

Alternative = transformative? Investigating drivers of transformation in alternative food networks in Germany

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Abstract

In the hope for more sustainable agriculture and a stronger connection to their food, an increasing number of consumers participate in alternative food networks (AFNs) characterised by short food supply chains. However, it cannot be assumed that AFNs inherently transform the prevailing system and its respective practices around food. Thus, we apply a social innovation perspective to enable a comprehensive analysis of changed values, social practices and relations in AFNs. This article presents whether drivers of transformation occur in three different AFN models (Community Supported Agriculture (CSA), food co-operatives (food co-ops) and self-harvest gardens) and how participants describe and perceive them in each model. Therefore, we conducted interviews with AFN producers and consumers, before applying qualitative content analysis. Interviewees describe a broad variety of transformed values, practices and relations: Especially CSA and food co-ops bear transformative potential as their members report a strong reconnection of producers and consumers expressed through social interaction and community-building. Self-harvest gardeners

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predominantly seek individual capacity building and to have access to their own garden. We conclude that AFN participation fosters incremental transformation towards more sustainable practices around food and a respective value system, which can be a part of a bigger movement aimed at food system transformation.

KEYWORDS

alternative food supply, food system transformation, local food, self-organization, transformative social innovation

INTRODUCTION

The prevailing industrial food production system faces rising pressure as routine practices are increasingly perceived as problematic. Growing awareness of sustainability issues such as negative environmental impacts precarious producer welfare, and insufficient consumer wellbeing also results in a mounting societal desire for a change in the way food is produced and consumed (Bock, 2012; Forssell & Lankoski, 2015). Industrial agriculture and the conventional food system are acknowledged for high yields and a rise in the total amount of produced food, enabling mainstream players to deliver both local and global markets (Cleveland et al., 2015; Jarosz, 2000). However, the characteristics and practices within the globalised food economy increasingly lead to a decoupling of consumers and producers. First of all, this concerns a spatial dimension: The places of food production and consumption are often thousands of kilometres away from each other (Fader et al., 2013). On an economic level, industrialised food production leads to standardised products that are sold to merely a few intermediaries before they end up in supermarkets as an anonymous good. Small farmers in particular face high growth and price pressure, making it a challenge for them to compete with large corporations in the market (Galt et al., 2016; Marsden et al., 2008). Furthermore, deregulated speculation on staple foods leads to excessive price volatility that can negatively affect both small producers, who may become price takers, and consumers who struggle to afford a balanced nutrition (Blay-Palmer et al., 2016). On a societal level, many consumers are disconnected from the realities of agriculture. They are unable to comprehend how their food is grown and how it ends up on their table because of non-transparent food production practices (Papaoikonomou & Ginieis, 2017; Zoll et al., 2018) and insufficient agricultural knowledge during their school education (Nowack & Hoffmann, 2019). The lack of transparency, negative media reports, regularly occurring food scandals, and mounting consciousness for animal welfare have fueled distrust of conventionally produced food among consumers (Bock, 2012; Murdoch et al., 2000). Combined with the aforementioned growing awareness for environmental consequences of large-scale agriculture such as intensive resource use as well as soil and water contamination problems through fertilisers and pesticides (Sonnino, 2009), agriculture has once again become a sector that society is concerned about, and one that is facing demands that go far beyond food production (Nowack & Hoffmann, 2019).

Alternative food networks (AFNs) as an alternative solution

AFNs can be considered as a part of a transformation in the ways in which food is produced, distributed and consumed (Mincyte & Dobernig, 2016). AFNs differ in several aspects from

conventional food chains. They are characterised by short food supply chains and enable direct contact between producers and consumers. Hence, they bear the potential to re-establish the link between agriculture and society that has become increasingly lost in long, industrialised supply chains (Mincyte & Dobernic, 2016; Renting et al., 2003). The importance of regional, self-organised food provision is again emphasised since the occurrence of the Covid-19 pandemic, which exposed the vulnerability of the dominating food system (Cattivelli & Rusciano, 2020). Calvario and Kallis (2017) describe alternative food economies as an activist strategy with the aim of confronting existing market forces and governmental power structures. Community Supported Agriculture (CSA) is often suggested as an integral step towards a food system that operates outside the market (Hvitsand, 2016). Distinctive characteristics are, for example, that consumers usually contractually agree to buy the farmers' produce for at least one season, providing a secure source of income for the producer regardless of the actual harvest quantity (Butler Flora & Bregendahl, 2012; Hvitsand, 2016). On a group level, the close ties to the AFN producer create loyal relationships and transparency (Thorsøe & Kjeldsen, 2016). In AFN models like CSA and particularly self-harvest gardens, consumers can become part of the production process, offering a different level of reconnection with food (Gauder et al., 2019; Vogl et al., 2004; Zoll et al., 2018). Moragues-Faus (2017) describes participation and non-hierarchical organisation as a characteristic difference of food co-operatives (food co-ops) in comparison to the conventional system, and hence defining the 'alternative'. On an individual level, some studies have reported that AFN participation resulted not just in transformed consumption patterns with regards to nutrition but also different purchase decisions in terms of seasonality or sustainability of the products (Allen et al., 2017; Brunori et al., 2011; Opitz et al., 2017). AFNs are sometimes regarded as more environmentally friendly, compared to conventional farming, as the farmers typically follow organic production principles (Forsell & Lankoski, 2015). Other scholars challenge the 'alternativeness' of these food networks and their potential for the transformation of existing practices. They question whether AFNs are merely used as a marketing strategy whilst simultaneously reinforcing the prevailing regime and social inequalities (Goodman & DuPuis, 2002; Hinrichs, 2000; Sarmiento, 2017). Furthermore, different AFN models can greatly vary in their practices and facilitate different degrees of consumer-producer relationships (Papaoikonomou & Ginieis, 2017). That means in order to understand the actual potential of AFNs, we first have to characterise this 'alternativeness' throughout different models in terms of actually varying practices, values and processes in a formalised way.

The urge to change the dominant patterns of production and consumption, as well as the corresponding change of values and attitudes, in order to comply with the needs of the society, fits well into the concept of social innovation (Bock, 2012). Pel et al. (2020, p. 3) frame social innovation as 'new ways of doing (practices, technologies, material commitments), organizing (rules, decision-making, modes of governance), framing (meaning, visions, imaginaries, discursive commitments) and knowing (cognitive resources, competence, learning, appraisal)'. It can be a reaction to the failure of prevailing capitalistic market mechanisms, failure of provision of social services through the state, the neglect of the needs of developing economies, excessive resource use or climate change. Thus, the concept is valuable when analysing drivers that transform social relations and practices as a response to social, economic and environmental pressures (Biggs et al., 2010; Moulaert et al., 2005; Neumeier, 2017; van der Have & Rubalcaba, 2016). The broad applicability of social innovation goes along with numerous existing definitions of the term (Moulaert et al., 2005; Pol & Ville, 2009; van der Have & Rubalcaba, 2016). The lack of clarity is, on the one hand, criticised in terms of validity of the concept (van der Have & Rubalcaba, 2016). On the other hand, the conceptual fuzziness is interpreted as a valuable openness that brings along discursive power and ties in with the creative and spontaneous character of innovations (Bock, 2012).

Despite ambiguity and differences, existing social innovation definitions exhibit more unifying elements than dividing ones (van der Have & Rubalcaba, 2016). Two core characteristics clarify the overarching idea of the concept. First, social innovations comprise changes to social relationships, systems or structures. The second commonality is that these changes set out to achieve a human need or solve a social problem (Bock, 2012; Howaldt et al., 2015; Moulaert et al., 2005; Mulgan, 2006; van der Have & Rubalcaba, 2016).

In order to further reduce the vagueness of social innovation, several scholars have introduced the concept of transformative social innovation, exploring what exactly characterises social innovation and how it can bring about transformation (Avelino et al., 2019; Pel et al., 2020; Wittmayer et al., 2019). In this article, we follow the definitions of Pel et al. (2020) who first of all conceptualised social innovation as the process of changing social relations and practices; and second, defined transformative social innovation as ‘the process of social innovation challenging, altering, or replacing dominant institutions in a specific social-material context’ (Pel et al., 2020, p. 1).

Transformative social innovation appears to be a promising concept to analyse AFNs as a reaction to the malfunctioning food system, which represents the ‘dominant institution’ described by Pel et al. (2020). To bring together social innovation and transformation of social practices for AFNs, we rely on a study by Biggs et al. (2010). They used a social innovation perspective to look at transformation processes in ecosystem management. The study identified five factors that foster transformation, namely, (1) environmental crises, (2) reframing of perspectives, (3) engaging stakeholders, (4) social entrepreneurship and (5) institutional support.

Even though we have already outlined some of the possible new social practices and distinctions from the conventional food system, only a few studies examine AFNs specifically in the context of social innovation and associated transformation processes. So far, the contribution of AFNs to transformation has been mainly explored by investigating relations within AFNs: Sacchi (2019) considers trust-creating schemes in AFNs as a niche of social innovation, fostering processes like social inclusion or farmer empowerment. Blättel-Mink et al. (2017) deemed CSA as a social innovation and identified respective characteristic elements. According to their analysis, solidarity, decommodification and prosuming (consumers producing their own food) are the facets that distinguish CSA from conventional farming. Pellicer-Sifres et al. (2017) looked at empowerment processes in food co-ops in Spain. In contrast to these analyses that were primarily inward-facing, Espelt (2020) also investigated broader relations examining the impact of a network of different CSA farms. Cattivelli and Rusciano (2020) in turn situated food co-ops in relation to the socio-material context of an external crisis, exploring the capacity of food-co-ops to address social challenges during the Covid-19 pandemic. Self-harvest gardens, an increasingly widespread AFN model, have yet to be considered from a social innovation perspective.

To understand a social innovation process, it is necessary to shed light on the participating individuals, their values, practices and behaviours (Cajaiba-Santana, 2014). Beyond this individual perspective, an investigation into the different kinds of relations that influence the outcome of transformative social innovation processes is also required. To fully comprehend the transformative potential of initiatives like AFNs, the relations within the initiative, the relations with broader networks, the relations with institutions and the broader socio-material context all have to be taken into account (Pel et al., 2020). Adding to existing literature, the original value of our article lies in a combination of different aspects: First, the theoretical framework applied in our study allows a comprehensive overview of drivers of transformation occurring in AFNs. Second, the framework covers both the individual and the relational perspective mentioned above and therefore gives insights on how these drivers are perceived by participants of the AFN models with regard to their alternative values, practices and relations, and how they are embedded in

TABLE 1 Analytical framework: Drivers and subdrivers of transformation derived from Biggs et al. (2010) and social innovation literature

Driver 1: crises	<ul style="list-style-type: none"> • Subdriver 1.1: external trigger • Subdriver 1.2: social need
Driver 2: reframing perspectives	<ul style="list-style-type: none"> • Subdriver 2.1: awareness/understanding of a problem • Subdriver 2.2: variation of current practices
Driver 3: engaging stakeholders	<ul style="list-style-type: none"> • Subdriver 3.1: empowerment • Subdriver 3.2: change of social relations • Subdriver 3.3: collective action
Driver 4: social entrepreneurship	<ul style="list-style-type: none"> • Subdriver 4.1: strong motivation • Subdriver 4.2: successful group management
Driver 5: institutional support	<ul style="list-style-type: none"> • Subdriver 5.1: political recognition • Subdriver 5.2: supporting legal framework

the wider institutional and societal context. While most articles concentrate on one AFN model, our study also provides a comparative analysis of three AFN models in the context of social innovation. This gives an overview of commonalities and differences among the three models and enables a consistent discussion of existing and missing links between the models and what these connections imply for AFNs' potential contribution to food system transformation.

To provide the depicted novel contribution, we apply a social innovation framework derived from Biggs et al. (2010) to investigate drivers of transformation in AFNs. In detail, our study aims to answer the following research questions:

1. Do drivers of transformation occur in the three AFN models food co-op, CSA and self-harvest garden?
2. How do consumers and producers describe and perceive these drivers of transformation in the context of their AFN involvement?
3. What are the commonalities and differences between the three AFN models regarding participants' perceptions?

THEORETICAL AND ANALYTICAL FRAMEWORK

In order to analyse the occurrence and perceptions of drivers of transformation in the three different AFN models, we developed an analytical framework based on the work of Biggs et al. (2010) as displayed in Table 1.

Biggs et al. (2010) applied a social innovation perspective to look at transformation processes in ecosystem management and identified five drivers that foster transformation. They developed the drivers based on three case studies on a local level, meaning that the actors looked for solutions to site-specific problems rather than aiming for larger-scale transformation (Biggs et al., 2010). Howaldt et al. (2013) argue that social innovations, in terms of new practices, emerge in niches at the micro level, which if imitated can destabilise existing systems and become the new norm, thus leading to transformation on a larger scale. We consider the reconfiguration of the existing regime, in our case the conventional food system, as a step that is yet to come because the innovation–

AFNs—remains a niche practice. Yet, we regard the investigation of drivers of transformation in AFNs and especially the scale on which it occurs as an important step towards being able to discuss the transformative potential on a societal or systemic level in the future. To strengthen the social innovation perspective and enable a more refined analysis, we underpinned Biggs et al.'s (2010) drivers of transformation with driver subcategories extracted from the description of Biggs et al.'s (2010) framework itself along with social innovation literature from other scholars (see Table 1). In the following, we describe our framework in detail.

Biggs et al. (2010) named environmental **crises** as the first driver that can cause transformation processes. The crisis can be both a current problem and an anticipated future problem. In other literature this initial impetus is often described as external trigger or shock, discontent with the prevailing situation or system dysfunctions in satisfying social needs (Bock, 2012; Howaldt et al., 2015; Moulaert et al., 2005). The initial impetus triggers the formation of a small group that seeks to satisfy the identified social need (Neumeier, 2017). In transformative social innovation theory, such events are considered as 'game changers' that can potentially alter the values, institutions and social relations that society is built on (Avelino et al., 2017). As AFNs are related to a broad range of aspects beyond environmental issues of agriculture, we broadened the driver beyond environmental crises, as Biggs et al. (2010) termed it, to include all kinds of crises.

The second driver that promotes transformation in a social innovation context is the **reframing of perspectives**. It involves a change of perspective and the newfound awareness of a problem, often at the expense of those involved, creating both a space for alternative solutions and an openness for them (Biggs et al., 2010). This allows people with a shared mindset to experimentally select, develop and implement varying social practices (Jaeger-Erben et al., 2015), as values and beliefs manifest in behavioural patterns and the structures where they take place (Cajaiba-Santana, 2014). The emerging solutions can be considered as collective learning processes (Bock, 2012; Neumeier, 2017). Furthermore, reframing can foster a collective narrative of change, depicting alternative futures and is therefore considered as a transformative activity (Wittmayer et al., 2019).

However, to facilitate this process, it is necessary to **engage stakeholders** in trustful, informal relationships. They create a spirit from which changed values and new ideas come into effect and are actually implemented (Biggs et al., 2010). As people who are affected by dysfunctional systems know the respective problems well, they may contribute to a solution and help themselves if they are able to team up and start a collective empowerment (Moulaert et al., 2005; Mulgan, 2006). Particularly in cases where interaction occurs between actor groups that had not been in contact before, knowledge is exchanged, new practices are negotiated and new forms of collaboration and changed social relations emerge (Bock, 2012; Neumeier, 2017). Community-building and collective action are also often seen as essential for the manifestation of new practices and solutions (Evers & Ewert, 2015; Jaeger-Erben et al., 2015). A community that shares alternative values can furthermore offer a space of individual and collective empowerment that is crucial for keeping member motivation high and creating a transformation agency (Pel et al., 2020).

The community's goals regarding transformation are best promoted if there is a dedicated **social entrepreneur** who leads and manages the group and builds networks (Biggs et al., 2010). Such entrepreneurs understand how to mobilise others to challenge the *status quo* (Moulaert et al., 2005) on top of possessing knowledge about the peoples' needs and discontents with the current systems (Mulgan, 2006). The transformative impact of a social innovation initiative highly depends on its ability to form empowering networks with like-minded groups in order to reach a critical mass (Pel et al., 2020).

Institutional support is also an essential driver for the establishment of groups aimed at bringing along transformation and social innovation. This support can include political recognition (Mulgan, 2006), which can entail the provision of financial resources, human resources or working spaces (Biggs et al., 2010). Furthermore, the regulatory structures define the capacity of transformation-oriented movements (Evers & Ewert, 2015). However, the relationship between the institutional environment and social innovators can be both positive and negative (MacCallum, 2013). In order to enable social change towards a sustainable development, policymakers have to be innovative as well as allow adaption and change of the legal conditions to favour social innovation and its actors (Howaldt et al., 2013; Moulaert et al., 2005). Another potential conflict area in this regard is that socially innovative initiatives often strive to transform the institutions themselves, but as they are often not well-established yet, they are in need of an institutional home or strongly depend on institutional formalities such as accreditation or licenses (Pel et al., 2020).

METHOD

As AFNs can be very diverse, we first investigated which AFN models are most relevant in Germany and where they are spatially most prevalent. An internet-scoping of existing AFN projects revealed that food co-ops, CSAs and self-harvest gardens were the most frequent models with producer-consumer interactions in Germany. We, therefore, considered them to be most relevant and deserving of further investigation. Afterwards, we identified the urban areas with the highest concentration of the selected AFN models, which resulted in three case study regions—Berlin, Hamburg, and Munich. Within each city, we randomly selected one project for each AFN model, resulting in nine different case studies. General characterisations of the three AFN models and short descriptions of the nine case studies are displayed in Table 2.

In total, 26 qualitative interviews with eight AFN producers and 18 consumers were carried out in 2016. In two of the case study regions, the interviews comprised one producer and two consumers per AFN model. In one region, we interviewed a producer of a farm who delivers both CSA and a food co-op and was able to report about both models. The interviews were recorded and transcribed to prepare them for qualitative content analysis (Kuckartz & McWhertor, 2014), using MaxQDA to conduct the coding. The aim of the coding was to identify the occurrence of drivers of transformation in the different AFN models and capture how producers' and consumers' perceive those drivers in the context of their AFN involvement. The reference for the coding was the analytical framework (see Table 1). The first author coded the interviews and discussed the code structure and the assigned text passages with the co-authors after every round. During the first coding round, we sorted the text segments into driver categories and subcategories, respectively. In the next step, we looked at the content of each driver and inductively grouped the material into detailed thematic categories. In two additional rounds, the thematic categories were condensed, merged and adjusted where necessary.

For the analysis, we created a single case profile for every interviewee. To make the results comparable for the different models, we qualitatively rated the relevance of the mentioned aspects (see Table A1 in the Appendix for further explanation of ratings). The rating was based on how frequently an aspect was mentioned and the weight that interviewees assigned to it. If an aspect was not mentioned at all, we did not assign any rating to it. Afterwards, we identified patterns of how strongly a certain aspect was expressed on the level of each AFN model and

TABLE 2 Short introduction of the three alternative food network (AFN) models and the nine specific AFN initiatives participating in our study (information on the initiatives was obtained from their websites, to protect interviewees' anonymity, neither the URLs nor the location of the initiatives can be disclosed)

1. Food co-operatives (food co-ops)	
General description of the model	Consumer groups obtain food from producers directly and organise the distribution themselves (Fonte, 2013).
Case study 1.A	<i>The main aim is to provide fresh food at affordable prices but also to inform and educate about food. The food co-op also shares their political views on their website. They further postulate the importance of community building between producers and consumers and hold weekly meetings, which are also open to non-members.</i>
Case study 1.B	<i>The farm delivers food in bulk to different distribution stations that were founded by consumers. From there, the members are responsible for the allocation of food into fair shares. Each distribution station is self-organised and follows its own rules. Some groups have the legal status of co-operatives because this facilitates the financing of their distribution room. Several groups organise community or cultural events. In this food co-op, it is common to also obtain additional foodstuffs such as oil or bread from other producers.</i>
Case study 1.C	<i>This food co-op is supplied by different farms covering different kinds of food. The main goal is to support small farmers and craftsmanship but also to promote the connection between urban and rural areas through values like mutual appreciation. The initiative states a strong identification with other food movements.</i>
2. Community Supported Agriculture (CSA)	
General description of the model	<i>A group of consumers agrees in advance to finance the operational cost of a farm, usually for an entire year. In return, they obtain a share of the harvest throughout the vegetation period (Blättel-Mink et al., 2017).</i>
Case study 2.A	<i>The CSA is highly engaged in topics such as economy of the common good and wants to promote empowerment of consumers in terms of transparency and showing where food comes from in order to reconnect them with agriculture. They also point to the significance of producer empowerment (planning security, independence from market, being able to pay fair wages, using less packaging, being able to sell non-standard food).</i>
Case study 2.B	<i>The CSA wants to set an example for sustainable, localised agriculture and therefore has a strong focus on education and creating (inclusive) jobs. The CSA is organised as a co-operative which helps financing the construction of additional buildings. The members of the co-operative become co-owners of the production sites.</i>
Case study 2.C	<i>This CSA emphasises the significance of the members' economic support. Transparency is an important aspect and the budget is always presented to the members before every growing season. Throughout the year, there are regular community events on farm.</i>
3. Self-harvest gardens	
General description of the model	<i>Consumers lease a plot from a farmer who prepares the plot for vegetable production. Subsequently, the consumers take care of the plot and harvest the vegetables (Gauder et al., 2019).</i>

(Continues)

TABLE 2 (Continued)

Case study 3.A	<i>The main aim of the self-harvest garden provider is to promote a sustainable healthy lifestyle by enabling people to have a garden where they can grow their own food. Members are provided with vast information on gardening and cooking. The plots are prepared by a family farmer who also sells produce from his farm to the gardeners.</i>
Case study 3.B	<i>The self-harvest garden provider has different sites throughout the city that are maintained by different farmers. The provider sets up guiding principles that entail empowerment of consumers in terms of knowing where their food comes from instead of obtaining food from long, anonymous food chains.</i>
Case study 3.C	<i>The main goal of this self-harvest garden provider is to enable all social strata to grow their own vegetables. Several sites in the city are prepared by one farmer. Members can use an online blog to receive information on gardening but also on broader topics such as climate change or to exchange information.</i>

assessed the relevance of each driver category, comparing the different models. We would like to emphasise that both the category assignment and the identification of patterns of drivers for the models are a form of qualitative analysis to illustrate our results and not a quantitative assessment.

RESULTS

The results show that all drivers of transformation are relevant in the considered AFN models. However, the analysis revealed differences and commonalities between the three models. The most striking aspects are described in this section. To enable a comprehensive comparison of the models, all described aspects are displayed in detail in Tables A2 to A6 in the Appendix.

Driver 1: crises

Crisis as a driver was apparent in our study (see Table A2 in the Appendix). When first looking at the external triggers, especially in CSA and food co-ops, strong *discontent with the prevailing system* was prevalent among the consumers but not so much among producers. In both models, consumers exhibited a deeply rooted criticism against the negative impacts of the conventional agricultural system that is considered 'industrial' as the following statement emphasises: 'I don't like factory farms at all. I am a vegetarian. Not because I don't like meat, but because I just cannot bear animal husbandry. I don't understand that and I think it has nothing to do with the original form of agriculture' (CSA member, case study 2.B).

Environmental consequences of overfertilisation, monocultures, use of chemicals and social issues such as low wages and low food prices were mentioned as reasons for the AFN participation in those two models. For self-harvest consumers, discontent as an impetus was less pronounced even though it did play a role for two of the self-harvest producers who criticised similar issues to the CSA and food co-op consumers. In contrast, the *anticipation or perception of previous or possible future food scandals* was an important reason for self-harvest gardeners' and farmers'

AFN participation. Often it is accompanied by a vague fear for food safety or the expectation of an economic or political crash. One self-harvest farmer explicitly named the regular occurrence of food scandals as beneficial for his farm because it increases the number of his members. In food co-ops and CSA, only a few interviewees mentioned food scandals.

We further identified a range of social needs as drivers of transformation. Triggered by crises such as low food prices in the conventional system, producers of all models reported that they started their respective AFN in order to *find a market outlet* for their products. This is exemplified by one of the farmers: 'And then the idea was, if we had people from the surrounding area that take our harvest [...], if we could just pay the farm lease with that, we would be fine. Then we could do what we want, work as we wish and were not as dependent' (food co-op producer, case study 1.B). From a consumer perspective, *the financial support* of the farmer was not identified as a social need. The strong desire for *transparently produced food* arguably stemmed from the considerable discontent with existing agricultural practices and their negative impacts, especially pointed out by food co-op consumers and producers. In CSA, this is less important and only played a minor role for self-harvest interviewees. Considering the concerns about food safety of self-harvest gardeners, the low relevance of transparency was surprising at first but made more sense when we consider that self-harvest gardeners are highly involved in the production process. The social need for *quality, regional or healthy food* was closely connected with a perceived lack of transparency. It occurred throughout all models but was slightly stronger pronounced amongst food co-ops and CSA. A distinct difference between the models was that the *demand for gardening and nature experience* was very important to self-harvest-gardeners but played almost no role in the other models. Another social need that farmers of all models frequently expressed but consumers hardly mentioned was to *get consumers involved in agriculture*.

Driver 2: reframing perspectives

Reframing processes were perceived in all models (see Table A3 in the Appendix) and took place on a cognitive and practical level. A prominent part of the reframing process in all three AFN models, regarding increasing awareness of AFN participants, was the *growing understanding of food production*. Through involvement in the production process, AFN participants experienced how much hard work it takes until food ends up on the dining table. As a consequence, many interviewees also reported an increasing appreciation of food: 'People just start reconsidering: Where does my food come from, what's inside and what does it take for this vegetable to be available at the supermarket?' (self-harvest gardener, case study 3.A).

The *criticism of the current system* does not only trigger people to participate in all three AFN models, but it still continues during their participation. Although it was not mentioned by every interviewee, it was rather strong when it occurred. In addition to the aforementioned criticism of conventional agriculture, there was also strong criticism of the globalised economy and a political system that fosters environmental and social problems. Some of the interviewees even considered organic supermarkets as part of the problem as their prices are perceived as too low.

With regard to the variation of current practices, AFN participation was related to a variety of individual practices. A common perception in all models was that AFN participants vary their practices according to their *buying, cooking and eating routines*. Most consumers reported changes such as cooking more often, trying new vegetables and recipes, eating less meat and more vegetables or that they taught themselves how to preserve surplus food. Some process food

products themselves instead of buying the ready-made version in the supermarket or stop buying non-regional fruits and vegetables.

The *upscaling potential*, in terms of AFNs contributing to the replacement of current practices, was deemed to be mixed by most AFN members, regardless of the model. Almost all interviewees agreed that AFN participation can bring along a transformation of individual social practices, but this is limited to the group of AFN members. For a societal impact, the AFN group was mostly perceived as too small. In order to replace the mainstream food system, profound changes in consumption patterns would be necessary, which was not considered to be likely by the majority of our interviewees: 'And to a certain degree this can change people and possibly a society as well, but for that we are just [...], the share [of people] is too small. And we don't reach that many people because at the end of the day plenty of people focus on affordability [of food]' (CSA member, case study 2.C).

There are also practices that distinguish the models from each other: Most food co-op members described their alternative way of food procurement as *more effort* and time-consuming, mainly since members organise food distribution themselves, and there are fixed time slots when the food can be picked up from the depots. Another characteristic of varying practices was *renunciation due to a limited product range*. Especially in CSA, and only slightly less in food co-ops, the members emphasised that AFN participation involves cutbacks in their food choices due to the seasonality of the harvest products. The consumers predominantly described renunciation as a conscious step of self-restriction that they are often proud of. For self-harvest gardeners, this aspect played almost no role at all, although they can only grow food throughout the vegetation period. Nevertheless, this varying practice of *growing their own food* that leads to consumers becoming prosumers was very evident in self-harvest gardens: 'It's about doing it yourself and being close to nature [...] instead of shopping at the farmer's market or the organic supermarket' (self-harvest gardener, case study 3.A). Farmers and consumers of this model clearly pointed out how rewarding and joyful the self-supply with vegetables, the gardening work and the subsequent increased contact with nature is. Only two CSA members and no food co-op consumers mentioned prosuming as a variation in their practice, even though it is possible but not obligatory to participate in food production in both models.

Driver 3: engaging stakeholders

The engagement of stakeholders also occurred among all models. However, our analysis revealed that the member involvement highly depends on the AFN model and is therefore related to different actor-empowering aspects (see Table A4 in the Appendix). Especially in CSA, but also in food co-ops, the *independence of the farmer* was an important aspect of empowerment. In both models, the consumers want to directly support their farmers to enable them to produce independently from globalised market forces by paying higher prices for the produce. It is furthermore important to them that the farmers can carry out an alternative environmentally friendly form of agriculture and grow produce that is usually not marketable, for example, due to low yields or high labour intensity or as one of the farmers puts it: 'To be able to pay decent wages to the employees and what is important to me is to cultivate open pollinated [non-hybrid] varieties. It's just difficult to sell them on the open market' (CSA producer, case study 2.A). Consequently, the farmers' income does not depend on a good harvest in the short run. In self-harvest gardens, the interviewed consumers were less concerned about the farmers' income and supporting them economically. Farmers of all three models confirmed that the respective AFN is an economically

viable way to run their farm even though some mentioned that they do not generate considerable profits. For one self-harvest farmer, the economic motivation is mainly to advertise and market other products of his farm. Decommodification is another phenomenon that was revealed from the interviews. It was present in all three AFN models since the amount of money the consumers pay is not linked to a certain amount of produce.

On the consumer side, AFNs can also create a sense of *independence from supermarkets*, meaning that consumers can cover their demand for food through AFNs and do not have to rely on conventional food outlets. Comparing the three models, CSA exhibited the highest perceived independence, followed by food co-ops and self-harvest gardens. However, the high independence in the first two models seems to be caused by the fact that their members are also provided with storable vegetables like carrots and cabbage in winter. Some farms offer additional products that complement their members' demands beyond their vegetable consumption.

The entitlement of co-determination rights is considered very mixed throughout the models but was generally less of a subject among the self-harvest consumers. In all three models, the farmers grant only limited co-determination rights, as they do not want the consumers to interfere too much in their operations. In nearly all case studies, consumers could give feedback or express wishes. Especially in CSA, people had the opportunity to discuss things at yearly plenaries, although in the end, the farmers wanted to keep authority on the most important decisions. On the consumer side, some wish for more influence, whilst others understand that they lack the agricultural knowledge to take such decisions.

The degree of *capacity building* was high in self-harvest gardens, as the members are highly involved in the practical production process and there are frequent workshops to strengthen individual knowledge and gardening skills: 'I always learn something new [...] you really see a difference in the plots of people who regularly attend [the workshops] and apply the knowledge' (self-harvest gardener, case study 3.B). The other two models also offer courses (e.g., on food processing), but capacity building plays only a minor role. Overall, the knowledge flow mainly takes place in one direction from farmers to consumers but seldom the other way around.

A change of social relations was also perceived, but the type of relation and the degree of change were highly dependent on the AFN model: The *establishment of social interaction* is most prevalent in food co-ops as it is a necessary part of jointly organising the food distribution. The food co-op farmers confirmed this, especially one farmer, who runs both a CSA and a co-operative, pointed out that a food co-op requires much more exchange amongst its members. Social interactions in CSA are rather related to joint farm events or sharing of food-related interests, although interactions with the farmer were also regarded as important. In self-harvest-gardens, interactions among consumers happen mostly coincidentally, with some gardeners even reporting that they consider their gardening as an individual activity and prefer to stay undisturbed. The farmers' perspective in all models indicated that social interactions with their members are appreciated (e.g., for getting direct feedback for their work) but can also be challenging because the interactions are time-consuming.

Regarding *community-building* in the different models, our results show that food co-ops are often described as an established group. The strong sense of community emerges from the interactive food distribution mode and is expressed in friendly ties, joint leisure activities or regular meetings that are not directly related to the farm: 'It is a nice circle of friends [...], you have fixed days every week where you meet people and that is also worth a lot' (food co-op member, case study 1.A). In CSA, there are also several aspects that foster their sense of belonging. Whilst some consumers felt like they are in 'an economic community that progresses and grows' (CSA member, case study 2.C), others stated that farm-related activities (such as joint field work) create a

group spirit. Producers from both food co-ops and CSA mentioned that they feel responsible for their community but are also motivated by this feeling. One CSA farmer expressed regret about a lack of engagement from his members despite offering various community activities. From the self-harvest gardeners' point of view, the drive to build a community is almost not present at all. However, one farmer clearly pointed out that he would like to establish a stronger group spirit, while another explained that a lack of joint activities and gardeners who only feel responsible for their plot lead to a low sense of community-building.

In general, consumers of all models expressed *solidarity* for the struggle of small farmers, emerging from their growing understanding of the hard work and the economic pressure that farmers face as can be seen in the following statement: 'If you think about how you complain about your 8 h office job and then you actually witness the circumstances under which farmers work, then you have to say, the appreciation cannot be high enough' (CSA member, case study 2.C).

Consequently, consumers considered it important that farmers receive fair prices for their produce. If food co-op or CSA consumers organise their own depot, they perceive a stronger occurrence of solidarity and helpfulness. Members have free access to those depots and can weigh their share. Interviewees participating in this distribution mode stated that people strive to ensure all members get an equal share in terms of quantity and quality when picking their food and weighing it, sometimes even taking less than their share. Being engaged with the farmer also increases the consumers' tolerance to accept imperfect vegetables, which was expressed by producers and consumers alike. With the exception of one self-harvest garden operator, solidarity and creating an awareness for their problems played an important role for the interviewed farmers. Some farmers pointed out that solidarity has to be mutual. This means, for example, that farmers do not just demand fair prices for their work but also that they want to keep prices reasonable for their members and deliver a reliable amount of harvest to them.

The creation of *trust and transparency* around their food is also of strong importance to food co-op interviewees. They actively want to meet their farmer to be able to understand the food production process itself and what their financial contribution is used for. To get that insight they sometimes organise farm visits themselves. The CSA members perceived this similarly but to a slightly lesser degree. Most food co-op and CSA farmers are very engaged in offering high transparency by using different means such as sending newsletters, organising general assemblies, or establishing an open-door policy allowing members to always visit the farm. For one CSA farmer, these trust-creating activities replaced the necessity to go through the expensive and time-consuming procedure of organic certification.

In self-harvest gardens, trust and transparency do not play such a big role, possibly because the consumers constantly observe the growing process. However, producers also send newsletters to inform their members or grant access to their farm.

The perception of collective action of *AFN depicting a movement* was described similarly by the interviewees, regardless of their AFN model or role as a consumer or producer: The majority feels like they belong to a movement. When characterising the movement, most AFN consumers and producers stated that it is restricted to a small scale representing the respective AFN model without an own societal impact. They also perceived a sense of belonging to a bigger movement related to regional or organic food or an opposition against the conventional food system. Part of that is to support small-scale farming and occasionally joining activities of the bigger groups such as protests. The participation in 'We are fed up!' (*Wir haben es satt!*) protests was frequently mentioned. They are organised on a large scale and assemble diverse groups. However, the overall feeling of being their own movement was rather vague, and a clear goal of the perceived

movement is missing. All of this is summed up by a CSA member: 'It is somehow part of an environmental movement or sustainability movement [...] but we are not well connected and don't have access to the structures of this bigger movement [...]. The last two, three years, we went to the 'We are fed up!' protest with members of our group without indicating that we are a CSA but we noticed that we are interested in issues that unite many more people' (CSA member, case study 2.B).

Driver 4: social entrepreneurship

Social entrepreneurship is characterised by a strong motivation and a successful group management (see Table A5 in the Appendix). The analysis revealed that strong motivation was especially apparent among producers of all models who showed a *high level of conviction* and perceived themselves as role models for other farmers and consumers. This was often characterised by their strong will to change the prevailing system: 'But our idea, our vision is that CSA really becomes an alternative for agriculture. In other words: cattle husbandry, dairy production, vegetables—an all-inclusive package, not just in one sector but to offer a real alternative' (CSA producer, case study 2.C).

The consumers' conviction was rather shown indirectly through actions to *promote their own model*. Especially food co-op and CSA consumers are very active in representing their model at political events, going to protests together, recruiting new members or just telling as many people as possible about their AFN. In contrast, the interviewed self-harvest gardeners rarely reported comparable activities.

The involvement of consumers requires a high degree of group management, which varies considerably between the different models. What is striking is the high level of *self-organisation* in food co-ops. Members have to contribute with their work and perform a specified task that can comprise anything from weighing the produce, being in charge of accounting, organising logistics, or acting as an intermediate between producers and consumers. In CSA, the degree of self-organisation depends on differing consumer duties and the distribution mode. One CSA, for example, opened farm shops throughout the city to increase consumers' convenience. In self-harvest gardens, the focus is mostly on individual gardening. The plots are usually prepared by the farmers before they are handed over to the gardeners. From then on, every gardener harvests their own produce. For the majority of the interviewed farmers, regardless of the model, running an AFN means that they have to perform additional tasks outside of agriculture also acting as an intermediary between consumers and the farm operation. Furthermore, almost all producers remarked upon a high level of *entrepreneurial spirit* that encourages them to try to address the needs of the consumers. Some consumers acknowledge this and appreciate that farmers try to supply them in a way that accommodates their routines.

According to the farmers of all models, there is a broad variety of *networking and co-operation* activities that their farms undertake with other food-related operations. Some farms co-operate with bakeries, fruit, eggs, dairy, oil or honey producers to complement their members' food supply. Both consumers and producers of CSA and food co-ops are actively involved in networking activities with other farms but also with political initiatives. The members even establish these co-operations themselves. German CSA are even organised in a network on a national level. Self-harvest gardeners are less aware of networking activities, even though self-harvest garden farmers are networking as well (e.g., with other farmers, schools and nature conservationists). These activities are rather unpolitical though.

Driver 5: institutional support

The occurrence of institutional support, accompanied by political recognition and the suitability of the legal framework highly depends on regional conditions. In our study, institutions therefore do not generally act as drivers of transformation in AFNs (see Table A6 in the Appendix). Considering the political recognition, the *lobby and acknowledgement* for AFNs mostly depends on the agenda of the ruling party and is often mixed regardless of the model. While one self-harvest farmer stated that ‘it is a project that is supported by all municipal departments’ (self-harvest garden farmer, case study 3.C), a self-harvest farmer from another city stated the opposite: ‘Overall, politics don’t support us at all. And I think that has a lot to do with lobbying, because the lobby of big industrial chains and big marketing chains is just tremendous’ (self-harvest garden farmer, case study 3.A). Regarding the *provision of resources* by institutions, CSA and food co-ops often have difficulties to find a room for food distribution in cities. The access to farmland is problematic for farmers of all AFN models. Due to their alternativeness, the AFN models frequently have problems complying with existing legal frameworks as they are not adapted. One food co-op farmer reported that decommodification (such as members financing his new staple and getting food in return) created problems for his tax declaration. A self-harvest farmer pointed out that his operation does not fit into the categories of public administration, and consequently it is not clear which regulations apply to his farm. A common struggle perceived in all models is that financial support schemes are tied to the size of the farmland, which is a general disadvantage for small farms and there is little indication that the schemes are adapted either. The interviews also revealed that consumers are not very familiar with the topics of legal framework and political recognition.

DISCUSSION

Each of the five drivers of transformation occurred in different forms and were of different relevance in the researched AFNs.

Crises are often described as the starting point of transformation, whether caused by internal contradictions of a system (Brunori et al., 2012), by certain external events or by general trends (Avelino et al., 2017). Such game-changers may cause alternatives to emerge in niches, start to challenge dominant values and social relationships and thereby possibly accelerate the system crisis (Avelino et al., 2017). Our results showed that each of the three models are related to some sort of crisis in the prevailing patterns of food production and consumption. However, none of the interviewees mentioned a concrete game-changer causing the crisis. Instead, there is a general discontent, mistrust and, especially among self-harvest gardeners, a fear of conventionally produced food. For future research, it would be particularly interesting to assess how the Covid-19 crisis has influenced the narrative of AFNs and their popularity, as the pandemic exposed the vulnerability of long food chains but also precarious working conditions, especially in slaughterhouses (Aday & Aday, 2020; Middleton et al., 2020).

The general system crisis and associated grievances perceived by our interviewees materialise again in the **reframing** of social values and practices, which is considered essential to the transformative potential of social innovations (Pel et al., 2020). Collective opposition of social actors arises and is reinforced through the creation of alternative narratives based on coinciding criticism and common values (Avelino et al., 2017). Social critiques, but also social needs, shape transformative goals and feed social actors’ motivations (Pel et al., 2020). Strong criticism of the dominant

food system and a growing understanding of food production unified all three AFN models investigated in our study. This gave the interviewees a clear basis for a common narrative to separate themselves from mainstream consumers. Even though there seems to be an overriding storyline connecting the three AFNs, none of our interviewees stated that the criticism or associated shared values leads to the concrete development of AFN-wide transformative goals, which might indicate that access to fresh and healthy food supersedes political goals.

Regarding changing practices, our three AFN models display some similarities, such as a variation in participants' buying, cooking and eating habits. Our analysis also exhibited practices that clearly differentiate the three models. For example, the joy of growing food is very important to self-harvest gardeners, while the added effort of food procurement and renunciation of non-seasonal food are stronger in CSA and food co-ops. In any case, the changed practices in all three models concern day-to-day activities like eating and cooking habits and are used by the interviewees to differentiate themselves from the common ways of food procurement. Again, this alignment of everyday actions with an alternative narrative is considered an important step towards bringing about social change (Wittmayer et al., 2019). However, our results also revealed that none of the participants in any model felt that their alternative practices could realistically replace current mainstream practices at present. Jaeger-Erben et al. (2015) argue that innovation of practices does not necessarily presuppose a complete replacement of mainstream practices, but the alternative actions can also manifest in the niche, from where they engender learning processes within the mainstream. As the alternative practices documented in our study were mainly individual and limited to the respective AFN, we interpret our results as aligning more with the study on CSA by Blättel-Mink et al. (2017) who conclude that CSA will not lead to transformation of the economic system but rather that the transformation of individuals can contribute to the creation of an alternative value system.

In transformative social innovation theory, the creation of new social relationships is just as important as changes to individual behavior. **Stakeholder engagement** in social innovation initiatives creates spaces for empowerment, new relationships and collective action (Pel et al., 2020). Our interviews revealed that various forms of empowerment and changes occur to social relations between consumers and producers. The farmers interviewed within all AFNs stated that their businesses are in general economically viable and they are less dependent on the usual market forces, even though no major profits are gained. Similarly, consumers of all AFN models also reported higher independence from supermarkets. According to Bock (2012), such innovative change can emerge if social groups who did not interact before—such as farmers and urban citizens—reconnect and adapt their lifestyles to the needs of the other group. It should be noted that the effort of the individual AFN initiative is still critical in achieving new roles outside of capitalist logics; otherwise, AFNs are just another market outlet within the conventional system (Blättel-Mink et al., 2017). A main distinction within the empowerment driver in our results is the occurrence and relevance of capacity building, which is particularly strong among self-harvest gardeners. Even though the reported capacity building in this context mostly relates to individual gardening skills, empowerment through new capacities can also contribute to a sense of impact and legitimacy (Bock, 2012; Pel et al., 2020).

While most of our results show commonalities among the investigated AFN models in the perception of the drivers of transformation, the most important distinction between our models is emphasised by the change of social relations: Our results revealed that building personal relationships is most pronounced in food co-ops, followed by CSA and finally in self-harvest gardens. The ability and possibility of building such deep community relations accompanied by values such as trust and solidarity is considered crucial to forming a vision of change and altering the

existing regime (Pel et al., 2020). Blättel-Mink et al. (2017) point out that the change of social relations through direct interaction between producers and consumers and the creation of mutual solidarity could even be a solution to the agricultural crisis. In the context of the aforementioned literature, our results thus suggest that food co-ops and CSA carry a higher transformation potential than self-harvest gardens.

The manifestation of alternative relations within a social innovation initiative may trigger collective empowerment and action (Pel et al., 2020). Our results only partly relate to this statement since most respondents within the models we researched have a sense of being part of a societal movement, but the movement is described as diffuse, unorganised and lacking a clear goal. According to Hoey and Sponseller (2018), a plurality of goals and disagreement on which goal to pursue is a common phenomenon in alternative food movements, which arguably impedes the cohesion of the movement. Referring to our case study region, Nowack and Hoffmann (2019) explored the ‘We are fed up!’ protests in Germany, which are frequently attended by our interviewees. Although the field of participants is also heterogeneous in its goals, the authors consider the protest as deeply rooted in the food and agriculture movement.

Another striking difference in the transformative potential between the three investigated models is related to the driver **social entrepreneurship**: Food co-ops and CSA were more engaged in networking and co-operation activities, and these activities were more often politically motivated than in self-harvest gardens. Creating ties with translocal networks is considered an essential step towards an impact that transcends the members of the specific initiative to reach a critical mass of like-minded people with a political voice (Wittmayer et al., 2019). Since our interviewed producers and consumers stated that completing all the tasks within their own initiative is already very time-consuming, it is questionable whether a critical mass of AFN members would have sufficient time to consistently engage in political actions outside their initiative. However, the consumers and producers of the investigated food co-ops and CSAs were often connected with other food producers or processors such as beekeepers, millers or dairies, which seems a promising way of spreading AFN values such as solidarity or trust to other forms and branches of food production, as well as reaching more consumers. The national network of CSA farms reported in our study might also help to represent small farms’ interests.

Institutional support for our investigated models highly depends on the location and the respective political decision-makers and could generally be improved. Problems mostly occur due to the size of the farms or the innovativeness of the AFN models that do not fit existing funding schemes and legal frameworks. According to Doernberg et al. (2019), political decisions concerning AFNs are often determined at a superordinate level, for example, national or EU level. In Germany, there are rarely any integrated urban food policies. If they exist, they depend on individual policymakers or initiatives (Doernberg et al., 2019). If alternative practices like those connected to AFNs remain outside of legal frameworks, fewer people will adopt the practices and their stabilisation in wider social frameworks will remain hampered (Jaeger-Erben et al., 2015).

Limits of the study and outlook for further research

Due to the number of interviews, the results of this study should be seen as explorative. Thus, they cannot be generalised and mainly apply to Germany, as AFN members are influenced by the culture and values regarding food in the respective country (De Bernardi et al., 2020). Furthermore, the state of development of AFNs can differ between countries. Compared with other European nations, including Germany, the French CSA network was already well-developed a

decade ago, consisting of more than a thousand farms, which gave them a better political lobby back then (Schlicht et al., 2012). Our study also showed that even within one AFN model, members can be heterogeneous, and there is not just one type of AFN consumer and one type of AFN producer for each model. In CSA, for example, Blättel-Mink et al. (2017) have identified a typology of German CSA encompassing different degrees of political involvement. Furthermore, we only investigated three models of AFN; yet, there is a broad spectrum of other models that might exhibit different transformative potential. Thus, our explorative results could form the basis for a large-scale study and transnational comparisons. Since the alternative values, practices, and relationships mentioned in connection with our drivers of transformation framework are self-reported, future research should verify their occurrence empirically to avoid attitude-behavior gaps in the data.

CONCLUSION

In our study, we applied a comprehensive analytical framework, exploring if and how AFNs contribute to the transformation of social practices and relations. The novel contribution of the article is that the analytical framework covers drivers of transformation that are variously individual, within the respective AFN, relevant to the translocal network of AFNs and related to the societal context. Furthermore, three different AFN models are compared. Our results show that drivers of transformation occur in all three models and are perceived as contributing to the reconnection with food and influencing related practices in manifold ways. A commonality of all three investigated models is that the participating individuals reframe their practices and values around food. Consumers move away from their passive food procurement role and become actively involved in different facets of food production and distribution. While an increased understanding of food production also occurs in all models, the acquisition of individual skills related to gardening is particularly high in self-harvest gardens. At the level of relations within the AFNs, the degree of engaging producers and consumers in trusted and solidary relationships is strongly pronounced in food co-ops and CSA. This is distinctive, compared to the conventional system where these connections are mostly cut. With regard to translocal relations beyond the specific initiative, collaboration with other food producers or initiatives also occur more often in our investigated food co-ops and CSA and are far less frequent in self-harvest gardens. Therefore, our results suggest their transformative potential is also higher than that of self-harvest gardens.

Considering AFNs' relations in a broader societal context, our data indicates transformative barriers but also potentials. On the one hand, the legal framework often poses problems for AFN producers. On the other hand, members of all investigated AFNs are motivated by a strong opposition against the conventional food system, resulting in divergence from unsustainable food practices in ways of thinking and action. This, in turn, forms a solid basis for a common narrative and collective action, although AFNs are still a niche phenomenon, currently limited to a minority of people. In times of crises such as the Covid-19 pandemic, however, regionalisation of food systems might become more important and desired by greater sections of society. Thus, altertiveness bears transformation potential: The incremental changes demonstrated in our study could contribute to the creation of an alternative value system. If connecting narratives and values are increasingly used to enhance strategic collaboration among AFN models with other food producers and processors and lobby groups, AFNs, as part of a bigger movement, could increase their impact on food system transformation.

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CONFLICT OF INTEREST

There is no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

Research data are not shared.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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