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Food systems in transition: conceptualizing sustainable food entrepreneurship

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ABSTRACT

This paper presents the sustainable food entrepreneurship framework (SFEF). It aims to further the understanding of the role of entrepreneurship in the sustainability transition of the food system, especially in the context of food system re-localization. The framework conceptualizes sustainable food entrepreneurship as a cyclical ongoing process of change. We argue this enables transcending the behaviour of entrepreneurs and their enterprises and map the ongoing development they fit into. The framework is based on literature reviews and expert interviews in the Dutch city-region of Almere–Flevoland. Theoretically, it expands on effectuation and bricolage theory, i.e. the 'resourcefulness perspective', that centres the socio-material context in the entrepreneurial process. The framework assumes the uncertainty of sustainability incites a cyclical process of change and implores entrepreneurs to reflect on the past before imagining the future. These imagined futures must be fitted to the socio-material context before emerging as artefacts (e.g. products, services or firms), which incites new uncertainties and a new cycle of change. Our framework has implications for policy and science. Its temporal dimension, that accentuates the continuous change entrepreneurship spurs, incites a reevaluation of terms such as 'success' and 'failure'. Moreover, it stresses the importance of intermediary actors in facilitating entrepreneurship.

KEYWORDS

entrepreneurship; sustainability; food; Almere; Flevoland

Introduction

The sustainability of the global food system is an urgent issue since around 26% of anthropogenic GHG emissions is caused by global food supply chains (Poore & Nemecek, 2018). In the transition of the global food system towards environmental sustainability, entrepreneurship plays an important role. On the one hand, entrepreneurship is part and parcel of the current global food system and its inherent non-sustainable practices. On the other hand, entrepreneurship is increasingly driving countervailing initiatives, such as stimulating diverse and local economies, to alleviate the negative side effects of the globalized food system (Mars & Schau, 2017, 2018; Marsden & Smith, 2005). This latter development fits the global trend of food system re-localization in which cities take a leading role, driving city-region food systems (Blay-Palmer et al., 2018). Given the importance of shifting towards a more sustainable food system and since food system re-localization and (local) entrepreneurship are crucial features of that, there is a need for a better understanding of what constitutes 'sustainable food entrepreneurship'. Although the role of entrepreneurship in making the food system more sustainable is studied extensively, most studies don't specify the precise meaning of the used terminology 'entrepreneur' and 'entrepreneurship' (Barth et al., 2017; Delgado, 2017; Follmann

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& Viehoff, 2015; Garavaglia, 2017; Gillebo & Hugo, 2006; Hayden et al., 2014; McKee, 2018; Montanari & Staniscia, 2009; Moskwa et al., 2015; Sjölander-Lindqvist & Cinque, 2014). Some studies distinguish different types of entrepreneurship based on goals, actions and motivations of entrepreneurs, utilizing adjectives such as 'social', 'eco' and 'sustainable' (Drottberger et al., 2021; Jolink & Niesten, 2015; Kline et al., 2014; Larsson et al., 2016; Mayer & Knox, 2010; Paloviita, 2009). This suggests entrepreneurship can be understood, either implicitly or explicitly, as the behaviour of entrepreneurs and enterprises. An alternative perspective, that might fit the issue of sustainable food entrepreneurship better, is known as the resourcefulness perspective (RP), encompassing effectuation theory and bricolage (Korsgaard et al., 2016). While originally conceived as theories for entrepreneurial behaviour (Fisher, 2012), they are increasingly used to study entrepreneurship as a process (Jones & Li, 2017; Selden & Fletcher, 2015). This fits in a larger development of considering entrepreneurship, especially with regard to sustainability, as a process of change in itself (Poldner, 2020; Steyaert & Hjorth, 2006). Effectuation theory distinguishes effectuation from causation, where entrepreneurs assemble the required resources to reach a predefined goal (Corner & Ho, 2010). Effectuation occurs when entrepreneurs assess available resources such as personal traits, knowledge, physical materials and networks before setting goals (Sarasvathy, 2001). Bricolage is similar to effectuation in the sense that entrepreneurs use available resources. Unlike effectuation, bricolage does not assume that the resources entrepreneurs have at their disposal are fixed and given (Baker & Nelson, 2005), but that resources are (re)shaped to fit a specific goal (Baker et al., 2003). In conceptually unpacking what entrepreneurship is in the context of sustainability transitions and food system re-localization this paper builds on these theories. We argue that the 'resourcefulness perspective' is interesting because it shifts the focus from entrepreneurs to resources which makes this perspective 'environmentally, as well as socially, sensitive' (Korsgaard et al., 2016, p. 181). The RP has evolved over time, from implying the use of resources by entrepreneurs is always purposeful and deliberate (Nelson et al., 2018) to state that not only entrepreneurs but material objects can be decisive in entrepreneurship as well (Akemu et al., 2016; Murdock & Varnes, 2018). This latter notion is particularly relevant in the agri-food domain, where entrepreneurship and the (material) environment in which it takes place are hard to separate. This can be witnessed by studies of entrepreneurship and food. Most of these studies centre small enterprises, which depend on the community they are imbedded in for their limited resources (Barth et al., 2017; Bolzani et al., 2015; Buckley et al., 2014; Vlasov et al., 2018). In this paper, we present a conceptual framework, the Sustainable Food Entrepreneurship Framework (SFEF), with the aim to advance the understanding of the role of entrepreneurship in the sustainability transition of the food system. Such a framework is not only useful for scholars that want to explore the role of entrepreneurship in this transition. It also provides the means for reflexivity, for entrepreneurs and policymakers that deal with entrepreneurship, on current practices. In constructing the framework, we not only explore entrepreneurship on a conceptual level, but tie this to a practical understanding as well. We conducted a literature review on the RP and a literature review on sustainability, food and entrepreneurship (SFE) literature. Where the SFE literature provides in-depth studies of entrepreneurs and their actions, the RP literature offers a theoretical perspective that helps to tie entrepreneurial behaviour to entrepreneurial process (Beckett, 2016; Servantie & Rispal, 2018). Expert interviews were added to the literature reviews to make the framework grounded in 'real life'. We interviewed experts on sustainable food entrepreneurship in the city-region of Almere, in the province of Flevoland in the Netherlands to provide a 'real-world' context for deepening our understandings of sustainable food entrepreneurship. Together, these reviews and interviews enable locating and recognizing the process of entrepreneurship, that transcend the actors (entrepreneurs) and organizations (enterprises). This allows zooming out of the behaviour of entrepreneurs and their enterprises and to map the ongoing development they fit into. In the next section, we elaborate our methodological approach. In the findings, we introduce and explain the conceptual framework based on literature and the aforementioned expert interviews. We end the paper with a discussion in which we explore the implications of the framework for science and policy.

Materials and methods

In the introduction, we explained why we deem RP literature valuable to conceptualize sustainable food entrepreneurship. However, since this literature

discusses a great variety of entrepreneurial contexts, some of which might contrast to that of sustainability and food, we don't base our framework solely on this perspective. Therefore, two literature reviews were conducted which enables matching the concepts of the RP literature to the domain of food and its sustainability objectives as present in the SFE literature. Furthermore, expert interviews were conducted to ground the framework in the practicalities of 'real life' sustainable food entrepreneurship, and food system re-localization in particular. This three-pronged approach allows triangulation of conceptual literature, empirical literature and real-life practical experience (see Table 1). This approach serves a double purpose. First, data collection preceded the construction of the framework, which enabled an iterative journey of going back and forth between the different data sources. Second, the insights in sustainable food entrepreneurship, as provided by both the experts and the SFE literature, helped to present the rather abstract concepts in this paper in a tangible way. The data were collected between June and December 2019, with an update of the SFE literature in July 2021. Below we describe the data collection in more detail.

Literature reviews (I and II)

A narrative review was preferred over a systematic one. This allowed hand-picking the required articles, instead of subjecting it to a standardized selection that is associated with systematic literature reviews, to make sure the selected articles demonstrated conceptual and empirical depth. For the RP literature review, the initial search delivered 350 articles. The search result was refined by selecting those articles that furthered the RP conceptually, as well as those that provided detailed empirical examples of entrepreneurship through the lens of the RP. This brought the search back to 58 articles that were subjected to our analysis. For the SFE literature review, the initial search resulted in 353 articles. We selected articles with empirical material that was collected in a Global North context. This is because we wanted the contextual analysis to fit as closely as possible to the chosen research site for the interviews: Almere, Flevoland in The Netherlands. This brought the result back to 31 articles. In July 2021, we updated the literature review of the SFE literature by selecting 13 more articles to include recent developments in the food field, resulting in 44 articles. In total, we reviewed 102 articles.

Expert interviews and the setting of Almere, Flevoland (III)

We conducted 10 interviews with experts on entrepreneurship in the context of sustainability and food in Almere, Flevoland (see Table 2). Flevoland and Almere pose an interesting real-world context because both are closely linked to entrepreneurship and sustainable (agri-) food. The province of Flevoland emerged around 80 years ago when the Dutch government reclaimed land for agriculture. Flevoland and entrepreneurship are linked from the start. The Dutch government used strict criteria to select who were allowed to inhabit and farm the new land. Not just agricultural prowess, but also entrepreneurial qualities were required (Vriend, 2014). The city of Almere was built in a later stage to accommodate the population growth of the nearby city of Amsterdam. Recently, the municipality of Almere started to position itself as a sustainable food city (Jansma & Wertheim-Heck, 2021). Sustainable food is high on the urban agenda, illustrated by the target of producing 20% of urban food consumption by 2030 (Jansma et al., 2016). This also led to the emergence of sustainable entrepreneurship in the agri-food sector in this city as well. In this paper, we assume Almere and Flevoland to form one city-region food system (Blay-Palmer et al., 2018; van der Gaast et al., 2020) that poses an interesting site of sustainable

Table 1. Data collection that preceded the SFE framework

	RP literature (I)	SFE literature (II)	Expert interviews (III)
Method	Narrative literature review of the resourcefulness perspective (RP) literature	Narrative literature review of the literature on sustainable food entrepreneurship (SFE)	Semi-structured interviews with experts on entrepreneurship in sustainable food in Almere, Flevoland
Data collection	*Search criteria* (Boolean operators in Scopus): "causation" AND "entrepreneur*", "bricolage" AND "entrepreneur*", "effectuation" AND "entrepreneur*"	*Search criteria* (Boolean operators in Scopus): "sustain*" AND "food" AND "entrepreneur*"	*Sampling strategy*: Network sampling
Size	58 selected articles	44 selected articles	10 selected experts

food entrepreneurship in the context of food system re-localization. We selected 10 experts on entrepreneurship based on the criteria that they were professionally engaged with entrepreneurship in the agri-food context of Almere, Flevoland without being an entrepreneur themselves. The experts were recruited through the network of the authors of this paper, two of which are embedded in both applied and academic networks revolving around food and sustainability in and around Almere, Flevoland. Experts were chosen because they have an overview over multiple cases and general patterns and dynamics. The scope of experts is larger than entrepreneurs, since entrepreneurs know one case and experts multiple. For the specific task of creating a conceptual framework of entrepreneurship, this makes experts suitable. In semi-structured interviews of ~1 h, experts were first asked to reflect in general on how they would characterize entrepreneurship in sustainability and food. Subsequently, they were probed with more specific questions (e.g. can you give any specific examples; what resources, networks open up; what obstacles and opportunities do entrepreneurs face?). The questions were deliberately posed as open as possible because they were not meant to specifically test or develop theory, but to place the literature into a (real-life) context. This is also why no coding schemes were used. The findings were analysed interpretively by connecting recurring patterns in interview findings to that of the literature.

Table 2. Selected experts and their expertise

Expert	Position	Expertise
#1	Consultant	Specialized in agri-food sector, clients in Almere
#2	Employee investment agency	Facilitates (food) entrepreneurship in Flevoland and Almere
#3	Civil servant municipality Almere	Works with food entrepreneurs in Almere
#4	Researcher	Researcher in an applied agricultural context in Flevoland
#5	Researcher	Researcher in an applied agricultural context in Flevoland
#6	Researcher	Researcher in an applied agricultural context in Flevoland
#7	Politician and governor	Economic affairs, including agri-food in Flevoland
#8	Action-researcher	Facilitator and researcher of food entrepreneurs in Almere and Flevoland
#9	Civil servant municipality Almere	Works with food entrepreneurs in Almere
#10	Account manager Rabobank	Specialized in agri-food sector, clients in Almere and Flevoland

The sustainable food entrepreneurship framework

In this section, we present the SFEF. We use the RP literature to explain the concepts, and the SFE literature and expert interviews to illustrate how the framework works in the context of food and sustainability and specifically in the context of food system re-localization. In the 'Introducing the concepts of the framework' section, we will briefly introduce our concepts. In the remainder of this section, we will explain the framework by connecting these concepts to the issue of food and sustainability. This helps to understand how the framework works, and at the same time illustrate how this framework can further the understanding of the role of entrepreneurship in the ongoing transformation of the food system.

Introducing the concepts of the framework

The concept of uncertainty signifies both the start and end of the ongoing process of change that is entrepreneurship and therefore also takes up a central place in the SFEF (see Figure 1). In the RP literature, the concept of *uncertainty* is important because it denotes the different types of entrepreneurial processes that can emerge. Following the work of economist Frank Knight on uncertainty, we explain it as a situation where it is neither possible to predict the outcomes nor the probabilities *ex ante* (Knight, 1921; Welter et al., 2016). Furthermore, in this paper,

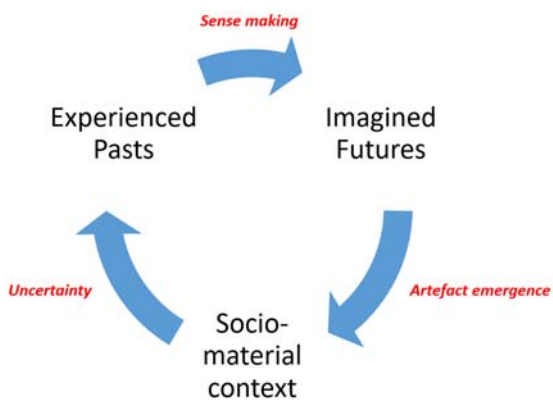

Figure 1. Visual schematic of the sustainable food entrepreneurship framework (SFEF).

we understand uncertainty as a subjective experience that depends on the context in which entrepreneurship occurs and whether entrepreneurs consider themselves in control of this environment (Engel et al., 2017; Liu, 2019). According to Sarasvathy (2001), this perceived control determines the extent to which entrepreneurs belief the future can be predicted. Those that consider the future as predictable, act differently than those that consider the future as unpredictable. Several studies show that when entrepreneurs perceive high control over their environment and therefore little uncertainty, causation is more likely to happen (Metzger & King, 2015; Parida et al., 2016; Jiang & Tornikoski, 2019). Causation means entrepreneurs plan a specific future and assemble resources to make this future happen. For instance, by using extensive market information to predict the wants and needs of the future and plan a route towards this future (Lepistö et al., 2019). In contrast, the more uncertainty that is perceived in a certain context, the harder it is to trust on verifiable evidence to predict the future (Nelson et al., 2018; Randerson et al., 2016). Therefore, entrepreneurs become more reliant on interpreting the cues of their environment to explore the future, in others they rely more on *sense-making* (Jones & Li, 2017). *Sense-making* is derived from the work of organizational scholar Karl Weick (1979), and refers to a form of self-reflection where entrepreneurial actions are the result of looking back at what is experienced in the past and imagining what should be happening in the future (Selden & Fletcher, 2015). High uncertainty, for instance, about how a future food system should or could look like, triggers sense-making. Instead of planning for the future, the future is imagined by learning from past experiences. The experienced pasts refer to the lived experience and circumstances of entrepreneurs (Harmeling, 2011; Onishi et al., 2018; Watson, 2013) that function as a 'living heritage which opens up more applications or a portfolio of options' (Andersen, 2008, p. 58). Furthermore, the experienced past consists of shared experiences that are embodied in fragments of culture such as images, objects (Valliere & Gegenhuber, 2014) and language (Lieber, 2015). Providing a new perspective that draws on shared cultural understandings is the hallmark of successful entrepreneurship (Nelson et al., 2018). In short, sense-making denotes the process that turns imagination into products and services (Guo et al., 2016) and transforms the uncertain situation into a creative empty space (Kauppinen & Puhakka, 2010). *Artefact emergence* helps to understand how mental representations as brought forth by sense-making materialize. In the RP literature, the perspective of economist Herbert Simon is followed by defining an artefact as an 'interface' (Simon, 1997, p. 6) or 'meeting point' (Sarasvathy et al., 2008, p. 333) between the ideas of entrepreneurs and the socio-material context in which these ideas are supposed to materialize. Artefacts can be products, services or firms, but theoretically also any other conceivable organizational form or physical/virtual tool. They function as 'elaborate fictions of proposed possible future states of existence' (Steyaert, 2007, p. 460). Through artefacts, entrepreneurs can start 'playing pretend' (Baker et al., 2003, p. 263) that the future they imagine is true (Randerson, 2016; Selden & Fletcher, 2015) and help persuade others to experience the hypothetical world they have created (Halme et al., 2012). Furthermore, artefacts allow exploring how imagined futures are received in a specific environment (Sarasvathy, 2001). By founding a firm or introducing a product, the underlying idea is tested in a certain socio-material context and the resulting feedback can be used to refine it (Björklund & Krueger, 2016; Guo et al., 2016), or results in the fact that an artefact dissolves or is retried in another context (Stritar & Drnovšek, 2016). However, that does not imply the imagination of entrepreneurs automatically lead to artefact emergence. As Sherman et al. (2018) note, entrepreneurship starts with a mental representation of the future, but only evolves through the interaction with and by building on the experiences of others. We follow Selden and Fletcher (2015) in considering artefacts to be emergent, which means that artefacts are a new or unexpected level of social order that results from an interaction between several different elements (e.g. entrepreneurs, ideas, materials) but cannot be reduced to any of them individually. The notion of emergence helps to nuance the agency, i.e. the 'intention and purposeful enactment' (Akemu et al., 2016, p. 847) of entrepreneurs in the entrepreneurial process. Agency in entrepreneurship is distributed (Akemu et al., 2016; Corner & Ho, 2010; Garud & Karnøe, 2003), which means that all human actors that engage in adventurous or creative exchange have agency in entrepreneurship (Watson, 2013). Moreover, also non-human entities, such as material objects and ideas, that are said to be equally capable of forming connections and thus triggering artefact emergence (Lieber, 2015; Murdock &

Varnes, 2018). The notion of emergence denotes the double role of the *socio-material context,* i.e. the 'where and when' (Welter, 2011, p. 167) of entrepreneurship. Not only does this concept denote the temporal and spatial 'site' where imagined futures emerge as artefacts, endure or dissolve over time. It plays a crucial role in creating these artefacts themselves. Whilst *artefact emergence* is incited by *uncertainty*, it also creates its own *uncertainty* (Jiang & Tornikoski, 2019). Whether in the form of *imagined futures* that fail to emerge, or dissolve over time, all artefacts are part of the *experienced past* and thus inspire (new) imagined futures. They are made and remade over time, which connects and disconnects (new) people, resources and ideas over time (Harmeling, 2011) in a process that is hard to predict on forehand. This is why entrepreneurship can be considered an ongoing process that does not end with the founding of a firm or the creation of a product but that keeps evolving over time (Steyaert, 2007), and why (see Figure 1) the SFEF framework is organized as a 'cycle of interactions' (Randerson, 2016, p. 3). Artefacts are not endpoints of entrepreneurship. They are transition points in an ongoing process of change (Jones & Li, 2017; Selden & Fletcher, 2015).

From socio-material context to experienced pasts: food as a cultural product

The SFE literature helps to see why and how uncertainty triggers a (re)invention of the experienced pasts in the food sector. In many rural regions in Europe, agriculture is providing less income and employment than it used to. Therefore, rural communities increasingly use notions such as authenticity and culture to frame their food products (Coroş et al., 2021). By linking food to cultural heritage, they create new value propositions concerning sustainability as well (Niedbala et al., 2020). Urban areas display a similar tendency to link authenticity to modern food products (Broad, 2020). Furthermore, increasingly municipalities devise food policies to stimulate sustainable food. The food narratives that emerge there through entrepreneurship are shaped by the specific socio-economic issues at play in these cities (Giambartolomei et al., 2021). In the interviews with experts, it was explained how in cities such as Almere, food entrepreneurship emerges from actors from outside the sector as well. They enter the food field out of idealism with regard to the food system and climate change, and they bring along their past experiences and skills outside the food field (e.g. with marketing and sales in other sectors) to position their sustainable food products and services. The experienced pasts of food are derived from the socio-material context. Food can have different cultural meanings at the same time: as a product (Montanari & Staniscia, 2009), the process through which food is produced (Amanor-Boadu et al., 2009) or the experience of collecting your own food (Hjalager & Johansen, 2013). The specific biophysical environment impacts how meaning surrounding food develops (Vlasov et al., 2018; Niedbala et al., 2020). Taste development, for example, relate to the natural resources that are present in a certain place or region (Bonadonna et al., 2019). But such a relation between physical environment and food meaning is not fixed, they can become a mix of local and imported ingredients, tastes and preferences over time (Sjölander-Lindqvist et al., 2020). Pfeilstetter (2015) gives the example of the Mediterranean Diet, local heritage that was made profitable by making it into a product on a global scale. In sum, the socio-material context poses the uncertainty that drives interpreting the experienced pasts, at the same time, it enables creating cultural understandings of food to cope with this uncertainty.

From experienced pasts to imagined futures: organization and cooperation

Turning experienced pasts of food into imagined sustainable food futures requires making the future tangible in the present. This requires new artefacts such as new products or services or even extra businesses to make the experienced pasts of food into a future imagery of food that can be experienced by others. The SFE literature shows several examples of creative deployment of scarce labour and resources to experiment with new forms of value production (McKee, 2018), such as adopting schemes for farm animals (Montanari & Staniscia, 2009), dinner box schemes (Larsson, 2012) and food demonstrations (Gillebo & Hugo, 2006). Often this is done by food producers that have to develop all the extra activities, such as processing, distribution, packaging and marketing, next to the actual producing (Delgado, 2017; Gillebo & Hugo, 2006). This results in several logistical problems and deviates resources and efforts from the production itself (McKee, 2018). Some entrepreneurs try to cope with this by starting a new firm to separate

the more idealistic sustainability-oriented activities from the activities that generate the necessary financial revenues (Follmann & Viehoff, 2015; Mars & Schau, 2017; Montanari & Staniscia, 2009). However, often the financial objectives come to dominate over the purpose to create new forms of (sustainable) value (Kline et al., 2014). The experts discern similar problems. Several experts mention the problem of time constraints for especially food producers that need to engage with sustainable entrepreneurship. Many food producers have to improvise an extra source of income first, before they can make the transition towards sustainability. Changing business models or production methods is costly. The switch to organic for instance takes 2 years in which a food producer has less income. Furthermore, they have long-term obligations in terms of contracts, mortgages, equipment and depreciation thereof. With an additional stream of income, they can obtain the financial buffer needed to make the transition. However, when one person is responsible for food production as well as the customer support and external communication of new sustainable initiatives, some sloppiness is bound to slip in which also obstructs opportunities for these companies to professionalize their improvisational measures. According to the experts, this can result in using the extra financial means to survive instead of making a change towards sustainability. Despite the constraints in terms of time and money, the experts don't believe it is impossible to make it work as the following quote illustrates:

> When you have 120 cows, two robots and you have to do everything yourself, it is hard to maintain contacts outside of your firm and gain new entrepreneurial ideas. But there are still firms under these circumstances that rearrange their priorities and reorganize their job in such a way they are able to meet new people. So, is time a constraint or is the way the firm is organized the constraint? I'm tempted to believe the latter. (Expert #6, own translation)

The experts do stress that those entrepreneurs that are themselves incapable, either through time or financial constraints, to work towards ideas for sustainable food need to collaborate with others. This resonates with findings from the SFE literature that stresses the importance of collective organizations to organize the short supply chain (Hedberg & Lounsbury, 2021; Soderstrom & Heinze, 2021). The following quotes of one expert illustrate the options for imagining sustainability:

> The claim to sustainability must be reworked into the business model. And the story is this claim. If you don't have a story you need a collective, a cooperative or a supply chain to make the story for you. If you want to do it yourself, you have to think about the margins you will make of this story. (Expert #7, own translation)

In other words: entrepreneurs make a claim to sustainability in their businesses. But some entrepreneurs, especially food producers, are consumed by their day-to-day activities. Therefore, they are less prone to experience new ideas concerning sustainability and thus will have to join forces with entrepreneurs to organize this. The resulting collaborative effort then is used to create a shared sustainability vision. This means imagined futures don't just materialize as (new) firms, products and services. They can also materialize as artefacts that emerge out of the collaboration of multiple firms. Two often mentioned examples in both the SFE literature and interviews are cooperatives and licensing schemes. Cooperatives help to induce specialization and division of labour. Some members can focus more on producing, others on marketing. They can all produce separate products so they don't have to compete (Jokinen et al., 2008). Certification and licensing schemes are crucial if claims about a food product must be made (Montanari & Staniscia, 2009). For instance about a cultural trait of food (Pfeilstetter, 2015), or for organic food certification (Jolink & Niesten, 2015; Paloviita, 2009). Because such artefacts have formalized obligations (Larsson et al., 2016), the commitment of its members is ensured (Jolink & Niesten, 2015; Mapelli et al., 2016). However, creating a single imagined future of sustainable food out of multiple entrepreneurs in the form of one artefact also creates tensions. Formal obligations also cause problems in some cases such as diminished profits (McKee, 2018) and exclusion and marginalization when entrance requirements are too restrictive (Mars & Schau, 2017; Sjölander-Lindqvist & Cinque, 2014). According to the experts, in some cases, these commitments can be so constraining that entrepreneurs don't feel like entrepreneurs anymore because they cannot make their own decisions:

> Farmers are increasingly constrained in their entrepreneurship. For example, many dairy farmers outsource their marketing to the cooperative they are a member of, which means they are primarily food producers and sales is no longer part of their job description. (Expert #5, own translation)

In sum, sustainable food entrepreneurship demands organizing to turn experienced pasts into imagined futures. Either new products, services or firms, or through cooperative organizations. In creating these artefacts, there is a tension. By creating new products, services or firms, it is the tension between profitability on the short term and developing the imagined sustainable future on the longer term. By participating in cooperative organizations, there is a tension between the benefits of creating a shared imagined future of sustainable food, and the restrictions to entrepreneurial freedom to make it come to life. As the following section will explain, it is the fit of the artefact to the socio-material context, that will determine whether an artefact will emerge and endure.

From imagined futures to socio-material context: matching meaning and materials

The role of the socio-material context requires nuancing the agency of 'the entrepreneur' because it is distributed over human and non-human entities. Several authors in the SFE literature claim embedding within the community is important in food entrepreneurship (Barth et al., 2017; Buckley et al., 2014; Vlasov et al., 2018). It helps to share knowledge and engage in networks (Bublitz et al., 2019) and trust and reputation within a socio-material context can be helpful in leveraging resources (Batat, 2021). Furthermore, when there is already a regional entrepreneurial culture that favours sustainability, it is more likely to spur more sustainable initiatives (Enthoven & Brouwer, 2020). Moreover, the impact of stakeholders such as government and entrepreneurial actors on entrepreneurship are in practice hard to disentangle since they rely on similar networks and often cooperate on different levels to create sustainable food systems (Baldy & Kruse, 2019; Desa & Jia, 2020). Both the SFE literature and the expert interviews place emphasis on the role of non-entrepreneurial actors in a facilitating role, that connect different interests (Hedberg & Lounsbury, 2021) and 'make things happen' (Giambartolomei et al., 2021, p. 2). One of the experts discussed the need to have more actors that connect entrepreneurship, government and science without having a stake in any of them themselves to better connect these actors and agencies. Furthermore, a wide range of facilitating funds, foundations, grants, government agencies and intercompany and intergovernmental networks were discussed in the interviews. One of the experts that initiated several foundations and networks to facilitate sustainable food entrepreneurship explains their role as follows:

> They create a layer around the company, followers you can mobilize to support your activities and that fight for you when you can't make it on your own. (Expert #8, own translation)

In other words, the socio-material context is not a rigid structure that either favours or opposes imagined futures of sustainable food, it is itself an actor that can be shaped and shapes itself how these imagined futures can develop into artefacts. Still, the imagined future of sustainable food must be attuned to the material specifics of the socio-material context as well to be able to emerge as an artefact. Non-human entities such as material objects and resources are part of the same lived experience as human entities; they can mean different things in different contexts to different people (Steyaert, 2007). Such 'meaning' can attract or repel human entities, which can either hinder or accelerate the emergence of artefacts. This also explains why emergence implies unexpectedness; the way in which different resources come together is ultimately hard to predict on the forehand (Lennerfors & Rehn, 2014). The RP literature provides several examples of this. Murdock and Varnes (2018) discuss a Danish musician that brought an old fashioned schoolbag with him on tour in another country. He received a lot of compliments about this bag, which inspired him to become an entrepreneur and start the brand Made in Denmark. Akemu et al. (2016) show that the idea of Fairphone, a sustainable smartphone, was developed as part of an advocacy campaign by a Dutch NGO. It was never meant to materialize as a product. Nevertheless, the image of the fictional Fairphone attracted so much positive attention that it inspired the former NGO-employees to develop one for real. One could argue that these objects – a phone and a schoolbag – turned actors, such as musicians and NGO-employees, into entrepreneurs instead of the other way around. Yet, the material and social conditions of a certain context do not determine when and how an artefact emerges. It is an interplay between all these factors, human and not human. For example, Parris and McInnis-Bowers (2014) show how (different) contexts shape the materialization of imagined futures. They discuss a case where recycled soap was considered unattractive and therefore unfeasible in hotels in the Global North. When recycled soap was introduced in a Global South development project, it became a crucial ingredient to a hygiene kit. In other words, the

specific fit of the social and material determines if and how imagined futures emerge as artefacts within a socio-material context. One of the experts (#2) provided an interesting example of a sustainable meat product that did not manage to materialize despite all the best efforts to collectively organize it. Expert #2 was involved in trying to make male goat meat marketable by launching it as a product, 'Bokjesvlees' [male goat meat]. For the production of goat cheese and milk, the male goat is only needed for reproduction. Goat farmers now exterminate them, which costs 4 euro's per goat. There was a public campaign to raise awareness. Rural goat farmers tried to sell their meat to urban restaurants collectively. So far, however, with little success. Retailers can't offer a competitive price because restaurant butchers only want to buy when there is demand. They tried to make the product attractive by processing it into sausages, hams and meals. However, this made the product even more expensive. Expert #2 attributed these problems to the cultural meaning of goats in the Netherlands. Eating goat meat is associated in the Netherlands with the lower classes and goats are popular animals in petting zoos. Therefore, the struggles of 'Bokjesvlees' might be the result of a mismatch of the meaning and material properties of male goat meat as present in the socio-material context, and the imagined sustainable future of 'Bokjesvlees' as a product. The persistent negative cultural properties, as inscribed in goat meat, could not be alleviated by transforming the material properties of male goat meat without losing profitability.

From socio-material context to new uncertainties: ongoing cycles of change

Artefact emergence is not the end-point of entrepreneurship. Entrepreneurship involves ongoing cycles of change because artefact emergence poses new uncertainties. An emphasis on sustainable food entrepreneurship as an ongoing cycle of change helps to see that failing in the present can spur a new fruitful development in the future. Even the 'Bokjesvlees' product manage to inspire a cooperative (Big Goat Meat) to sell the carcasses of male goats separately to whole-sellers. Furthermore, efforts are still being made in trying to reinvent the concept of male goat meat. For instance, through meals for restaurants that are relatively less costly to make, such as fries with goat stew, burger, curry and rendang, and that can be easily frosted which increases its on-demand availability. Another good example of why it is important to consider entrepreneurship as ongoing and cyclical is the relationship between small scale, often locally operating food producers and large-scale entrepreneurs with global reach. The SFE literature shows this relationship is imbalanced. Local contexts are often the experimenting site for new food concepts of large retailers. As van den Heiligenberg et al. (2017) show, in the experimentation phase of sustainability, food inventions are tested in a local or regional context to see if they will be adopted by enough users. At the same time, it is also the breeding ground for these new concepts. Multinationals like McDonalds label food as local and turn it into 'discursive currency' (Sjölander-Lindqvist & Cinque, 2014, p. 147). 'Local' does not necessarily refer to where the food originates. A restaurant can call itself local and claim its positive meaning whilst sourcing all its food from a non-sustainable global supplier (Mars & Schau, 2017). In other words, 'local' food can be used as a means of persuasion and a rhetorical device (Metzger & King, 2010) to make a global vision of sustainability attractive on a local level (Bonadonna et al., 2019). There is a 'market-like competition for [..] symbolic resources' (Pfeilstetter, 2015, p. 219) in the food sector. Labels such as 'local' (Montanari & Staniscia, 2009; Amanor-Boadu et al., 2009) and 'organic' have been turned into commodities by large retailers. As a result, especially small-scale farms lose their unique selling point as 'local' and 'organic'. Larsson et al. (2016) provide a telling example of a small organic cooperative that does not advertise with their organic certification anymore because large retailers can offer the same. Furthermore, most small farmers cannot compete with the cheap prices of global retailers (Hedberg & Lounsbury, 2021). Complicating matters further: small-scale farmers are often dependent on these large retailers. Sourcing organic produce to large retailers is increasingly difficult for small producers because retailers can afford to keep lowering their prices or decide to stop buying their products altogether (Kuokkanen et al., 2019; Larsson et al., 2016; Paloviita, 2009). Furthermore, small-scale farmers often try to oppose the global industrialized system by doing things differently but feel marginalized because the system favours the larger firms (Drottberger et al., 2021). They need even more of their limited time to create new meanings of food whilst continuing to risk having larger, more globally oriented firms snatch up their successful innovations again (McKee, 2018).This means the inherent

uncertainty of the food system entices small food producers to continuously reinvent their past experiences in a specific socio-material context. This allows them to pose a valid differential proposition from the mainstream producers to be of value to retailers and be taken-up in the retail assortment. At the same time, the SFE literature shows insight in how this imbalanced relationship could be improved. Interestingly, artefact emergence plays an important role in this, especially artefacts where multiple entrepreneurs with competing interest cooperate. Hedberg and Lounsbury (2021) and Soderstrom and Heinze (2021) discuss the possibilities of Food Labs: collective organizations where small producers and large retailers try to abridge differences and work together. Through these collectives, new supply chain connections can be created alongside the infrastructure to make it happen. The experts mention the existence of similar organizations within the context of Almere, Flevoland that aim to bring different stakeholders in the agro-food business together. This does not change the food system and its inequalities immediately and these collectives might not persevere over time. Nevertheless, they do incite new cycles of change and entrepreneurship. By construing them as emergent artefacts, they can be understood as transition points. In the critical moments they are established, human and non-human entities are (re)configured and thus change occurs. The experiences that artefact emergence brings in turn form new uncertainties and thus incites a new cycle of change. In sum, understanding the role of entrepreneurship in the sustainability transformation of food requires looking beyond the artefacts as the end-state of entrepreneurship, and instead as transition points of an ongoing journey. A sustainable food system is not created overnight, nor are the products, services and firms that at the present aiming for a more sustainable food system necessarily exemplary for the food firms, products and services of the future. Artefacts come up and dissolve again over time, with each iteration shaping entrepreneurship, and the transformation of the food system, further.

Discussion

Scope and limitations of the framework

This paper has introduced and explained the SFEF to facilitate more understanding in the role entrepreneurship plays in the sustainability transition of the global food system, specifically in the case of food system re-localization. The SFEF is 'a' (and not 'the') framework of sustainable food entrepreneurship. Even though in this paper, reference is made to certain qualifications such as 'local' and 'organic' in reference to sustainability, we do not aim to evaluate or assess the various types of food entrepreneurship in terms of sustainability with the help of this framework. The framework delivers a processual understanding rather than a normative evaluation. It does not provide answers to the question whether or not a specific manifestation of entrepreneurship is more or less sustainable. This also fits in current debates in the literature. Whether 'local' and 'organic' are sustainable depends on the vantage point (e.g. water quality, biodiversity, GHG emissions) taken (Brunori et al., 2016), and 'sustainable food' is often considered to have different meanings in different contexts (Childers et al., 2014; Hinrichs, 2010; Kirschenmann, 2008; Moschitz et al., 2018). Instead, the value of this framework lies in the possibility to understand sustainable food entrepreneurship as a cyclical process where the meaning of sustainability is constantly (re)negotiated. By conceptualizing sustainable food entrepreneurship as an ongoing cyclical process of change, it is possible to go beyond the temporary snapshot of a firm, product or service and capture the larger process of change of which it is a part. This allows zooming out of the behaviour of entrepreneurs and their enterprises and map the ongoing development they fit into.

Implications of the framework

Given our scope and limitations, what did our framework offer in terms of more understanding into the role of entrepreneurship in sustainability transformations of food? First, our framework foregrounds the temporal dimension of entrepreneurship. It depicts entrepreneurship as a force of creative organizing that continuously connects the past to the future. The past is the scaffolding of the future because it helps to cope with the uncertainty that is inherent in the current sustainability transformation of the food system. The past helps to create what comes next based on what is already known. This also explains why food culture is so closely connected to sustainable food. This scaffolding strongly relies on (re)organization; ideas, materials and people are reconfigured into organizational

phenomena such as goods, services, firms, but also in cooperatives and license schemes that draw on cooperation. Through entrepreneurship, the past is tied to future, and in the process creativity is connected to organization as well as the human to the non-human. The temporal dimension of the framework also sheds new light on the importance of uncertainties. In our framework, entrepreneurship results from and causes uncertainties and new cycles of change over time. By considering (new) products, firms and services not as endpoints of entrepreneurship, but as transition points in an ongoing journey, these 'uncertainties' are not necessarily negative. Moreover, within the scope of food system transformations, they have great value because they fuel continuous change. Second, our framework foregrounds the socio-material context and therefore sheds light on the other actors and factors, both human and non-human, that contribute to artefact emergence. The 'From imagined futures to socio-material context: matching meaning and materials' section discusses the importance of the fit of the material to the social, as well as the facilitative roles of intermediary actors in facilitating artefact emergence. Interestingly, this emphasis on the socio-material context also helps to hone on the role of 'the entrepreneur' itself. None of the interviewed experts considered themselves, when asked, to be entrepreneurs even though some of them played a large role in the emergence of artefacts. Their explanation for this was because they received a salary for their actions whether or not their efforts would result in artefact emergence. In their words, they did not assert any risk for their endeavours. As in the 'Introducing the concepts of the framework' section is explained, this paper adopts a Knightian understanding of uncertainty, i.e. it considers situations where the future cannot be predicted or calculated to be situations of uncertainty. Therefore, we argue that 'asserting risk' can also be construed as bearing the costs of uncertainty (Dimov, 2018). Entrepreneurs spend resources (e.g. time, money) without knowing the outcome and bearing the costs when their imagined future did not emerge as an artefact. In other words, even though the emergence of artefacts is impossible to reduce to the efforts of an individual entrepreneur, there are always one (or more) actors that have to act (e.g. dedicate time and money) without knowing the outcome ahead and that have to bear the cost if it does not work out as planned. This also helps to better understand the position of farmer-entrepreneurs within sustainable food entrepreneurship. Our paper discusses their difficult position, which is also well established in the literature on the sustainability transformation of food which shows that farming is becoming increasingly very complex and consists of a plethora of tasks and responsibilities (Triste et al., 2020) whilst facing several obstacles such as debts and sunken investments (Runhaar, 2021). As our paper shows, farmers often have little time or money left to actively engage in sustainable food entrepreneurship, e.g. to actively imagine a sustainable future and organize this into (new) artefacts. Still, they bear the uncertainty of their enterprise even if they primarily focus on food production. Therefore, a farmer can be considered an entrepreneur even when he is not actively engaging in entrepreneurship. Third, our framework offers the means to embed entrepreneurship better within (other) studies and disciplines of food and sustainability. For example, it helps to position the role of entrepreneurship in the alternative food networks literature. This literature is moving away from normative dichotomies such as mainstream-alternative and local-global (Tregear, 2011; Veen et al., 2012) and increasingly show how 'local' and 'alternative' food producers often rely on 'global' and 'mainstream' markets for a competitive price (Feyereisen et al., 2017; Preiss et al., 2017). Our framework stimulates this development by showing how these former dichotomies are part of the same ongoing process of change. Our approach helps to see that entrepreneurship entangles the future and the past, the human and the non-human and therefore cannot be confined to the ideology or motivation of entrepreneurs. Furthermore, Desa and Jia (2020) argue that alternative food networks require multi-disciplinary dialogues, to avoid being seen as 'anti-business'. Our main concepts (uncertainty, sense-making, artefact emergence) originate in different scholarly traditions (e.g. economics, organizational studies) and have evolved into the RP over time under influence of disciplines such as sociology and business studies. By connecting them to the specific field of studies of food and sustainability, we hope to further this multi-disciplinary dialogue. Not by replacing other literatures or concepts, but by adding to them. To illustrate how this could work, it can be instructive to compare our usage of the concept 'emergent artefacts', and the term

'institutions' as used in recent contributions to the literature on food system transformations. Skog and Bjørkhaug (2020) make the distinction between formal institutions as local and national government and policy, and informal institutions as social structures such as family and local society. Runhaar (2021) speaks of the need for building institutions to stimulate sustainability transformation and mentions examples such as subsidies and foundations to lobby and disseminate knowledge. He also claims institutions have a cultural role; to help find a common meaning of what constitutes as sustainable. Mangnus and Schoonhoven-Speijer (2020) consider organizational phenomena such as food cooperatives as institutions. Furthermore, they explain institutions such as food cooperatives are not fixed but ongoing, and evolving and embedded as they borrow from other social arrangements as present in society. Especially the understanding of Mangnus and Schoonhoven-Speijer (2020), that consider institutions as dynamic entities themselves, closely resembles our usage of the term 'emergent artefacts', but also in general our understanding of entrepreneurship as a cyclical process of change. This shows that our framework could be combined with concepts such as 'institutions' in future research. For example, by assessing institutions through the scope of artefact emergence, and to distinguish different organizational forms of the basis of their temporal endurance. This can help to qualify different transition points and their role within the ongoing sustainability transformation of food. Furthermore, such studies can further explore the tensions as discussed in the 'From experienced pasts to imagined futures: organization and cooperation' section between organizing new products services and firms on your own, or seeking collaboration with others.

Policy implications

Our framework has implications for policymakers and other societal actors that aim to further sustainable food entrepreneurship. First, the role of the sociomaterial context is important to consider for government agencies that aim to promote sustainable food entrepreneurship. Especially municipalities that aim to foster sustainable food policies must bear in mind the specific conditions, both material and cultural, that shape the type of sustainable food entrepreneurship that can emerge. Furthermore, they should take notice that intermediary actors, that neither profit from, nor bear the costs of uncertainty for entrepreneurship, can be crucial in artefact emergence. This also relates to the astute observation of Baldy and Kruse (2019) of prejudices about different societal actors about their role in the food system transformation; civil society actors often believe food entrepreneurs only act out of profit whereas entrepreneurs believe civil society actors are anti-growth per definition. Our framework helps to see that such prejudices are unfounded, since civil society actors, food entrepreneurs as well as government actors often engage in the same processes of entrepreneurship. Therefore, it is important to stimulate more agencies and actors that play a facilitative role in sustainable food entrepreneurship. Second, the temporal dimension of our framework incites a reevaluation of using qualifications such as 'success' and 'failure' in sustainable food entrepreneurship. Our framework depicts entrepreneurship as an ongoing cycle of reinterpreting and reconstructing the past into the future, therefore products goods and services must be understood as permanently under construction. Furthermore, the framework provides the insight that within sustainable food entrepreneurship, short-term 'success' or 'failure' is less important than the stimulation of a constant flow of ideas and resources throughout the sector. The latter enables the creation of more connections between entrepreneurs and other actors in the field of sustainability and food, also for those entrepreneurs for which it is harder to bear uncertainty. Therefore, it is important to facilitate the ongoing development, even when imminent success is not to be expected. This insight is important for a wide range of actors, from government agencies to banks, that aim to accelerate sustainable food entrepreneurship by promoting promising developments in the field. These actors are increasingly finding each other on their paths, especially considering the increasing importance of urban policymaking to promote sustainable food (Baldy & Kruse, 2019; Giambartolomei et al., 2021). Our framework shows it is important to not just focus on upscaling recent 'successes', but also to try to learn from the 'failures' of the past. In other words, don't just try to pick the winners but learn as much as possible from the entrepreneurial process that is unfolding.

Conclusion

This paper introduces a conceptual framework, the SFEF, to further the understanding of the role of

entrepreneurship in sustainability transitions in the agri-food domain, and in particular in the context of food system re-localization. The framework was constructed based on literature reviews (encompassing literature on the RP and on sustainable food entrepreneurship (SFE)), and expert interviews in Almere, Flevoland (a real-life site of food entrepreneurship). Sustainable food entrepreneurship is conceptualized as an ongoing cyclical process of change. The uncertainty associated with sustainability incites a process of sense-making where entrepreneurs imagine a sustainable future whilst inscribing their images with notions of past experiences. The fit of these imagined futures and the socio-material context determines which of them emerge as artefacts (e.g. products, services and firms). Artefact emergence in turn incites a new cycle of uncertainty. This SFEF helps to look beyond the behaviour of entrepreneurs, and to look at the larger process of change. Moreover, it puts the socio-material context at the centre stage of sustainable food entrepreneurship and shows that the fit of the imagined futures to this socio-material context determines if and how entrepreneurship emerges. We aim to advance the understanding of sustainable food entrepreneurship with this framework, that can be fruitful for both academics as well as for policymakers in the agri-food domain. Our paper concluded with implications for policymakers, to bear in mind the actors and factors other than entrepreneurs that facilitate entrepreneurship, as well as the relative value of terms such as 'success' and 'failure' within an ongoing cycle of change.

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