q-Grid that is used for sorting the Q-Sample (Zabala 2014, p. 146)

By applying this forced normal distribution, participants are forced to weigh statements more carefully, but it makes the sorting easier overall (Hofbauer 2022). The steepness of the grid depends on the number of statements that can possibly be associated to a certain evaluation factor. It can be adapted depending on the background of participants and how familiar they are with the topic. A greater steepness makes it easier for participants that are less familiar with a topic (Watts and Stenner 2012).

Usually, statements are being evaluated based on their *agreement* or *disagreement* and sorted into the Q-grid accordingly (McKeown and Thomas 2013; Ramlo 2016). But there are also different possible *conditions of instruction* which can be used and have an influence on the outcome of the Q-sort (McKeown and Thomas 2013).

3.1.4. P-Set

The P-set is the sample of participants that are conducting the Q-sort. The group of participants for a Q-sort doesn't need to be large or representative, but it must be diverse (Ramlo 2016; Zabala 2014). Ramlo (2016) refers to this process as "purposive sampling" as elaborated by Newman and Benz (1998). Diversity of participants is essential in order to get a wide range of opinions as possible, even if they are minority ones (Zabala 2014).

Watts and Stenner (2012) suggest that the P-Set should consist of 40-60 participants. The size of the P-Set is the same as the total amount of Q-sorts which is called *n*. It can be understood as the equivalent of the variabilities in R (Hofbauer 2022). Since those variabilities cannot be chosen randomly, the P-Set has to be chosen with care (Hofbauer 2022).

3.1.5. Q-Sort

There is a range of online and digital tools for the sorting of the statements. This section draws on the manual form of Q-sorting though, because this is how the Q-sort has also been applied in this work.

For the process of manual sorting, the participants receive the Q-grid and the statements as a deck of randomly numbered cards that each contain one statement (Brown 1993). Participants are then instructed (with the specific *conditions of instruction*) and sort the statements accordingly (Brown 1993). In most cases the *conditions of instruction* advise the participants to rank the statements in respect to their opinion from *most agree* to *most disagree* in the Q-grid (Brown 1993). While sorting, participants can freely construct a picture of their own opinion and understand each statement in their own way (Danielson 2009), because there are no categories given by the researcher. The Q-sort thus captures a snapshot of the participants viewpoint to a certain topic (Brown 1980; Newman and Ramlo 2010) and makes it objective in the sense that the viewpoint becomes visible to anyone (Brown 1972).

To simplify and structure the sorting process, it can be helpful to first let the participants read all statements (Brown 1993; McKeown and Thomas 2013). This helps to get an overview and prevents participants from reorganizing the already sorted statements. Dividing the statements roughly in three categories (agree, neutral, disagree) before actually starting can further prevent the reorganization of statements in the actual sorting process (Accastello et al. 2019; McKeown and Thomas 2013; Brown 1993). In general, Hofbauer (2022, p. 47) suggests that participants should start with the outer edges of the Q-grid (most agree and most disagree) and work their way towards the middle (neutral). Because participants should compare all items with each other, an alternating approach can be chosen in order to simplify the sorting process (McKeown and Thomas 2013).

For the subsequent analysis, a picture of the final Q-sort is taken, or it is captured in some other way, e.g. digitally (McKeown and Thomas 2013). In order to get further insights on how the participants understood the statements, or if there were ambiguities or other difficulties, a post-sorting-interview can be conducted and other personal data can be collected (Brown 1980; Watts and Stenner 2012). According to Brown (1993), the post-sorting interviews should focus mainly on the highest and the lowest as well as the "neutral" items (the items with a score of 0), because these are of most importance to the researcher. Interviews also give the participants the chance to point out gaps in content that they might have identified (Hofbauer 2022).

Getting to know how participants think of the Q-sample is essential in Q methodology because it explicitly enables participants to express their subjectivity without forcing them to adopt any categories given by the researcher (Danielson 2009). Thus, in Q it is possible for the sorter to interpret all statements in his or her own way and to make sense of them

in regard to their own viewpoint (Danielson 2009). Of course it should be mentioned that Q is not completely unbiased since a priori assumptions must be made in order to structure a meaningful Q-Sample and participants must be chosen purposefully (Danielson 2009).

3.1.6. Analytical process

Before the quantitative analysis can be conducted, the collected data has to be prepared. According to the procedure as described by Zabala (2014), data from all Q-Sorts have to be transferred to a new matrix that correlates each statement (as row) with its attributed score in the Q-Grid (as column).

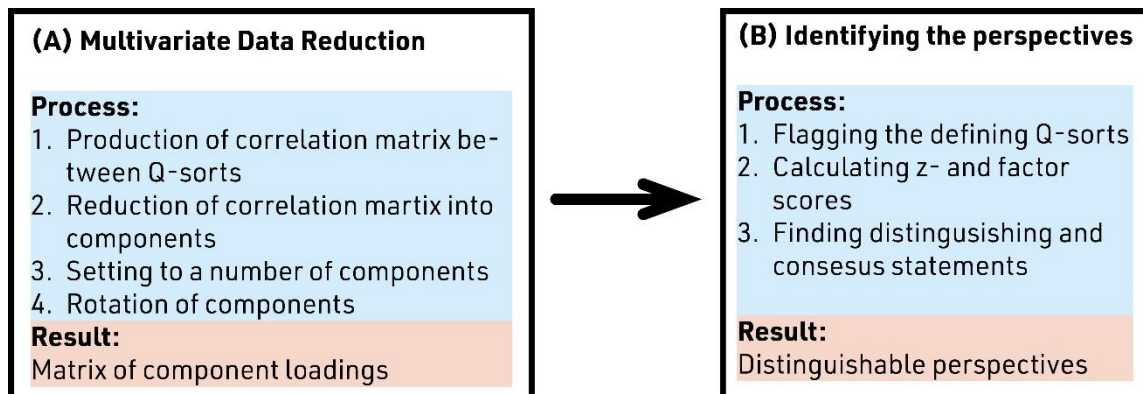


Figure 4: The two main parts of the analytical process of Q methodology as described by Zabala (2014)

(A) Multivariate Data Reduction

1. Production of correlation matrix between Q-sorts

The actual analysis has two main parts (Figure 4: The two main parts of the analytical process of Q methodology as described by Zabala (2014)): in the first part, a multivariate data reduction technique is used to clarify and simplify the structure of the data (Zabala 2014). This process is necessary because the multivariate datasets generated by the Q method exist in multidimensional spaces that can't be readily interpreted (Hofbauer 2022). Thus, the dimensions of the dataset have to be reduced in order to enable an analysis (Jolliffe 2005).

2. Reduction of correlation matrix into components

Zabala (2014) describes two techniques to reduce the dimensions of multivariate datasets, firstly the centroid factor analysis and secondly a principal component analysis (PCA). Since the results of both techniques are similar (McKeown and Thomas 2013; Watts and Stenner 2012) and PCA is already available in R, Zabala (2014) included PCA as multivariate data reduction technique in her Q method package which is applied in this thesis.

Before the actual process of multivariate data reduction is initiated, a correlation matrix between all Q-sorts is produced (Zabala 2014). PCA is then applied in order to reduce the new correlation matrix into so called components (Zabala 2014). The mathematical process of PCA is complex and described in detail in Hofbauer (2022). It is based on the principle of *Singular Value Decomposition* (SVD) of a correlation matrix (Hofbauer 2022). If represented as SVD, those properties of the matrix become explicit that are relevant for defining the main components (Hofbauer 2022). The resulting components are ranked by the total variability that they explain (Zabala 2014).

3. Choosing a meaningful number of factors

The total variability that can be explained by a single component is described by their *intrinsic value*. Depending on the intrinsic value, the analytical relevance of components differs (Watts and Stenner 2012). Because only those with a high relevance should be used, the number of components is drastically reduced. There is no prescribed number of components though, because every Q-dataset is unique and there are different ways in which the dataset can be “split” (Hofbauer 2022; Watts and Stenner 2012). Some approaches are elaborated in the following paragraphs:

One way to set to a number is the *Kaiser-Gutmann-Kriterium*, that takes into account all main components that have an intrinsic value of >1 and thus explain more variability than an output variable (Hofbauer 2022; Watts and Stenner 2012).

The visual analysis of the Scree-Plot is another way of setting to a number that is also based on the intrinsic value (Suhr 2005; Zhu and Ghodsi 2006). Since the intrinsic value of an additional component oftentimes suddenly drops at a certain point, an “elbow” can be observed (Hatzinger et al. 2013; Suhr 2005). Components that explain more variability are situated on the left side of the elbow and should be used for the final analysis (Hatzinger et al. 2013).

Another option is the *parallel analysis*. In the parallel analysis, multiple random datasets with the same dimensions as the Q-sorts are generated and the identified components compared to the actual dataset (Hofbauer 2022). The comparison is again based on the explanatory power regarding the variability that is produced by the components of the randomly generated datasets on the one hand and the actual dataset from the Q-sort on the other hand (Hofbauer 2022). Watts and Stenner (2012) suggest a 95% percentile in order to choose the number of components: only those components of the real dataset with an intrinsic value bigger than the 95% percentile of the randomly generated datasets are used.

4. Rotation of components

After deciding on a meaningful number, the components are rotated to get a clearer and simpler structure of the data (Zabala 2014). The rotation, that can be done manually (judgmental) or mathematically (analytical), results in a matrix of components loadings which presents the relation of Q-sort and component (Zabala 2014). The Q method package provided in Zabala (2014) includes options for a mathematical rotation and is applied in this thesis accordingly.

(B) Identifying the perspectives

The second part of the analysis according to Zabala (2014) consists of three iterating processes. These processes are summarized as “identifying the perspectives” in this thesis (Figure 4: The two main parts of the analytical process of Q methodology as described by Zabala (2014)). First, the Q-sorts that will define each component (or “factor”) are *flagged* (Zabala 2014). Then, the scores of the statements for each factor are calculated (*Z scores*) and prepared (Zabala 2014, 2021). Finally, the distinguishing and consensus statements are being identified (Zabala 2014).

1. Flagging the defining Q-sorts

Flagging is a process that is used to define more distinguishable perspectives (Zabala 2014). Only Q-sorts that are most representative for a factor are flagged and used for subsequent calculations (Zabala 2014). In the software package provided in Zabala (2014), automatic flagging is applied. Two mathematical criteria are relevant in the process, firstly the loading of a Q-Sort, which should be significantly high. The loading expresses the extent to which a specific Q-sort correlates with a component in comparison to the other Q-sorts (Watts and Stenner 2012). The second criteria is the square loading for a factor. It should exceed the sum of the square loadings for all other factors (Zabala 2014).

2. Calculating z- and factor scores

In order to assess the relationship between each factor and the statements, the z-scores are calculated (Zabala 2014). A z-score is determined by building the weighted average of all scores that a flagged Q-sort attributes to a certain statement (Zabala 2014). By rounding those scores towards the possible discrete scores in the grid, the factor scores are obtained (Zabala 2014). In the end, a final selection of factors is determined which represent one perspective each (Zabala 2014). A perspective can be seen as a hypothetical Q-sort that has been generated based on the factor scores (Zabala 2014).

3. Finding distinguishing and consensus statements

In order to make the different perspectives more distinguishable, distinguishing and consensus statements can be identified by the factor comparison. By comparing the z-scores of a statement that is given by two different factors it can be assessed if there is a significant difference between them (Zabala 2014). If there is a significant difference between the z-scores, it is assumed that it is a distinguishing statement (Zabala 2014). When there is no statistically significant difference between the z-scores, the statement is considered a consensus statement (Zabala 2014).

3.1.7. Interpretation

According to Zabala (2014) a perspective can be interpreted based on the reconstructed Q-sorts and the distinctiveness/salience of the associated statements. In order to distinguish between different perspectives and interpret them, Zabala (2014) proposes to take three key elements into consideration:

1. The location of statements within the grid in relation to other statements of the same perspective, especially the highest/lowest scores
2. The position of the same statement in two (or more) different perspectives
3. The distinguishing and consensus statements

Watts and Stenner (2012) also recommend not to observe statements individually based on their factor scores, but to interpret them based on their relation to each other. They also have a different understanding of the importance of distinguishing/consensus statements and emphasize the relevance of the position of statements within a perspective. They give less relevance to the comparison of the position of statements in different perspectives.

A suitable basis for the interpretation of the different components is the table of statements (including z-scores or factor scores), information on distinguishing and consensus statements and the table of factor loadings that show which Q-sorts were flagged (Zabala 2014). Based on those materials, another approach can be taken: the *crib sheet*.

The *crib sheet* is an approach developed by Simon Watts (Watts and Stenner 2012) that allows for a systematic interpretation process that takes all statements into account (Khirfan and Peck 2021). It ensures that also statements in the middle (around the score of 0) are considered, since they might hold valuable information for the interpretation process (Dryzek and Holmes 2002; Watts and Stenner 2012). In the *crib sheet* method, statements are organized depending on their ranking in relation to other statements, e.g. if they are ranked higher or lower in one perspective compared to another (Khirfan and Peck 2021). All statements are sorted in four different categories: two categories for each the highest and lowest ranked statements, and a third and fourth category for those statements that have a higher (or lower) factor score for a certain perspective compared to all other perspectives (Lundberg 2019; Watts and Stenner 2012).

For the interpretation with a *crib sheet*, the researcher puts themselves in the position of the fictional Q-sorter of a reconstructed Q-sort (which represents a certain perspective). For each statement that is sorted into the *crib sheet*, they ask themselves how its rating

came to be (Hofbauer 2022). Following this iterative process, a coherent narrative can be built that is tested by every new statement that is sorted into the crib sheet (Hofbauer 2022).

3.2. Empirical Q-Study approach for the analysis of collective action organizations

The Q method in this thesis was conducted based on the approach as elaborated above. The following sections thus describe the specific steps taken accordingly to the previous chapter.

3.2.1. Analysis of the concourse of communication regarding collective action organizations in the agri-food system

In order to design meaningful statements for the study at hand, relevant information on the perceptions of participants of collective action organizations in the agri-food system had to be collected. The goal of the first step, the analysis of the concourse of communication, is to cover a broad range of opinions and viewpoints on this topic. In order to do so, a literature review was first conducted in the study at hand (for details see chapter 3.2.1.1). Other sources for the analysis of the concourse of communication and the design of the Q-sample included the raw material of interviews of preexisting studies (Pirker 2015; Riederer 2017; Wegerbauer 2018) as well as a website and media analysis of relevant websites (kooperieren.at; foodcoops.at; solawi.life).

3.2.1.1. Literature Review

The literature review described in this chapter focused on two goals: on the one hand side it was used to gather information on key concepts and state of the art as described in chapter 2. On the other hand, it was used to conduct the Q method for this thesis and thus to analyze the concourse of communication and to design the Q-statements. For the literature review, the search engine "[Web of Science](#)" was searched for the term "**(collective action OR food coop OR CSA OR cooperatives OR urban farming) AND (consumer-producer relationship OR food system OR agri-food system) AND (alternative OR transformation OR sustainability OR resilience)**".

In addition, google scholar was searched with the terms "**transformation in the food system**"; "**transformation food system collective action**"; "**collective action initiatives food system**"; "**transformability of collective action in the food system**". The terms were specified during the literature review: "**transformability of food coops**"; "**transformability of agricultural cooperatives**"; "**transformability of CSA**".

The search results were screened by their titles and in a next step by reading the abstracts of specific papers. Only relevant literature was then analysed in detail with "MAXQDA". With a snowballing system, further relevant literature was found within the already analyzed literature. The literature analysis was conducted with the qualitative and mixed methods data analysis tool "MAXQDA" and relevant text passages regarding key concepts, state of the art, and the design of the Q method were marked and categorized with the implemented coding tool.

As a first outcome, six *areas of interest* were identified (Table 1): the motivation/goal of participants to engage in collective action organizations; the expression of collective action; economic viability; external network formation with similar organizations; external network formation with mainstream players; and internal network formation.

As outlined above, the concourse of communication is basically infinite, so that a set of statements has to be chosen for a meaningful Q-sort (Brown 1993). Watts and Stenner (2012) suggest to use between 40-60 statements and Ramlo (2016) to use 40-50. Those numbers can be used as a guideline, but since there is no predefined number of statements, a more individual assessment was necessary also in this Q-study.

Table 1: Concourse matrix with areas of interest and three levels of intensity

Areas of interest	Intensity		
	1. Low	2. Medium	3. High
1. Transformability of Motivation/Goal	1.1. No. of Statements: 3	1.2 No. of Statements: 3	1.3 No. of Statements: 3
2. Transformability of Collective Action	2.1 No. of Statements: 3	2.2 No. of Statements: 3	2.3 No. of Statements: 3
3. Economic viability	3.1 No. of Statements: 3	3.2 No. of Statements: 3	3.3 No. of Statements: 3
4. External Network formation with niche players	4.1 No. of Statements: 2	4.2 No. of Statements: 2	4.3 No. of Statements: 2
5. External Network formation with mainstream players	5.1 No. of Statements: 2	5.2 No. of Statements: 2	5.3 No. of Statements: 2
6. Internal Network formation	6.1 No. of Statements: 2	6.2 No. of Statements: 2	6.3 No. of Statements: 2
Total No. of Statements: 45			

For this, following the reasoning of Hofbauer (2022), the size of the P-set can be used as an indicator, because the number of statements shouldn't be greater than the size of the P-set (McKeown and Thomas 2013). The size of the P-set on the other hand is related to the number of expected factors (Brown 2017) based on the concourse of communication and scientific literature. Brown (2017) suggests that, as a rule of thumb, four to six participants with high factor loadings are desirable for each factor. In other words, four to six people should "define" a certain perspective.

For the study at hand, at least three factors could be expected to be found. Firstly and most importantly because three different types of organizations were included and thus three different backgrounds and possible perspectives accordingly. In addition, the preceding research supported this assumption: three different consumer types were found in Zoll et al. (2018), three aspects of consumers appreciation of agriculture were identified by Opitz et al. (2017), and three different networking mechanisms were distinguished in collective action organizations in Renting et al. (2003).

For three factors, Brown (2017) suggests to have a P-set of 30-40, to make sure that enough Q-sorts with a high loading to a certain factor are included. Assuming that at least three (to four) factors could be found in this study, this would mean 40-50 participants. Based on this number a maximum of 50 statements should be used (McKeown and Thomas 2013). In regard to the suggested 40-60 statements that are usually used (Ramlo 2016; Watts and Stenner 2012), this is a reasonable number, also with taking the feasibility of the Q-sort into account.

A concourse matrix (Table 1: Concourse matrix with areas of interest and three levels of intensity) was designed based on the six areas of interest (see above). This matrix not only helps to get an overview, but it also simplifies the process of defining the Q-samples. For each area of interest, statements of different "intensities" were formulated. There are, for example, three statements each with low, medium, and high intensity regarding the transformability of the motivation/goal of participants (fields 1.1., 1.2., and 1.3.). The

designation “XY” is used in some statements and stands for the organization or organization of the participant. This abbreviation is also included in the Q-grid (Figure 5).

In Table 2 the statements are listed with item-code, short description and the reference that it is based on. For example: Statement 1.1.1 has the item-code “st_1.1.1” and is the first of three items of the first area of interest (transformability of motivation/goal) with low intensity. St_1.1.2 and st_1.1.3 are also part of the field 1.1. in the concourse matrix above.

There are 45 statements used in the Q-sorts of this thesis which - on top of the reflections on the number of statements above - is also the result of distributing the statements evenly in the concourse matrix (Table 1: Concourse matrix with areas of interest and three levels of intensity).

Table 2: Q-Sample in English with individual item-code, short description and reference. (Original version in German can be found in Appendix A: Q-Statements (original German Version))

Item Code	Text	Short description	Reference
st_1.1.1	I want access to fresh and healthy food	Good food	Opitz et al. (2017)
St_1.1.2	I want to be independent from the global agricultural and food system	Independence	Drottberger et al. (2021)
st_1.1.3	I want to know where my food comes from	Safety	Mert-Cakal and Miele (2020)
st_1.2.1	The goal of XY is a win-win situation: on the one hand, there is business success, on the other hand, the optimal promotion of all participants	Win-Win Situation	kooperieren.at
st_1.2.2	I would like to express my contribution to sustainable development through my involvement with XY	"Sustainable development"	Zoll et al. (2018)
st_1.2.3	XY helps me reduce my impact on the environment	Reduce environmental impact	Pirker 2015Interviewmaterial
st_1.3.1	I consider my involvement with XY to be political activism	Political activism	Di Masso and Zografos (2014) ; Interviewmaterial
st_1.3.2	I would like to create/support an alternative to the existing agricultural and food system with XY	Alternative to Corporate Food Regime (CFR)	Pel et al. (2020); Interviewmaterial
st_1.3.3	I would like to fundamentally change the agricultural and food system with XY	Transformation of CFR	Pel et al. (2020)
st_2.1.1	I appreciate the regular social interaction that occurs at XY	Social exchange	Interviewmaterial
st_2.1.2	Working together at XY is fun	Working together	Zoll et al. (2018)
st_2.1.3	Many different ideas and goals exist in XY	No common identity	Basierend auf Pel et al. (2020)
st_2.2.1	By working together at XY, we have resources at our disposal that we	Resources trough collective action	kooperieren.at; Interviewmaterial

wouldn't have otherwise (e.g.,
manpower, infrastructure,
knowledge, etc.).

st_2.2.2	Collaboration at XY changes the individual mindset of many members	Knowledge transfer	Di Masso and Zografos (2014)
st_2.2.3	XY enables community self-help according to the motto: "One for all - all for one".	Community self-help	kooperieren.at
st_2.3.1	By working together at XY, we are encouraging each other	Empowerment	Zoll et al. (2021); Interviewmaterial
st_2.3.2	Through working together a "sense of togetherness" is created	Collective Identity	Pel et al. (2020)
st_2.3.3	Having common goals and ideas is important to us at XY	Common objectives	Pel et al. (2020)
st_3.1.1	Business success is at odds with the values of XY	Contradiction between profit and values	Interviewmaterial
st_3.1.2	Business success is at odds with the goals of XY	Contradiction between profit and goals	Koretskaya and Feola (2020)
st_3.1.3	Business success is not a priority at XY	Profit is not a priority	Interviewmaterial
st_3.2.1	At XY we strive for economic success, but it is not the focus	Profit is not a must	Zoll et al. (2018)
st_3.2.2	XY is imaginable as both a profit-oriented and a non-profit organization	Profit and non-profit possible	Basierend auf Zoll et al. (2018)
st_3.2.3	Economic success and the goals of XY can be reconciled	Profit and goals can be reconciled	kooperieren.at
st_3.3.1	The economic promotion of the members must be given at XY	Focus on economic promotion	kooperieren.at
st_3.3.2	Professional management creates the basis for sustainability	Profit is the basis for sustainability	kooperieren.at
st_3.3.3	Without economic success, important resources cannot be made sufficiently available (e.g. manpower)	No money, no resources	Basierend auf Interviewmaterial
st_4.1.1	Networking with similar initiatives/organizations does not play a major role for XY	Similar initiatives not prioritized	Basierend auf Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)
st_4.1.2	The importance of maintaining a network to similar initiatives is overestimated	Networking overestimated	Basierend auf Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)

st_4.2.1	XY is well networked with comparable initiatives, nothing more is needed at present	No need for another network of similar initiatives	Basierend auf Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)
st_4.2.2	Networking with similar initiatives is important, but also takes up a lot of resources	Networking needs resources	Basierend auf Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)
st_4.3.1	XY's network to similar initiatives cannot be large enough	Network to like-minded people can't be big enough	Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)
st_4.3.2	XY should network as much as possible with similar projects/organizations	Network to grow	Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)
st_5.1.1	Mainstream stakeholders such as government organizations have no place in our network	No room for mainstream players	Basierend auf Pel et al. (2020); Zoll et al. (2021)
st_5.1.2	XY and "mainstream stakeholders" (such as government organizations) do not fit together	Mainstream players don't fit together	Basierend auf Pel et al. (2020); Zoll et al. (2021)
st_5.2.1	We are open to "mainstream stakeholders" (such as government organizations), but would not actively reach out to them	No active networking with mainstream players	Basierend auf Pel et al. (2020); Zoll et al. (2021)
st_5.2.2	Mainstream stakeholders (such as government organizations) could become part of our network, but are not currently a priority	Mainstream players are not a priority	Basierend auf Pel et al. (2020); Zoll et al. (2021)
st_5.3.1	XY should definitely also network with "mainstream stakeholders" (e.g., government organizations)	Network should include mainstream-players	Pel et al. (2020); Zoll et al. (2021)
st_5.3.2	XY's network with "mainstream stakeholders" (e.g., government organizations), can't get big enough	Mainstream network should grow	Pel et al. (2020); Zoll et al. (2021)
st_6.1.1	Within XY we concentrate on the essential things, personal exchange comes rather short	Little personal exchange	Basierend auf Blättel-Mink et al. (2017); Zoll et al. (2021); Pel et al. (2020)
st_6.1.2	As long as you do your part, you can work more or less autonomously at XY	Autonomous working possible	Basierend auf Blättel-Mink et al. (2017); Zoll et al. (2021)

options for the neutral score (0). This is because the participants of this study can be seen as experts and it can be assumed that they have a rather strong opinion about the topic. The designation “XY” in the statements should be replaced with the name of the organization of the participant (as described in chapter 3.1.3 Q-Grid).

3.2.3. P-set of 16 collective action organizations in the agri-food system

For this thesis, only a set of specific types of collective action organizations was chosen in order to limit the variety and to generate meaningful data. In total, 16 collective action organizations were chosen: five CSAs from the official websites *solawi.life*, five FCs from the website *foodcoops.at*, and five agricultural cooperatives from *kooperieren.at*. This choice was also a necessary precondition for getting a deeper understanding of how the different types of organizations differ in their perspectives. This includes specifically the more alternative collective action organizations (FCs and CSAs) and the mainstream collective action organizations that are represented by the agricultural cooperatives. On the other side, it enabled a comparison of two collective action organizations (FCs and CSAs).

The organizations were chosen because they all include collective action in their organizational structure, which was a central precondition in regard to the research questions of this work. In addition, CSAs and FCs are the most frequent types of AFNs and thus the best researched (Opitz et al. 2017; Schermer 2015; Zoll et al. 2021). While Schermer (2012) found that the emergence of CSAs in Austria lacked behind the development of countries within Europe and North America, today 60 CSA organizations can be found on the website *solawi.life* and two more are in the start-up-phase. Not all of the organizations that are listed on this website are actually applying the concept of CSA though, which will be critically analyzed later in this work. Agricultural cooperatives as mainstream collective action organizations were included on the one hand side to have a comparison to the more alternative collective action organizations that have a shorter history and are less connected with the CFR. On the other hand, agricultural cooperatives also represent collective action organizations that are distinct from the CFR.

One representative of each of the 16 organizations was randomly selected and they then participated in the conduction of the Q-study and the post-sorting interviews. Six participants were female, ten participants male. All organizations are located in Austria: four in Vienna, one in Graz, six in Lower Austria, one in Tyrol, two in Vorarlberg, and two in Salzburg.

3.2.4. Conditions of instruction for the 16 collective action organizations

As described above, the conditions of instruction influence the result of the Q-sort (McKeown and Thomas 2013). For this Q-sort, the following instructions were given to all Q-sorters:

Sort the statements according to how much you **personally agree with each statement** in relation to ***your work at/support for XY***.

It should be mentioned that all Q-sorts were conducted under personal supervision (physically or digitally) and the instructions were given and explained in detail. In addition to the conditions of instruction, further advice was given to simplify the matter of sorting the statements. It was recommended to first read all statements and roughly sort the statements in the three categories (agree, neutral, disagree). While sorting, it was recommended to start at the edges and work towards the middle.

3.2.5. Post-sorting interviews

Because all Q-sorts were supervised, it was possible to conduct post-sorting interviews afterwards without great effort. To do so, a semi structured interview guideline was prepared in advance:

1. Where there any difficulties or ambiguities in the sorting process?
2. Please elaborate the statements ranked highest and lowest as well as the “neutral” statements (it helps me with interpreting the sorting)
3. Which role does the “collective” play for you at XY?
4. How do you think that XY does contribute to a transformation of the agri-food system?

Ten interviews were recorded and notes and direct quotes taken afterwards. In all other cases, insights from the interviews were directly noted while or shortly after the interview in form of a memory protocol. All insights were used for the interpretation of the different viewpoints after the quantitative analysis of the Q method. While the Q-sorts enabled insights in the different viewpoints of the participants indirectly, the post-sorting interviews helped to correctly understand the sortings and also opened up the space for new aspects that weren't included in the Q-sample. The interviews took between 7 and 15 minutes on average.

3.2.6. Data collection and analysis

As described above, all Q-sorts were supervised personally in a physical or digital meeting. All Q-sorts were conducted with a printed Q-grid and printed and cut out Q-statements. For digital meetings, the material was prepared and sent by mail prior to the meeting. In all cases, a picture was taken right after the Q-sort was conducted. The sorting was then transferred to an excel sheet for the data analysis (see chapter 3.1.6 for the analytic steps taken). All details regarding the analysis with R, including both the code and the results from the statistical analysis, can be found in Appendix C: Statistical Analysis (R-Code and results).

3.2.7. Choosing the number of factors

For further interpretation purposes, a meaningful number of components, here referred to as *factors*, had to be chosen. As described above, there are multiple ways to derive this number and usually there is more than one possible number of factors that can be used. This was also the case in this work. Four different criteria were considered in order to decide on a number of factors:

- 1) Kaiser Guttman-Criterion

The Kaiser Guttman-Criterion suggest using factors with an Eigenvalue > 1 , because they have a greater explanatory power than the initial variables and thus simplify the dataset. As can be seen in Figure 6, the “elbow” shows that four factors have a greater Eigenvalue than 1. This indicates that **up to four factors** could be used following this criterium.

Generic Scree Plot

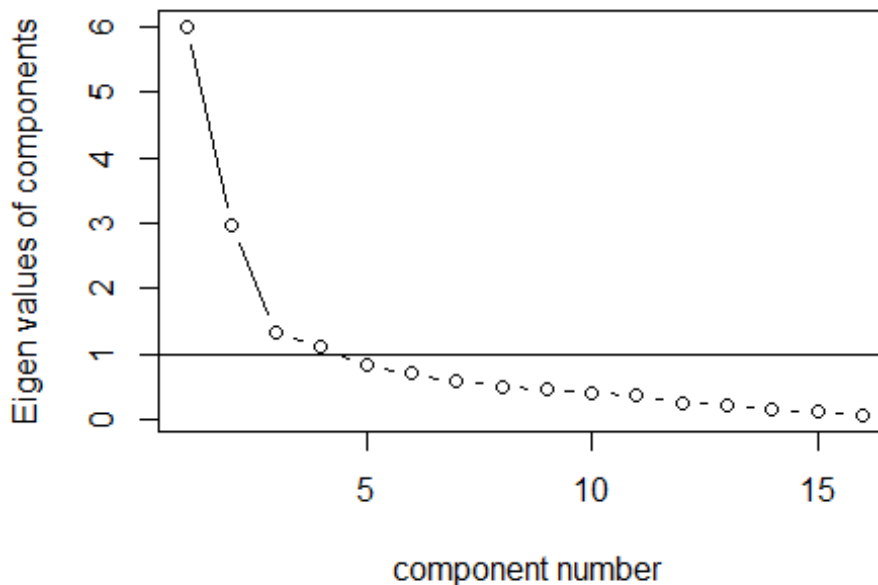


Figure 6: Generic Scree Plot indicating the Eigenvalues of different factors (components). Each factor is visualized by a circle.

2) Explained variance of factors

Here the focus is on the additional variance that can be explained by each additional factor. Similar to the Kaiser Guttman-Criterion, it is based on how much explanatory power each factor has. The Generic Scree Plot (Figure 6) indicates **up to three factors** since a flattening of the curve can be observed around the third factor.

3) Number of Q-sorts describing each factor

Another “rule of thumb” suggests using only factors that are described by at least two Q-sorts. This increases the chances for a meaningful interpretation of the factors as *viewpoints*. In the data at hand, this would be the case for **two, three or four factors** (see Table 3).

4) Variomax Rotation

By means of the automatic process “Variomax” integrated in the R-package “qmethod” used in this thesis (Zabala 2014), the number of Q-sorts that significantly load on the different factors can be increased. Since all Q-sorts are loading significantly when using two or four factors but only 15 Q-sorts are loading significantly when using 3 factors, this criterion suggests using **two or four factors**.

5) Interpretability of factors

Finally, it should be possible to interpret all factors in a meaningful way. Based on the literature review, but also on the post-sorting interviews, the factors should account for the definition of a viewpoint that can be reasonably distinguished from other viewpoints. This works for **up to four factors**.

Based on all the different criteria described above, **four factors were chosen** for the interpretation of the data. This interpretation and the definition of the different viewpoints is given in the following.

4. Results

The following chapters present the findings of the Q method, that is the statistical details of the analysis as well as the viewpoints, on the one hand side, and further insights from the post-sorting interviews on the other hand side.

4.1. Viewpoints

Table 3: Factor loadings of the different Q-Sorts. Bold numbers indicate that the Q-Sort loads significantly on and thus defines this factor ($p < 0.5$).

Q-Sort	Factors			
	F1	F2	F3	F4
CSA1	0.72	-0.08	0.35	0.37
CSA2	0.88	0.19	0.12	-0.01
CSA5	0.75	0.0021	0.2	0.13
FC1	0.55	0.14	0.53	0.03
FC3	0.63	0.34	0.18	0.43
FC6	0.71	-0.3	0.26	0.24
CO1	0.03	0.78	-0.08	0.23
CO2	-0.12	0.79	0.29	0.06
CO3	0.09	0.83	-0.03	-0.17
CO5	0.13	0.65	-0.03	0.32
FC2	0.51	0.02	0.58	0.11
CSA3	0.15	0.16	0.78	0.39
FC5	0.3	-0.09	0.81	-0.08
CSA4	0.35	0.2	0.36	0.67
FC4	0.44	-0.05	-0.12	0.71
CO4	-0.09	0.5	0.20	0.71

As can be seen in Table 3, only Q-sorts from participants that are engaged in CSAs and FCs (CSA1, 2 and 5 and FC1, 3 and 6), but not in agricultural cooperatives load significantly on factor 1 and thus define it. Factor 2 is based on Q-sorts only from participants engaged in agricultural cooperatives (CO1, 2, 3 and 5). Factor 3 is based on one Q-sort from a participant engaged in a CSA and two engaged in FCs (CSA3 and FC2 and 5). Factor 4 is the only factor that is derived based on Q-sorts of all types of organizations (CSA4, FC4 and CO4).

Each of these factors that were derived from the statistical analysis constitutes a hypothetical Q-sort and represent a distinct viewpoint. Just as the real participants have ranked each statement and given it a score, all statements of a factor have scores, the factor scores. These hypothetical factor scores can be seen in Table 4. Some of the factor scores are more important than others in defining the factors. The most insightful ones are the *distinguishing or consensus* statements. As elaborated elsewhere, for the distinguishing statements a statistically significant difference can be found between the different factor scores of a statement (see also chapter 3.1.6). Especially the distinguishing statements help identifying and interpreting the different factors. There are some statements that distinguish *only one factor* from the others (only one factor score is bold in Table 4) and some that are distinguishing *two factors* from the remaining two factors (both factor scores are set in bold).

In addition to the distinguishing and consensus statements, crib sheets as described in chapter 3.1.7 were used for the interpretation. They include also the statements rated most positive (+5) and negative (-5) as well as all statements that were rated stronger or lower in a factor compared to the others. The crib sheets used for the interpretation can be found in Appendix B: Crib Sheets. By interpreting the different factors, they are not a statistical factor anymore but can be understood as a viewpoint. Each viewpoint is a hypothetical Q-sort and are partly defined by some of the real participants of the Q-sort. Turning from the statistical analysis to the qualitative interpretation of the results, *factors* will thus be referred to as *viewpoints* from here on. According to Table 4, codes of distinguishing statements and their scores will be indicated in bold also in the text. Furthermore, quotes from the post-sorting interviews are used to illustrate the four viewpoints.

Table 4: Factor scores of all statements for four factors

Statements ¹		Factor Scores ²			
Item Code	Short description	F1	F2	F3	F4
st_1.1.1	Good food	5	4	5	4
St_1.1.2	Independence	1	1	4	5
st_1.1.3	<i>Safety</i>	4	4	4	5
st_1.2.1	Win-Win Situation	-4	3	-4	3
st_1.2.2	"Sustainable development"	3	1	4	4
st_1.2.3	Reduce environmental impact	2	0	2	1
st_1.3.1	Political activism	0	-5	0	2
st_1.3.2	Alternative to CFR	3	-4	5	4
st_1.3.3	Transformation of CFR	1	-1	3	3
st_2.1.1	Social exchange	3	2	2	1
st_2.1.2	Working together	4	3	3	0
st_2.1.3	No common identity	1	-1	-3	1
st_2.2.1	Resources trough collective action	5	5	-2	2
st_2.2.2	<i>Knowledge transfer</i>	0	0	1	0
st_2.2.3	Community self-help	1	2	1	-1
st_2.3.1	Empowerment	2	1	3	0
st_2.3.2	Collective Identity	2	1	3	0
st_2.3.3	<i>Common objectives</i>	2	2	1	1
st_3.1.1	Contradiction between profit and values	0	-5	-2	-4
st_3.1.2	Contradiction between profit and goals	0	-3	1	-2
st_3.1.3	Profit is not a priority	3	-4	0	-4
st_3.2.1	Profit is not a must	-5	0	0	-3
st_3.2.2	Profit and non-profit possible	-2	1	-2	-5
st_3.2.3	Profit and goals can be reconciled	-4	3	-1	0
st_3.3.1	Focus on economic promotion	-3	5	-4	3
st_3.3.2	Profit is the basis for sustainability	-1	4	1	-1
st_3.3.3	No money, no resources	-4	3	-3	-2
st_4.1.1	Similar initiatives not prioritized	-2	-2	-1	-4
st_4.1.2	Networking overestimated	-3	-2	0	-5
st_4.2.1	No need for network with similar initiatives	-1	0	-1	-3
st_4.2.2	Networking needs resources	-1	-3	2	1
st_4.3.1	Need for network with similar initiatives	-1	-1	-3	2
st_4.3.2	Network to grow	0	-2	-2	3
st_5.1.1	No room for mainstream players	-2	-3	2	-3
st_5.1.2	<i>Mainstream players don't fit together</i>	-2	-4	-2	-3
st_5.2.1	No active networking with mainstream players	-1	-2	-3	-2
st_5.2.2	Mainstream players are not a priority	0	0	0	-2
st_5.3.1	Network should include mainstream-players	-2	-2	-4	0
st_5.3.2	Mainstream network should grow	-3	-1	-5	-1
st_6.1.1	Little personal exchange	-5	-1	-1	-1
st_6.1.2	Autonomous working possible	2	0	-5	0
st_6.2.1	Internal networking is optional	-3	-3	0	-2
st_6.2.2	<i>Exchange important for long-term existence</i>	4	2	2	2
st_6.3.1	New social connections	1	0	0	2
st_6.3.2	Mutual understanding and solidarity	0	2	-1	1

¹ Consensus Statements ($p < .05$) are given in italics.

² Distinguishing Statements ($p < .05$) are marked in bold.

4.1.1. Viewpoint 1: Idealists

Participants of viewpoint 1 strongly emphasize the purpose of their actions and rely on their own ideals. Collective action is part of this idealistic viewpoint and a necessary mode in order to enable an inclusive sustainability transformation. Idealists are convinced that the current agri-food system is dysfunctional, and collective action organizations represent suitable means of becoming active and to induce change on a wider scale, as highlighted with these quotes from the post-sorting interview:

"The food system is broken, it's really broken. And if we were to turn that around, we'd have to turn a lot of things around with it, so that seems like a very good basis to me." (CSA1)

"That was actually what prompted us to become active. [...] Actually, I have the opinion that you can very well do something if you simply become active, just get involved [...] and invest some time." (FC1, referring to st_1.2.2)

"I think for most members, the motivations to actively participate are the same, and that they are mostly rooted in not being happy with how things are right now in the food system." (FC6)

Their main goal is to get access to fresh and healthy food (st_1.1.1 [+5]), but for them, this goal has a very political and idealistic dimension, as this quote from a CSA member highlights:

"Access to fresh and healthy food is also a political statement for me [...]. I want there to be access to fresh and healthy food for us here, but also elsewhere in the world. And in that sense it's also a highly political statement." (CSA5)

Their criticism of CFR also shows in a strong deemphasis of the necessity of economic success. According to them, business success is not a priority (st_3.1.3 [+3]), and it is even seen as being at odds with the values (st_3.1.1 [0]) and incompatible with the organization's goals (st_3.2.3 [-4]). Economic success, especially "business success" was an ambivalent topic. They "strive for economic success, but it is not the focus" (st_3.2.1 [-5]). This ambivalence has a couple of reasons, some participants found it simply not applicable because their organization is based on volunteering. Besides this feedback, the statements regarding economic- or profit-orientation did resonate with all participants. Just as the distinguishing statements implied, economic success, in whatever form, was seen as contradicting or undermining the idea of their collective action organizations:

"This should definitely not be the priority, no way, then it doesn't work. Business success shouldn't be the primary focus." (FC1)

"Because I think it's not just about monetary success, it's also a lot about interpersonal" (FC3)

"Food Coops in our country are based on the fact that people participate and become active because of their intrinsic drivers. [...] This is based on completely different motivators" than money (CSA6)

For the "idealists", collective action organizations aren't about the money, they are about working together and to inspire more people:

"Some people have asked if you could just pay more membership fee. But that's not what we want. Everybody should contribute to the success of this. And because networking in the organization is just part of what Food Coops are about." (FC1)

Furthermore, idealists don't think that economic success is needed to provide important resources (st_3.3.3 [-4]). They instead rely on collective action to provide the necessary resources (st_2.2.1 [+5]). In fact, they reframe the question of what "important" or

“necessary” resources are. They ask: what resources can be provided if we work together?” and adapt their plans and expectations accordingly:

"The resources that can be provided are not those that are based on economic success. Let's put it this way." (FC6)

*"We do have an economic success in the sense that our undertakings now succeed very well. But only based on this restriction that we say: only if it's easy and everyone says how much they trust themselves. Then it actually succeeds." (CSA5, referring to **st_3.3.3**)*

Resources have, as a consequence, different attributes than in other organizational forms:

"[...] It's also a collective, co-productive happening and those are the resources that come out of that. They have very different values than those that arise in a more capitalistic coming together of people where profit is the goal." (FC6)

Because of the necessity for working together exists while there is also a great diversity of goals and ideas within the organizations (**st_2.1.3 [+1]**), idealists need to use a lot of resources on strengthening interpersonal relations by internal networking (**st_6.1.1 [-5]**) and low-hierarchical forms of participation and decision making:

"In my opinion, such civil society initiatives can only work if you have a common vision. That's not always easy, but you have to keep at it and keep up communication processes. For example, we have an annual retreat and a monthly plenum and other events to align this a bit and also make it accessible to all the different actors within the Food Coop." (FC6)

"We also have this [...] social, communicative component, which is actually a challenging thing. That people with different ideas come together and you have to learn how to tolerate that other people have different ideas. [...] We are basically practicing social negotiation processes here" (CSA5)

Another facet to internal networking processes is a social component. Not a significant but a comparable high rated statement is **st_2.1.2 [+4]** “Working together at XY is fun”. This rating is also reflected in the interviews:

"One big point was the social aspect, that you get more contacts. That has a psychological part on the one hand, and a practical part on the other." (FC3)

"Something like a food co-op [...] supports that. If you have a common interest [...] it helps meeting people, you wouldn't meet otherwise [...]. And that also helps developing friendships and a social community [...]" (FC6)

Finally, idealists emphasize the importance of external networking to similar organizations (**st_4.3.2 [0]**) because it is perceived as “empowering”:

"Our doing doesn't need it, but I don't want to become hermetic. [...] And in part, it's a tremendous support to know that there is a big number of others who are [...] all pulling in that same direction." (CSA1)

Other participants feared the additional resources needed for networking activities and made the case for a “good balance” between networking and “being actually active” (FC1).

External networking with “mainstream actors” is seen more ambivalent: some feedback included confusion about the examples given in the statements (e.g. “government organizations”) and argued that “retail” would have been a more relevant example. Some participants stated they feared cooptation by retail and “greenwashing”, others were interested but didn’t see actual relevance. Overall, idealists perceived internal networking to be much more important than external networking due to self-empowerment reasons.

4.1.2. Viewpoint 2: Pragmatists

Interviewees representing Viewpoint 2 want to create a stable alternative to the CFR. It is characterized by a strong emphasis of the necessity of economic success while collective action is seen in a more or less pragmatic way. All participants of this viewpoint 2 are engaged in agricultural cooperatives (see Table 3). Pragmatists mainly aim at economically supporting their members (**st_3.3.1 [+5]**) because this is the main goal of cooperatives and stated as such in their statutes (Interviews CO1, CO5, CO2):

"This is even written in our foundations, our statutes. We exist to promote the economic well-being of our farmers. So that they are better off economically, that's why our organization exists." (CO1)

This focus on the wellbeing of their members obviously makes it easy to conceive their organization also as profit-oriented business (**st_3.2.2 [+1]**). Accordingly, they don't perceive any contradiction between business success and the values of their organization (**st_3.1.1 [-5]**) because business success is in line with the well-being of their farmers. On the contrary, they even see professional management as a foundation for sustainability (**st_3.3.2 [+4]**). In the interviews it becomes clear, that for pragmatists, economic success represents one of the three pillars of sustainability. They emphasize economic viability not only because it is the main purpose of their organizations, but they also want to ensure long-term existence and associated sustainability effects of their organizations:

"It is a part of the economic system and [...] even if it is quite a different one, it is still an economic sector. And if it doesn't sustain itself, and we don't exist tomorrow, [...] then again nothing moved forward." (CO1)

"Is not in contradiction. After all, the goal must be that you can derive value from production and also earn something from it in the end [...]." (CO5, referring to st_3.1.1 [-5])

Besides, pragmatists don't aim to transform the agri-food system (**st_1.3.3 [-1]**) or to create or support an alternative to it (**st_1.3.2 [-4]**). In a sense, pragmatists are "down to earth" and find it presumptuous to aim at changing the agri-food system with a single organization:

"Fundamental, well that would probably be presumptuous. That that this is a fundamental change with a cooperative of our size because we're active only on local or regional level" (CO1)

"We are not do-gooders and say we need to create an alternative to the agricultural and food system, I wouldn't see it that way. I think that would also be presumptuous." (CO5)

In another sense, they are explicitly being diplomatic in regard to their activities as a "market player" and don't want their activities to be understood as being politically motivated (**st_1.3.1 [-5]**) (interviews CO1, CO3 and CO5):

"We are a market actor, a player in the free market. Agriculture is very closely correlated with politics through the whole funding system [...], sometimes more than we would like. (CO1)

"In terms of party politics, I wouldn't put us in any activism corner, anyway, so I've ranked that as neutral with a question mark behind it, what is meant by political activism." (CO5)

Pragmatists see their engagement mainly as sustainable business model and only to a lesser part as a way of contributing to a sustainability transformation (**st_1.2.2 [+1]**). They do want to induce change, but in an adaptive way and on a low level, e.g. by promoting regional production or specific products (CO3).

Pragmatists take collective action for granted, because the organization of cooperatives is naturally based on collective action. Statements referring to collective action thus play a subordinated role and there is no related distinguishing statement. Even though it is not emphasized in the Q-sorts, collective action does play a central role for them. It is mainly seen beneficial in terms of access to resources (st_2.2.1 [+5]) (interviews CO1, CO3, CO5) but also in order to improve the negotiation position:

"Actually having access to resources, to markets, but also just being a different order of magnitude [here: size of organization regarding economic scale] in the whole price spiral where you [...] can easily be played off against each other" (CO1)

"Thus, one is a different order of magnitude [here: size of organization regarding economic scale], which is at least being perceived. [...] Of course, it is easier to say that we as an association have a problem [...] than if the individual farmer goes to the Chamber of Agriculture. [...] So from there, the bundling is a significant advantage, always has been." (CO5)

Regarding networking, participants of viewpoint 2 also have a pragmatic attitude. They don't think of networking with similar organizations as being too resource intensive (st_4.2.2 [-3]), but also don't emphasize any opinions regarding networking activities whatsoever. Participants state that because they have a professional organization, internal networking isn't a priority:

"But I don't necessarily have to network with everyone personally [...], that's what we have our network of functionaries for, so to speak. That those who are out on the ground then also bring the information in to us." (CO5)

The same participant also elaborated that an external network with mainstream players wouldn't be a problem but is just not necessary.

4.1.3. Viewpoint 3: Internal networker

Participants of viewpoint 3 include members engaged in FCs and a CSA (Table 3). Internal networkers want to induce change, but without cooperating with actors of the CFR. They want to rely only on their own organizations and want to act independently of the CFR. They perceive it to be the reason for the current agri-food crisis and don't want to depend on the structures that generated the current problems. Accordingly, they strongly emphasize that mainstream stakeholder can't be part of their network (st_5.1.1 [+2]) and simultaneously deemphasize the importance of actively networking with them (st_5.3.2 [-5]):

"We want to make progress; we want to change and move something. And that didn't come out of the system, which means we have to do it ourselves. And that's more important than becoming dependent on something that only works with the support of structures that are already there and actually stand for something different." (FC2)

"In fact, it was the city council approached us and asked [...] and actively reached out to us." (FC5)

Business success doesn't have priority in their organization (st_3.1.3 [0]) but they also don't think that it contradicts their values (st_3.1.1 [-2]). Participants critically approached the topic of economic viability and distinguished between a "black zero" and an actual business profit and also how potential profits are used:

"Economic success to keep the thing going. Now that doesn't have to be zero, you can build reserves, of course, but it can still be public good-oriented and not profit-oriented." (FC2)

"We don't make a profit, we don't have a big reserve either, and it still kind of works." (FC5)

"We're a nonprofit, so it is clear for us, that there has to be a zero under the total at the end of the year. And that's important, that it works out." (CSA3)

Because they want to be independent of the CFR, internal networking and mutual empowerment is essential to them since they represent their most important internal resources. Accordingly, the meaning of collective action is mainly seen in its mutual empowerment (**st_2.3.1 [+3]**) and working autonomously is not an option (**st_6.1.2 [-5]**) because members have to rely on each other:

"The other thing is that this feeling of togetherness, that you meet people who have some kind of values and goals, that this is incredibly important for motivating people." (FC2)

"Because we don't see ourselves as classic retail, where you go and order your food and take it away, it should be a social community. [...] It's a community that makes decisions collectively." (FC5)

"We are a non-profit association, and helping out is a big thing, that everyone [...] actively contributes." (CSA3)

In addition, they explicitly don't think of collective action as a mean for providing resources they wouldn't have otherwise (**st_2.2.1 [-2]**). Because their viewpoint is strongly based on the exclusion of external mainstream players, they have to follow a different strategy: instead of relying on external resources that potentially make them dependent from the CFR, they adapt their goals and realize only what is possible with the resources they have at hand:

"We have set ourselves the goal that we only want to do as much as what is there at the moment. [...] We look very cautiously, what is possible with our means and that is what we want." (CSA3)

"Everybody has found their position where they can bring in their talents and I think that's brought a lot of motivation." (FC5)

They want to have access to fresh and healthy food (**st_1.1.1 [+5]**) and aim to support an alternative to CFR (**st_1.3.2 [+5]**), at least for themselves.

4.1.4. Viewpoint 4: "Bubble" Networker (Networking with similar organizations)

Viewpoint 4 is based on Q-sorts from all three types of collective action organizations (Table 3). "Bubble Networkers" want to contribute to a transformation of the agri-food system by supporting similar organizations. They perceive their own strength in their experience which they are also willing to share. They believe that only through collaboration and mutual support between collective action organizations their full transformative potential can be set free. They accordingly emphasize the importance of building networks with similar organizations (**st_4.3.2 [+3]**, **st_4.3.1 [+2]**, **st_4.1.2 [-5]**). They understand networking as helping each other out, transferring knowledge (CO4), and bringing people with different backgrounds together (FC4). Networking is seen as an essential part in order to induce change and support the full network (CO4 and FC1).

"Bubble Networkers" perceive the different organizations to be united in one aspect, that is their desire for independence of the global agri-food system (**st_1.1.2 [+5]**) due to their discontent with the current agri-food system (FC4). Because they want to independently induce change, they rely on collective action as an important way to provide the necessary resources (**st_2.2.1 [+2]**). Because of this perception of collective action as a mandatory tool to realize their goals, fun plays a much less important role to them (**st_2.1.2 [0]**). In order to develop and to support other organizations successfully, they professionalize to a certain degree and try to create common goals and values and a personal relation of the members to their organization:

"We try to ensure that the employees also share our ideas and ideals. We have drawn up a mission statement that we always like to bring out because it can sometimes be forgotten in the heat of the process. It was a very important process that we developed this mission statement, which is now set in stone, so to speak, and should now have everyone's support." (CSA4)

"We are kind of special, because [...] we even were the last cooperative in (our federal state) for a while and are also the oldest. And our farmers thus are involved with a certain pride." (CO4)

Another part of this professionalization that enables the long-term existence and free resources for the support of other organizations is their desire to be economically viable and to economically promote their members (**st_3.3.1 [+3]**):

*"It just goes together with the basic structure, the core of the cooperative system." (CO4 referring to **st_3.3.1**)*

"We want to have economic success, but it should be for the group." (CSA4)

4.1.5. Additional interview results on the collective action organization transformability and Q Methodology

As mentioned in chapter 3.2.5 (Post-sorting interviews), there were several questions posed to the participants after conducting the Q-sort. They provided valuable insights on how the statements and the method in general was perceived. Some of those insights were already included in the different viewpoints, but some more will be elaborated in the following paragraphs. In this chapter, first the insights regarding the perception of the participants of the Q-study on the contribution of their collective action organization to an agri-food system transformation will be presented. Then, information on the methodological approach, that is, difficulties and ambiguities associated with the Q-sort, will follow.

One finding derived from the post-sorting interviews is the diversity within each type of organization. The lowest diversity was found in cooperatives, the highest within CSAs. While all five CSAs that participated in this thesis were listed on solawi.life, the organizations ranged from community garden-like organizations (e.g. CSA1), that do collective farming only for their own needs, to commercial CSAs (CSA3 and CSA4). These CSAs also have paid workforces and sell their vegetables to participants and basically regular consumers. Also within the six FCs there are quite different approaches taken, as FC1 elaborated. Some FCs clearly rejected the idea of having paid workforces (e.g. FC5) while others would take it into consideration if the FC would fail otherwise and was currently thinking of an allowance for members that are engaged in the FC with more than 5 hours per month (FC1). Regarding volunteer work, FC1 also mentioned an interesting aspect:

"If you're doing this voluntarily in your spare time, then [...] the bottom line is you're dumping the business of those who are doing it full-time."

In general, the diversity not only of organizations but also of opinions, values etc. is seen positively by the participants. Especially in CSAs and FCs, this diversity is seen as a potentially transformative attribute, because these context-specific approaches make certain collective processes necessary. Multiple participants reported that they are having regular coordination meetings such as a regular plenum and retreats with consensus-based decision-making processes (e.g. FC6, CSA5). Some organizations even use sociocratic methods in order to make everybody's voice heard (FC6). These processes are valued for practicing decision-making processes that are also relevant in the society outside of the organization, to build up tolerance for other opinions, and to transfer knowledge (CSA3, CSA5).

On the other hand, processes dealing with internal diversity are seen as activities that need a lot of attention and resources (FC6, CSA5). FC4 also criticized their FC for being made up by too many people that are only interested in their own goals and lacking common goals, which makes collective action difficult. They see the risk of forcing members to contribute without them actually wanting to. Overall, diversity within the organization is seen less positively in cooperatives because it is “obstructive” for successful collaboration (CO2).

Another finding derived from the interviews was that the personal background and motivation played a central role in FCs and CSAs. Some participants elaborated the foundation history of their organization, that was often related to the desire to actively change something (FC1) or from previous political activism (CSA1). collective action organizations are furthermore seen as a way to change something without having to renounce something and even having fun:

"In these debates about a good life for nature, there is a lot of talk about renunciation. But for me it's not really like that, for me it's also connected with a joy." (CSA5)

In regard to the last question, how organizations can contribute to a transformation of the agri-food system, the following aspects were named:

- New forms of decision making and working together (e.g. FC6, CSA5)
- Sustainable agricultural practices (e.g. CSA1, CSA2)
- Knowledge transfer (e.g. CSA3)
- Change of personal attitude and practices (e.g. CSA5)
- Creation of balance between different socio-economic areas (CO1)
- Network building, new relations between consumers and producers, mutual understanding (e.g. CO1, FC1, CSA3)
- Fairness for all members (e.g. CO5)
- Empowerment of members (e.g. FC6)

5. Discussion

Drawing on the results presented in the previous chapter, that is, the different viewpoints and insights from the interviews, this chapter aims at answering the research questions:

How do members of collective action organizations in the agri-food system perceive the contribution of their organizations to an agri-food system transformation? How can collective action contribute to this transformation in their view?

5.1. Self-perception of collective action organizations

In regard to how members of collective action organizations perceive the contribution of their organization to an agri-food transformation in Austria, it can be said that no viewpoint presumes to have a central role. Nevertheless, different attitudes towards this question can be found in the viewpoints:

In viewpoint 1, idealists see the participation in or the founding of an organization in a wider context. Intrinsic motivation and discontent with the current agri-food system are central to the participants of this viewpoint. Their activities oftentimes have a political or socially critical component, and even though they don't expect their organization to transform the agri-food system in the short-term, they believe in the possibility of a profound transformation and see themselves as part of a bigger movement that might contribute to this transformation in the long-term. The history of the agri-food system, as presented in chapter 2.1.2, shows that profound transformations are possible. In this regard it is also worth drawing on the understanding on transformations as presented in chapter 2.1.1. Complex adaptive systems, such as the agri-food system, tend to remain in their stability domain in the conservation phase most of the time (or K-phase in the adaptive cycle) (Moore and Westley 2011). Accordingly, a transformation of the CFR will occur only at the end of its conservation phase when it is pushed close to a threshold. These thresholds are coming closer due to internal and external developments as described in the beginning of this thesis, but still represent a long-term development.

Idealists see their contribution to this long-term transformation in changing social interactions: they use collective action for providing resources and reframe the question of "what is necessary" to "what is possible"; they are organized non-hierarchically and put an emphasis on regular social interactions that result in learning processes, which they see as essential aspects in transformation processes. Learning processes are seen as an important part of social innovation (Pel et al. 2020) and new forms of knowledge and learning processes are seen as an important driver of a transformation towards more sustainable food systems (Drottberger et al. 2021). From this perspective, the findings regarding viewpoint 1 are in line with the literature presented in the beginning of this work. What is more surprising is the emphasis of social learning processes in this viewpoint. Most studies on CSAs and FCs found learning processes to be associated with technical or ecological aspects (Opitz et al. 2017) and in social innovation literature, the creation of new social relations are seen as an essential aspect (Pel et al. 2020). Viewpoint 1 on the other hand focuses mainly on the learning processes *within* the collective action organization and aims at strengthening social competencies of their members. Apparently, these social skills are seen as a more important aspect when it comes to transforming the agri-food system than technical or ecological aspects. Another interesting aspect of viewpoint 1 is the process of reframing: this process can be seen as a more radical form of social innovation (Biggs et al. 2010), because it constitutes a new way of seeing a problem.

In viewpoint 3, internal networkers represent a similar attitude, with the difference that they emphasize their endeavor to support an alternative to the current agri-food system more

strongly and reject the cooperation with mainstream stakeholders. They rely even more on collective action and internal networking and aim for mutual empowerment in order to motivate people and keep their movement going, because this is one of their main resources. Their rejection of building bridges to mainstream actors and their focus on their own organizations appears to be based on the desire to be independent from the structures that created the current crisis. One aspect that might be associated to this desire is to avoid the risk of cooptation (see also chapter 2.2.1.3), that can occur when principles of collective action organizations are partly integrated in the CFR (Forssell and Lankoski 2015; Marsden et al. 2018). Another side of this risk is the erosion of sustainability goals that can be associated with the alignment of innovations with the dominating logic of the incumbent system (Smith and Raven 2012). By rejecting networking with mainstream stakeholders, this risk is minimized on the cost of pursuing transformative strategies such as fit and conform.

In viewpoint 4, Bubble Networkers” try to support transformation processes by building networks with similar organizations. They want to contribute to a sustainability transformation by being open to actors with similar goals and support them with resources such as knowledge. Transforming existing social interrelations or creating new interrelations between actors with different backgrounds (e.g. producers and consumers) is essential to them. This viewpoint is in line with findings of other studies that ascribe collective action organizations to create strong relationships and social embeddedness (Forssell and Lankoski 2015; Pel et al. 2020). The creation of new interpersonal relations is also seen as important driver of a reconnection process of agriculture and society (Zoll et al. 2021) and thus as a driver of transformation.

In viewpoint 2, pragmatists have a different perspective on their role in transformation processes than the three viewpoints described above. They don't openly aim at transforming the agri-food system and are focused mainly on their sustainable business model that might induce changes on the long-term, but this is not mandatory. This approach can be seen as adaptive process that induces more incremental change (Arthur 2009; Moore and Westley 2011). Instead of radically challenging the logic of the CFR, their approach is built on sustainable economic growth, or at least a secure financial situation that enables a long-term existence of their organizations. They rely on more institutionalized and more professional structures that enable them to be more competitive and, in some cases, induce long-term changes in the current agri-food system. As elaborated in chapter 2.1.1, this adaptive process can contribute to the same kind of transformation, but to a different degree (Moore and Westley 2011). Since they are more active in the market, they don't want to be perceived as radical or political and rely on a more subtle and traditional form of collective action, that includes paid workforce.

5.2. Contribution of collective action organizations to transformative processes

The following chapter will further draw on the viewpoints and interviews, but also on other findings related to the Q method that will be interpreted specifically in regard to the research questions:

How do members of collective action organizations in the agri-food system perceive the contribution of their organizations to an agri-food system transformation? How can collective action contribute to this transformation in their view?

By assessing the ranking of the statements of the different “areas of interest” as presented in the concourse matrix (Table 1: Concourse matrix with areas of interest and three levels of intensity) and putting all findings into the theoretical context, insights on the transformability of the organizations studied in this thesis can be derived.

5.2.1. Collective action organizations as niches

As described in chapter 2.1.1.2, niches are important drivers for innovation and thus an important precondition for transformation (Drottberger et al. 2021; Ermann et al. 2018). Collective action organizations, in form of individual organizations but also in their sum, play an important role as protective spaces (Smith and Raven 2012). They are not protected by legislation or in economic terms, as it is the case with protective spaces that are purposefully created by governments or other institutions (Smith and Raven 2012). Collective action organizations create their own protected spaces in a different dimension: they represent protective spaces in a social dimension, because they protect their members from influences of the wider societal realm and thus offer the possibility to try out and experiment with new forms of societal organization.

Especially in viewpoint 1 (idealists) and 3 (internal networker) the importance of internal networking and social relations within the organization is emphasized. The interviews supported these findings: participants of FCs and CSAs described their communication and organization as non-hierarchical, consensus based, and even sociocratic (CSA5, FC1, FC6). These organizational forms are not commonly encountered in dominant administrative or economic structures and are unfamiliar for many new participants. Practicing this kind of communication and mutual interaction can be seen as a form of empowerment (Pel et al. 2020): participants learn how to make decisions collectively and also to take on responsibility for these decisions. They get to know the feeling of being heard and experience that they can achieve something together. This might enable them to create their own ideas and solutions to problems that they perceive, also outside of their organization. And they can also use the tools to implement these new ideas, e.g. with the different communication formats that they got to know in their organization.

Another approach that is only conceivable in a protective space in a social dimension is that needs are adapted to the (limiting) resources, as multiple members stated. This represents a sufficiency approach that can be seen as contradictory to the approach pursued in the CFR. Here, environmental or social resources are oftentimes exploited (González de Molina et al. 2020) in order to maintain high levels of production and this results in social, environmental or health issues (see also chapter 2.1.3). On the other hand, some collective action organizations also seem to be at risk of self-exploitation (Brunori et al. 2012; Galt 2013; Jarosz 2008). Both, applying a sufficiency approach and new forms of collective interactions wouldn't be possible outside these protective spaces, because here a corresponding attitude and mutual acceptance exist. Mutual empowerment, as represented in viewpoint 3 (internal networkers), can also arise from sharing a protective space of people with similar interests (FC2).

In the case of commercial CSAs, another aspect comes into play. The two commercial CSAs that participated in this thesis (CSA3 and CSA4) are not part of VP1 (in which the other CSAs are located) but are part of viewpoints 3 and 4. They both aim to break even financially (which distinguish them from VP1), emphasize networking internally (VP3) and with similar organizations (VP4), and rely on collective action as source for mutual empowerment (VP3) and other resources (VP4). Commercial CSAs follow the logic of solidarity: consumers usually pay in advance and receive their food products throughout the year (Butler Flora and Bregendahl 2012). Again, the principle of solidarity and the sharing of risks associated with the production of food can only be applied in a protective space that prioritizes certain values/ideals over profitability or predictability. This also represents a hybridization strategy as will be elaborated below. In addition, the products of CSAs don't have to comply with the requirements that usually exist on the market, and the production doesn't have to be competitive in terms of quantity or quality. New sustainable forms of production could also be created and applied in wider scales at a later point in time, for example when critical thresholds of the CFR are reached and it is forced to change (Moore and Westley 2011; Rotmans et al. 2016). In the subsequent phase of instability and

reorganization, the diversity and heterogeneity of a system essentially influences the potential outcomes of a transformation. Collective action organizations create this diversity and heterogeneity by using different modes of agricultural production and distribution, but also by using different and new organizational forms. In this way, they are essentially contributing to the potential outcome of an agri-food system transformation.

Participants of viewpoint 2, which is based only on Q-sorts of participants engaged in cooperatives, have a similar protective space-character. They have a much more hierarchical, professional, and institutionalized structure (CO1, CO5) and thus don't represent a protective space to the same degree as FCs and CSAs. They do implement the principle of solidarity and equality though, by considering every member equally, no matter their size:

"The advantage of our organization, and also of the framework we have behind it, is that we take everyone along as a member, so to speak. It doesn't matter whether they grow one hectare or 100, there's no difference. There's one price, there's one framework, and it's the same for everybody, whether they are big or small." (CO5)

Small-scale farms integrated into an agricultural cooperative thus have much better negotiation position and can attain better conditions for their products as if they were acting on their own. This protection against unequal power relations, e.g. in regard to big retail organizations, represents a protective space in economic terms for them.

As mentioned above, some organizations experiment with sustainable forms of production and distribution. Many participants stated that applying ecologically sustainable practices is part of what makes them transformative (CSA1, CSA2), and some of the cooperatives are certified organic. These findings are in line with the literature, that found collective action organizations to have higher production standards and increased environmental sustainability (Forsell and Lankoski 2015; Kneafsey et al. 2013; Willis 2012). Drawing on this aspect, collective action organizations can also be seen as protective spaces that allow for the implementation of sustainable practices or even create new modes of agricultural production or food distribution.

Collective action organizations thus represent niches and protective spaces not only in regard to economic, but also societal pressures (Drottberger et al. 2021; Smith and Raven 2012). They enable the development of innovative ideas regarding economic, social, and environmental aspects (Drottberger et al. 2021; Smith and Raven 2012). Drawing on the different transformation strategies as elaborated in chapter 2.1.1.2, the subsequent chapters will deal with the question how these innovative ideas influence the incumbent system outside the collective action organizations and how transformation strategies can be pursued.

5.2.2. Findings regarding transformation strategies

In chapter 2.1.1.2, three different transformation strategies have been introduced: Fit and conform/scaling out, stretch and transform/scaling up and hybridization. The next chapters will deal with findings of this study regarding these transformation strategies as well as in regard to hurdles of transformation processes, that potentially result in the down-scaling of organizations.

The fit and conform strategy (Drottberger et al. 2021; Smith and Raven 2012) is, above all, emphasized by viewpoint 2 (pragmatists). Economic promotion of their members has highest priority and since they see themselves as "players on the market" (CO1), they aim at being competitive with other, more established actors on the market. Instead of striving for change in the current agri-food system, pragmatists adapt to the prevailing selection environment, as it is typically the case in a fit and conform strategy (Smith and Raven 2012). As already mentioned, all Q-sorts that viewpoint 2 is based on are from participants that

are engaged in cooperatives. Cooperatives have adapted to the prevailing selection pressures and became competitive by using the advantages of collective action: sharing resources such as infrastructure (CO1) but mainly having a better negotiation position with mainstream players such as retail. In this regard, the long history of cooperatives should also be considered. Because their organizational form already exists for a much longer time than other collective action organizations, they are simply in a different situation. In the past 100 years, the context in which cooperatives are embedded has changed drastically, yet the core of their concept remains unchanged (Münkner 2012). This also indicates that the concept of cooperatives mainly promotes stability (Münkner 2012). This stability can be seen as a result of the adaptation of cooperatives to the agri-food system, compensating deficiencies and thus increasing the resilience (Moore and Westley 2011) of the agri-food system. By compensating certain deficiencies, the agri-food system becomes more tolerant towards disturbances (Moore and Westley 2011). Cooperatives are also in a different phase in terms of development than collective action organizations. One consequence is, that they rely much more on mainstream and institutionalized structures and on what has persisted in the past decades.

Another facet of the long history of cooperatives is the circumstance that the foundation of cooperatives was oftentimes related to crises, or in regard to the provision of a certain resource or service that wouldn't be provided otherwise (Münkner 2012; Schröder and Walk 2014). In a sense, cooperatives have always acted as an "alternative" to the system in one sense or the other. The same is true for the more alternative CSAs and FCs, that are oftentimes founded in opposition to the CFR and in order to provide more sustainably produced food (Carlson and Bitsch 2018). VP2 sheds new light on the purpose of cooperatives today. Since the cooperatives included in this thesis don't really provide a certain product or service, that couldn't be provided by the CFR (e.g. milk, cheese, infrastructure) the main goal of their foundation can be found in simply ensuring the farm viability of their members, which would maybe not be possible due to the current selection pressures in the CFR. Small-scale (organic) farming, farming on the countryside, and realistic negotiation with mainstream players of the CFR would simply not be (economically) feasible, if the members wouldn't team up.

Pragmatists have found their permanent "niche" in which they can ensure their long-term existence. They have adapted to the CFR by taking on a business model that fits into the economic system while maintaining a collective approach that benefits all members. From this perspective it becomes clear that VP2 pursues a fit and conform strategy (Smith and Raven 2012): they adapted to the agri-food system and at the same time extended their scope beyond their initial niche. By conforming to the standards, such as the organic certification that some organizations that participated in this thesis have, they are able to sell their products in mainstream retail of the CFR. This can be seen in CO4, where new cooperations with mainstream stakeholders such as the REWE Group (CO4) occur and regional products are offered. At the same time they maintain their collective action character and their inherent structures (Münkner 2012). These cooperative structures result in very similar attributes that are understood as "innovative" in other collective action organizations: short supply chains and "localness" (Forssell and Lankoski 2015), solidarity (Blätzel-Mink et al. 2017), increased economic, social, and, in the case of organic cooperatives, environmental sustainability (Kneafsey et al. 2013), and creation of trust and farmer empowerment (Sacchi 2019). In a sense, cooperatives are transformative in holding on to cooperative structures that were introduced as social innovation many decades ago to address past crises. This implies the question whether agricultural cooperatives are fit to address the upcoming ecological and environmental challenges (Intergovernmental Panel on Climate Change 2018). Because agricultural cooperatives are aiming at long-term stability and long-term maintenance of farm viability of their members (kooperieren.at; Münkner 2012), it is for example conceivable that they will integrate more sustainability factors, such as the condition of soils and water and the biodiversity, into their understanding of farm viability.

Cooperatives can be said to have successfully pursued a scaling-out strategy (Moore and Westley 2011), because their business model has spread in the last century (Münkner 2012). Another question is if their “fit and conform” approach, as described in the previous paragraph, resulted in a reduction of their transformative potential or in a disempowerment of their core values, a development that can occur when pursuing a fit and conform strategy (Smith and Raven 2012). In this regard, the findings of this thesis derived from the Q method and the interviews show that they don’t want to be seen as political or opposing the CFR. This implies that to some degree, their fit in and conform approach reduced their originally transformative character and now mainly aim at peacefully coexisting with the CFR.

Stretch and transform and scaling up strategies (Moore and Westley 2011; Smith and Raven 2012) can be found to some degree in VP1, 3 and 4. These strategies aim at changing the selective environment in order to make an innovation easier to implement in an incumbent system (Smith and Raven 2012), here the CFR. All three viewpoints emphasize the change that occurs *inside* their organization. They rely on changing social interactions, values, and attitudes of their members to then transcend those attributes slowly out of their niche. The three viewpoints still follow different approaches:

VP1 (idealists) seems to follow a more individual approach than VP3 and 4. Idealists strongly rely on intrinsic drivers and more strongly emphasize a personal discontent and political motivation behind their actions (CSA1, CSA5). They change the perspective of their members by promoting sufficiency approaches and create open spaces for societal learning processes which enable their members to deal with conflicts outside their organizations differently. They hope that this knowledge and their principles, such as solidarity and mutual tolerance, slowly diffuse into the wider society, thus paving the way of a transformation by generating acceptance for and interest in their kind of activities.

VP4 (“Bubble Networker”) goes a step further and actively supports and networks with similar organizations. They thus not only support individual change in their own organization and *hope* that other organizations will follow, but they also actively contribute to a movement on a wider scale and thus increase the chance of actually increase the popularity of their endeavor.

VP3 (internal networker) more strongly rely on the collective action and empowerment within their organization. By creating a feeling of togetherness they aim at strengthening their movement and the motivation and conviction of their members in this way. Mutual empowerment is a central aspect of their engagement and can play an important role in decision processes outside of collective action organizations (Smith and Raven 2012). Of course, a precondition would be the willingness to cooperate with external actors, which does not appear to be the case in VP3. One participant gives a valuable insight in this regard though and puts things into perspective:

“On the other hand, these are very important areas that are important to integrate. After all, the big success is when this becomes mainstream. [...] When the demand exists, when there is enough best-practice, then the mainstream sort of goes with it.” (FC2, referring to st_5.1.1)

The demand the participant is referring to can also be put into the theoretical context of transformations: when certain thresholds of the CFR are reached, the demand for alternative solutions, as presented by collective action organizations, will increase (Moore and Westley 2011; Rotmans et al. 2016). The participant obviously considers a stretch and transform or scaling up strategy (Moore and Westley 2011; Smith and Raven 2012) and aims at making their collective action organization mainstream by offering best practices, increasing the demand and acceptance for their activities and/or products. Furthermore, the participant stated that mainstream actors “are very important” while simultaneously opposing networking with them. They elaborate:

"But when we talk about a transformation now, that's a movement that's going somewhere. [...] At this stage, I don't see it as driving or relevant, not yet so relevant." (FC2)

In their view, because their movement is not considered relevant yet, the cooperation with mainstream actors is not a sensible strategy to be pursued at the moment, but will be at a later point in time, when the negotiation position is better, and their ideas are more popular.

On the other hand, VP1 (idealists) and VP3 (internal networker) seem to also contradict the stretch and transform and scaling up strategies. VP1 seems to be incompatible with the current economic selection pressures since they reject to prioritize or even include economic aspects in their work. In addition, their flexibility in terms of "doing only what is possible" probably requires a certain change in the CFR first. In VP3, "Internal networkers" are focused on internal networking and aren't open for external networking, especially with actors of the CFR. This makes the necessary exchange with relevant stakeholders/institutions difficult and contradicts a stretch and transform or scaling up strategy.

In FCs and CSAs, a scaling out process did occur in the past, which can be seen in the increasing number of organizations (see above). In regard to the viewpoints, this approach seems to be promoted mostly by VP4 ("bubble" networkers), where there is a stronger emphasis on networking with similar organizations. Willingness to support other organizations is an important attribute in order to further increase the number of similar organizations.

As already outlined in the previous chapter, participants of VP2 (pragmatists) rather pursue a fit and conform strategy. As they are active actors on the market, they do not want to be seen as opposing the dominant structures, but to be compatible with the system, thus ensuring their economic survival. They can be seen as partly following a scaling up approach though, because they have their inherent ideals that are different to the widespread neoliberal mindset of the CFR, which emphasizes growth strategies and relies on rentability. Thus, participants of VP2 still aim at changing the CFR, but in a very different way than VP1, 3 and 4. A participant explains:

"I'm not quite sure if actionism is always best. We'd rather create higher obligations at the diplomatic level, and then perhaps they'll last longer or be more enduring than a short-term flare-up. That it sometimes takes for us to even get there, to find a level of conversation or discussion where we can make progress." (CO1)

More radical approaches are seen to pave the way for other, more diplomatic approaches that in turn are more substantial and can sustain a long-lasting change.

Hybridization is probably the most common strategy of all collective action organizations. While representing a protective space in different ways (see also above), they are open for everyone to participate and actively engage. No collective action organization can be seen as fully detached from the outside world and crosscutting activities are part of most organizations. In regard to hybridization, VP2 is limited to some degree though, because agricultural cooperatives are situated in a different realm that is not as accessible by the public as the other VPs and their associated organizations, which are mainly FCs and CSAs. The public can purchase the products of agricultural cooperatives and thus support their businesses, but the associated principles and the organizational form are not easily accessible for the public because members have to be involved in agricultural businesses in some way or the other. For businesses, adopting cooperative approaches is also a challenge.

FCs and CSAs on the other hand are, in comparison to agricultural cooperatives, more easily accessible and can be experienced by everyone that wants to. Especially commercial CSAs can be seen to pursue a hybridization strategy by selling their products to consumers outside of their organization (Hausknot et al. 2018): with their products they are also promoting their values/ideals and make them easily accessible. People that buy their

products without actively participating support their organization and are in solidarity with the producers on the one side. On the other side, these people have a very low hurdle to become active and to get to know the organization and their structure better. Since there are no preconditions for participation and the procurement of agricultural products is relevant to everybody, it is much more likely that more people become active in those types of collective action organizations. Of course, not everybody is equally interested in participating, due to socio-economic reasons, including potentially higher costs, time effort, and social boundaries that constitute a barrier for people with different societal backgrounds. This may result in social exclusion and predominantly white, privileged middle class participants (Goodman 2004; Guthman 2008; Renting et al. 2012).

5.2.3. Findings on collective action

This chapter specifically aims at answering the last research question:

How can collective action contribute to this transformation in their view?

Collective action plays a central role in all organizations analyzed in this work. It is less present in VP2 (pragmatists), most likely because in this more mainstream viewpoint, collective action is seen as a given. In VP2, collective action is primarily seen as a way to provide necessary resources and to improve the negotiation position. Due to the strong economic focus, collective action is taking place mainly on a paid basis, which partly contradicts the definition given by Meinzen-Dick et al. (2004), that differentiates between collective action on a volunteer basis on the one side and hired labor on the other. Nevertheless, attributes of collective action can clearly be seen in cooperatives: they represent groups of people with shared interests and this interest is pursued by their collective work. Their work on the other hand is based on solidarity and low hierarchies. In addition, other types of collective action organizations (e.g. CSA 3 and 4) also partly rely on hired labor, which puts things into perspective.

In VP1, collective action is also an important factor for the provision of resources, but since they mainly focus on what is possible, it plays a subordinated role. Instead, collective action is seen as an end in itself. It is the only way of letting people make important experiences *themselves*, to let them choose, how to produce or purchase food. In one interview, the participant points this out and simultaneously criticizes the traditional model of cooperatives:

"This right to have a say: we want to know what we eat, we decide [...], these things should stay, otherwise we are very quickly at these cooperatives that have existed in the past [...] where there is then a group of people who then decide something like that." (FC1)

Besides, this participation and contribution is usually mandatory. Multiple participants emphasized that nobody could just buy one's way out (e.g. FC1). Collective action is thus seen as mandatory and as a mean to change individuals' viewpoints and skills (e.g. solving conflicts).

In VP3 (internal networker), an additional factor comes into play: collective action is emphasized as a mean to generate mutual empowerment. Collectively deciding what to eat, where to buy, and enabling participants to choose whether they purchase their food in mainstream retail is, as one participant puts it, "liberating":

"Many feel it's a liberation from the big chain stores, from the usual shopping, because for once they have options. They can choose for themselves, [...] can bring in their own values." (FC2)

In addition to this empowerment for consumers, producers also profit of this collective action:

"First of all, the vegetable suppliers who really respond to us [...] and can plan for it. [...] And what's more, without intermediaries, the farmers really do get one hundred percent of the price they need for their products." (FC5, explaining what makes them different to conventional retail)

Finally, for VP4 ("bubble" networker), collective action is also related to other organizations. In this sense, mutual empowerment occurs also *between* organizations. Knowledge transfer and the formation of new social interrelations are central functions of collective action.

As expected, and actually predestined by the choice of collective action organizations, collective action does play a central role in all types of organizations. Still, collective action is applied with very different intentions and with different foci: from influencing individual behavior to providing resources and mutual empowerment within and between organizations. Besides the different purposes, it can be expected that the actual implementation of collective action results, to varying degrees, in similar outcomes in all types of organizations (e.g. collective action in cooperatives also results in a certain mutual empowerment).

5.3. Limitations of this thesis

This chapter discusses observed problems and potential weaknesses associated to the methodological approach of this thesis as well as clarifying its limitations to avoid misunderstandings.

Most importantly it should once more be noted that the different VPs are fictional perspectives and represent *hypothetical* Q-sorts. Participants that took part in this study overall have conducted much more diverse individual Q-sorts. As can be seen in chapter 5.3.1, the Q method in itself is prone to errors in some cases, especially because it opens up the possibility for subjective interpretations. To mitigate this potential bias, all Q-sorts were included in the different viewpoints and findings were triangulated with the data from the post-sorting interviews and discussed in comparison to the literature.

Another limitation of this thesis is the rather general understanding of transformation, because no transformation can be thought to result in a certain development. Of course, people (and participants of this study) oftentimes have a clear goal, a vision, an idea etc. which are pursued with their actions. It was not the goal of this thesis whatsoever, to analyze these goals and describe *which* transformation participants imagine. A variety of studies has been conducted on those goals and motives of collective action organization participants, some being more "transformative", some being more personal (Zoll et al. 2018; Pel et al. 2020; Zoll et al. 2021; Koretskaya and Feola 2020; Forssell and Lankoski 2015). Some of these findings have been integrated in this thesis though and have been used to design the concourse of communication (Table 1: Concourse matrix with areas of interest and three levels of intensity) and the statements (Table 2). By using Q method, the subjective viewpoints of members of collective action organizations could be grouped and separated in a traceable manner though (Watts and Stenner 2012).

Also, analyzing how collective action organizations in the food system can actually impact the CFR and its associated structures, institutions and/or the environment can hardly be realized, especially in a single master thesis. The methodological approach necessary would have to include economic, ecological and/or sociological indicators. The data basis would have to encompass and consider a vast number of activities, not only of collective action organizations but also those institutions that can be assigned to the currently dominating agri-food system. And still the analysis would hardly be feasible, since a variety of disruptive factors including the broad economic development, political measures and natural variability would blur the results of such a comprehensive research topic.

Thus, studies that focus on the real (transformative) impact of collective action organizations are usually limited to specific organizations and a limited area (in geographical and/or legislative terms). The most commonly used methodological frameworks for doing so is Elinor Ostroms “General framework for Analyzing Sustainability of Social -Ecological Systems” (Ostrom 2009). It identifies 10 relevant subsystem variables that affect the likelihood of self-organization in efforts to achieve a sustainable social-ecological system. The framework has been applied, reviewed and adapted in numerous studies in the past decade (Acosta et al. 2018; Bauwens et al. 2016; Cox et al. 2010). The framework also would have been the first choice would the aim of this study have been indeed the analysis of singular organizations and their concrete (transformative) impact.

5.3.1. Interview reflections on Q Method

Economic viability and the associated statements were most important in all Q-sorts and were also relevant for the definition of the different viewpoints. On the one hand-side, the topic of economic success seemed to be polarizing and it helped to distinguish the different viewpoints, on the other hand many participants had difficulties dealing with the statements properly. This was mainly due to two reasons: the wording was too indifferent in some statements, resulting in confusion and misunderstandings. Especially the differentiation between “business success” and “economic success” was hard to grasp for almost all participants. It was actually helpful to elaborate the perceived differences in the post-sorting interviews though, but this indifferent wording isn’t advisable if post-sorting interviews and personal supervision can’t be provided.

The other problem regarding the interviews was the diversity of organizations that participated: (agricultural) cooperatives are a business model after all and must strive for economic viability. FCs and CSAs on the other hand are hybrid forms in the sense that some have paid workers, and some don’t. Ultimately though, they don’t rely on economic viability as much as cooperatives. Some statements thus were “too obvious”, in the sense that participants engaged in cooperatives had to agree strongly with them. Some statements could be rephrased before using them again and could emphasize less obvious aspects of economic viability, e.g. if collective action is/would be influenced by a more economic orientation.

Almost all participants also stated that they would have wanted to agree to more statements than was possible, i.e. that due to the forced distribution they had to rank “agree-statements” neutrally. Some statements were interpreted very differently than intended, thus turning statements of the category “high” in “low” and so on. The most prominent example of different interpretations was st_3.2.2 “XY is imaginable as both a profit-oriented and a non-profit organization”. In VP4, the two participants FC4 and CSA4 could not imagine their organization to be *profit-oriented* while participant CO4 couldn’t imagine it to be *non-profit*. This profoundly changes the meaning of the statement, which is why this distinguishing statement of VP4 was not included in the interpretation of the VP. All other distinguishing statements were strong enough to allow for not including it, but it would have gone undiscovered if not for the post-sorting interview. There is no way to avoid this phenomenon though since the Q method thrives on being unbiased and open to interpretation. It proved very beneficial though to provide information before the sorting process (see conditions of instructions in chapter 3.2.4) and specially to conduct post-sorting interviews.

It should be emphasized again that statements should only contain one statement and should be as short and clear as possible. Even though this information was available when designing the statements, the Q-sample still contains ambiguous statements that become clear only in the aftermath. One example is st_4.2.2 “Networking with similar organizations is important, but also takes up a lot of resources” which can be interpreted in regard to the

first part “networking with similar organizations is or is not important” or to the second part “it does or does not take up a lot of resources”. Another challenge arose from statements including negations, while they are not ambiguous, they are still difficult to sort into the Q-grid.

As already mentioned, statements referring to economic aspects were helpful in distinguishing the different VPs because they polarized participants. Another polarizing set of statements referred to “political activism”. Thus, choosing polarizing and strong statements is recommendable for the design of further Q-samples.

6. Summary and Conclusions

The study at hand generated new knowledge on how members of collective action organizations see the contribution of their organization to an agri-food system transformation. It was also conducted to shed further light on the research area of collective action organizations in the agri-food system that lacks comprehensive studies (Blättel-Mink et al. 2017) and studies on key issues, e.g. on the viewpoints of members of collective action organizations on their position and values against the CFR (Mert-Cakal and Miele 2020). Collective action organizations deserve more attention, especially regarding the sustainability challenges that the agri-food system is facing today. AFNs and cooperatives were included in this thesis due to their collective action character and all organizations intend to collectively tackle common problems accordingly. In contrast to cooperatives, AFN members openly criticize the CFR and unsustainable practices, the quality of food, social injustices, and many more aspects related to the CFR. They follow a collective action approach that contradicts the logic of the CFR and propose a fundamentally different approach to increase food sovereignty and generate social and environmental innovations.

Yet, AFNs are a diverse phenomenon, and even the focus on CSAs, FCs, and agricultural cooperatives included a wide range of organizations. Q methodology and extensive post-sorting interviews proved to be an effective combination of tools to analyse the viewpoints that exist among the different organizations. It explicitly showed the difference between the agricultural cooperatives that represent mainstream collective action organizations and the more alternative collective action organizations, that is AFNs. The main difference can be seen in their intentions, but also the structures and how they use collective action differs.

In all organizations studied in this work, the discontent with the CFR was a central motivation to participate in and even establish new organizations. While agricultural cooperatives are more focused on socio-economic aspects of farm viability, CSAs and FCs are more oriented towards ecological goals. While no member of any type of organization presumed to play a central role in a transformation process, the contradictions with the CFR were much more present in the statements of the CSAs and FCs members. The very core of their organizations seemed to oppose the logic and the structures that can be found in the CFR. Their interest in empowering, enabling, and motivating their members is a key concern and collective action is purposefully applied to reach this goal. Being a part of and learning from those organizations is seen as increasing social skills of individuals, including their capacities for mutual tolerance and the handling of social conflicts.

The rejection of certain aspects of the CFR by some CSAs and FCs, such as generating economic surpluses, paired with a refusal of networking with “mainstream players” seems to make a pursue of fit and conform or scaling up strategies impossible. What’s more, a strong ambiguity of this topic become apparent: in CSA and FCs, an underlying conflict became visible: they truly want to embody and realize a different logic and values as the CFR but they are also situated in the same institutional, social, and economic context. To some degree, their opposition even defines them and opposing the logic of CFR is at the core of many CSAs and FCs. Being situated in a context that promotes economic growth based on financial surpluses creates an ideological challenge for them, because they do not want to favour an economic orientation over their sustainability goals. This phenomenon is common especially in fit and conform strategies, which makes this approach even more unlikely for them.

A stretch and transform approach on the other hand seems to be much more targeted by CSAs and FCs. They were interested in being a part of a bigger movement after paving the way for a transformation by first making their own values and practices more accepted in a wider socio-economic context. Hybridization appeared to be another strategy on this way, including more people and producers in their network. Scaling out processes also occur in

these AFNs, as can be seen in the increasing numbers of CSAs and FCs in the past decades (see above).

Cooperatives in this study appeared to be less interested in directly opposing the CFR or in promoting an alternative as such. Their main concern was the farm viability of their members, which is understandable since cooperatives are made up of smaller or larger businesses. A long tradition resulted in more institutionalized and more professional structures that improves their competitiveness and their function as a market player. Using a fit and conform strategy, their organizational form secures the existence of agricultural businesses that couldn't be sustained otherwise in face of the currently existing economic pressures. By maintaining these regional structures and by promoting principles such as solidarity and low hierarchies, they contribute to an alternative way of doing business and agriculture, nonetheless.

The way food is produced and distributed concerns everybody. This study generated new insights on important features of collective action organizations that can contribute to a transformation of the agri-food system. While their scale is small in the face of the big players of the global CFR, this study showed how valuable even small-scale organizations are for individuals and how empowering the participation can be. The interviewees appreciate the experimentation with alternatives for food production and distribution, for the organization of societal processes, and what it feels like to take on responsibility and make decisions for oneself and a community.

The use of Q method generated new knowledge and built a solid base for further studies on the perception of members on the role of their collective action organizations in a transformation process of the agri-food system. Future research might focus on deepening the understanding of how differences in perceptions might impact the transformative potential of collective action organizations or how the efforts of individual organizations can be joined to create a more effective contribution to an agri-food system transformation.

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List of abbreviations

AFN = Alternative Food Network

CFR = Corporate Food Regime

CSA = Community Supported Agriculture

FC = Food Coops

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Appendix A: Q-Statements (original German Version)

Item Code	Text	Short description	Reference
st_1.1.1	Ich möchte Zugang zu frischen und gesunden Lebensmitteln	Gutes Essen	Opitz et al. (2017)
St_1.1.2	Ich möchte unabhängig vom globalen Agrar- und Ernährungssystem sein	Unabhängigkeit	Drottberger et al. (2021)
st_1.1.3	Ich möchte wissen, wo meine Lebensmittel herkommen	Sicherheit	Mert-Cakal and Miele (2020)
st_1.2.1	Ziel von XY ist auf der einen Seite betriebswirtschaftlicher Erfolg, auf der anderen Seite die optimale Förderung aller Beteiligten	Win-Win Situation	kooperieren.at
st_1.2.2	Ich möchte durch mein Engagement bei XY meinen Beitrag zu einer nachhaltigen Entwicklung ausdrücken	„Nachhaltige Entwicklung“	Zoll et al. (2018)
st_1.2.3	XY hilft mir dabei, meinen Impact auf die Umwelt zu verringern	Eigenen Impact verringern	Pirker 2015 Interviewmaterial
st_1.3.1	Ich betrachte mein Engagement bei XY als politischen Aktivismus	Politischer Aktivismus	Di Masso and Zografos (2014) ; Interviewmaterial
st_1.3.2	Ich möchte mit XY eine Alternative zum bestehenden Agrar- und Ernährungssystem schaffen/unterstützen	Alternative zu CFR	Pel et al. (2020); Interviewmaterial
st_1.3.3	Ich möchte mit XY das Agrar- Ernährungssystem grundlegend verändern	Transformation von CFR	Pel et al. (2020)
st_2.1.1	Ich schätze den regelmäßigen sozialen Austausch, der sich bei XY ergibt	Sozialer Austausch	Interviewmaterial
st_2.1.2	Das gemeinsame Arbeiten bei XY macht mir Spaß	Gemeinsames Arbeiten	Zoll et al. (2018)

st_2.1.3	Bei XY gibt es viele verschiedene Vorstellungen und Ziele	Keine gemeinsame Identität	Basierend auf Pel et al. (2020)
st_2.2.1	Durch die Zusammenarbeit bei XY verfügen wir über Ressourcen, die wir sonst nicht hätten (z.B. Arbeitskraft, Infrastruktur, Wissen etc.)	Ressourcen durch CA	kooperieren.at; Interviewmaterial
st_2.2.2	Durch die Zusammenarbeit bei XY ändert sich die individuelle Einstellung vieler Mitglieder	Wissenstransfer	Di Masso and Zografos (2014)
st_2.2.3	XY ermöglicht die gemeinschaftliche Selbsthilfe frei nach dem Motto: „Einer für Alle – Alle für Einen“	Gemeinschaftliche Selbsthilfe	kooperieren.at
st_2.3.1	Durch die Zusammenarbeit bei XY bestärken wir uns gegenseitig	Empowerment	Zoll et al. (2021); Interviewmaterial
st_2.3.2	Durch die gemeinsame Arbeit entsteht ein „Wir-Gefühl“	Collective Identity	Pel et al. (2020)
st_2.3.3	Gemeinsame Ziele und Vorstellungen zu haben, ist uns bei XY wichtig	Gemeinsame Ziele	Pel et al. (2020)
st_3.1.1	Betriebswirtschaftlicher Erfolg steht im Widerspruch zu den Werten von XY	Widerspruch von Profit und Werten	Interviewmaterial
st_3.1.2	Betriebswirtschaftlicher Erfolg steht im Widerspruch zu den Zielen von XY	Widerspruch von Profit und Zielen	Koretskaya and Feola (2020)
st_3.1.3	Betriebswirtschaftlicher Erfolg hat bei XY keine Priorität	Profit hat keine Priorität	Interviewmaterial
st_3.2.1	Der wirtschaftliche Erfolg steht bei XY nicht im Mittelpunkt, wird aber angestrebt	Profit ist kein Muss	Zoll et al. (2018)
st_3.2.2	XY ist sowohl als profit-orientiertes als auch als Non-Profit Organisation vorstellbar	Profit und Non-Profit möglich	Basierend auf Zoll et al. (2018)
st_3.2.3	Wirtschaftlicher Erfolg und die Ziele von XY lassen sich vereinbaren	Profit und Ziele lassen sich vereinbaren	kooperieren.at

st_3.3.1	Die wirtschaftliche Förderung der Mitglieder muss bei XY gegeben sein	Wirtschaftliche Förderung im Vordergrund	kooperieren.at
st_3.3.2	Professionelles Wirtschaften schafft die Grundlage für Nachhaltigkeit	Profit ist die Grundlage für Nachhaltigkeit	kooperieren.at
st_3.3.3	Ohne wirtschaftlichen Erfolg können wichtige Ressourcen nicht ausreichend zur Verfügung gestellt werden (z.B. Arbeitskraft)	Ohne Geld keine Ressourcen	Basierend auf Interviewmaterial
st_4.1.1	Das „Netzwerken“ mit ähnlichen Initiativen/Organisationen spielt für XY keine große Rolle	Ähnliche Initiativen priorisiert	Basierend auf Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)
st_4.1.2	Die Wichtigkeit der „Netzwerk-Pflege“ zu ähnlichen Initiativen wird überschätzt	Netzwerken überschätzt	Basierend auf Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)
st_4.2.1	XY ist gut mit vergleichbaren Initiativen vernetzt, mehr braucht es derzeit nicht	Kein weiteres Netzwerk zu ähnlichen Initiativen nötig	Basierend auf Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)
st_4.2.2	Networking mit ähnlichen Initiativen ist wichtig, nimmt aber auch viele Ressourcen in Anspruch	Netzwerken braucht Ressourcen	Basierend auf Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)
st_4.3.1	Das Netzwerk von XY zu ähnlichen Initiativen kann gar nicht groß genug sein	Netzwerk zu gleichgesinnten kann nicht groß genug sein	Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)
st_4.3.2	XY sollte sich so viel wie möglich mit vergleichbaren Projekten/Organisationen vernetzen	Netzwerk wachsen	Wittmayer et al. (2019); Pel et al.; (2020) Bauermeister (2015); Mert-Cakal and Miele (2020)

st_5.1.1	„Mainstream-Stakeholder“ wie Regierungsorganisationen haben in unserem Netzwerk keinen Platz	Kein Platz für Mainstream Akteure	Basierend auf Pel et al. (2020); Zoll et al. (2021)
st_5.1.2	XY und „Mainstream-Stakeholder“ (wie Regierungsorganisationen) passen nicht zusammen	Mainstream Akteure passen nicht zusammen	Basierend auf Pel et al. (2020); Zoll et al. (2021)
st_5.2.1	Wir sind offen für „Mainstream-Stakeholder“ (wie Regierungsorganisationen), würden aber nicht aktiv auf sie zugehen	Keine aktive Netzwerkpflege mit Mainstream Akteuren	Basierend auf Pel et al. (2020); Zoll et al. (2021)
st_5.2.2	„Mainstream-Stakeholder“ (wie Regierungsorganisationen) könnten Teil unseres Netzwerks werden, haben aber aktuell keine Priorität	Mainstream Akteure haben keine Priorität	Basierend auf Pel et al. (2020); Zoll et al. (2021)
st_5.3.1	XY sollte sich unbedingt auch mit „Mainstream-Stakeholdern“ vernetzen (z.B. Regierungsorganisationen)	Netzwerk mit Mainstream Stakeholdern soll wachsen	Pel et al. (2020); Zoll et al. (2021)
st_5.3.2	Das Netzwerk von XY mit „Mainstream-Stakeholdern“ (z.B. Regierungsorganisationen), kann gar nicht groß genug werden	Netzwerk mit Mainstream Stakeholder kann nicht groß genug sein	Pel et al. (2020); Zoll et al. (2021)
st_6.1.1	Innerhalb von XY konzentrieren wir uns auf das wesentliche, persönlicher Austausch kommt dabei eher kurz	Wenig persönlicher Austausch	Basierend auf Blättel-Mink et al. (2017); Zoll et al. (2021); Pel et al. (2020)
st_6.1.2	Solange man seinen Beitrag leistet, kann man bei XY mehr oder weniger autonom arbeiten	Autonom arbeiten möglich	Basierend auf Blättel-Mink et al. (2017); Zoll et al. (2021); Pel et al. (2020)
st_6.2.1	Sich innerhalb von XY zu vernetzen ist gut, aber nicht unbedingt nötig	Intern Vernetzen ist optional	Basierend auf Blättel-Mink et al. (2017); Zoll et al. (2021); Pel et al. (2020)
st_6.2.2	Gegenseitiger Austausch innerhalb der Gruppe ist wichtig, vor allem für das	Austausch wichtig für dauerhaftes Bestehen	Basierend auf Blättel-Mink et al. (2017); Zoll et al. (2021); Pel et al. (2020)

dauerhafte Bestehen von XY

st_6.3.1	Durch die unterschiedlichen Hintergründe der Mitglieder von XY ergeben sich neue soziale Verbindungen, die es vorher nicht gegeben hat	Neue soziale Verbindungen	Blättel-Mink et al. (2017); Zoll et al. (2021); Pel et al. (2020)
st_6.3.2	Die direkte Interaktion verschiedener Mitglieder führt zu gegenseitigem Verständnis und Solidarität	Gegenseitiges Verständnis und Solidarität	Blättel-Mink et al. (2017); Zoll et al. (2021); Pel et al. (2020)

Appendix B: Crib Sheets

Legend: Red = distinguishing statement; Green = consensus statement

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Items mit +5		Bewertung Faktor 1	Bewertung Faktor 2	Bewertung Faktor 3	Bewertung Faktor 4
1.1.1.	Ich möchte Zugang zu frischen und gesunden Lebensmitteln	5	4	5	4
2.2.1.	Durch die Zusammenarbeit bei XY verfügen wir über Ressourcen, die wir sonst nicht hätten (z.B. Arbeitskraft, Infrastruktur, Wissen etc.)	5	5	-2	2
Items mit gleicher oder höherer Bewertung für Faktor 1 als für die anderen Faktoren					
3.1.3.	Betriebswirtschaftlicher Erfolg hat bei XY keine Priorität	3	-4	0	-4
6.1.2.	Solange man seinen Beitrag leistet, kann man bei XY mehr oder weniger autonom arbeiten	2	0	-5	0
3.1.1.	Betriebswirtschaftlicher Erfolg steht im Widerspruch zu den Werten von XY	0	-5	-2	-4
2.1.2.	Das gemeinsame Arbeiten bei XY macht mir Spaß	4	3	3	0
2.1.3.	Bei XY gibt es viele verschiedene Vorstellungen und Ziele	1	-1	-3	-1
6.2.2.	Gegenseitiger Austausch innerhalb innerhalb der Gruppe ist wichtig, vor allem für das dauerhafte Bestehen von XY	4	2	2	2
1.2.3.	XY hilft mir dabei, meinen Impact auf die Umwelt zu verringern	2	0	2	1
2.1.1.	Ich schätze den regelmäßigen sozialen Austausch, der sich bei XY ergibt	3	2	2	1
5.2.2.	„Mainstream-Stakeholder“ (wie Regierungsorganisationen) könnten Teil unseres Netzwerks werden, haben aber aktuell keine Priorität	0	0	0	-2
2.3.3.	Gemeinsame Ziele und Vorstellungen zu haben, ist uns bei XY wichtig	2	2	1	1
Items mit gleicher oder niedrigerer Bewertung für Faktor 1 als für die anderen Faktoren					
3.3.1.	Die wirtschaftliche Förderung der Mitglieder muss bei XY gegeben sein	-3	5	-4	3

1.2.1.	Ziel von XY ist eine Win-Win Situation: auf der einen Seite steht betriebswirtschaftlicher Erfolg, auf der anderen Seite die optimale Förderung aller Beteiligten	-4	3	-4	3
3.3.3.	Ohne wirtschaftlichen Erfolg können wichtige Ressourcen nicht ausreichend zur Verfügung gestellt werden (z.B. Arbeitskraft)	-4	3	-3	-2
3.2.3.	Wirtschaftlicher Erfolg und die Ziele von XY lassen sich vereinbaren	-4	3	-1	0
1.1.2.	Ich möchte unabhängig vom globalen Agrar- und Ernährungssystem sein	1	1	4	5
6.2.1.	Sich innerhalb von XY zu vernetzen ist gut, aber nicht unbedingt nötig	-3	-3	0	-2
1.1.3.	Ich möchte wissen, wo meine Lebensmittel herkommen	4	4	4	5
Items mit höherer UND niedriger Bewertung als andere Faktoren					
1.3.2.	Ich möchte mit XY eine Alternative zum bestehenden Agrar- und Ernährungssystems schaffen/unterstützen	3	-4	5	4
1.3.1.	Ich betrachte mein Engagement bei XY als politischen Aktivismus	0	-5	0	2
3.3.2.	Professionelles Wirtschaften schafft die Grundlage für Nachhaltigkeit	-1	4	1	-1
5.1.1.	„Mainstream-Stakeholder“ wie Regierungsorganisationen haben in unserem Netzwerk keinen Platz	-2	-3	2	-3
3.1.2.	Betriebswirtschaftlicher Erfolg steht im Widerspruch zu den Zielen von XY	0	-3	1	-2
4.3.2.	XY sollte sich so viel wie möglich mit vergleichbaren Projekten/Organisationen vernetzen	0	-2	-2	3
4.2.2.	Networking mit ähnlichen Initiativen ist wichtig, nimmt aber auch viele Ressourcen in Anspruch	-1	-3	2	1
4.3.1.	Das Netzwerk von XY zu ähnlichen Initiativen kann gar nicht groß genug sein	-1	-1	-3	2
3.2.2.	XY ist sowohl als profit-orientiertes als auch als Non-Profit Organisation vorstellbar	-2	1	-2	-5
4.1.2.	Die Wichtigkeit der „Netzwerk-Pflege“ zu ähnlichen Initiativen wird überschätzt	-3	-2	0	-5
2.3.1.	Durch die Zusammenarbeit bei XY bestärken wir uns gegenseitig	2	1	3	0

2.3.2.	Durch die gemeinsame Arbeit entsteht ein „Wir-Gefühl“	2	1	3	0
5.2.1.	Wir sind offen für „Mainstream-Stakeholder“ (wie Regierungsorganisationen), würden aber nicht aktiv auf sie zugehen	-1	-2	-3	-2
5.1.2.	XY und „Mainstream-Stakeholder“ (wie Regierungsorganisationen) passen nicht zusammen	-2	-4	-2	-3
5.3.1.	XY sollte sich unbedingt auch mit „Mainstream-Stakeholdern“ vernetzen (z.B. Regierungsorganisationen)	-2	-2	-4	0
1.2.2.	Ich möchte durch mein Engagement bei XY meinen Beitrag zu einer nachhaltigen Entwicklung ausdrücken	3	1	4	4
1.3.3.	Ich möchte mit XY das Agrar- und Ernährungssystem grundlegend verändern	1	-1	3	3
2.2.3.	XY ermöglicht die gemeinschaftliche Selbsthilfe frei nach dem Motto: „Einer für Alle – Alle für Einen“	1	2	1	-1
6.3.2.	Die direkte Interaktion verschiedener Mitglieder führt zu gegenseitigem Verständnis und Solidarität	0	2	-1	1
6.3.1.	Durch die unterschiedlichen Hintergründe der Mitglieder von XY ergeben sich neue soziale Verbindungen, die es vorher nicht gegeben hat	1	0	0	2
4.2.1.	XY ist gut mit vergleichbaren Initiativen vernetzt, mehr braucht es derzeit nicht	-1	0	-1	-3
4.1.1.	Das „Netzwerken“ mit ähnlichen Initiativen/Organisationen spielt für XY keine große Rolle	-2	-2	-1	-4
5.3.2.	Das Netzwerk von XY mit „Mainstream-Stakeholdern“ (z.B. Regierungsorganisationen), kann gar nicht groß genug werden	-3	-1	-5	-1
2.2.2.	Durch die Zusammenarbeit bei XY ändert sich die individuelle Einstellung vieler Mitglieder	0	0	1	0
Items mit -5					
3.2.1.	Der wirtschaftliche Erfolg steht bei XY nicht im Mittelpunkt, wird aber angestrebt	-5	0	0	-3
6.1.1.	Innerhalb von XY konzentrieren wir uns auf das wesentliche, persönlicher Austausch kommt dabei eher kurz	-5	-1	-1	-1

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Items mit +5	Bewertung Faktor 2	Bewertung Faktor 1	Bewertung Faktor 3	Bewertung Faktor 4
2.2.1. Durch die Zusammenarbeit bei XY verfügen wir über Ressourcen, die wir sonst nicht hätten (z.B. Arbeitskraft, Infrastruktur, Wissen etc.)	5	5	-2	2
3.3.1. Die wirtschaftliche Förderung der Mitglieder muss bei XY gegeben sein	5	-3	-4	3
Items mit gleicher oder höherer Bewertung für Faktor 1 als für die anderen Faktoren				
1.2.1. Ziel von XY ist eine Win-Win Situation: auf der einen Seite steht betriebswirtschaftlicher Erfolg, auf der anderen Seite die optimale Förderung aller Beteiligten	3	-4	-4	3
3.2.3. Wirtschaftlicher Erfolg und die Ziele von XY lassen sich vereinbaren	3	-4	-1	0
3.3.3. Ohne wirtschaftlicher Erfolg können wichtige Ressourcen nicht ausreichend zur Verfügung gestellt werden (z.B. Arbeitskraft)	3	-4	-3	-2
3.2.2. XY ist sowohl als profit-orientiertes als auch als Non-Profit Organisation vorstellbar	1	-2	-2	-5
3.3.2. Professionelles Wirtschaften schafft die Grundlage für Nachhaltigkeit	4	-1	1	-1
3.2.1. Der wirtschaftliche Erfolg steht bei XY nicht im Mittelpunkt, wird aber angestrebt	0	-5	0	-3
6.1.1. Innerhalb von XY konzentrieren wir uns auf das wesentliche, persönlicher Austausch kommt dabei eher kurz	-1	-5	-1	-1
5.3.2. Das Netzwerk von XY mit „Mainstream-Stakeholdern“ (z.B. Regierungsorganisationen), kann gar nicht groß genug werden	-1	-3	-5	-1
2.2.3. XY ermöglicht die gemeinschaftliche Selbsthilfe frei nach dem Motto: „Einer für Alle – Alle für Einen“	2	1	1	-1
6.3.2. Die direkte Interaktion verschiedener Mitglieder führt zu gegenseitigem Verständnis und Solidarität	2	0	-1	1
4.2.1. XY ist gut mit vergleichbaren Initiativen vernetzt, mehr braucht es derzeit nicht	0	-1	-1	-3
5.2.2. „Mainstream-Stakeholder“ (wie Regierungsorganisationen) könnten Teil unseres Netzwerks werden, haben aber aktuell keine Priorität	0	0		-2
2.3.3. Gemeinsame Ziele und Vorstellungen zu haben, ist uns bei XY wichtig	2	2	1	1

Items mit gleicher oder niedrigerer Bewertung für Faktor 1 als für die anderen Faktoren

1.3.2.	Ich möchte mit XY eine Alternative zum bestehenden Agrar- und Ernährungssystem schaffen/unterstützen	-4	3	5	4
3.1.3.	Betriebswirtschaftlicher Erfolg hat bei XY keine Priorität	-4	3	-4	0
4.3.2.	XY sollte sich so viel wie möglich mit vergleichbaren Projekten/Organisationen vernetzen	-2	0	-2	3
5.1.1.	„Mainstream-Stakeholder“ wie Regierungsorganisationen haben in unserem Netzwerk keinen Platz	-3	-2	2	-3
4.2.2.	Networking mit ähnlichen Initiativen ist wichtig, nimmt aber auch viele Ressourcen in Anspruch	-3	-1	2	1
1.1.2.	Ich möchte unabhängig vom globalen Agrar- und Ernährungssystem sein	1	1	4	5
1.3.3.	Ich möchte mit XY das Agrar- und Ernährungssystem grundlegend verändern	-1	1	3	3
3.1.2.	Betriebswirtschaftlicher Erfolg steht im Widerspruch zu den Zielen von XY	-3	0	1	-2
1.2.2.	Ich möchte durch mein Engagement bei XY meinen Beitrag zu einer nachhaltigen Entwicklung ausdrücken	1	3	4	4
4.3.1.	Das Netzwerk von XY zu ähnlichen Initiativen kann gar nicht groß genug sein	-1	-1	-3	2
6.2.1.	Sich innerhalb von XY zu vernetzen ist gut, aber nicht unbedingt nötig	-3	-3	0	-2
6.2.2.	Gegenseitiger Austausch innerhalb innerhalb der Gruppe ist wichtig, vor allem für das dauerhafte Bestehen von XY	2	4	2	2
6.3.1.	Durch die unterschiedlichen Hintergründe der Mitglieder von XY ergeben sich neue soziale Verbindungen, die es vorher nicht gegeben hat	0	0	1	2
1.2.3.	XY hilft mir dabei, meinen Impact auf die Umwelt zu verringern	0	2	2	1
2.1.3.	Bei XY gibt es viele verschiedene Vorstellungen und Ziele	-1	1	-3	-1
5.1.2.	XY und „Mainstream-Stakeholder“ (wie Regierungsorganisationen) passen nicht zusammen	-4	-2	-2	-3
1.1.1.	Ich möchte Zugang zu frischen und gesunden Lebensmitteln	4	5	5	4
1.1.3.	Ich möchte wissen, wo meine Lebensmittel herkommen	4	4	4	5

2.2.2.	Durch die Zusammenarbeit bei XY ändert sich die individuelle Einstellung vieler Mitglieder	0	0	1	0
Items mit höherer UND niedriger Bewertung als andere Faktoren					
6.1.2.	Solange man seinen Beitrag leistet, kann man bei XY mehr oder weniger autonom arbeiten	0	2	-5	0
2.1.2.	Das gemeinsame Arbeiten bei XY macht mir Spaß	3	4	3	0
4.1.2.	Die Wichtigkeit der „Netzwerk-Pflege“ zu ähnlichen Initiativen wird überschätzt	-2	-3	0	-5
2.3.1.	Durch die Zusammenarbeit bei XY bestärken wir uns gegenseitig	1	2	3	0
2.3.2.	Durch die gemeinsame Arbeit entsteht ein „Wir-Gefühl“	1	2	3	0
4.1.1.	Das „Netzwerken“ mit ähnlichen Initiativen/Organisationen spielt für XY keine große Rolle	-2	-2	-1	-4
5.3.1.	XY sollte sich unbedingt auch mit „Mainstream-Stakeholdern“ vernetzen (z.B. Regierungsorganisationen)	-2	-2	-4	0
2.1.1.	Ich schätze den regelmäßigen sozialen Austausch, der sich bei XY ergibt	2	3	2	1
5.2.1.	Wir sind offen für „Mainstream-Stakeholder“ (wie Regierungsorganisationen), würden aber nicht aktiv auf sie zugehen	-2	-1	-3	-2
Items mit -5					
1.3.1.	Ich betrachte mein Engagement bei XY als politischen Aktivismus	-5	0	0	2
3.1.1.	Betriebswirtschaftlicher Erfolg steht im Widerspruch zu den Werten von XY	-5	0	-2	-4

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Items mit +5	Bewertung Faktor3	Bewertung Faktor 1	Bewertung Faktor 2	Bewertung Faktor 4
1.3.2. Ich möchte mit XY eine Alternative zum bestehenden Agrar- und Ernährungssystem schaffen/unterstützen	5	3	-4	4
1.1.1. Ich möchte Zugang zu frischen und gesunden Lebensmitteln	5	5	4	4
Items mit gleicher oder höherer Bewertung für Faktor 1 als für die anderen Faktoren				
5.1.1. „Mainstream-Stakeholder“ wie Regierungsorganisationen haben in unserem Netzwerk keinen Platz	2	-2	-3	-3
4.2.2. Networking mit ähnlichen Initiativen ist wichtig, nimmt aber auch viele Ressourcen in Anspruch	2	-1	-3	1
4.1.2. Die Wichtigkeit der „Netzwerk-Pflege“ zu ähnlichen Initiativen wird überschätzt	0	-3	-2	-5
3.2.1. Der wirtschaftliche Erfolg steht bei XY nicht im Mittelpunkt, wird aber angestrebt	0	-5	0	-3
1.3.3. Ich möchte mit XY das Agrar- und Ernährungssystem grundlegend verändern	3	1	-1	3
3.1.2. Betriebswirtschaftlicher Erfolg steht im Widerspruch zu den Zielen von XY	1	0	-3	-2
3.1.3. Betriebswirtschaftlicher Erfolg hat bei XY keine Priorität	0	3	-4	-4
1.2.2. Ich möchte durch mein Engagement bei XY meinen Beitrag zu einer nachhaltigen Entwicklung ausdrücken	4	3	1	4
2.3.1. Durch die Zusammenarbeit bei XY bestärken wir uns gegenseitig	3	2	1	0
2.3.2. Durch die gemeinsame Arbeit entsteht ein „Wir-Gefühl“	3	2	1	0
6.2.1. Sich innerhalb von XY zu vernetzen ist gut, aber nicht unbedingt nötig	0	-3	-3	-2
4.1.1. Das „Netzwerken“ mit ähnlichen Initiativen/Organisationen spielt für XY keine große Rolle	-1	-2	-2	-4
1.2.3. XY hilft mir dabei, meinen Impact auf die Umwelt zu verringern	2	2	0	1

5.2.2.	„Mainstream-Stakeholder“ (wie Regierungsorganisationen) könnten Teil unseres Netzwerks werden, haben aber aktuell keine Priorität	0	0	0	-2
2.2.2.	Durch die Zusammenarbeit bei XY ändert sich die individuelle Einstellung vieler Mitglieder	1	0	0	0
Items mit gleicher oder niedrigerer Bewertung für Faktor 1 als für die anderen Faktoren					
3.3.1.	Die wirtschaftliche Förderung der Mitglieder muss bei XY gegeben sein	-4	-3	5	3
1.2.1.	Ziel von XY ist eine Win-Win Situation: auf der einen Seite steht betriebswirtschaftlicher Erfolg, auf der anderen Seite die optimale Förderung aller Beteiligten	-4	-4	3	3
4.3.1.	Das Netzwerk von XY zu ähnlichen Initiativen kann gar nicht groß genug sein	-3	-1	-1	2
4.3.2.	XY sollte sich so viel wie möglich mit vergleichbaren Projekten/Organisationen vernetzen	-2	0	-2	3
2.1.3.	Bei XY gibt es viele verschiedene Vorstellungen und Ziele	-3	1	-1	-1
6.1.1.	Innerhalb von XY konzentrieren wir uns auf das wesentliche, persönlicher Austausch kommt dabei eher kurz	-1	-5	-1	-1
6.3.2.	Die direkte Interaktion verschiedener Mitglieder führt zu gegenseitigem Verständnis und Solidarität	-1	0	2	1
6.2.2.	Gegenseitiger Austausch innerhalb innerhalb der Gruppe ist wichtig, vor allem für das dauerhafte Bestehen von XY	2	4	2	2
5.2.1.	Wir sind offen für „Mainstream-Stakeholder“ (wie Regierungsorganisationen), würden aber nicht aktiv auf sie zugehen	-3	-2	-1	-2
5.3.1.	XY sollte sich unbedingt auch mit „Mainstream-Stakeholdern“ vernetzen (z.B. Regierungsorganisationen)	-4	-2	-2	0
1.1.3.	Ich möchte wissen, wo meine Lebensmittel herkommen	4	4	4	5
2.3.3.	Gemeinsame Ziele und Vorstellungen zu haben, ist uns bei XY wichtig	1	2	2	1
Items mit höherer UND niedriger Bewertung als andere Faktoren					
2.2.1.	Durch die Zusammenarbeit bei XY verfügen wir über Ressourcen, die wir sonst nicht hätten (z.B. Arbeitskraft, Infrastruktur, Wissen etc.)	-2	5	5	2

3.3.3.	Ohne wirtschaftlicher Erfolg können wichtige Ressourcen nicht ausreichend zur Verfügung gestellt werden (z.B. Arbeitskraft)	-3	-4	3	-2
1.3.1.	Ich betrachte mein Engagement bei XY als politischen Aktivismus	0	0	-5	2
3.2.3.	Wirtschaftlicher Erfolg und die Ziele von XY lassen sich vereinbaren	-1	-4	3	0
1.1.2.	Ich möchte unabhängig vom globalen Agrar- und Ernährungssystem sein	4	1	1	5
2.1.2.	Das gemeinsame Arbeiten bei XY macht mir Spaß	3	3	4	0
3.3.2.	Professionelles Wirtschaften schafft die Grundlage für Nachhaltigkeit	1	-1	4	-1
3.1.1.	Betriebswirtschaftlicher Erfolg steht im Widerspruch zu den Werten von XY	-2	0	-5	-4
3.2.2.	XY ist sowohl als profit-orientiertes als auch als Non-Profit Organisation vorstellbar	-2	-2	1	-5
2.2.3.	XY ermöglicht die gemeinschaftliche Selbsthilfe frei nach dem Motto: „Einer für Alle – Alle für Einen“	1	1	2	-1
6.3.1.	Durch die unterschiedlichen Hintergründe der Mitglieder von XY ergeben sich neue soziale Verbindungen, die es vorher nicht gegeben hat	0	1	0	2
4.2.1.	XY ist gut mit vergleichbaren Initiativen vernetzt, mehr braucht es derzeit nicht	-1	-1	0	-3
5.1.2.	XY und „Mainstream-Stakeholder“ (wie Regierungsorganisationen) passen nicht zusammen	-2	-2	-4	-3
2.1.1.	Ich schätze den regelmäßigen sozialen Austausch, der sich bei XY ergibt	2	3	2	1
Items mit -5					
6.1.2.	Solange man seinen Beitrag leistet, kann man bei XY mehr oder weniger autonom arbeiten	-5	2	0	0
5.3.2.	Das Netzwerk von XY mit „Mainstream-Stakeholdern“ (z.B. Regierungsorganisationen), kann gar nicht groß genug werden	-5	-3	-1	-1

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Items mit +5	Bewertung Faktor 4	Bewertung Faktor 1	Bewertung Faktor 2	Bewertung Faktor 3
1.1.2. Ich möchte unabhängig vom globalen Agrar- und Ernährungssystem sein	5	1	1	4
1.1.3. Ich möchte wissen, wo meine Lebensmittel herkommen	5	4	4	4
Items mit gleicher oder höherer Bewertung für Faktor 1 als für die anderen Faktoren				
1.2.1. Ziel von XY ist eine Win-Win Situation: auf der einen Seite steht betriebswirtschaftlicher Erfolg, auf der anderen Seite die optimale Förderung aller Beteiligten	3	-4	3	-4
1.3.1. Ich betrachte mein Engagement bei XY als politischen Aktivismus	2	0	-5	0
4.3.2. XY sollte sich so viel wie möglich mit vergleichbaren Projekten/Organisationen vernetzen	3	0	-2	-2
4.3.1. Das Netzwerk von XY zu ähnlichen Initiativen kann gar nicht groß genug sein	2	-1	-1	-3
1.3.3. Ich möchte mit XY das Agrar- und Ernährungssystem grundlegend verändern	3	1	-1	3
5.3.2. Das Netzwerk von XY mit „Mainstream-Stakeholdern“ (z.B. Regierungsorganisationen), kann gar nicht groß genug werden	-1	-3	-1	-5
6.1.1. Innerhalb von XY konzentrieren wir uns auf das wesentliche, persönlicher Austausch kommt dabei eher kurz	-1	-5	-1	-1
1.2.2. Ich möchte durch mein Engagement bei XY meinen Beitrag zu einer nachhaltigen Entwicklung ausdrücken	4	3	1	4
6.3.1. Durch die unterschiedlichen Hintergründe der Mitglieder von XY ergeben sich neue soziale Verbindungen, die es vorher nicht gegeben hat	2	1	0	0
Items mit gleicher oder niedrigerer Bewertung für Faktor 1 als für die anderen Faktoren				
5.1.1. „Mainstream-Stakeholder“ wie Regierungsorganisationen haben in unserem Netzwerk keinen Platz	-3	-2	-3	2
3.3.2. Professionelles Wirtschaften schafft die Grundlage für Nachhaltigkeit	-1	-1	4	1
2.1.2. Das gemeinsame Arbeiten bei XY macht mir Spaß	0	4	3	3

5.3.1.	XY sollte sich unbedingt auch mit „Mainstream-Stakeholdern“ vernetzen (z.B. Regierungsorganisationen)	0	-2	-2	-4
2.3.1.	Durch die Zusammenarbeit bei XY bestärken wir uns gegenseitig	0	2	1	3
2.3.2.	Durch die gemeinsame Arbeit entsteht ein „Wir-Gefühl“	0	2	1	3
2.2.3.	XY ermöglicht die gemeinschaftliche Selbsthilfe frei nach dem Motto: „Einer für Alle – Alle für Einen“	-1	1	2	1
4.2.1.	XY ist gut mit vergleichbaren Initiativen vernetzt, mehr braucht es derzeit nicht	-3	-1	0	-1
4.1.1.	Das „Netzwerken“ mit ähnlichen Initiativen/Organisationen spielt für XY keine große Rolle	-4	-2	-2	-1
6.2.2.	Gegenseitiger Austausch innerhalb innerhalb der Gruppe ist wichtig, vor allem für das dauerhafte Bestehen von XY	2	4	2	2
5.2.2.	„Mainstream-Stakeholder“ (wie Regierungsorganisationen) könnten Teil unseres Netzwerks werden, haben aber aktuell keine Priorität	-2	0	0	0
1.1.1.	Ich möchte Zugang zu frischen und gesunden Lebensmitteln	4	5	4	5
2.1.1.	Ich schätze den regelmäßigen sozialen Austausch, der sich bei XY ergibt	1	3	2	2
2.3.3.	Gemeinsame Ziele und Vorstellungen zu haben, ist uns bei XY wichtig	1	2	2	1
2.2.2.	Durch die Zusammenarbeit bei XY ändert sich die individuelle Einstellung vieler Mitglieder	0	0	0	1
Items mit höherer UND niedriger Bewertung als andere Faktoren					
1.3.2.	Ich möchte mit XY eine Alternative zum bestehenden Agrar- und Ernährungssystem schaffen/unterstützen	4	3	-4	5
3.3.1.	Die wirtschaftliche Förderung der Mitglieder muss bei XY gegeben sein	3	-3	5	-4
3.1.3.	Betriebswirtschaftlicher Erfolg hat bei XY keine Priorität	-4	3	-4	0
6.1.2.	Solange man seinen Beitrag leistet, kann man bei XY mehr oder weniger autonom arbeiten	0	2	0	-5
3.3.3.	Ohne wirtschaftlicher Erfolg können wichtige Ressourcen nicht ausreichend zur Verfügung gestellt werden (z.B. Arbeitskraft)	-2	-4	3	-3

2.2.1.	Durch die Zusammenarbeit bei XY verfügen wir über Ressourcen, die wir sonst nicht hätten (z.B. Arbeitskraft, Infrastruktur, Wissen etc.)	2	5	5	-2
4.2.2.	Networking mit ähnlichen Initiativen ist wichtig, nimmt aber auch viele Ressourcen in Anspruch	1	-1	-3	2
3.2.3.	Wirtschaftlicher Erfolg und die Ziele von XY lassen sich vereinbaren	0	-4	3	-1
3.1.1.	Betriebswirtschaftlicher Erfolg steht im Widerspruch zu den Werten von XY	-4	0	-5	-2
3.1.2.	Betriebswirtschaftlicher Erfolg steht im Widerspruch zu den Zielen von XY	-2	0	-3	1
3.2.1.	Der wirtschaftliche Erfolg steht bei XY nicht im Mittelpunkt, wird aber angestrebt	-3	-5	0	0
2.1.3.	Bei XY gibt es viele verschiedene Vorstellungen und Ziele	-1	1	-1	-3
6.2.1.	Sich innerhalb von XY zu vernetzen ist gut, aber nicht unbedingt nötig	-2	-3	-3	0
1.2.3.	XY hilft mir dabei, meinen Impact auf die Umwelt zu verringern	1	2	0	2
6.3.2.	Die direkte Interaktion verschiedener Mitglieder führt zu gegenseitigem Verständnis und Solidarität	1	0	2	-1
5.2.1.	Wir sind offen für „Mainstream-Stakeholder“ (wie Regierungsorganisationen), würden aber nicht aktiv auf sie zugehen	-2	-1	-2	-3
5.1.2.	XY und „Mainstream-Stakeholder“ (wie Regierungsorganisationen) passen nicht zusammen	-3	-2	-4	-2
Items mit -5					
4.1.2.	Die Wichtigkeit der „Netzwerk-Pflege“ zu ähnlichen Initiativen wird überschätzt	-5	-3	-2	0
3.2.2.	XY ist sowohl als profit-orientiertes als auch als Non-Profit Organisation vorstellbar	-5	-2	1	-2

Appendix C: Statistical Analysis (R-Code and results)

Code.R

2022-10-29

```
# Setting the working directory to source file location
setwd("C:/Users/wluka/Desktop/Sonstiges/UBRM/Masterarbeit/Auswertung/Eigene Auswertung/3_Ergebnisse R Markdown")

# Load required packages
require(psych)

## Lade nötiges Paket: psych

require(qmethod)

## Lade nötiges Paket: qmethod

##
## This is 'qmethod' v.1.8.
##
## Please cite as:
## Zabala, A. (2014) qmethod: A Package to Explore Human Perspectives Using Q Methodology. The R Journal, 6(2):163-173.

#### WARNING ####
# Before calculating some kind of statistics, make sure to set na.rm = TRUE

#####
### 1. DATA PREPARATION ###
#####

# Import dataset
library(readxl)
rawData <- read_excel("C:/Users/wluka/Desktop/Sonstiges/UBRM/Masterarbeit/Auswertung/Eigene Auswertung/1_Datenaufbereitung/Submissions_bis 05.10.2022_assorted.xlsx")
rawData[rawData == ""] <- NA
rawData[rawData == "null"] <- NA
str(rawData)

## tibble [16 × 48] (S3: tbl_df/tbl/data.frame)
## $ Name      : chr [1:16] "Belcher, Pete" "Brunner, Evelyn" "Florian" "Gerit" ...
## $ Organisation: chr [1:16] "Wilde Rauke" "FoodCoop Osttirol" "Biohamster" "FoodCoop Wienerwald" ...
## $ Kategorie  : chr [1:16] "SoLaWi" "FoodCoop" "FoodCoop" "FoodCoop" .
## ..
## $ 1.1.1.     : num [1:16] 3 2 4 5 4 5 3 4 5 2 ...
## $ 1.1.2.     : num [1:16] 1 3 2 4 2 4 5 5 0 2 ...
## $ 1.1.3.     : num [1:16] 1 4 5 4 3 3 4 4 4 4 ...
```

```

## $ 1.2.1. : num [1:16] -3 -5 -5 -3 -3 -1 1 0 -3 3 ...
## $ 1.2.2. : num [1:16] 4 5 5 2 1 3 4 5 3 -3 ...
## $ 1.2.3. : num [1:16] 3 1 1 4 2 3 0 3 2 0 ...
## $ 1.3.1. : num [1:16] 5 -1 1 0 -2 2 3 4 2 -5 ...
## $ 1.3.2. : num [1:16] 5 5 1 3 0 5 5 1 1 1 ...
## $ 1.3.3. : num [1:16] 4 0 4 3 -1 3 4 0 1 0 ...
## $ 2.1.1. : num [1:16] 2 2 0 2 5 2 0 0 1 1 ...
## $ 2.1.2. : num [1:16] 2 2 4 2 4 2 2 -1 5 2 ...
## $ 2.1.3. : num [1:16] 1 1 3 0 1 -2 -3 3 4 2 ...
## $ 2.2.1. : num [1:16] 4 3 -3 5 4 -1 2 2 0 5 ...
## $ 2.2.2. : num [1:16] 0 2 -1 3 0 1 0 1 1 0 ...
## $ 2.2.3. : num [1:16] 2 4 0 1 1 1 0 -1 -2 -2 ...
## $ 2.3.1. : num [1:16] 3 0 0 1 0 4 2 -3 3 -1 ...
## $ 2.3.2. : num [1:16] 2 1 3 0 3 4 2 -2 0 -1 ...
## $ 2.3.3. : num [1:16] 2 3 2 -2 2 0 3 -1 2 4 ...
## $ 3.1.1. : num [1:16] -1 -1 -1 -2 2 -3 -4 -2 -3 -5 ...
## $ 3.1.2. : num [1:16] 0 -4 2 -3 2 -2 -2 1 -2 -4 ...
## $ 3.1.3. : num [1:16] -1 -1 2 2 3 -5 -2 -3 4 -3 ...
## $ 3.2.1. : num [1:16] -4 -3 -4 -5 -4 2 -4 -3 -3 -1 ...
## $ 3.2.2. : num [1:16] -2 3 -3 -4 -2 -1 -5 -4 -2 -2 ...
## $ 3.2.3. : num [1:16] -2 1 -2 -1 -5 0 -3 0 -4 3 ...
## $ 3.3.1. : num [1:16] -5 -4 -3 0 -2 -4 3 0 -4 5 ...
## $ 3.3.2. : num [1:16] -3 -2 3 0 -2 0 -1 -5 0 3 ...
## $ 3.3.3. : num [1:16] -3 -4 0 1 -4 1 -2 -4 -5 4 ...
## $ 4.1.1. : num [1:16] -4 0 1 -4 -2 -2 -1 -2 -1 -2 ...
## $ 4.1.2. : num [1:16] -3 0 1 -1 -3 -3 -3 -5 -4 0 ...
## $ 4.2.1. : num [1:16] -2 -2 -2 -2 0 -3 -1 -3 3 3 ...
## $ 4.2.2. : num [1:16] -1 1 2 -2 0 2 0 1 -1 -1 ...
## $ 4.3.1. : num [1:16] -2 -3 -2 -1 0 0 -2 2 0 -2 ...
## $ 4.3.2. : num [1:16] 0 -2 -2 0 0 -1 1 3 2 -2 ...
## $ 5.1.1. : num [1:16] -1 0 -4 -5 -1 0 -5 -1 -3 -4 ...
## $ 5.1.2. : num [1:16] -2 -1 -3 -3 -1 -2 -4 -2 -2 -3 ...
## $ 5.2.1. : num [1:16] 0 -1 -1 0 -1 -3 1 -2 -1 -3 ...
## $ 5.2.2. : num [1:16] 0 -2 -1 -1 -1 0 1 -4 3 0 ...
## $ 5.3.1. : num [1:16] 0 -3 -1 -1 -3 -4 -3 2 -5 0 ...
## $ 5.3.2. : num [1:16] -5 -2 -5 -2 -3 -4 1 0 -1 -1 ...
## $ 6.1.1. : num [1:16] -4 -5 -2 -3 -5 -2 -1 0 -2 0 ...
## $ 6.1.2. : num [1:16] 1 -3 -4 3 3 -5 -2 3 2 2 ...
## $ 6.2.1. : num [1:16] -1 0 0 -4 -4 -1 -1 -1 0 -4 ...
## $ 6.2.2. : num [1:16] 3 2 3 1 5 1 0 2 0 1 ...
## $ 6.3.1. : num [1:16] 0 4 0 1 1 1 0 2 1 1 ...
## $ 6.3.2. : num [1:16] 1 0 0 2 1 0 2 1 -1 1 ...

```

```

# Data matrix 1: The statement scores #

```

```

#####

```

```

# We only want the statement scores for this data matrix.
onlyNumeric <- rawData[,4:48]

```

```

# Q-Sorts are variables. We therefore have to transpose the raw data matrix first.
transposedData <- t(onlyNumeric)

```

```

# For more clarity, let's rename the columns with the sorters' names.

```

```

namen <- c(rawData$Name)
head(namen)

## [1] "Belcher, Pete"      "Brunner, Evelyn"   "Florian"
## [4] "Gerit"              "Haas, Meral"      "Haller, Franziska"

colnames(x=transposedData) <- namen

# Here I save the row names (= statement codes) for later because I want to
# use it to name my matrix 2.
statementCode <- rownames(transposedData)

Matrix1 <- transposedData
str(Matrix1)

## num [1:45, 1:16] 3 1 1 -3 4 3 5 5 4 2 ...
## - attr(*, "dimnames")=List of 2
## ..$ : chr [1:45] "1.1.1." "1.1.2." "1.1.3." "1.2.1." ...
## ..$ : chr [1:16] "Belcher, Pete" "Brunner, Evelyn" "Florian" "Gerit"
## ...

# Matrix 1 is done.
# For this test run, I decided to keep the 'null' sort (col 28).
# In the final sorting, this is maybe not ok because we have no personal
# data on this person.

# Data matrix 2: The statements #
#####

# Matrix 2 should contain the full statements with the same numbers we have
# used for Matrix 1,
# i.e. X1.01, X1.02 ... X2.01 ...and so on.
# To do so, I have prepared an excel sheet with all the data.

library(readxl)

# Import: If we just imported it, it would be a tibble. Because the tibble
# does not let me
# rename the rows, I save it as a data frame.
statementsForR <- as.data.frame(read_excel("C:/Users/wluka/Desktop/Sonstiges/UBRM/Masterarbeit/Auswertung/Eigene Auswertung/1_Datenaufbereitung/statementsForR_Lukas.xlsx"))

# Cool! Now let's rename our rows with 'statementCode'.

rownames(statementsForR) <- statementCode

Matrix2 <- statementsForR

# Matrix 2 is done.

# Data matrix 3: Person related data #

```

```
#####

#####personal <- (rawData[, 0:4])

# Data matrix 4: Feedback #
#####

# This is just for interpretation purposes.

#####feedback <- (rawData[, -2:-45])

# NOTE: A problem might arise when combining the matrices because of row/c
olumn id. But we'll see.

#####
### 2. Summary Statistics ###
#####

#####summary(personal$Alter)
#####summary(personal$Geschlecht)

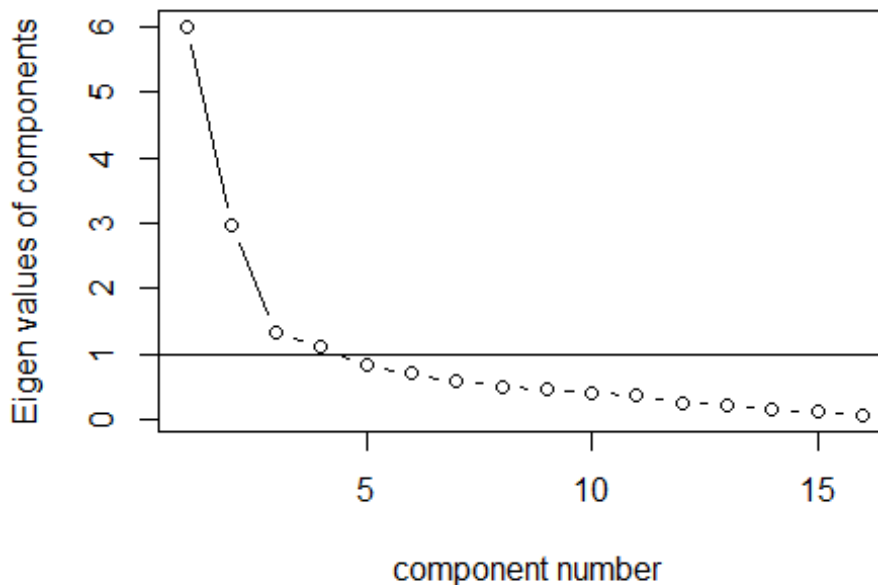
#####
### 3. Q ###
#####

require(psych)

# Number of factors to extract #
#####

# Screeplot
VSS.scree(rx=Matrix1, main = "Generic Scree Plot")
```

Generic Scree Plot



```
# 11 components with eigenvalue > 1
# Elbow at around 3 components
# Might be useful to extract at Least 3

# Parallel Analysis
# see https://sakaluk.wordpress.com/2016/05/26/11-make-it-pretty-scrree-plots-and-parallel-analysis-using-psych-and-ggplot2/
# 'keep the number of "real" factors that outperform "garbage" factors"'

#install.packages("ggplot2")

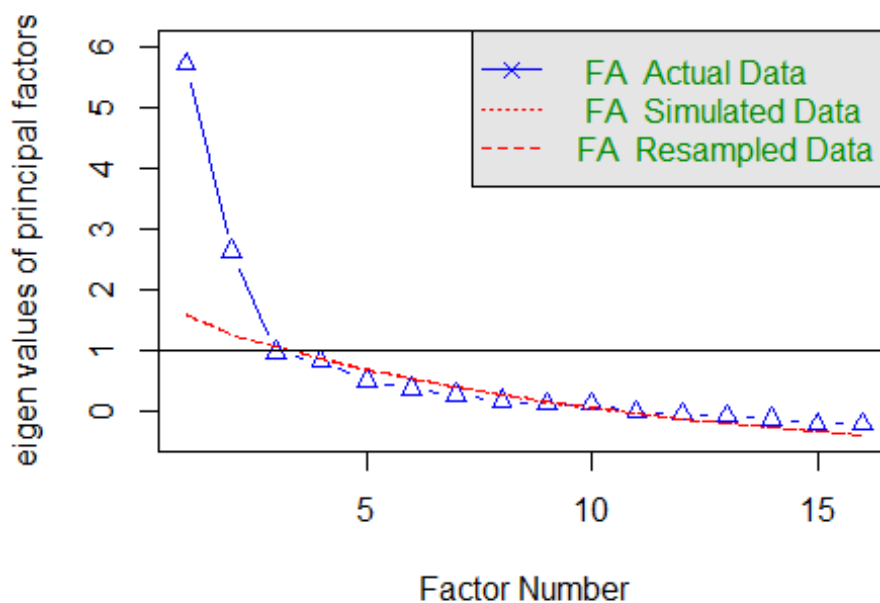
library(psych)
library(ggplot2)

##
## Attache Paket: 'ggplot2'

## Die folgenden Objekte sind maskiert von 'package:psych':
##
##   %+, alpha

set.seed(456)
parallelML <- fa.parallel(x = Matrix1, fm="ml", fa = "fa", n.iter = 50, SM
C = TRUE, quant = .95, main = "Parallel Analysis Scree Plots for Principal
Factors")
```

Parallel Analysis Scree Plots for Principal Factors



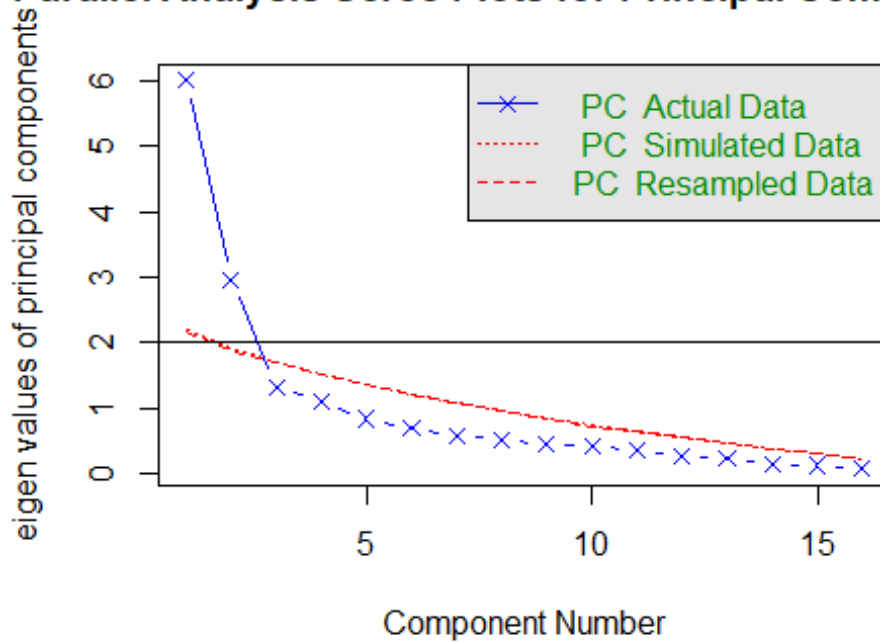
```
## Parallel analysis suggests that the number of factors = 2 and the number of components = NA

set.seed(9876)
parallelPC <- fa.parallel(x = Matrix1, fm="pa", fa = "pc", n.iter = 50, SMC = TRUE, main = "Parallel Analysis Scree Plots for Principal Components")

## Parallel analysis suggests that the number of factors = NA and the number of components = 2

abline (h = 2)
```

Parallel Analysis Scree Plots for Principal Components



```
# Both tell us to use 2 components.
# Let's try 2, 3 and 4 components - 4 components > 2.

#https://www.statmethods.net/advstats/factor.html

#install.packages("nFactors")

library(nFactors)

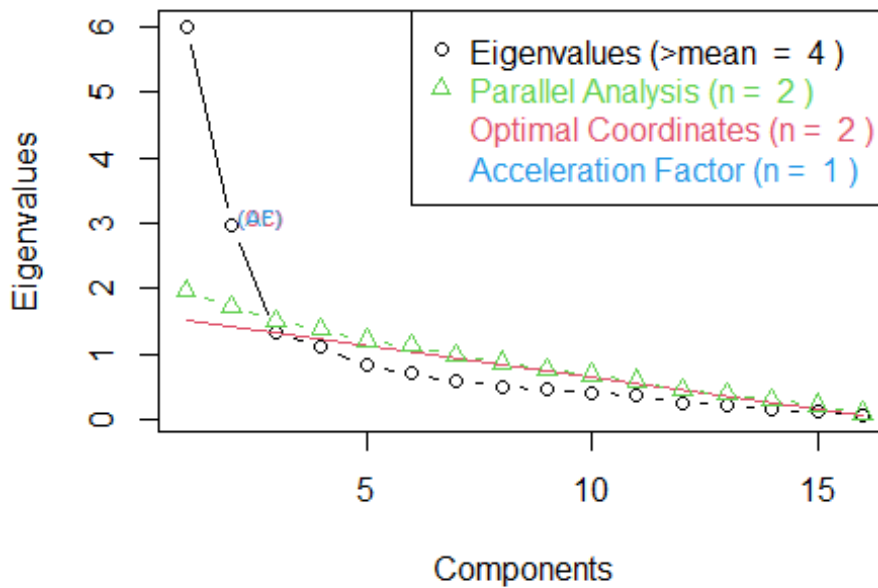
## Lade nötiges Paket: lattice

##
## Attache Paket: 'nFactors'

## Das folgende Objekt ist maskiert 'package:lattice':
##
##   parallel

ev <- eigen(cor(Matrix1)) # get eigenvalues
ap <- parallel(subject=nrow(Matrix1),var=ncol(Matrix1),
              rep=100,cent=.05)
nS <- nScree(x=ev$values, aparallel=ap$eigen$qevpea)
plotnScree(nS)
```

Non Graphical Solutions to Scree Test



```
# 4 components #
#####

c2Test4 <- qmethod(Matrix1, nfactors = 4, rotation = "varimax")

## Q-method analysis.
## Finished on:           Sat Oct 29 13:30:51 2022
## 'qmethod' package version: 1.8
## Original data:        45 statements, 16 Q-sorts
## Forced distribution:   TRUE
## Number of factors:    4
## Extraction:           PCA
## Rotation:             varimax
## Flagging:             automatic
## Correlation coefficient: pearson

summary(c2Test4)

## Q-method analysis.
## Finished on:           Sat Oct 29 13:30:51 2022
## 'qmethod' package version: 1.8
## Original data:        45 statements, 16 Q-sorts
## Forced distribution:   TRUE
## Number of factors:    4
## Extraction:           PCA
## Rotation:             varimax
## Flagging:             automatic
## Correlation coefficient: pearson
##
## Factor scores
##      fsc_f1 fsc_f2 fsc_f3 fsc_f4
```

```

## 1.1.1.    5    4    5    4
## 1.1.2.    1    1    4    5
## 1.1.3.    4    4    4    5
## 1.2.1.   -4    3   -4    3
## 1.2.2.    3    1    4    4
## 1.2.3.    2    0    2    1
## 1.3.1.    0   -5    0    2
## 1.3.2.    3   -4    5    4
## 1.3.3.    1   -1    3    3
## 2.1.1.    3    2    2    1
## 2.1.2.    4    3    3    0
## 2.1.3.    1   -1   -3   -1
## 2.2.1.    5    5   -2    2
## 2.2.2.    0    0    1    0
## 2.2.3.    1    2    1   -1
## 2.3.1.    2    1    3    0
## 2.3.2.    2    1    3    0
## 2.3.3.    2    2    1    1
## 3.1.1.    0   -5   -2   -4
## 3.1.2.    0   -3    1   -2
## 3.1.3.    3   -4    0   -4
## 3.2.1.   -5    0    0   -3
## 3.2.2.   -2    1   -2   -5
## 3.2.3.   -4    3   -1    0
## 3.3.1.   -3    5   -4    3
## 3.3.2.   -1    4    1   -1
## 3.3.3.   -4    3   -3   -2
## 4.1.1.   -2   -2   -1   -4
## 4.1.2.   -3   -2    0   -5
## 4.2.1.   -1    0   -1   -3
## 4.2.2.   -1   -3    2    1
## 4.3.1.   -1   -1   -3    2
## 4.3.2.    0   -2   -2    3
## 5.1.1.   -2   -3    2   -3
## 5.1.2.   -2   -4   -2   -3
## 5.2.1.   -1   -2   -3   -2
## 5.2.2.    0    0    0   -2
## 5.3.1.   -2   -2   -4    0
## 5.3.2.   -3   -1   -5   -1
## 6.1.1.   -5   -1   -1   -1
## 6.1.2.    2    0   -5    0
## 6.2.1.   -3   -3    0   -2
## 6.2.2.    4    2    2    2
## 6.3.1.    1    0    0    2
## 6.3.2.    0    2   -1    1
##
##                               f1    f2    f3    f4
## Average reliability coefficient  0.80  0.80  0.80  0.80
## Number of loading Q-sorts      6.00  4.00  3.00  3.00
## Eigenvalues                     3.79  2.93  2.44  2.21
## Percentage of explained variance 23.69 18.33 15.22 13.82
## Composite reliability           0.96  0.94  0.92  0.92
## Standard error of factor scores  0.20  0.24  0.28  0.28

```

c2Test4\$flagged

##	flag_f1	flag_f2	flag_f3	flag_f4
## Belcher, Pete	TRUE	FALSE	FALSE	FALSE
## Brunner, Evelyn	TRUE	FALSE	FALSE	FALSE
## Florian	FALSE	FALSE	TRUE	FALSE
## Gerit	TRUE	FALSE	FALSE	FALSE
## Haas, Meral	TRUE	FALSE	FALSE	FALSE
## Haller, Franziska	FALSE	FALSE	TRUE	FALSE
## Herbert	FALSE	FALSE	FALSE	TRUE
## Kaiser, Harald	FALSE	FALSE	FALSE	TRUE
## Kaucic-Huber, Anna	TRUE	FALSE	FALSE	FALSE
## Kirsitz, Manuel	FALSE	TRUE	FALSE	FALSE
## Kohler, Kaspar	FALSE	TRUE	FALSE	FALSE
## Leschnig, Heike	FALSE	FALSE	TRUE	FALSE
## Mihle, Markus	FALSE	TRUE	FALSE	FALSE
## Rehrl, peter	FALSE	FALSE	FALSE	TRUE
## Schöberl	FALSE	TRUE	FALSE	FALSE
## Sophie	TRUE	FALSE	FALSE	FALSE

c2Test4\$zsc

##	zsc_f1	zsc_f2	zsc_f3	zsc_f4
## 1.1.1.	1.67491958	1.24038562	2.14463537	1.582229583
## 1.1.2.	0.57014042	0.56280606	1.62566029	1.865574185
## 1.1.3.	1.25997997	1.35317788	1.48188524	1.885024550
## 1.2.1.	-1.49396276	1.15428112	-1.55079232	0.957070302
## 1.2.2.	1.17539184	0.21071587	1.28021093	1.562779219
## 1.2.3.	0.84458556	0.12209265	0.77837660	0.341814678
## 1.3.1.	0.29347015	-2.01609178	-0.19554139	0.927954247
## 1.3.2.	1.02955365	-1.37248338	1.91951536	1.355298337
## 1.3.3.	0.55477974	-0.52240488	1.20517093	1.211179867
## 2.1.1.	1.21952821	1.10253519	0.53611584	0.327137668
## 2.1.2.	1.47230325	1.19540419	1.23962447	0.109991095
## 2.1.3.	0.50952518	-0.37653060	-0.91601874	-0.403001388
## 2.2.1.	1.58815982	1.63902372	-0.79568939	0.615374607
## 2.2.2.	0.21938219	-0.20999398	0.49552937	0.004892337
## 2.2.3.	0.40194931	0.67442590	0.36889507	-0.168461171
## 2.3.1.	0.59356430	0.51231948	1.27390598	-0.063362413
## 2.3.2.	0.86416004	0.38455445	0.89400307	0.105098758
## 2.3.3.	0.88545220	0.83644537	0.35175432	0.412786062
## 3.1.1.	0.10834030	-1.75639623	-0.77837660	-1.548102208
## 3.1.2.	0.03713908	-1.28645917	0.42066140	-0.764266431
## 3.1.3.	0.98320902	-1.38240153	0.12067341	-1.438111113
## 3.2.1.	-1.75083607	-0.03749505	0.03428151	-1.225856877
## 3.2.2.	-1.00746906	0.53531611	-0.79568939	-2.187819516
## 3.2.3.	-1.54004188	1.22099983	-0.55342862	-0.090540731
## 3.3.1.	-1.29941810	2.06107322	-1.29735169	1.235522568
## 3.3.2.	-0.79614157	1.38240153	0.22512001	-0.490825485
## 3.3.3.	-1.65901150	1.21823358	-0.84115077	-0.625159281
## 4.1.1.	-0.86306233	-0.87882780	-0.46107583	-1.293992644
## 4.1.2.	-1.17845774	-0.66568016	-0.02327368	-1.587121920
## 4.2.1.	-0.07013665	0.16635220	-0.65174230	-1.135316147
## 4.2.2.	-0.13513544	-0.97477016	0.88787015	0.168461171
## 4.3.1.	-0.16100190	-0.56280606	-0.95677724	0.712745411
## 4.3.2.	0.14091528	-0.82817398	-0.72064939	1.135316147

```

## 5.1.1. -0.81119567 -0.92490135 0.50653721 -0.864591835
## 5.1.2. -0.80959009 -1.30378342 -0.76123585 -1.220964541
## 5.2.1. -0.28008401 -0.64377565 -1.18172522 -0.524833876
## 5.2.2. -0.06134902 -0.28861209 -0.07504000 -0.861756218
## 5.3.1. -1.03516654 -0.62692575 -1.34894598 -0.080756057
## 5.3.2. -1.26508041 -0.50357374 -1.64910600 -0.351480369
## 6.1.1. -1.70242475 -0.43188736 -0.68619585 -0.466363801
## 6.1.2. 0.69482742 -0.04238242 -1.94296107 0.063362413
## 6.2.1. -1.05154389 -1.10181330 -0.16722076 -0.798393805
## 6.2.2. 1.22796380 0.87441478 0.59401509 0.664060009
## 6.3.1. 0.36932587 -0.32406278 0.16722076 0.500491175
## 6.3.2. 0.25254320 0.61527388 -0.20167431 0.446913436

```

c2Test4\$zsc_n

```

##          fsc_f1 fsc_f2 fsc_f3 fsc_f4
## 1.1.1.         5     4     5     4
## 1.1.2.         1     1     4     5
## 1.1.3.         4     4     4     5
## 1.2.1.        -4     3    -4     3
## 1.2.2.         3     1     4     4
## 1.2.3.         2     0     2     1
## 1.3.1.         0    -5     0     2
## 1.3.2.         3    -4     5     4
## 1.3.3.         1    -1     3     3
## 2.1.1.         3     2     2     1
## 2.1.2.         4     3     3     0
## 2.1.3.         1    -1    -3    -1
## 2.2.1.         5     5    -2     2
## 2.2.2.         0     0     1     0
## 2.2.3.         1     2     1    -1
## 2.3.1.         2     1     3     0
## 2.3.2.         2     1     3     0
## 2.3.3.         2     2     1     1
## 3.1.1.         0    -5    -2    -4
## 3.1.2.         0    -3     1    -2
## 3.1.3.         3    -4     0    -4
## 3.2.1.        -5     0     0    -3
## 3.2.2.        -2     1    -2    -5
## 3.2.3.        -4     3    -1     0
## 3.3.1.        -3     5    -4     3
## 3.3.2.        -1     4     1    -1
## 3.3.3.        -4     3    -3    -2
## 4.1.1.        -2    -2    -1    -4
## 4.1.2.        -3    -2     0    -5
## 4.2.1.        -1     0    -1    -3
## 4.2.2.        -1    -3     2     1
## 4.3.1.        -1    -1    -3     2
## 4.3.2.         0    -2    -2     3
## 5.1.1.        -2    -3     2    -3
## 5.1.2.        -2    -4    -2    -3
## 5.2.1.        -1    -2    -3    -2
## 5.2.2.         0     0     0    -2
## 5.3.1.        -2    -2    -4     0

```

## 5.3.2.	-3	-1	-5	-1
## 6.1.1.	-5	-1	-1	-1
## 6.1.2.	2	0	-5	0
## 6.2.1.	-3	-3	0	-2
## 6.2.2.	4	2	2	2
## 6.3.1.	1	0	0	2
## 6.3.2.	0	2	-1	1

c2Test4\$f_char

```
## $characteristics
##   av_rel_coef nload eigenvals expl_var reliability se_fscores
## f1      0.8     6  3.790974 23.69359   0.9600000  0.2000000
## f2      0.8     4  2.932924 18.33077   0.9411765  0.2425356
## f3      0.8     3  2.435560 15.22225   0.9230769  0.2773501
## f4      0.8     3  2.210623 13.81639   0.9230769  0.2773501
##
## $cor_zsc
##           zsc_f1    zsc_f2    zsc_f3    zsc_f4
## zsc_f1 1.0000000 0.1296024 0.5910355 0.4956650
## zsc_f2 0.1296024 1.0000000 0.1016325 0.3546434
## zsc_f3 0.5910355 0.1016325 1.0000000 0.4102133
## zsc_f4 0.4956650 0.3546434 0.4102133 1.0000000
##
## $sd_dif
##           f1         f2         f3         f4
## f1 0.2828427 0.3143621 0.3419402 0.3419402
## f2 0.3143621 0.3429972 0.3684381 0.3684381
## f3 0.3419402 0.3684381 0.3922323 0.3922323
## f4 0.3419402 0.3684381 0.3922323 0.3922323
```

c2Test4\$qdc

```
##                                     dist.and. cons          f1_f2 sig_f1_f2
f1_f3
## 1.1.1.                                     0.434533958          -0.469
715797
## 1.1.2.                                     0.007334365          -1.055
519872
## 1.1.3.                                     Consensus -0.093197912          -0.221
905272
## 1.2.1.                                     -2.648243886          6*  0.056
829557
## 1.2.2.          Distinguishes f2 only  0.964675971          ** -0.104
819092
## 1.2.3.                                     0.722492908          *  0.066
208956
## 1.3.1.          Distinguishes f2          2.309561929          6*  0.489
011531
## 1.3.2.          Distinguishes f2          2.402037029          6* -0.889
961706
## 1.3.3.          Distinguishes f2 only  1.077184620          *** -0.650
391187
## 2.1.1.                                     0.116993017          0.683
412371
## 2.1.2.          Distinguishes f4 only  0.276899061          0.232
678778
## 2.1.3.          Distinguishes f1 only  0.886055778          **  1.425
543923
## 2.2.1. Distinguishes f3 Distinguishes f4 -0.050863893          2.383
849217
## 2.2.2.                                     Consensus 0.429376167          -0.276
```

147185				
## 2.2.3.		-0.272476595		0.033
054236				
## 2.3.1.	Distinguishes f3 only	0.081244817		-0.680
341676				
## 2.3.2.		0.479605584		-0.029
843036				
## 2.3.3.	Consensus	0.049006821		0.533
697879				
## 3.1.1.	Distinguishes f1 Distinguishes f3	1.864736533	6*	0.886
716904				
## 3.1.2.		1.323598253	***	-0.383
522320				
## 3.1.3.	Distinguishes f1 Distinguishes f3	2.365610550	6*	0.862
535603				
## 3.2.1.		-1.713341021	6*	-1.785
117577				
## 3.2.2.	Distinguishes f2 Distinguishes f4	-1.542785173	6*	-0.211
779667				
## 3.2.3.	Distinguishes f1 Distinguishes f2	-2.761041709	6*	-0.986
613259				
## 3.3.1.	Distinguishes f2 Distinguishes f4	-3.360491318	6*	-0.002
066415				
## 3.3.2.	Distinguishes f2	-2.178543101	6*	-1.021
261580				
## 3.3.3.	Distinguishes f1 Distinguishes f2	-2.877245072	6*	-0.817
860729				
## 4.1.1.		0.015765466		-0.401
986500				
## 4.1.2.		-0.512777582		-1.155
184063				
## 4.2.1.		-0.236488847		0.581
605655				
## 4.2.2.	Distinguishes f2	0.839634722	**	-1.023
005588				
## 4.3.1.	Distinguishes f4	0.401804161		0.795
775340				
## 4.3.2.	Distinguishes f1 Distinguishes f4	0.969089264	**	0.861
564667				
## 5.1.1.	Distinguishes f3 only	0.113705680		-1.317
732876				
## 5.1.2.	Consensus	0.494193330		-0.048
354243				
## 5.2.1.		0.363691637		0.901
641208				
## 5.2.2.		0.227263075		0.013
690989				
## 5.3.1.		-0.408240790		0.313
779442				
## 5.3.2.		-0.761506671	*	0.384
025593				
## 6.1.1.	Distinguishes f1 only	-1.270537383	***	-1.016
228903				
## 6.1.2.	Distinguishes f3	0.737209843	*	2.637

788488						
## 6.2.1.				0.050269416		-0.884
323122						
## 6.2.2.			Consensus	0.353549026		0.633
948717						
## 6.3.1.				0.693388643		* 0.202
105104						
## 6.3.2.				-0.362730674		0.454
217509						
##	sig_f1_f3	f1_f4	sig_f1_f4	f2_f3	sig_f2_f3	f2_f
4						
## 1.1.1.		0.09268999		-0.90424976	*	-0.3418439
6						
## 1.1.2.	**	-1.29543376	***	-1.06285424	**	-1.3027681
3						
## 1.1.3.		-0.62504458		-0.12870736		-0.5318466
7						
## 1.2.1.		-2.45103307	6*	2.70507344	6*	0.1972108
2						
## 1.2.2.		-0.38738738		-1.06949506	**	-1.3520633
5						
## 1.2.3.		0.50277088		-0.65628395		-0.2197220
3						
## 1.3.1.		-0.63448410		-1.82055040	6*	-2.9440460
3						
## 1.3.2.	**	-0.32574468		-3.29199874	6*	-2.7277817
1						
## 1.3.3.		-0.65640013		-1.72757581	***	-1.7335847
5						
## 2.1.1.	*	0.89239054	**	0.56641935		0.7753975
2						
## 2.1.2.		1.36231215	***	-0.04422028		1.0854130
9						
## 2.1.3.	***	0.91252657	**	0.53948814		0.0264707
9						
## 2.2.1.	6*	0.97278522	**	2.43471311	6*	1.0236491
1						
## 2.2.2.		0.21448985		-0.70552335		-0.2148863
2						
## 2.2.3.		0.57041048		0.30553083		0.8428870
7						
## 2.3.1.	*	0.65692671		-0.76158649	*	0.5756819
0						
## 2.3.2.		0.75906128	*	-0.50944862		0.2794556
9						
## 2.3.3.		0.47266613		0.48469106		0.4236593
1						
## 3.1.1.	**	1.65644251	***	-0.97801963	**	-0.2082940
3						
## 3.1.2.		0.80140551	*	-1.70712057	***	-0.5221927
4						
## 3.1.3.	*	2.42132013	6*	-1.50307495	***	0.0557095
8						
## 3.2.1.	6*	-0.52497919		-0.07177656		1.1883618

3				
## 3.2.2.	1.18035046	***	1.33100551	*** 2.7231356
3				
## 3.2.3.	** -1.44950115	***	1.77442845	*** 1.3115405
6				
## 3.3.1.	-2.53494067	6*	3.35842490	6* 0.8255506
5				
## 3.3.2.	** -0.30531608		1.15728152	** 1.8732270
2				
## 3.3.3.	* -1.03385222	**	2.05938434	6* 1.8433928
6				
## 4.1.1.	0.43093031		-0.41775197	0.4151648
5				
## 4.1.2.	*** 0.40866418		-0.64240648	0.9214417
6				
## 4.2.1.	1.06517950	**	0.81809450	* 1.3016683
5				
## 4.2.2.	** -0.30359661		-1.86264031	6* -1.1432313
3				
## 4.3.1.	* -0.87374731	*	0.39397118	-1.2755514
7				
## 4.3.2.	* -0.99440087	**	-0.10752460	-1.9634901
3				
## 5.1.1.	*** 0.05339616		-1.43143856	*** -0.0603095
2				
## 5.1.2.	0.41137445		-0.54254757	-0.0828188
8				
## 5.2.1.	** 0.24474987		0.53794957	-0.1189417
7				
## 5.2.2.	0.80040720	*	-0.21357209	0.5731441
3				
## 5.3.1.	-0.95441048	**	0.72202023	-0.5461696
9				
## 5.3.2.	-0.91360004	**	1.14553226	** -0.1520933
7				
## 6.1.1.	** -1.23606095	***	0.25430848	0.0344764
4				
## 6.1.2.	6* 0.63146501		1.90057865	6* -0.1057448
3				
## 6.2.1.	** -0.25315008		-0.93459254	* -0.3034195
0				
## 6.2.2.	0.56390379		0.28039969	0.2103547
7				
## 6.3.1.	-0.13116531		-0.49128354	-0.8245539
5				
## 6.3.2.	-0.19437023		0.81694818	* 0.1683604
4				
##	sig_f2_f4	f3_f4	sig_f3_f4	
## 1.1.1.	0.562405791			
## 1.1.2.	*** -0.239913892			
## 1.1.3.	-0.403139312			
## 1.2.1.	-2.507862623	6*		
## 1.2.2.	*** -0.282568288			
## 1.2.3.	0.436561927			

```

## 1.3.1.      6* -1.123495632      **
## 1.3.2.      6*  0.564217023
## 1.3.3.     *** -0.006008941
## 2.1.1.      *  0.208978168
## 2.1.2.     **  1.129633373      **
## 2.1.3.     -0.513017352
## 2.2.1.     ** -1.411063999     ***
## 2.2.2.      *  0.490637036
## 2.2.3.     *  0.537356242
## 2.3.1.     **  1.337268390     ***
## 2.3.2.     *  0.788904315      *
## 2.3.3.     -0.061031746
## 3.1.1.     *  0.769725603      *
## 3.1.2.     **  1.184927830     **
## 3.1.3.     ***  1.558784526     ***
## 3.2.1.     **  1.260138387     **
## 3.2.2.     6*  1.392130124     ***
## 3.2.3.     *** -0.462887892
## 3.3.1.      * -2.532874254      6*
## 3.3.2.     6*  0.715945499
## 3.3.3.     6* -0.215991487
## 4.1.1.     *  0.832916813      *
## 4.1.2.     *  1.563848244     ***
## 4.2.1.     ***  0.483573843
## 4.2.2.     **  0.719408981
## 4.3.1.     *** -1.669522647     ***
## 4.3.2.     6* -1.855965534     ***
## 5.1.1.     **  1.371129041     ***
## 5.1.2.     *  0.459728690
## 5.2.1.     -0.656891341
## 5.2.2.     *  0.786716213      *
## 5.3.1.     ** -1.268189925     **
## 5.3.2.     *** -1.297625633     ***
## 6.1.1.     -0.219832045
## 6.1.2.     -2.006323480      6*
## 6.2.1.     *  0.631173041
## 6.2.2.     -0.070044924
## 6.3.1.     * -0.333270411
## 6.3.2.     -0.648587743

# Merge with text
c2TestScores4 <- cbind(Matrix2[,2], c2Test4$zsc_n)
colnames(c2TestScores4) <- c("Statements", "Faktor 1", "Faktor 2", "Faktor
3", "Faktor 4")
View(c2TestScores4)

# Order the results by the scores of each factor:
#for (i in 1:length(c2Test4$Loa)) {
# View(c2TestScores4[order(c2TestScores4[i], decreasing = TRUE),],
# title = paste0("Order by scores for factor ", i))
#}

par(lwd = 1.5, mar = c(4,4,4,4) + 0.3, cex = 1)

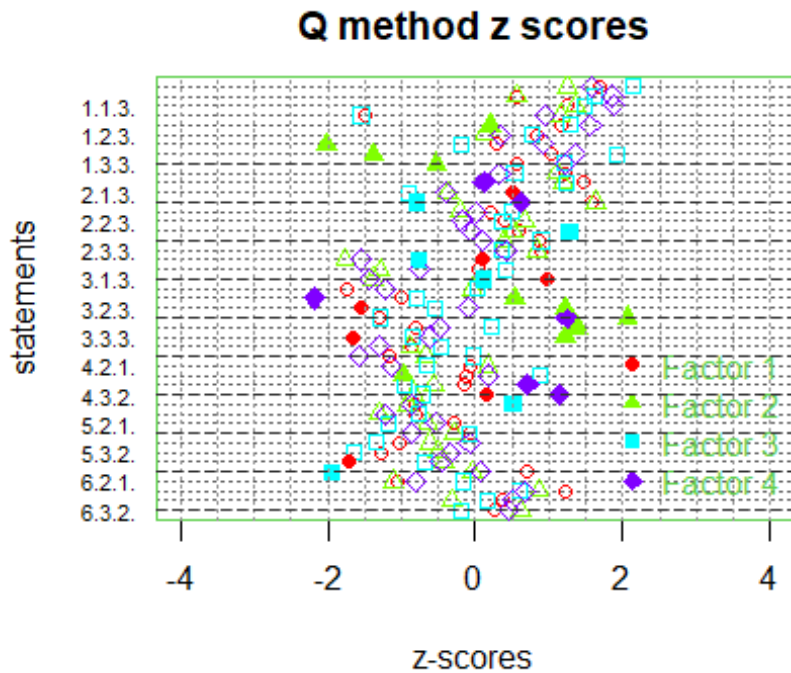
```

```

plot(c2Test4, dist = TRUE, xlim= c(-4,4), cex.axis = 0.7,
     sort.items = c(rev(1:nrow(c2Test4$zsc))))

abline(h = seq(from = 1, to = 40, by = 4), col = grey(0.2), lty = 2)
title("Q method z scores", line = 1)

```



```

# Data frame for distinguishing and consensus statements
format(c2Test4$qdc, digits = 1, nsmall = 2)

##          dist.and. cons  f1_f2 sig_f1_f2  f1_f3 sig_f1
_f3
## 1.1.1.                0.435      -0.470
## 1.1.2.                0.007      -1.056
**
## 1.1.3.                Consensus -0.093      -0.222
## 1.2.1.                -2.648        6*  0.057
## 1.2.2.                Distinguishes f2 only 0.965        ** -0.105
## 1.2.3.                0.722         *  0.066
## 1.3.1.                Distinguishes f2 2.310        6*  0.489
## 1.3.2.                Distinguishes f2 2.402        6* -0.890
**
## 1.3.3.                Distinguishes f2 only 1.077        *** -0.650
## 2.1.1.                0.117         0.683
*
## 2.1.2.                Distinguishes f4 only 0.277         0.233
## 2.1.3.                Distinguishes f1 only 0.886         **  1.426
***
## 2.2.1. Distinguishes f3 Distinguishes f4 -0.051         2.384
6*
## 2.2.2.                Consensus 0.429         -0.276
## 2.2.3.                -0.272         0.033

```

## 2.3.1.	Distinguishes f3 only	0.081	-0.680
*			
## 2.3.2.		0.480	-0.030
## 2.3.3.	Consensus	0.049	0.534
## 3.1.1.	Distinguishes f1 Distinguishes f3	1.865	6* 0.887
**			
## 3.1.2.		1.324	*** -0.384
## 3.1.3.	Distinguishes f1 Distinguishes f3	2.366	6* 0.863
*			
## 3.2.1.		-1.713	6* -1.785
6*			
## 3.2.2.	Distinguishes f2 Distinguishes f4	-1.543	6* -0.212
## 3.2.3.	Distinguishes f1 Distinguishes f2	-2.761	6* -0.987
**			
## 3.3.1.	Distinguishes f2 Distinguishes f4	-3.360	6* -0.002
## 3.3.2.	Distinguishes f2	-2.179	6* -1.021
**			
## 3.3.3.	Distinguishes f1 Distinguishes f2	-2.877	6* -0.818
*			
## 4.1.1.		0.016	-0.402
## 4.1.2.		-0.513	-1.155

## 4.2.1.		-0.236	0.582
## 4.2.2.	Distinguishes f2	0.840	** -1.023
**			
## 4.3.1.	Distinguishes f4	0.402	0.796
*			
## 4.3.2.	Distinguishes f1 Distinguishes f4	0.969	** 0.862
*			
## 5.1.1.	Distinguishes f3 only	0.114	-1.318

## 5.1.2.	Consensus	0.494	-0.048
## 5.2.1.		0.364	0.902
**			
## 5.2.2.		0.227	0.014
## 5.3.1.		-0.408	0.314
## 5.3.2.		-0.762	* 0.384
## 6.1.1.	Distinguishes f1 only	-1.271	*** -1.016
**			
## 6.1.2.	Distinguishes f3	0.737	* 2.638
6*			
## 6.2.1.		0.050	-0.884
**			
## 6.2.2.	Consensus	0.354	0.634
## 6.3.1.		0.693	* 0.202
## 6.3.2.		-0.363	0.454

##	f1_f4	sig_f1_f4	f2_f3	sig_f2_f3	f2_f4	sig_f2_f4	f3_f4	sig_f3_f4
##	1.1.1.	0.09	-0.90	*	-0.34		0.562	
##	1.1.2.	-1.30	***	-1.06	**	-1.30	***	-0.240
##	1.1.3.	-0.63		-0.13		-0.53		-0.403
##	1.2.1.	-2.45	6*	2.71	6*	0.20		-2.508
##	1.2.2.	-0.39		-1.07	**	-1.35	***	-0.283
##	1.2.3.	0.50		-0.66		-0.22		0.437
##	1.3.1.	-0.63		-1.82	6*	-2.94	6*	-1.123
##	1.3.2.	-0.33		-3.29	6*	-2.73	6*	0.564
##	1.3.3.	-0.66		-1.73	***	-1.73	***	-0.006
##	2.1.1.	0.89	**	0.57		0.78	*	0.209
##	2.1.2.	1.36	***	-0.04		1.09	**	1.130
##	2.1.3.	0.91	**	0.54		0.03		-0.513
##	2.2.1.	0.97	**	2.43	6*	1.02	**	-1.411
##	2.2.2.	0.21		-0.71		-0.21		0.491
##	2.2.3.	0.57		0.31		0.84	*	0.537
##	2.3.1.	0.66		-0.76	*	0.58		1.337
##	2.3.2.	0.76	*	-0.51		0.28		0.789
##	2.3.3.	0.47		0.48		0.42		-0.061
##	3.1.1.	1.66	***	-0.98	**	-0.21		0.770
##	3.1.2.	0.80	*	-1.71	***	-0.52		1.185
##	3.1.3.	2.42	6*	-1.50	***	0.06		1.559
##	3.2.1.	-0.52		-0.07		1.19	**	1.260
##	3.2.2.	1.18	***	1.33	***	2.72	6*	1.392
##	3.2.3.	-1.45	***	1.77	***	1.31	***	-0.463
##	3.3.1.	-2.53	6*	3.36	6*	0.83	*	-2.533
##	3.3.2.	-0.31		1.16	**	1.87	6*	0.716
##	3.3.3.	-1.03	**	2.06	6*	1.84	6*	-0.216
##	4.1.1.	0.43		-0.42		0.42		0.833
##	4.1.2.	0.41		-0.64		0.92	*	1.564
##	4.2.1.	1.07	**	0.82	*	1.30	***	0.484
##	4.2.2.	-0.30		-1.86	6*	-1.14	**	0.719
##	4.3.1.	-0.87	*	0.39		-1.28	***	-1.670
##	4.3.2.	-0.99	**	-0.11		-1.96	6*	-1.856
##	5.1.1.	0.05		-1.43	***	-0.06		1.371
##	5.1.2.	0.41		-0.54		-0.08		0.460
##	5.2.1.	0.24		0.54		-0.12		-0.657
##	5.2.2.	0.80	*	-0.21		0.57		0.787
##	5.3.1.	-0.95	**	0.72		-0.55		-1.268
##	5.3.2.	-0.91	**	1.15	**	-0.15		-1.298
##	6.1.1.	-1.24	***	0.25		0.03		-0.220
##	6.1.2.	0.63		1.90	6*	-0.11		-2.006
##	6.2.1.	-0.25		-0.93	*	-0.30		0.631
##	6.2.2.	0.56		0.28		0.21		-0.070
##	6.3.1.	-0.13		-0.49		-0.82	*	-0.333
##	6.3.2.	-0.19		0.82	*	0.17		-0.649