Scaling up community-supported agriculture (CSA) in the UK: Assessing the current and potential spread of CSA using a strategic niche management framework.

MSc Sustainable Food and Natural Resources

Greta Hughson

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Abstract

Current industrial agricultural practices have been identified as key drivers in several of the world's most serious environmental problems, including climate breakdown, pollution from nitrogen and phosphate, and biodiversity loss. Organic, regenerative forms of agriculture have the potential to maintain food security, while restoring soil health and minimising or reversing wider ecological damage. Agroecological approaches to farming engage with both the ecological and socio-economic impacts of land-use practices, which must be addressed to ensure the sustainability of rural livelihoods. Community-supported agriculture (CSA) is one such approach, in which local people share the risks and rewards of farming in their area. Participants make financial and practical contributions, and in return receive a share of the harvest, or other produce, from the farm. CSA makes up a small part of the current agriculture sector in the UK, but is a very positive, ecologically sustainable way of producing food. In other sectors, such as energy and transport, small groups of people working on radical sustainable innovations have collaborated to successfully develop their idea until it was ready to influence, transform, or replace the *status quo*. Learning from these developments is recorded in the 'strategic niche management' literature. This research project investigated the potential contribution of the strategic niche management framework to the UK's CSA movement. A series of semi-structured interviews with experienced members of CSA projects and the networks which represent them explored their subjective experiences and attitudes, particularly in relation to the three key pillars of strategic niche management – networking, learning, and vision. It found that the three pillars are in place, but each could be further developed and strengthened. Expanding the range of stakeholders involved in the niche could bring important new resources and increased influence; second-order learning could be better captured and used; and greater coherence around vision could enable prioritisation of limited resources and further focused development. Each pillar is useful in understanding and guiding how the CSA movement can grow and develop, and ultimately best influence the people and systems around it.

Acknowledgements

I would like to thank the teaching and support staff at the Centre for Alternative Technology (CAT) for making my learning experience there so memorable and enriching. Special thanks to my dissertation supervisor, Siobhan Maderson, for all her wisdom and encouragement. I was fortunate to study alongside an incredible group of people, who made every step of the journey more powerful and fulfilling than I could ever have imagined. I am forever changed by the time I spent at CAT.

Huge thanks are due to my friends, family and colleagues, and particularly to my partner Sam, for their patience and love as I have wrestled with some of the most challenging issues of our times – not just as a student, but as a person making choices about how to live in these times.

I feel enormous gratitude to the participants in this research, who shared their thoughts so generously and eloquently. I hope there is something useful in these pages for them.

A final note of thanks to the writers and musicians whose words and music have inspired and sustained me along the way, and to the hills, the woods, the sea, the sky…the many non-human parts of nature that have done so much to soothe, support and strengthen me. I look forward to getting back into the wild.

"Soil, not oil, holds the future for humanity." *Vandana Shiva*

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1. Introduction

This research brings together strategic niche management, a concept from innovation and transitions literature, more often used in the analysis of emerging technology, with community-supported agriculture (CSA), a grassroots food-growing and -distribution concept, which reconnects people to local food, farming, and land. CSA is a positive but very small part of the UK's food and farming sector. If it could be supported to develop and grow, it could offer a wealth of positive impacts for the environment, the soil, farmers, growers, and citizens (Saltmarsh, Meldrum and Longhurst, 2011). Strategic niche management is a framework which has the potential to offer insights into how innovations develop and spread (Schot and Geels, 2008). Equipped with insights from strategic niche management, could the CSA movement in the United Kingdom (UK) reach new heights?

1.1. Food and farming – multiple socio-economic and environmental challenges

Food systems based on current industrial agricultural practices have a devastating impact on the planet (Intergovernmental Panel on Climate Change, 2014; Richards *et al.*, 2016). This is made clear in research on a series of environmental limits, known as 'planetary boundaries', which show that agriculture is a "major driver" in the breaching of these key limits (Steffen *et al.*, 2015; Campbell *et al.*, 2017, p7). Work on planetary boundaries highlights a safe statistical area, within which humanity can survive (O'Neill *et al.*, 2018). According to this research, two of the boundaries which have already been passed are biogeochemical flows, which particularly relates to the use of nitrogen and phosphate in agriculture, and biosphere integrity, which relates to biodiversity and ecosystem functioning, also highly affected by land use in agriculture (Steffen *et al.*, 2015). Three more boundaries at risk of being passed are also strongly linked to agriculture, namely freshwater use, land-system change, and climate change. As farms in Europe occupy more than half the land, farmers have an important stewardship role (Darnhofer, Sutherland and Pinto-Correia, 2015).

In the UK, as in other industrialised countries, the impact of the food system on the environment is not limited to agriculture, but is compounded by the food distribution system, based in large part on supermarkets, high food miles, air-freighted produce and a high proportion of processed convenience foods (Renting, Marsden and Banks, 2003; Pretty *et al.*, 2005; Kearney, 2010; Eakin *et al.*, 2017; Monteiro *et al.*, 2018; Béné *et al.*, 2019). While financial value is added through processing by a series of intermediaries in the supply chain, the original 'whole foods' are bought from the farm at low prices, making it hard to earn a living wage from farming, unless working at an industrial scale, using high chemical inputs, farming monocultural crops and maintaining low labour costs (Renting, Marsden and Banks, 2003; de Roest, Ferrari and Knickel, 2018).

It is clear that there are multiple, complex and connected problems within the food and farming systems, adversely affecting people (farmers, growers, consumers), natural resources (soil, water and atmosphere), and other species with which we share these resources. These systems have developed over many years, driven in part by the need to increase food security, and influenced by government policy and the interests of large corporations. It is important to acknowledge this starting point when mapping out a new and more sustainable food and farming system – the slate is not blank, but rather already

full of embedded norms, culture, experience, and vested interests (Smith, Stirling and Berkhout, 2005; de Roest, Ferrari and Knickel, 2018). However, it is equally important to acknowledge and understand that, due to its environmental impact, the current food and farming system cannot continue indefinitely.

1.2.   Agroecology and community-supported agriculture

Agroecology has emerged as a counterweight to these complex challenges. As the name suggests, agroecology combines the need to work the land to produce food (agro-) with the need to work in harmony with nature and living things (-ecology). It is described as a scientific field, an agricultural practice, and a social movement, and it takes a holistic view of food and farming, considering environmental, economic, and social issues (Anderson, Maughan and Pimbert, 2018; Wezel *et al.*, 2018).

Agroecology at a farm level aims to minimise inputs and create a circular system, capturing and reusing resources with practices such as collecting rainwater for irrigation and using compost and manure to improve soil fertility (Poux and Aubert, 2018). The farm is viewed as an ecosystem, and physical changes such as tree planting might be used for longer-term benefits to the land (Poux and Aubert, 2018). Designing the farm with circularity in mind reduces or eliminates the need for chemical inputs and reduces or eliminates pollution and waste outputs (Gliessman, 2015).

Agroecology is also concerned with social and economic ideas. As a social movement, it champions the interests of small-scale farmers and local food systems, challenging the *status quo,* in which profits from food and farming often leave a local community, going instead to large, international companies. Reducing reliance on commercial seeds, pesticides, herbicides, and fertilisers is one aspect of this, as is supporting local and short supply chains from farm to fork (Anderson, Maughan and Pimbert, 2018).

CSA is a good example of agroecology in action. It tackles the interconnected food and farming issues sketched out above, in a holistic way (Ravenscroft *et al.*, 2012). Most, if not all, CSA projects in the UK are small-scale, grow food without the use of chemicals (whether or not they are certified as organic), and supply food directly to local people (Saltmarsh, Meldrum and Longhurst, 2011). There is a cost attached to being officially certified 'organic', and some projects choose not to seek certification. The direct relationship with the consumer means that consumers have more trust in the farmer and accept that the produce has been grown without the use of chemicals, without the need for organic labelling.

A key tenet of the CSA model is that the risks and rewards of farming are shared, with at least the theoretical understanding that if the farm has a bad year, there will be less produce to share among members. Local people pay the farmer for a share of the harvest, often in the form of a subscription in advance. The farmer therefore has a firm idea of how much to grow, so less is wasted, and has a guaranteed, predictable income. In supplying food to local people, often in the form of a weekly box of vegetables, the farmer is incentivised to grow multiple crops to give people variety throughout the seasons. This develops skills and builds resilience, in contrast to growing a monocultural crop, which can be wiped out due to inclement weather, pests, or disease, with potentially devastating effects for a farm's economic sustainability (Altieri *et al.*, 2015).

An additional benefit of CSA is the reconnection of people to their local land, to nature, and to the origin of their food (Cone and Myhre, 2000). These connections can have health benefits for individuals and also influence their attitudes towards the environment (Restall and Conrad, 2015; Heikkurinen, Lozanoska and Tosi, 2019). In the UK, involvement with the CSA farm varies from project to project, but there are always opportunities for members to visit the farm and they are often invited to take part in workdays, helping to plant, weed, or harvest. Members report an increase in the quantity and diversity of vegetables in their diet (Cox *et al.*, 2008; MacMillan Uribe, Winham and Wharton, 2012; Izumi *et al.*, 2017).

1.3. Effecting change

CSA addresses multiple problems within the food system: from soil health to fair payment for farmers; from improving diets to reconnecting people with nature. But following an initial surge in interest around 2007-2011 – driven in part by the *Making Local Food Work* project, which coincided with Big Lottery funding for local food projects (Saltmarsh, Meldrum and Longhurst, 2011) – it remains a very small part of the overall food system in the UK. Considering all the positive impacts of CSA and the urgent need for change in the food and farming system, how can CSA be supported to spread further?

Various authors have addressed the development and scale-up of radical innovations, particularly new technologies, such as wind energy and electric vehicles (Kemp, Schot and Hoogma, 1998; Coenen, Raven and Verbong, 2010; Raven and Geels, 2010). One particularly relevant framework is strategic niche management, which looks at innovations emerging and evolving alongside an existing system (e.g. wind energy alongside coal power). Some researchers have used the strategic niche management framework to look at social innovations, such as community currencies (Ornetzeder and Rohracher, 2013; Seyfang and Longhurst, 2013, 2016).

Strategic niche management aims to analyse and explain the processes through which an innovation – a niche within a broader system – is brought to scale, and the processes through which it can be diffused or translated into the regime (the existing practices and norms within which it operates), or can transform the regime (Kemp, Rip and Schot, 2001; Caniëls and Romijn, 2006; Geels, 2014). The behaviours which are considered to be important within the niche are: managing expectations (i.e. having a shared **vision** among those involved); **learning** (i.e. sharing learning among those involved); and developing a **network** (i.e. including those actively working on the innovation and those who would be important to its spread, such as people working in academic institutions, community organisations and local and national government) (Seyfang and Haxeltine, 2012).

Some strategic niche management research has begun to tackle the area of the translation of the niche innovation to the mainstream, which is a more opaque process, with many complex variables (Geels, 2014). A new technology niche, for example, may simply outperform or undercut the cost of an existing technology (Smith, Voß and Grin, 2010). Or, it might be preferable for other social reasons, such as producing fewer carbon emissions, which make it a candidate for government subsidy or incentive (Schot and Geels, 2008). For social innovations, the route is less clear, and may depend on unpredictable changes in the external environment (Seyfang and Haxeltine, 2012). A

manufacturer of biodegradable disposable cups, for example, could have developed their niche over many years, but could not have predicted the surge in public interest around alternatives to single-use plastics that occurred following the public broadcast of the Blue Planet II documentary ('Blue Planet II', 2017; Waitrose & Partners, 2018; Stafford and Jones, 2019). CSA can be viewed as a niche within the food and farming sector. Using the strategic niche management framework to assess its current position and potential for development, what can the CSA movement learn about how it might further develop?

There are multiple, complex and interconnected problems relating to the food and farming system and its impact on the planet in terms of biodiversity, biogeochemical flows, and climate change, as well as in terms of human nutrition and social justice (Campbell *et al.*, 2017; O'Neill *et al.*, 2018; Mendenhall and Singer, 2019). Transition and transformation are required at all levels, including the personal, the practical and the political, and CSA offers a route to transformation at multiple levels. Radical sustainable innovations, such as CSA, are needed urgently. This research asks whether there are lessons from strategic niche management about how that transformation could be strengthened and developed, impacting more people and more land.

1.4. Aims and objectives

This research sets out to investigate what the CSA movement in the UK can learn from the development of other sustainable innovations, using the framework of strategic niche management (Kemp, Rip and Schot, 2001). The objective is to establish what steps the movement could take to further develop and spread.

The study is in two parts. Firstly, a literature review will consider food and farming system challenges in an environmental context, and the existing body of academic literature on CSA and on strategic niche management, before drawing out relevant lessons and conclusions for the CSA movement. Secondly, a series of interviews with experienced participants within the CSA movement will explore the key elements of strategic niche management (notably, network, learning and vision) in the UK CSA context. A thematic analysis of these interviews will deepen understanding of the current status of CSA in the UK and the participants' views in relation to the key niche elements. It will conclude with recommendations for the further development of the movement in the UK.

1.5. Boundaries and limitations

This study looks at CSA in the UK. There are many variations of 'community farming' and there are also farming communities where support between neighbours is informal. CSA in the context of this research is a more formal arrangement. The model is not the same in every case, but one definition, published in a key UK publication on CSA, states:

"Community Supported Agriculture means any food, fuel or fibre producing initiative where the community shares the risks and rewards of production, whether through ownership, investment, sharing the costs of production, or provision of labour." (Saltmarsh, Meldrum and Longhurst, 2011, p4)

In considering the further development and spread of the CSA movement and aiming to capture the experience and attitudes of people involved in the movement, this study

focuses on the perceptions and vision of individuals and representatives of CSA networks. It does not consider aspects such as the maximum available land or potential willing members, which would also have an impact on the potential for the movement to spread.

With a small sample, there will inevitably be perspectives within the movement which are not represented here. However, the inclusion of representatives from networking bodies, alongside growers and other staff from individual CSA projects, goes some way to capturing the breadth of opinion within the movement.

This research will focus on the question:

'How can the strategic niche management framework help in understanding the potential spread of community-supported agriculture in the UK?'

2. Literature review

2.1. Industrial and regenerative agriculture

Humanity faces an environmental crisis of complex and connected issues. These are deftly framed within the planetary boundaries diagram (Rockström *et al.*, 2009; Steffen *et al.*, 2015; O'Neill *et al.*, 2018). These boundaries (see figure 1) refer to limits within which humanity "can operate safely" (Rockström *et al.*, 2009).
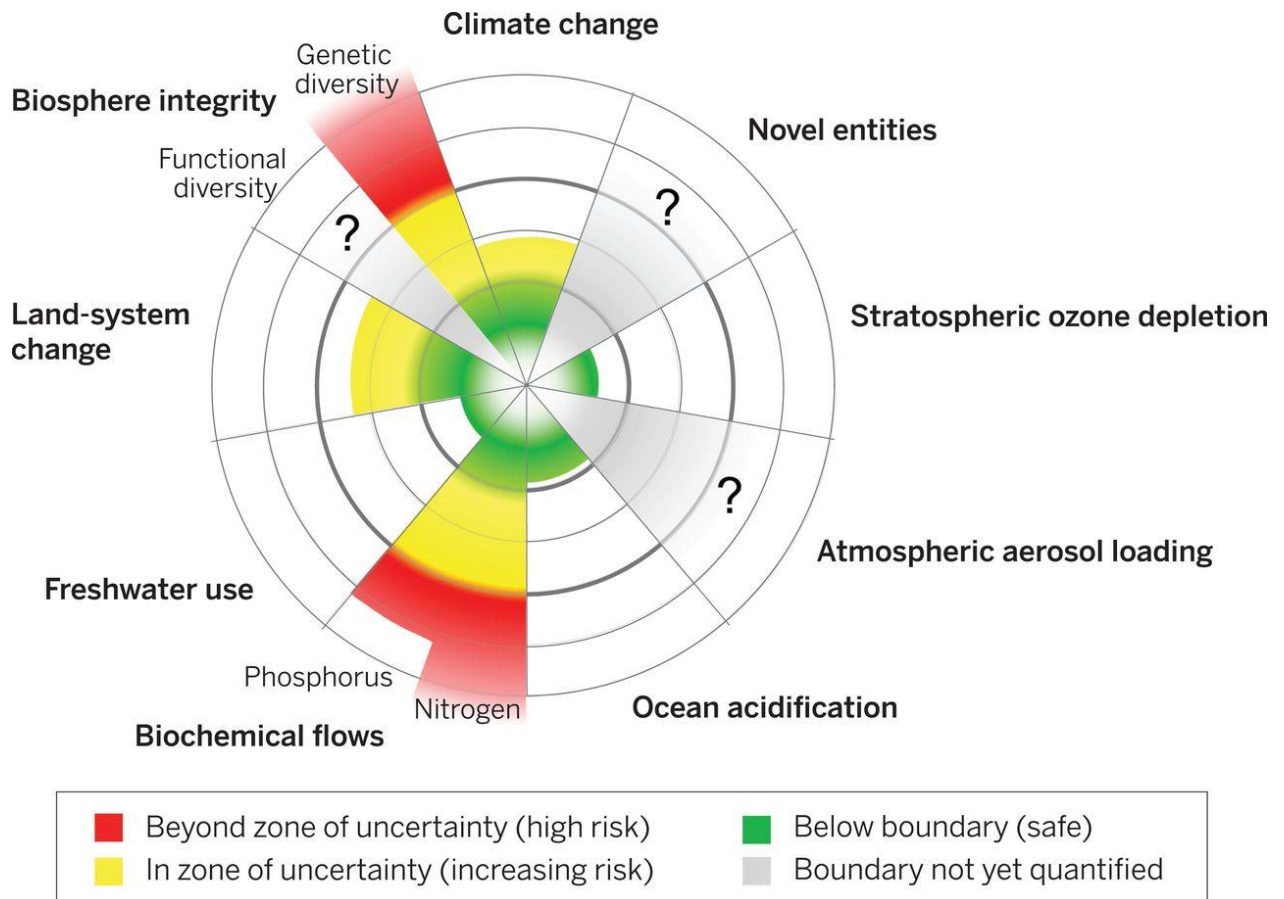
Figure 1: Planetary boundaries
The planetary boundaries diagram – green represents a safe area, yellow represents increasing risk and red represents high risk. The boundary is around the green area. (Steffen et al., 2015)

Agriculture is "a major driver" (see figure 2), in particular for biosphere integrity and biogeochemical flows (nitrogen and phosphate) (Campbell *et al.*, 2017, p7).

The global health crises of obesity and undernutrition share common roots with environmental breakdown, for example as the product of powerful corporate lobbying (Mendenhall and Singer, 2019; Swinburn *et al.*, 2019). Higher-income countries consume large quantities of processed food, meat and dairy, with negative health and environmental impacts (Kearney, 2010; Johnston, Fanzo and Cogill, 2014; Notarnicola *et al.*, 2017; Monteiro *et al.*, 2018).
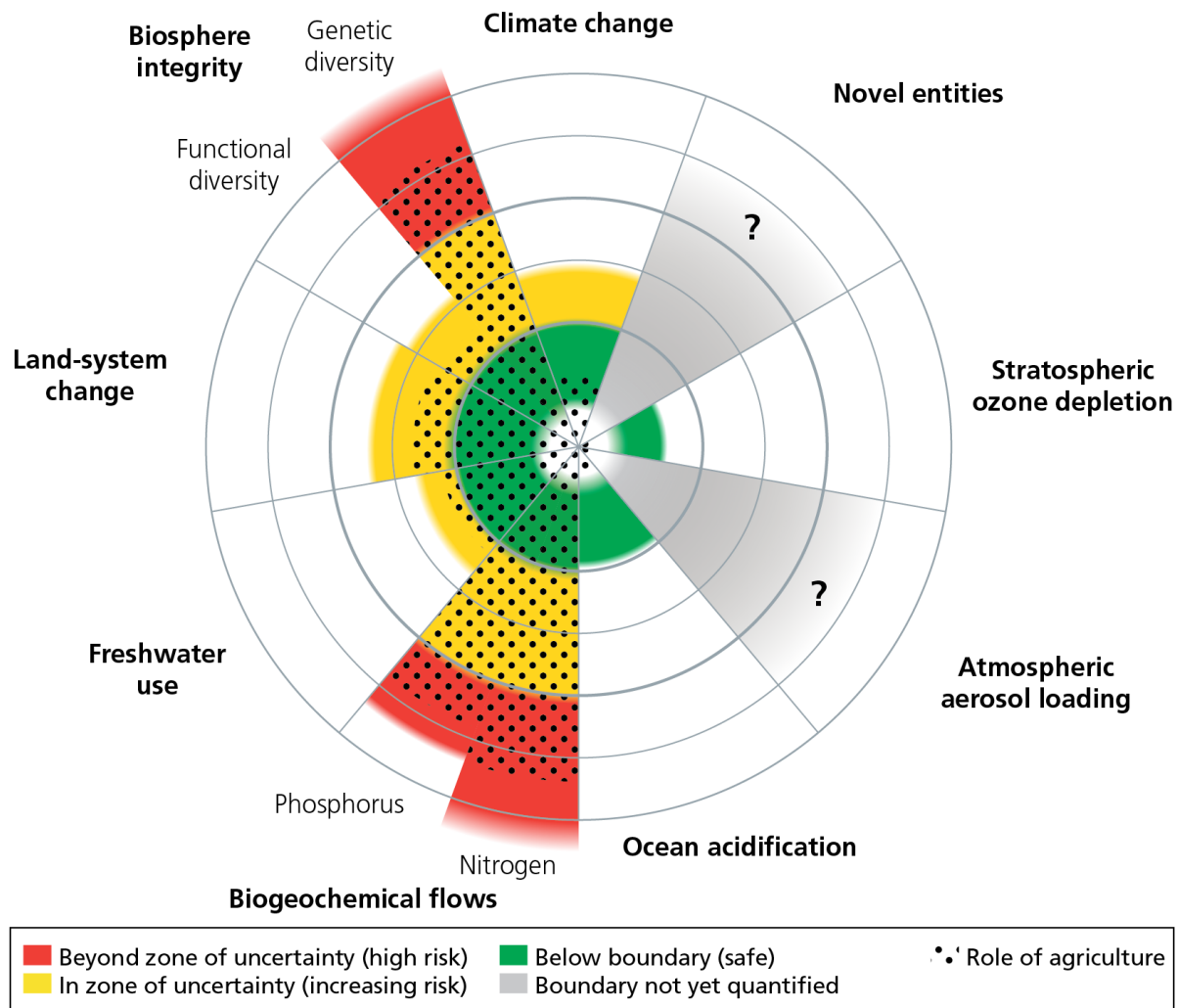
Figure 2: Agriculture as a driver of boundary transgression
The planetary boundaries overlaid with the impact of agriculture (as black dots). Agriculture is clearly a key driver (Campbell et al., 2017).

The pattern of increasing consumption of processed food and animal products is being repeated in industrialising countries (see figure 3). The industrialised and globalised nature of the food and farming system means that profit margins for small-scale farmers are squeezed (Smith and Marsden, 2004; Andersons, 2016). Small farms in the UK have been in steep decline for 60 years (Winter and Lobley, 2016; Smith, Strachan and Gibbon, 2018). The current food system is not working for the environment, consumer health, or small-scale farmers (Feenstra, 2002).

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socio-economic                                food supply
urbanization                                  changes in retail—rise in supermarkets
trade policies                                year round
market liberalization                         availability of food
increased incomes/affordability               long-product shelf life
drivers    women in employment                intensive food production methods
           consumer attitudes                 food industry marketing


                          food consumption
                         convergence of diets
                           'westernization'
                      increased intake of meat, fat,
                     processed foods, sugar and salt
                           nutrition transition


consequences
           health
           diseases of urbanzation and         agriculture/food production
           affluence (nutrition-related NCDs)  loss of biodiversity
           increases in social inequality      effects on the environment—land use, water use
                                               greenhouse gas emissions—carbon footprint
                                               sustainability of wild fish stocks
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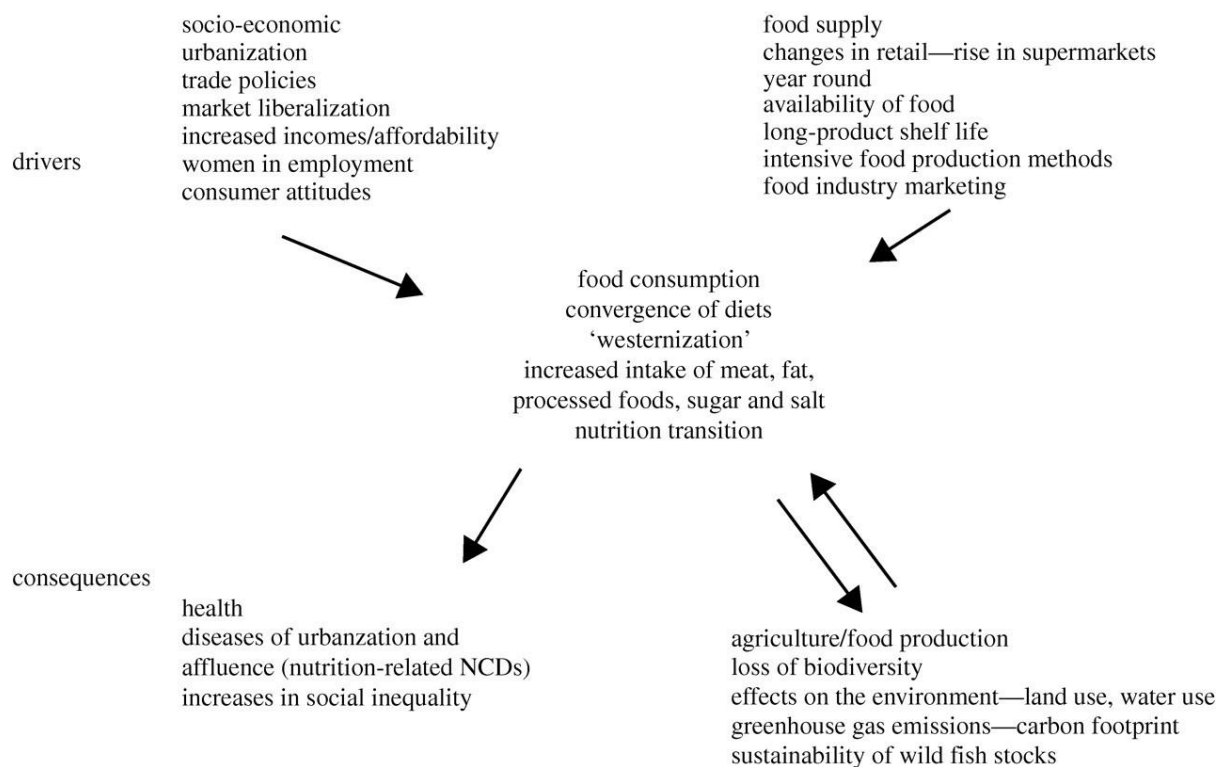**Figure 3: Drivers and consequences of food consumption changes with economic development**
The pattern of food consumption changes has been seen in many countries around the world, and is still playing out in countries with increasingly wealthy middle-classes, such as Brazil, India and China (Kearney, 2010).

2.1.1. How did we get here and where do we go next?

The current food and farming system was shaped by technological drivers and agricultural policies, which reflect broader historical trends of mechanisation, and mass production and consumption (Kanger and Schot, 2018). The introduction of high-yield plant varieties, alongside chemical pesticides, fertilisers and herbicides, enabled the intensification of farming, increased yields, and reduced food prices (Tilman, 1999; Phillips, 2014). Globalisation brought cheap imported food and a break from seasonality (Kearney, 2010). Factors such as urbanisation and food marketing have also led to less sustainable diets (Kearney, 2010; Sutton, Oenema, *et al.*, 2011).

In the UK, government agricultural policy has supported large-scale farming to produce increasing quantities of 'cheap' food; the cost of dealing with the negative outcomes of this not being taken into account (Pretty *et al.*, 2005). The environmental costs of these practices are becoming increasingly visible. For example, the 2011 European Nitrogen Assessment found that the environmental cost of nitrogen is double that of the increase in value for farming – around half the nitrogen spread on fields ends up as pollution (Sutton, Howard, *et al.*, 2011). A study interpreting planetary boundaries *per capita,* showed how far from sustainable the UK's systems are (see figure 4) (O'Neill *et al.*, 2018). For nitrogen, the researchers calculated an annual *per capita* boundary of 8.9kg; current use in the UK is 72.9kg (O'Neill *et al.*, 2018).
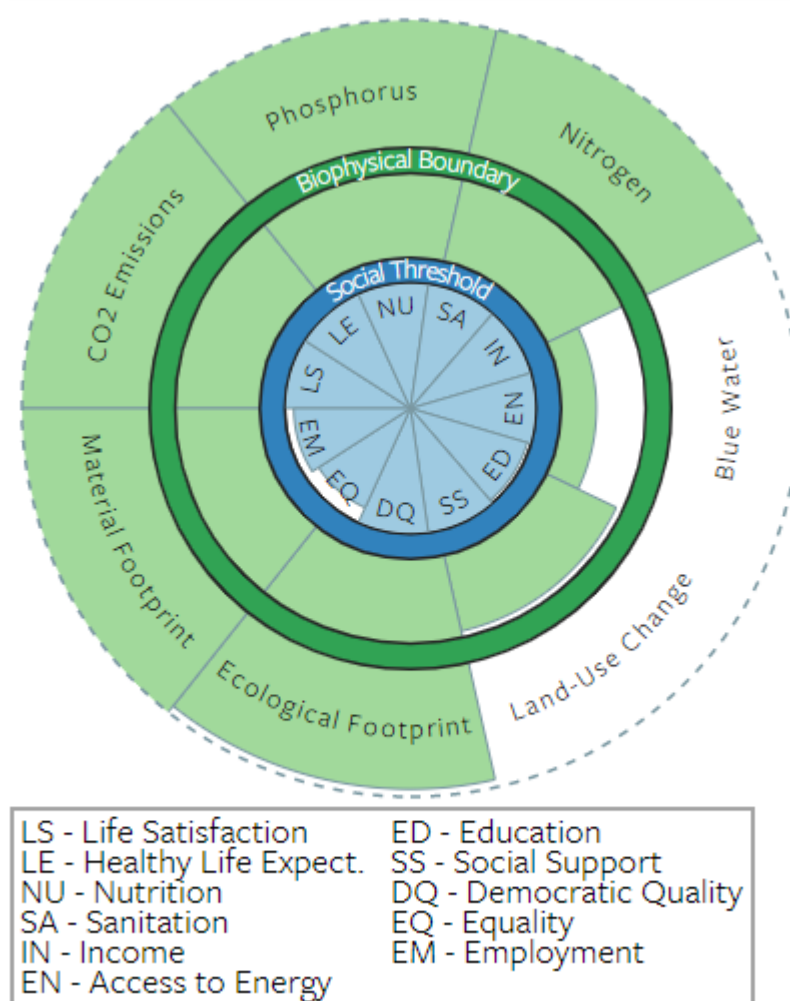
LS - Life Satisfaction
LE - Healthy Life Expect.
NU - Nutrition
SA - Sanitation
IN - Income
EN - Access to Energy

ED - Education
SS - Social Support
DQ - Democratic Quality
EQ - Equality
EM - Employment

Figure 4: Biophysical boundary and social threshold for the UK
This diagram, produced by researchers at the University of Leeds, shows how far the UK exceeds its per capita 'allowance' of environmental impact (O'Neill et al., 2018).

Food security has long been framed in terms of the production of more and cheaper food, but as environmental impacts are increasingly felt, sustainability and resilience will be key to a secure food supply. A rights-based approach to food security is sometimes framed under the concept of 'food sovereignty', putting people in control of their local food supply (Wittman, 2011; Moragues-Faus, Sonnino and Marsden, 2017). Just as current food culture and farming practice has been influenced by scientific knowledge and external drivers, food and farming can and indeed must evolve and adapt (The Landworkers' Alliance, 2017; Wildlife and Countryside Link, 2017).

Across Europe, a growing number of academics and small-scale farmers are embracing the concept of agroecology (Levidow, 2011; Anderson, Maughan and Pimbert, 2018; Wezel *et al.*, 2018). Agroecology considers the systemic problems in food and farming, and aims to produce food sustainably and regeneratively, while supporting small-scale farmers to be economically sustainable and providing affordable, healthy food to consumers (Gliessman, 2015; Pimbert, 2018). Agroecology is a useful tool to transform

systems from the ground up, building ecological and socio-economic resilience (James and Brown, 2018).

2.2. Community-supported agriculture

Community-supported agriculture (CSA) is an example of agroecology, providing holistic solutions to food and farming issues at a local level (Polimeni, Iorgulescu and Shirey, 2015; Balázs, Pataki and Lazányi, 2016). CSA has its roots in 1960s Japan and spread to other countries, notably to the USA in the 1980s, where there are now more than 6000 CSAs (Vasquez *et al.*, 2017). Significant numbers have been established in France (see figure 5) through the AMAP (Associations pour le Maintien d'une Agriculture Paysanne) system (European CSA Research Group, 2016).
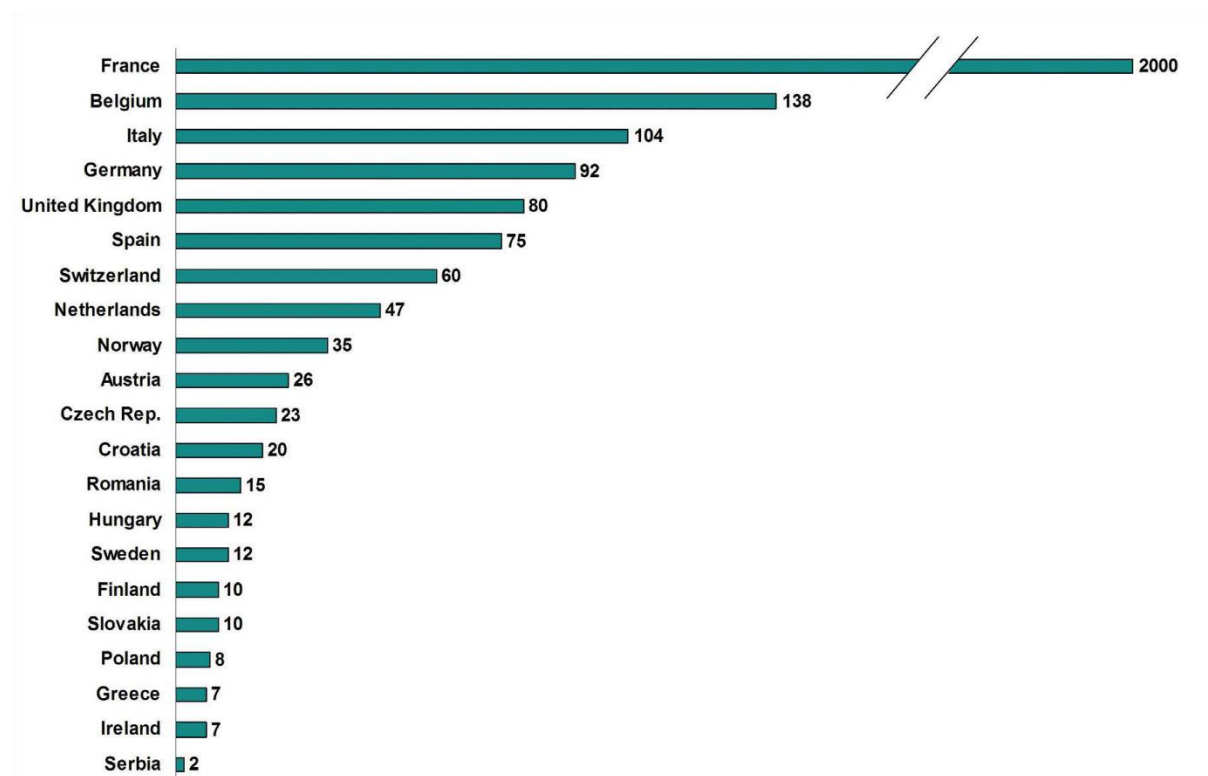

Figure 5: Estimated number of CSAs in Europe
Figure 5 shows the estimated number of CSAs in Europe (European CSA Research Group, 2016)

In Japan, the model is known as 'teikei', which translates as 'partnership'. Partnership is an important concept in CSA, referring to the connection and collaboration between producer and consumer. Teikei grew from consumers' willingness to pay producers directly for organic food (Feagan and Henderson, 2009; Vasquez *et al.*, 2017).

In the UK, the first CSA projects started in the early 1990s (*Our history*, no date). A project called *Making Local Food Work* ran from 2007 to 2012 and coincided with wider support through the Big Lottery's Local Food Fund. As part of this project, the Soil Association worked on raising awareness of the CSA model. The combination of awareness and funding resulted in around 150 new start-ups and in 2013, the independent CSA Network UK was formed. (*Our history*, no date; Saltmarsh, Meldrum and Longhurst, 2011).

2.2.1. Defining community-supported agriculture

Definitions of CSA in the literature vary, and individuals involved in CSA have their own nuanced descriptions.

In the UK, a widely used definition is set out in a report published by the Soil Association as part of the *Making Local Food Work* project. This definition has the consumer-producer relationship at its heart:

> *"Community Supported Agriculture means any food, fuel or fibre producing initiative where the community shares the risks and rewards of production, whether through ownership, investment, sharing the costs of production, or provision of labour" (Saltmarsh, Meldrum and Longhurst, 2011, p4).*

The European CSA Research Group adopted a quite different definition:

> *"CSA is a direct partnership between a group of consumers and producer(s) whereby the risks, responsibilities and rewards of farming activities are shared through long-term agreements. Generally operating on a small and local scale, CSA aims at providing quality food produced in an agroecological way" (European CSA Research Group, 2016, p8).*

In this definition, 'long-term' and 'local' are made explicit. It also gives prominence to ecological sustainability, which is a motivation for many people.

Cox et al. (2008) present a more detailed definition for the UK context, illustrating core concepts with practical examples:

> *"In its simplest form CSA involves local people investing in a farm or crop in advance of the harvest. This guarantees an income for the farmer and shares the risk amongst the investors. In return the investors get a share of the harvest, often this is a vegetable box but it could also be fruit, eggs or meat. They also have the opportunity to build a closer relationship with the grower and potentially other members of the CSA. Many CSAs also include elements such as social events and work details for members to help at certain times of year. Some CSAs involve members in decision-making and even in owning the farm" (Cox et al., 2008, p204).*

These definitions capture different aspects of CSA and highlight some of the nuances that can be problematic in deciding whether a project is 'community-supported agriculture'.

2.2.2. Challenges of community-supported agriculture

Some CSAs are community-led and often face two key challenges; access to suitable land and developing the necessary skills (DeLind, 1999; Saltmarsh, Meldrum and Longhurst, 2011). Other CSAs are started when an existing farm is converted to CSA, in whole or in part, as a producer-led model. In this case, access to land is straightforward, but diversifying growing skills and engaging the local community can be challenging (Cone and Myhre, 2000; Reisman, 2018). Another important group are new entrants to farming who wish to start a producer-led model, but who do not have a farm. In this case, all of

these challenges may apply (Hitchings, 2013). In all cases, access to start-up funding for necessities such as polytunnels, tools and seeds, buildings for packing and storage, and marketing is problematic (Saltmarsh, Meldrum and Longhurst, 2011; CSA Network UK, 2017a).

The CSA model provides a secure and predictable income because local people (often referred to as members) commit to supporting the farm financially in return for a share of the harvest. However, as for other small-scale farms, it can still be difficult for a farmer to make a living. Volunteer support from members can make a big difference, but their contribution may be unpredictable (Feagan and Henderson, 2009; Lang, 2010; Ravenscroft *et al.*, 2013).

There are also less tangible challenges in setting up a business that is at odds with the existing food system, relying on potential members being prepared to think about their food supply from a different perspective. There are also issues to be explored around inclusion and economic justice within CSA, highlighted by a lack of diversity among participants (Cone and Myhre, 2000; Feagan and Henderson, 2009; Charles, 2011). This is an important aspect to consider in terms of making transitional and transformational change; who is steering the change and who benefits from it, or loses out (Born and Purcell, 2006; Schot and Geels, 2008; DeLind, 2011)?

2.2.3. Benefits of community-supported agriculture

Research often focuses on the motivations for CSA or the benefits of it, such as making seasonal organic food available in a local area (Cox *et al.*, 2008), driven by a desire to have food produced without chemicals, a reduction in food miles, or the appeal of local food for cultural or socio-economic reasons (European CSA Research Group, 2016). For producers, the motivation may be a stable income, and/or the closer connection with their community (Cone and Myhre, 2000). Particularly in community-led models, the motivation may be community development and reconnecting people with land and food (Ravenscroft *et al.*, 2013; Vallauri, 2014; Gorman, 2018). The flexibility of the CSA model can also be a benefit, as it can be adapted to local conditions, and the needs, skills, and ambitions of the people involved (Nost, 2014; European CSA Research Group, 2016).

Motivations for CSA members also vary. They include: care for the environment, access to local, seasonal organic food, and supporting local farmers (Cox *et al.*, 2008). For some, increasing vegetable consumption and reducing exposure to chemicals in food are key (Cooley and Lass, 1998; Carney *et al.*, 2012; Vasquez *et al.*, 2017).

In short, CSA is an appealing model for sustainable and resilient farming. At its best, it combines: regenerative ecological growing practices beneficial for soil and biodiversity; social and economic support for small-scale farmers; diversification of food growing skills; shortening supply chains; provision of locally grown, seasonal, organic food with minimal waste and packaging; enabling consumers to source healthy, low-carbon food; the reconnection of consumers with their local land, local farmer, and with their food; and opportunities for participants to enjoy and benefit from nature connection and exercise in the fresh air.

2.3. Strategic niche management

Throughout society, unsustainable practices persist despite wide recognition of their harmful impact. However, there are transitions that can be learnt from, in terms of the introduction of sustainable innovations and social change.

Academic literature shows there are numerous paths to a transition. Transition in this context refers to significant systemic change:

> *"Such a shift is required […] because incumbent systems are 'locked-in' to unsustainable trajectories by a set of dominant structures, institutions, and practices characterised in the literature as a 'regime'. A transition can therefore be understood as a shift from one stabilised regime to another" (Seyfang and Longhurst, 2016, p2).*

A key concept in transitions literature is the multi-level perspective (MLP), which highlights the people and organisations involved in social and technological change (see figure 6) (Smith, Voß and Grin, 2010; Geels, 2011). A niche innovation evolves alongside existing products, processes and systems. The niche is created deliberately and nurtured (Kemp, Rip and Schot, 2001). The niche is seen in contrast to the 'regime' – the existing rules, norms and practices within which the niche innovation operates, and which it must influence or transform in order to change the dominant model (Kemp, Schot and Hoogma, 1998). The regime is an important concept, because a sustainable innovation must face ingrained vested interests (Smith, Stirling and Berkhout, 2005; Schot and Geels, 2008; Geels, 2014; Mylan *et al.*, 2018). The third level is the 'landscape', which includes long-term trends and patterns, such as climate breakdown and globalisation (Darnhofer, 2015).

This research focuses on niche innovation. Strategic niche management is a theory developed from observation of sustainable innovations, with its roots in technological innovations. It emerged from the consideration of which factors were present in innovations which successfully created a market niche or a shift in the prevailing regime (Schot and Geels, 2008). A new idea or invention needs time to develop and grow and a company might shelter a new idea from market constraints by developing it in a research and development department (Kemp, Schot and Hoogma, 1998). Strategic niche management applies this idea of sheltering more broadly. Sustainable innovation can be sheltered from the market in several ways, including with support from government subsidies, or a network of companies or organisations working together to test and develop new ideas (Kemp, Rip and Schot, 2001).

Strategic niche management theory looks at what supports, or hinders, this process and what strengthens a niche, giving it the best chance of impacting the regime (Caniëls and Romijn, 2006).
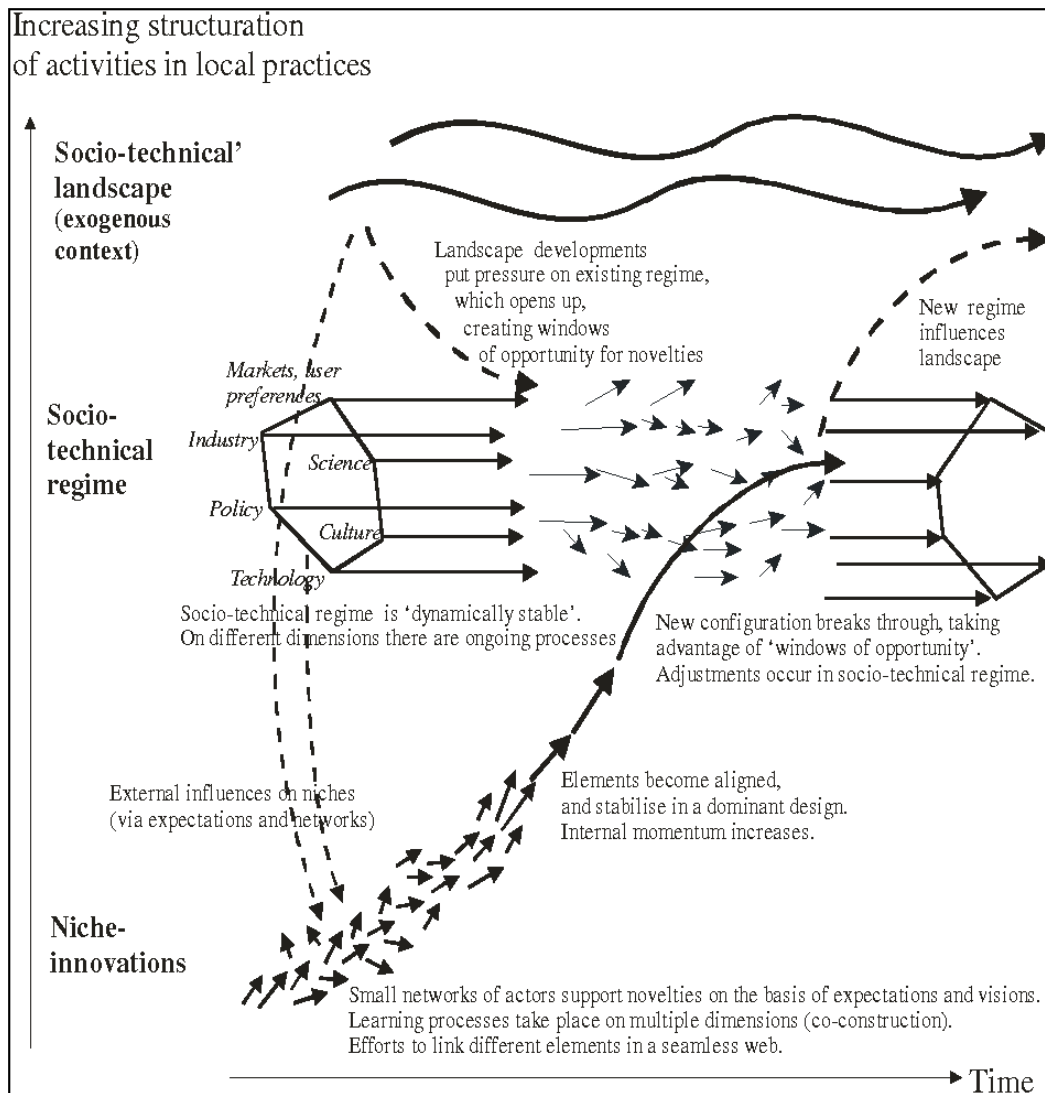
Figure 6: Multi-level perspective on transitions
The three key elements of multi-level perspective illustrated in this image are: the niche innovations, the socio-technical regime, and the socio-technical landscape (Geels, 2011).

2.3.1. How has strategic niche management theory been used?

Strategic niche management has often been used to look back on developments and consider how change happened. Development may not be linear, so it can be useful to take a long view and assess the development against the key pillars of the theory.

For example, strategic niche management has been used to assess the development of biogas (Raven and Geels, 2010), solar collectors, wind power, and car sharing (Ornetzeder and Rohracher, 2013), transport (Truffer, Metzner and Hoogma, 2002; Ieromonachou, Potter and Enoch, 2004), the bio-based economy (Tani, 2018), energy transitions (Raven, 2012) and, occasionally, food and farming transitions (Roep, Van Der Ploeg and Wiskerke, 2003; Wiskerke, 2003; Mylan *et al.*, 2018).

More recently, research has investigated the relevance of the framework to social innovations, notably researchers at the University of East Anglia, who have championed the idea that it is not only possible for social innovation to come from the grassroots, but

that community-based, bottom-up, place-specific innovation is vital (Seyfang and Smith, 2007; Seyfang and Haxeltine, 2012; Seyfang and Longhurst, 2013, 2016; Ilieva and Hernandez, 2018).

2.3.2. What makes a successful niche?

In the pursuit of strengthening a niche, several core concepts have been identified (see figure 7). The first is that those involved in the process, whether within one company or across a wide community of practice, should begin to develop and agree on their expectations or **vision** for the innovation. Secondly, **learning** is crucial, whether learning about the technical specifications of a new product, its impact in terms of its advantage over an existing product or system, or what the end-user thinks of it. Thirdly, rather than one innovator working alone, for a niche to be successful it requires a **network** of people who support the niche development (Kemp, Rip and Schot, 2001; Caniëls and Romijn, 2006; Coenen, Raven and Verbong, 2010).
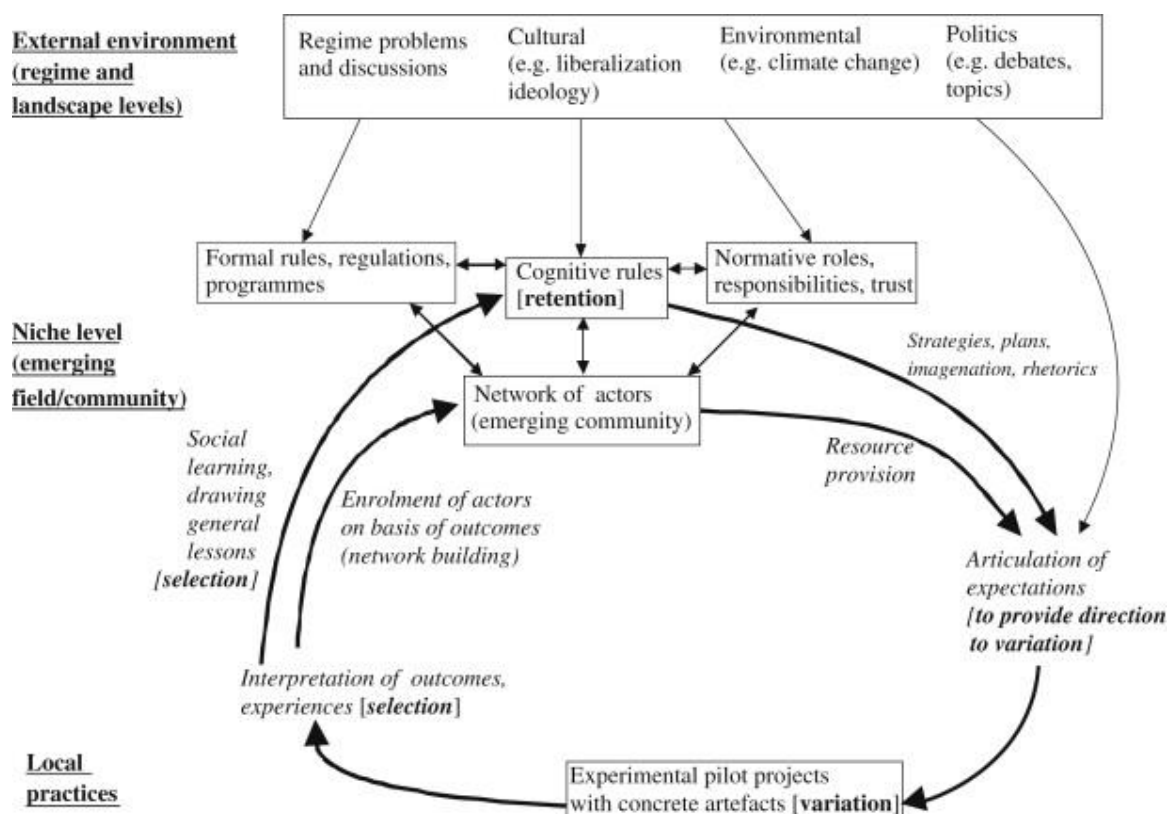
Figure 7: Dynamics in socio-cognitive technology evolution
In this diagram, articulation of expectations, learning, and network building can clearly be seen as processes at the heart of the emerging niche (Raven and Geels, 2010).

To be successful, an innovation requires both a shift in the regime and a strong niche; such a shift might come from external pressures or shocks, such as climate breakdown (see figure 6) (Belz, 2004). However, becoming a 'successful' niche does not guarantee a crossover into the mainstream. Indeed, strategic niche management theory highlights different ways in which a niche might interact with the regime (Smith, 2007; Raven, S. Bosch and Weterings, 2010). Successful projects might grow in scale and influence, they

might be replicated in different geographic areas (see figure 8), and/or they may influence the regime to change (Seyfang and Haxeltine, 2012; Rut and Davies, 2018). There is some evidence that clustering or geographic proximity of niche actors or projects can be useful in developing a strong niche (Coenen, Raven and Verbong, 2010).
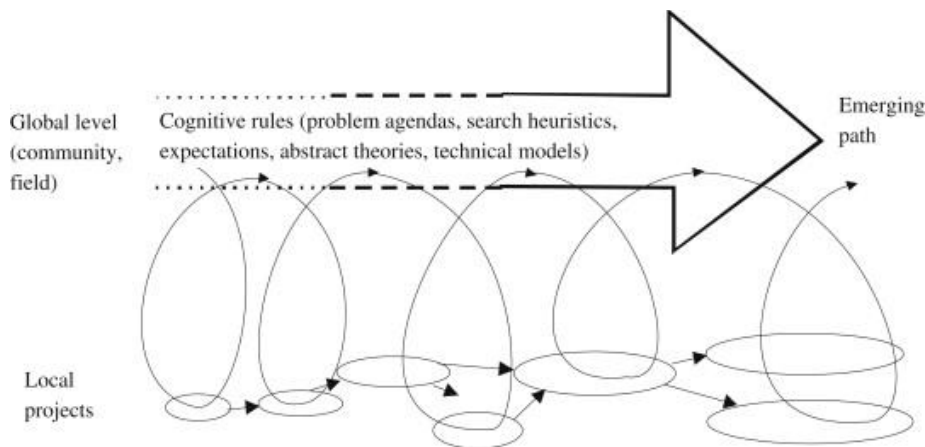

Figure 8: Emerging technical path carried by sequence of local projects
Multiple local projects, connected and learning from each other, can have increasing influence (Raven and Geels, 2010).

The multi-level perspective in transitions literature considers the different actors, institutions, and levels involved (Loorbach and van Raak, 2006; Smith, Voß and Grin, 2010). In the context of niches, the multi-level perspective covers the niche (the innovation), the socio-technical regime (e.g. existing practices) and the socio-technical landscape (e.g. longer-term and global trends) (Geels, 2011). In considering what makes a niche successful, the concept of the regime is again important. While some of the elements the niche interacts with are relatively tangible, such as infrastructure, regulations, subsidies, or organisations, the socio-technical regime also relates to practice, routines, norms, and beliefs (Smith, Voß and Grin, 2010).

Once a niche is developed, in order to create a transition, those involved in the niche still have to find a way to transform or influence the wider world; the equivalent of introducing a new technology to market (Elzen, Geels and Green, 2004; Smith, 2007; Geels, Hekkert and Jacobsson, 2008). It is likely there will be active resistance to the niche because of the investment that individuals, corporations, and government have in the *status quo* (Geels, 2014). This may mean that the radical innovation intended by the niche is diluted in order to become widely accepted, or may remain intact but on the fringes, with minimal influence or impact (Smith, 2006).

2.4. Community-supported agriculture and strategic niche management

In contrast to innovation which begins in commercial environments or is instigated by government, innovation which starts in communities or grassroots organisations is more likely to respond to the needs and values of the people in the place where it begins (Seyfang, 2007; Seyfang and Smith, 2007; Bergman *et al.*, 2010). In this respect, the direct connection to the end-user has some distinct advantages over other forms of innovation development (von Hippel, 1986). However, a disadvantage in terms of growth

and potential for spread is that the innovation is developing without access to the resources, both financial and systemic, which a commercial- or government-led innovation has at its disposal. Interaction with mainstream institutions may not be straightforward, as institutions and grassroots organisations can have very different priorities and ways of working (Fressoli *et al.*, 2014).

The strategic niche management literature is geared towards developing the niche innovation so that it can challenge the existing system through the creation of networks, the development of learning, and agreement on a vision for the innovation (Kemp, Rip and Schot, 2001). The next stage is interaction with the existing socio-technical regime, to influence or transform it (Kemp, Schot and Hoogma, 1998). This makes good sense for a commercial or public sector innovation, but for a grassroots innovation there may be more complicated considerations (Seyfang and Longhurst, 2013). The niche may be successful in providing a product or service for a small group of interested people, but does it have the necessary skills, influence and access to resources to grow and develop (Seyfang and Smith, 2007)?

2.4.1. 'Vision' and community-supported agriculture in the UK

A shared vision and shared expectations among the parties involved in developing an innovation should not be presumed (Smith, 2006; Seyfang and Haxeltine, 2012; Seyfang and Longhurst, 2013). Having a shared vision is highlighted as an important part of developing a strong niche, to engage and motivate the people involved and to enable clear communication with parties outside the niche (Kemp, Schot and Hoogma, 1998).

Particularly when the vision for an innovation is not coming from the leadership of a company or government, but is developed from the grassroots, there is likely to be some division around it. This is highlighted in a case study of organic food in the UK (Smith, 2006). People involved within a niche will have different opinions about how much to compromise in order to influence greater numbers of people. This is also illustrated by research by Cox et al. (2008) which found differences in whether or not members saw the act of participation in CSA as a political act.

2.4.2. 'Learning' and community-supported agriculture in the UK

An important element of a strong niche is its ability to learn collectively (Kemp, Schot and Hoogma, 1998; Kemp, Rip and Schot, 2001; Seyfang and Smith, 2007). This includes first-order learning (more technical aspects), which for CSAs might include crop-planning, business management, and marketing, and second-order learning (often more self-reflective), such as learning about the regime (e.g. the existing rules, norms, practices) and reflection on values and assumptions which affect the niche, and its acceptability to the dominant culture (Seyfang, 2006, 2007; Schot and Geels, 2008).

Secondary literature, such as publications from CSA Network UK (2017a), suggests that first-order learning is shared widely within the CSA community. However, there is a risk that second-order learning from grassroots innovation is not captured by those involved (Seyfang and Smith, 2007). Many grassroots organisations are under-funded and struggle to find the capacity to engage with any learning beyond what is necessary to keep an individual project running (Seyfang and Smith, 2007). A CSA niche could be said to have successfully met some of the conditions of learning set out in strategic niche management theory, for example, "to learn more about the technical and economical feasibility and

environmental gains of different technology options", but would struggle to find the capacity to move to learning what is required to "stimulate changes in social organization that are important to the wider diffusion of the new technology" (Kemp, Rip and Schot, 2001, p289).

2.4.3. 'Network' and community-supported agriculture in the UK

Strategic niche management literature is clear that a key process in the development of a niche is the formation of a social network of actors; people actively involved in the development of the innovation (Kemp, Schot and Hoogma, 1998; Kemp, Rip and Schot, 2001; Caniëls and Romijn, 2006; Geels, 2011). There is also some evidence that geographical clusters of projects can strengthen a niche (Coenen, Raven and Verbong, 2010).

Growing a network has various benefits, including facilitating the sharing of learning and giving the innovation a solid foundation of expertise and legitimacy when presenting it externally (Geels, 2011). There are international and regional networks of CSAs, but for the purposes of this research, the focus will be on the UK, with CSA Network UK as the main network ('Urgenci', no date; European CSA Research Group, 2016; CSA Network UK, 2017b, no date).

2.5. Conclusions

Drawing on the peer-reviewed literature and secondary data available on CSA, the potential for CSA to have positive benefits across multiple environmental and socio-economic issues is clear. Overlaying the lens of strategic niche management, key elements of CSA begin to come into focus: the broader vision for what it could achieve; learning opportunities available for projects; and an active network supporting its development in the UK. However, particularly compared to the CSA in the USA, there is relatively little research specific to CSA in the UK. Research tends to focus on individual CSA projects, rather than considering CSA in the UK as a whole and the direction it could take.

Through interviews with active, experienced participants in CSA, this research will explore the question: 'How can the strategic niche management framework help in understanding the potential spread of community-supported agriculture in the UK?'

3. Research strategy and methods

3.1. Methodology

The research question focuses on what can be learned from the strategic niche management framework, to develop understanding of the potential spread of community-supported agriculture (CSA) in the UK. A focused literature review was used to build understanding of what the existing body of literature reveals about the current food and farming system, strategic niche management in other areas, and CSA (Bond, 2006; Cottrell, 2014).

To enable comparison and analysis of CSA against the strategic niche management literature, it was necessary to collect data on existing practice and attitudes in CSA in the UK. The key pillars of strategic niche management are: networking, learning and vision. Given the importance of capturing participants' own experiences of these, and their attitudes towards them, a qualitative research approach was favoured (Dawson, 2009; Anderson, 2010). Initially, consideration was given to which group of participants would have the requisite depth of knowledge and experience of the CSA movement. With an approximate sampling frame set (people with considerable experience of CSA in the UK), the next step was to consider options for how best to work with this group to gather data and answer the research question.

Options which were considered included: online and paper-based questionnaires, focus groups, and in-person and telephone interviewing. Questionnaires (particularly online questionnaires) have the potential to reach a wide audience, if distribution is successful, and require little time from the participant. However, with quite a small pool of potential respondents within the initial sampling frame, a questionnaire would only reach a very small number of people and, more fundamentally, the format would not allow for further exploration of participants' answers (Dawson, 2009; Bryman, 2015). Further decisions around research methods took into consideration the likely time constraints for the potential participants. The research project took place from February to June, a particularly busy time for people involved in agriculture. Given the additional problem of the wide geographical spread of participants, focus groups were also ruled out, despite some potential advantages in bringing people together to discuss the subject (Ritchie and Lewis, 2003; Dawson, 2009).

To enable a deep and nuanced understanding of individuals' experiences and attitudes, and to allow room for the unexpected to emerge, the research method chosen was semi-structured telephone interviews, recorded and transcribed for analysis (Chirban, 1996; Anderson, 2010). "Qualitative interviewing is a way of finding out what others feel and think about their worlds" (Rubin and Rubin, 1995, p1).

There are three key interview types used in qualitative research; structured, unstructured, and semi-structured interviews. Structured interviews are commonly used in market research where the interviewer has a fixed series of questions and often ticks boxes for the answers. Unstructured interviews, sometimes called life-history interviews, involve the interviewee talking freely, with minimal direction from the researcher. Semi-structured interviews fall in between. The interviewer has a guide of questions or topics to be used with each interviewee, but can also ask follow-up questions and allow the conversation to

flow naturally, and the guide can evolve over time (Rubin and Rubin, 1995; Dawson, 2009). Semi-structured interviews were chosen because of their potential for opening up conversations to understand the experiences and world views of interviewees, but also enabling comparison between interviewees' responses (Kvale, 1996; Dawson, 2009). Unlike in structured interviews or questionnaires, participants are more active partners, with what they say potentially changing the direction of the interview, and the interviewer is required to be active and present, listening intently and with curiosity (Rubin and Rubin, 1995; Gubrium, 2002).

Telephone interviews have some advantages over in-person interviews. They are less time-consuming, which was an important consideration for this busy group of growers. A literature review of comparisons between telephone and in-person interviews also found that telephone interviews can create a calm atmosphere, conducive to thoughtful conversation, and reduce response bias (Rahman, 2015).

Recording of interviews enables the interviewer to concentrate fully on what is being said, rather than focus being split with note-taking, and transcribed recordings can be used as the basis for analysis (Dawson, 2009). From the transcripts, themes can be analysed through coding and categorisation to inform the interpretation of the interviews (Rubin and Rubin, 1995; Denscombe, 2007; Bryman, 2015).

3.2. Methods

3.2.1. Choosing interviewees

This research took the form of semi-structured interviews with nine interviewees. The interviews were designed to draw on the experience and knowledge within the CSA movement; therefore, purposive sampling was used to select interviewees with relevant experience (Cottrell, 2014; Silverman, 2014). The sampling frame included people employed in CSA projects, long-term volunteers, and/or people involved in supporting the movement through their roles in other organisations, in particular networking bodies. The frame excluded people who viewed themselves solely as members or customers of CSA projects, and casual volunteers.

A key source of secondary data on CSA, and contact details for active projects, was the website of the membership organisation, CSA Network UK, which includes a list of all the projects registered with them (*Find a CSA*, no date). There were around 100 listed, each with a link to their own website (see figure 9). UK projects that were mentioned in academic and secondary literature were also noted and investigated.

From this initial longlist of 105 possible projects, sorting was done using the following criteria. Projects that did not appear to be active from an initial online search (website and social media accounts not updated for over a year) were ruled out (15 projects). As one aim of the interviews was to capture attitudes and perspectives of people involved in CSA on the development of the niche over time, projects which appeared to be very new or start-up projects, for example not yet supplying produce to members, or in their first season, were also ruled out (9 projects).
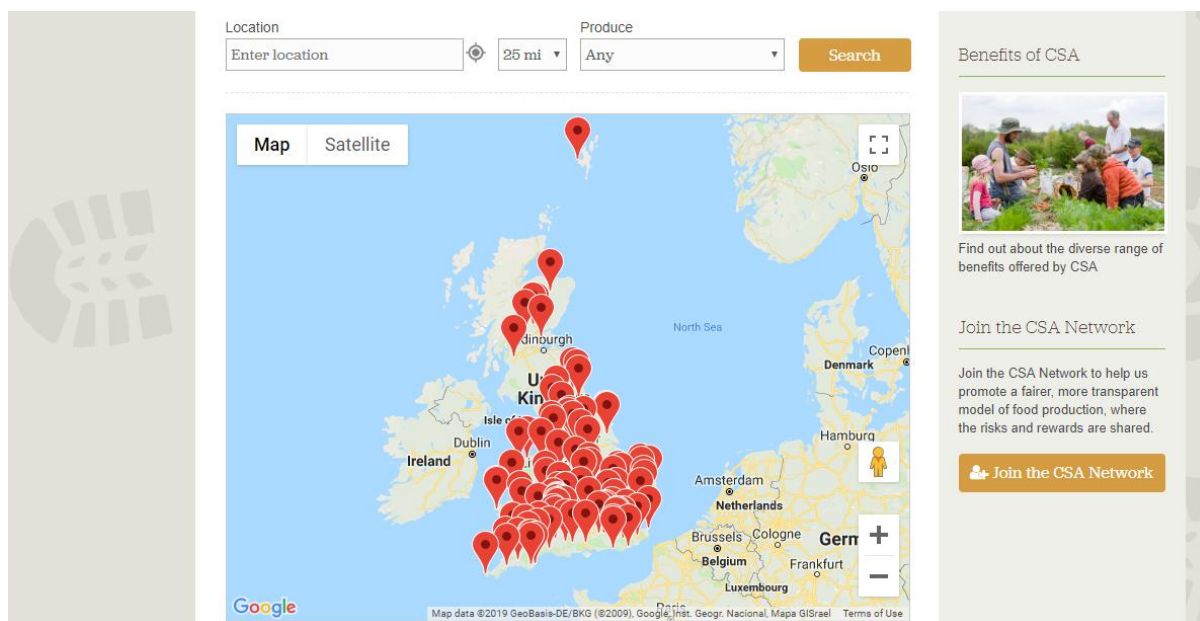
Figure 9: 'Find a CSA' mapping on the CSA Network UK website
The CSA Network UK website maintains a list and a map of community-supported agriculture projects in the UK (Find a CSA, no date).

As the research was investigating the potential spread of CSA as a movement, any projects that did not explicitly mention 'community-supported agriculture' on their websites or social media accounts (even if they might have been operating a community-supported model) were deprioritised, with the possibility of revisiting this group if initial recruitment of participants from the priority list was not successful. Projects with a 'classic' set up, with members paying a subscription fee and receiving a regular share of produce from the farm, with opportunities to take part in planning and growing, were prioritised. This resulted in a priority list of 33 projects.

Further selection at this stage looked to include representation from a wide geographical area. An initial shortlist of projects was drawn up and emails sent inviting a representative to take part in a telephone or Skype interview. Given the importance of building an active network, for the development of a niche, the sampling frame also included people who currently, or had previously, held roles with CSA Network UK and who had a long-term involvement in the movement. It should be noted that from this point the participants essentially self-selected. From an initial shortlist of ten contacts, six people responded positively and were interviewed and four did not respond. A further seven invitations were sent, resulting in three more interviews.

The interviewees included four network representatives (some of whom also had direct involvement in a CSA project) and five representatives of CSA projects. The represented CSA projects were based in Wales, Scotland and three regions of England. All the projects included were growing without chemical inputs (although not all were registered organic), which is true of most, if not all, CSA projects in the UK (CSA Network UK, 2017a). The interviewees all represented projects which were focused on horticulture (fruit and vegetable production) and not livestock or other produce. This is certainly the most common type of CSA in the UK, but some active projects exist which produce other food types and this was not a deliberate exclusion (CSA Network UK, 2017a).

3.2.2. Informing questions for interviews

The literature review, secondary data and preliminary conversations with people involved in CSA informed the questions put to the interviewees. The interviews were semi-structured, so two interview guides (see appendix 1) were created, with a series of questions which would prompt and encourage discussion around key parts of the strategic niche management framework – namely: learning, network and vision. One guide was for people currently active in a CSA project and a second, similar guide was tailored for representatives of other bodies, such as networks. The questions were tested in a trial interview. After this and each subsequent interview, the interview guides were reviewed to see whether any questions or specific wording required adjustment, or whether any additional questions might be useful.

As the interviews were semi-structured, there was scope for the flow of conversation to continue naturally and for relevant follow-up questions to be added. This naturalistic approach helped to create a relaxed atmosphere for interviewees to explain their perspectives. It also enabled interviewees to talk at greater length about the subjects they were most familiar with or interested in (Rubin and Rubin, 1995).

3.2.3. Interviews and transcription

All interviews were conducted by telephone. It was agreed that the interviewees would be anonymous in the write-up of the research. The interviews were recorded and transcribed verbatim. With nine interviews completed, data saturation for the core elements of the research question was reached, although interesting peripheral information emerged in every interview (Saunders *et al.*, 2018). The process of transcription was begun after the first interview was complete. This assisted early familiarisation with the data and review of the questions. The transcripts were then uploaded to NVivo, a qualitative data analysis package which supports the process of coding and categorisation.

3.2.4. Coding and analysis

After transcription, an initial read-through of the transcribed text aided familiarisation with the responses. Within NVivo, text was coded systematically, with codes assigned to topics and categories in the data (see figure 10). This was an iterative process, with particular attention paid to similarities and differences within the transcriptions (Bryman, 2015).
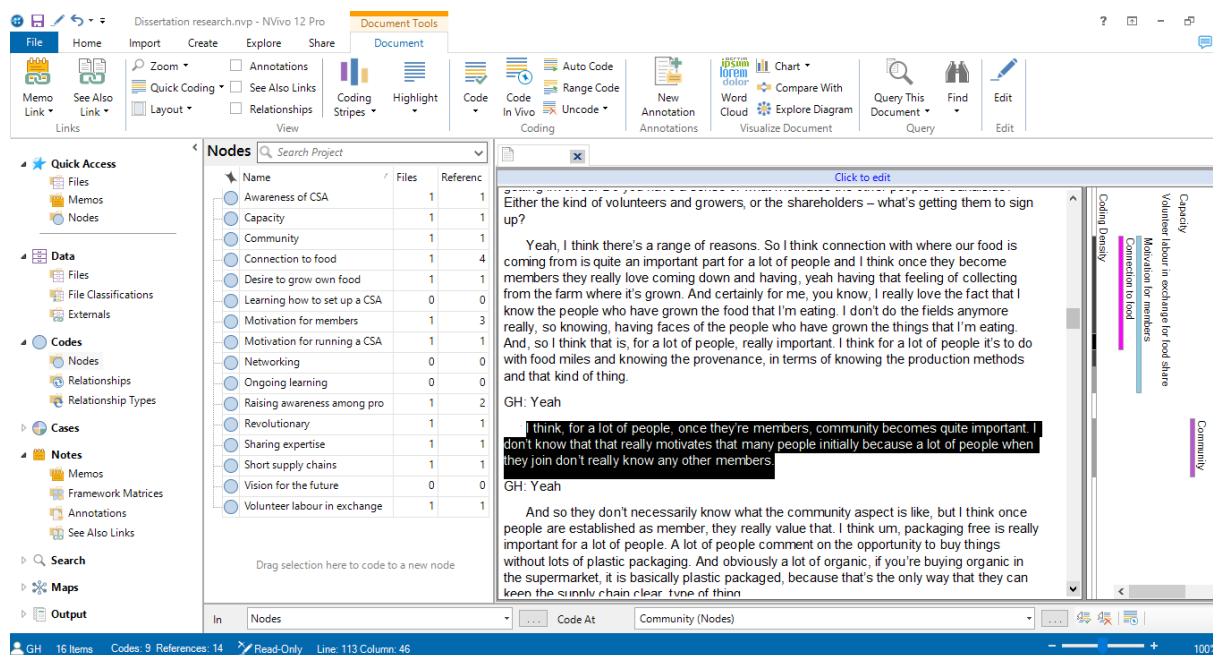
Figure 10: Early coding of transcripts
Screengrab of early coding in NVivo.

Although the research question was kept in mind at all times, the initial process of coding was flexible and open, to minimise bias. Each transcript was reviewed multiple times, with keywords or codes assigned to excerpts of text. As it developed, coded data, patterns and themes were analysed and sorted (see figure 11), with the key tenets of strategic niche management theory in mind (Auerbach and Silverstein, 2003; Corbin and Strauss, 2008).

Notes were kept on the decision-making process for codes and emerging themes, to enable explanation of the justification for decisions (Bryman, 2015). Some codes were combined on review and others were renamed or made more specific, prompting further review of the transcripts.

Among the top-level codes or themes to emerge were: the three key elements of a niche, as defined by strategic niche management literature (networking, learning, vision); regime interaction; and benefits and challenges of CSA for individual members and growers. Networking, learning, and vision were expected, as the interview questions had been formulated to explore the experience of these elements. However, there was a surprising wealth of data around regime interaction, and this emerged as an important area for analysis.

The benefits and challenges of CSA described by the interviewees were in line with those detailed in the existing academic literature, including positive impacts on the soil, and health benefits for participants through exercise and increased vegetable consumption. Given the focus of the research question and the extensive literature on benefits and challenges, the analysis did not focus on these issues, but rather on the themes of most relevance to the strategic niche management framework.
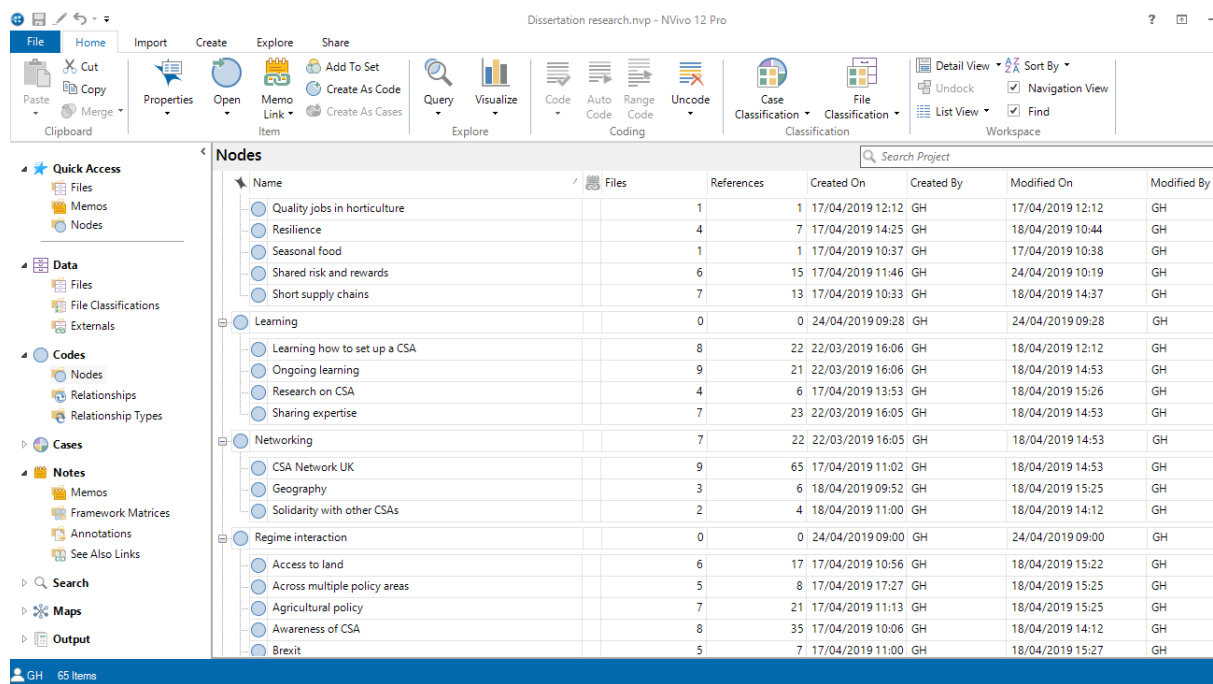
Figure 11: Sorting codes into themes
Screengrab from NVivo of codes being sorted into hierarchies and themes.

4. Results

The results presented here are organised around the three key elements of a niche, as defined in strategic niche management theory – networking, learning and vision. These were key themes to explore in order to answer the research question:

'How can the strategic niche management framework help in understanding the potential spread of community-supported agriculture in the UK?'

The fourth section explores the themes which emerged in terms of individual and collective interaction with the 'regime', as defined in transitions literature.

4.1. Networking

Networking can happen in many settings, but the creation of a formal network can be an important moment in the development of a niche. CSA Network UK is an independent membership organisation for community-supported agriculture projects (CSAs) in the UK, formed in 2013. Four interviewees representing individual CSAs were sure that the CSA they were involved in was a member of CSA Network UK, and one interviewee knew about CSA Network UK but wasn't sure whether their CSA was a member. The other four interviewees either currently, or had previously, held a role at the network (usually as unpaid board members). The latter group are referred to throughout as 'network representatives', to distinguish them from the former group, although they were interviewed for their personal views and some are also directly involved in individual CSA projects.

All participants saw the value of having and belonging to a formal network of CSAs, although their reasons for valuing it varied. Most spoke about it in terms of being something that they supported, rather than something which supported them, which is likely to reflect the fact that the interviewees did not represent new or start-up CSAs. The majority of the participants were actively involved in the network, as board members, mentors, or attending events; whereas, for others, membership was more philosophical – being part of something bigger and standing in solidarity with other CSAs.

> *"… mostly I would say people join because they want to support the movement, and they want to have a voice. So they like the fact that there's an organisation representing them and the movement, that is able to talk more widely about what they're doing and promote them." Participant 2 – network representative*

> *"It is about just being part of something slightly bigger. And not being on your own." Participant 7 – CSA*

One of CSA Network UK's aims is to raise awareness of CSA with the public, producers and policymakers (see section on 'regime interaction'). It also has an important role in supporting learning (see next section).

There was unprompted recognition from people involved in the network, and from two CSA participants, that CSA Network UK is a small organisation with very little stable funding and this limits the scope of what it can achieve. These limitations are important in

the context of strategic niche management, which sets store in the importance of a network and its ability to draw on the resources of the people and organisations involved.

> *"Funding generally is getting harder and harder to do this stuff, you know, there's fewer pots and more people applying for them, so it's um, so yeah, it's not going to be easy to do all of that stuff, that we think needs doing."*
> *Participant 2 – network representative*

The research found that networking also happens informally, directly between people involved in CSAs, particularly where there are CSAs close to each other geographically:

> *"Everybody knows each other [in this area] … they've been in and out of each other's holdings forever and a day." Participant 9 – network representative*

The network and individual CSAs are also connected to organisations outside the CSA movement. In particular, seven of the nine interviewees mentioned the Landworkers' Alliance as an important ally, and it is perceived to have more resources than CSA Network UK to focus on lobbying and campaigning for policies to support small- and medium-scale agroecological farming generally, which would benefit CSAs.

One participant suggested a way of making the network more financially sustainable through a levy on individual members, similar to the funding system for CSA networks in the US described by one of the network representatives:

> *"I think there is a case for CSAs like ours to maybe levy our members, so for instance if our members paid, you know, an extra couple of pounds a year on top of their membership and they knew that was specifically going towards supporting a network, a union for CSAs, then I think that would help empower or make them feel it's like part of a bigger network." Participant 3 – CSA*

However, the interviews demonstrated that requesting more financial or time commitment from members of the network is challenging, whether to support the spread of CSA, or to work on projects that could ultimately improve conditions for CSA. Most CSAs are operating at or beyond their capacity already and many are reliant on volunteer labour to make the CSA financially viable:

> *"…we really historically have lacked sufficient paid staff, because when you rely on volunteers generally you end up with a small core who do a bit too, a bit more than they want, perhaps." Participant 4 – CSA*

4.2. Learning

Almost all interviewees highlighted that, when starting a CSA, people have different learning requirements. For a community group starting a CSA, there may be a steep learning curve around growing skills and crop and business planning. Even when an existing grower converts a business to CSA, there are learning requirements around implementing a new business model, and there may still be skills gaps around crop planning:

"…if they're starting up, they kind of need advice about everything. [laughs]"
Participant 6 – network representative

"I learned from a colleague. I didn't have any experience of growing veg before starting [the CSA]. We had a grower who I worked alongside and I learned horticulture from her, really. As we were doing it." Participant 3 – CSA

CSA Network UK offers learning through resources, advice, and peer-to-peer mentoring and is likely to be an early port of call for new entrants. There was also evidence, from all nine interviewees, of a great deal of peer-to-peer learning, with participants visiting other CSAs, and hosting people who want to learn about running a CSA. Some CSAs offer apprenticeships and courses. The community of CSAs appears to be generous in sharing knowledge and experience and welcoming to new start-ups:

"I think that's maybe something that's special about this sort of area is that people are very generous with wanting to share, because they do tend to be big advocates of this as a way of doing food, people do tend to be very keen to promote and share and want to encourage the success." Participant 8 – network representative

"I go to visit other CSAs. I find you, well, you can learn something every day by seeing what other people are doing and trying to adopt that system...We had people visiting here, you know, there's always time to learn. And really, support each other." Participant 5 – CSA

The presence of second-order learning is less easily defined. Second-order learning includes learning around "the alternative socio-cultural values underpinning the niche and implications for diffusion" (Seyfang and Smith, 2007, p590), lessons for understanding members' and potential members' motivations, attitudes, and behaviours, and presenting the niche outwards, highlighted in some of the strategic niche management literature as being important for success (Hoogma *et al.*, 2005). Only one participant named this in answer to a question about learning:

"It's everything from horticulture through to business management, volunteer management, community engagement, accounting, bookkeeping, yeah sorry, it's pretty broad. And I suppose some kind of policy stuff, in the sense of learning what to present in policies, that kind of thing." Participant 3 – CSA

However, several participants described members' values and broader systemic problems in the wider discussion, suggesting that second-order learning is happening informally and there is a wealth and depth of knowledge about many of these areas within the CSA community, although it may not be recognised as such:

"I think connection with where our food is coming from is quite an important part for a lot of people and I think once they become members they really love coming down and having, yeah, having that feeling of collecting from the farm where it's grown." Participant 1 – CSA

4.3. Vision

Of the three key pillars of strategic niche management, there was least agreement around shared vision and expectations, with substantial variation in participants' visions for the future of CSA, and even the definition of CSA being somewhat contested. Several interviewees described CSA as being quite difficult to explain to potential members and two of the network representatives spoke about the definition as being contentious:

> *"In France and America, they've got quite a defined model of what CSA is. Whereas here… we've deliberately kept it more open, partly because we want to be inclusive and we've got relatively small numbers anyway, but also partly as a recognition that actually one size might not fit all. But I think the problem with that is that it does then actually lead to a bit of confusion and potentially sort of stops you being able to really push the benefits of that kind of 'true' CSA model, if you want to call it that." Participant 2 – network representative*

It appeared that the contention around the definition of the term is, in part, related to people's willingness or unwillingness to compromise on the model itself. Several participants touched on the tension between diluting the model to appeal to more mainstream audiences versus keeping all aspects of the model and the potential limiting effect of that:

> *"I think I like [the CSA] because it does offer an alternative enclave, but I wonder, as well, if you want to make, it depends what you want to make of CSA really. If you want to make a bigger impact, then I don't know. It's quite niche, I would say. I mean, I quite like it because it is a bit niche, I suppose." Participant 4 – CSA*

> *"I think it is an ongoing discussion… how much do people want to integrate with existing structures and how much do people want to completely break away and reinvent everything. The tensions between people within the CSA movement who see this as a real alternative to your capitalised conventional forms of agriculture and don't want anything to do with other systems and are completely opposed to commodifying it in any way, and then the people who really do see this as just, I guess, a slightly better mechanism of living under the existing structures and trying to make them slightly better." Participant 8 – network representative*

There were also differing opinions as to whether CSA in the UK is a food 'movement' or simply a business model, but there was consensus among participants that CSA is a positive way of producing and supplying food and that it would bring significant benefits if it was more widely implemented.

Responses to questions on how CSA could be spread were varied. Some focused on the need to feed cities; the need to diversify production beyond horticulture (fruit and vegetable production); bringing more existing farmers on board; supporting new entrants; diversifying membership in terms of ethnic background and income level; or providing more convenient delivery of food to a wider range of consumers. Convenience, and potentially feeding cities, were discussed in terms of the risk that they would dilute the

original model of CSA, with its emphasis on direct connection between producer and consumer:

> *"… I think you'd need to set it up as a, more of a, more convenient, more delivery, have more selection, variety, perhaps have more kind of accompanying cooking courses and things like that to help people to feed themselves with the vegetables that they get....It doesn't quite fit most people's lifestyles, I don't think. And I don't think we're going to change people's lifestyles, so I think, well, maybe we can." Participant 4 – CSA*

> *"What really needs to happen is that it needs to move well beyond fruit and veg. Because if it's going to become a proper, real-life food system, then it needs to provide a whole range of food types and just doing fruit and veg doesn't really cut it...we also need to start feeding cities, in a big way." Participant 9 – network representative*

Some participants had clearly already given the future of CSA in the UK a great deal of thought and had detailed ideas, whereas others were considering the question for the first time. One area of agreement was that the aim should be to have more CSA projects:

> *"What I would like to see is a CSA in every town, every village in the country." Participant 3 – CSA*

> *"I want our own CSA network to lobby our Welsh government to release land to young people and the community, to create CSAs, and I think the way to do that would be to offer the farmer a reward, of £1000 an acre, to release a minimum of 5 acres, on a lease of 10 years...and having a grant to pay a grower for at least three years, £15,000 a year, for three years, to establish it, would be beneficial to small farms, to the community, and you would have better food, healthier food for the community and you'd help the community economy." Participant 5 – CSA*

4.4. Regime interaction

An emergent theme from the interviews was the interaction between the niche and the regime. As a niche develops, the strategic niche management framework focuses on the need for it to scale up and for the 'protection' it has enjoyed in order to develop to be removed. In CSA, that protection only exists in the form of the values of its members, who are prepared to share risk and reward with producers, even if the products they receive are more expensive than they would be in supermarkets (something that depends on the prices set by the CSA and how good the harvest is in any given year). The next logical step, therefore, is to consider its interaction with the regime, in terms of shifting norms and values, and bringing in other people and institutions (Smith, 2007; Geels, 2014).

Participants spoke about scale-up and regime interaction in a variety of terms, from the need to raise awareness of the value of food and the problems of the food system among the public, through to specific elements of local and national government policy.

> *"I mean we need, in every sense, to change the way we think about food, produce that food and access that food...it is important, at the moment, to get that message across of how important food is and the respect that's owed to it."* Participant 7 – CSA

Three themes dominated in discussion of how to spread CSA: awareness of CSA; agricultural policy; and the related but not completely overlapping issue of funding for CSA.

> *"It is only going to happen if people (a) know about CSA farming and know about it as a concept and a movement and a business model and, you know, an option. And (b) like there's enough people with enough motivation to do something about it to enable it to happen."* Participant 1 – CSA

Most participants spoke about the need for the wider public and policymakers to have more awareness of the issues that CSA tackles, e.g. the importance of supporting small organic farms to produce sustainable food, the value of community, the problematic nature of supermarkets' purchasing power, and the need for resilience in food production:

> *"But you know, most people, in order to have a healthy, sustainable food system, should be buying produce direct from their producers as locally as possible...You know, I think there are so many benefits to both the producers and the consumers and the environment, of buying that way, so we've got to persuade people that supermarkets are not the answer."* Participant 6 – network representative

> *"Then I guess the other side of it is the, having that recognition from public, from policymakers, um, that the CSA approach has the ability to you know, change all the things that we think it can, around access to food, and you know even sort of mental and physical health, and all of that stuff that CSA has the potential to do."* Participant 2 – network representative

Agricultural policy, in particular a reframing of the subsidy system to support small-scale organic horticulture, was frequently cited. The current main subsidy for farming, the basic payment scheme, only includes farms of more than five hectares, and most CSA projects are farming smaller areas than this. Most participants suggested that the subsidy system should be changed to incentivise small-scale, organic farming:

> *"Obviously, the way agricultural policy is structured, agricultural funding is structured, does tend to reify kind of industrial, monocultural agriculture. There's no huge incentive to do CSA beyond people's personal philosophies, values, politics… as people's politics shift to become more interested in sustainability issues and climate change, then maybe we'll see more people wanting to move to that kind of community model and sustainable approach to doing food."* Participant 8 – network representative

Several participants also focused on education and skills and on health policy, highlighting that CSA is supporting good dietary choices, physical activity, and the mental health benefits of being outdoors, in nature, in fresh air, and in community with others. Three

participants spoke about the lack of horticultural skills in the UK and that CSA could be used as a training ground for growers. There was an awareness of the recent increasing recognition among the general public of the health benefits of being in nature and two participants mentioned the potential for CSA to be recognised as something which could be 'prescribed' for its health benefits:

> *"I think the health thing is a big one, you know, so actually having it recognised as something that for instance GPs can recommend, you know, almost on the list of 'where would you recommend people go and do their green gym exercise or their getting outside for mental health exercise?', first on the list should be a CSA." Participant 2 – network representative*

> *"I think CSA is quite unique in that it crosses quite a few boundaries, so obviously agriculture policy is relevant, but also education policy, and health policy are also relevant and could be used to support CSA." Participant 3 – CSA*

5. Discussion

5.1. Networking

Of the three key pillars of a niche, networking, learning and vision, the network is arguably the most important because of its role in facilitating the other two pillars, the sharing of learning and the articulation and agreement of vision among stakeholders. However, the development of a supportive network around an innovation is also important in its own right and indeed some research examining grassroots innovations has found that it is the most important of the three (Seyfang and Longhurst, 2016).

Within strategic niche management theory, the network is conceptualised as bringing together resources from a broad range of stakeholders to support the development of the niche. With a strong and broad network, the niche is in a position to reach out to others, diversify, and give voice to policies and changes that would support its further growth, and ultimately change the socio-technical regime it works within (Seyfang and Smith, 2007).

The network, in the context of strategic niche management, goes beyond people who are actively involved in developing the innovation, to include those in (other) institutions who support it. Who might these broader actors be, in terms of community-supported agriculture (CSA)? Not only relevant local and central government contacts, but those in the private and third sector involved in food and farming, and, based on the results of the interviews in this research, potentially also in health and education. Expanding the network of people actively supporting CSA, in terms of strategic niche management, should go beyond the network of CSA projects and their members (Darrot *et al.*, 2015).

In the current CSA context, the function of the formal network (CSA Network UK) is predominantly conceived as one of supporting its members, which are new and existing CSA projects. However, the interviewees (from established projects) who took part in this research appeared less concerned with whether they were receiving services or value from the network, and more focused on the importance of the network as a representative and voice for their interests and, less tangibly, as a symbol that their CSA is part of something bigger.

In providing advice for new start-ups, the support CSA Network UK provides can be said to be in the service of developing the niche. Some resources, in terms of money and time, are also drawn from the membership, to support the function of the network in its broader role of raising awareness of CSA and campaigning for better recognition and conditions for CSA.

CSA Network UK is currently limited in its capacity, so while there is recognition of its potential role in raising awareness (among existing farmers, new entrants to farming and horticulture, the general public, and policymakers) and campaigning and lobbying, network representatives who were interviewed were clear that it does not currently have the resources to carry out all of the functions it would like to perform. There is evidence of strong connection with other key organisations (e.g. The Landworkers' Alliance) and indeed, the various organisations supporting agroecological practices could also be conceptualised and analysed as a niche within the agricultural system.

Faced with constraints, CSA Network UK is forced to make choices about what activities it prioritises. To increase its reach, one potential avenue to explore would be the scope for representatives of the membership to focus on awareness raising and campaigning, perhaps through dedicated working groups. However, again there are limitations at the level of CSAs, often operating at or near their own capacity to keep their individual CSAs running.

But what about drawing people in from outside the membership to support the development of CSA? The literature around strategic niche management highlights the importance of the network having many diverse stakeholders, in part because each stakeholder is part of their own network or organisation and can potentially draw on resources (whether those are funds, knowledge, people, or other goods and services) from that wider web (Schot and Geels, 2008; Seyfang and Haxeltine, 2012). Is there capacity, either from within the movement, or among those who are sympathetic to the aims, but who are currently outside the CSA movement, which could be harnessed? The choice of relevant actors and organisations to include in wider networking activities depends in many ways on the vision of the network.

There is some evidence from this research that informal networks are stronger where CSAs are located relatively near to one another. This echoes previous strategic niche management research looking at energy transitions, which found that geographical proximity was supportive to an emerging niche (Coenen, Raven and Verbong, 2010). Geographical clusters of CSAs could aim to work together to create greater impact in their regional area and to communicate their successes to other areas. The CSA movement could also be conceptualised as a niche at a regional scale, working on building a broader network of regional support.

5.2. Learning

Learning is a crucial element of niche development (Caniëls and Romijn, 2006), with studies specifying types of learning processes (see table 1). Whether developing cutting-edge technology, or a radical grassroots social innovation, a successful niche facilitates learning and the sharing of learning among those developing the innovation itself.

Table 1: Learning processes within a niche
Learning processes cover multiple aspects – adapted from Schot and Geels (2008)

From strategic niche management literature	Examples for CSA
(a) Technical aspects and design specifications.	This could include crop-planning, setting up irrigation systems, and designing space for propagation, storage and packing.
(b) Market and user preferences.	This could include understanding direct marketing, how and when people want to get their share of the farm's produce, and how and when people want to contribute to the running of the farm.

(c) Cultural and symbolic meaning.	This could include local food culture, reconnecting people to their local land, and exploring people's values around support for small-scale and organic farming.
(d) Infrastructure and maintenance networks.	This is less relevant than it might be for a network of wind turbines, for example, as the CSA projects are independent of one another, but there may be relevant learning from existing food and farming infrastructure and ways of sharing expertise and resources.
(e) Industry and production networks.	Networks like the Landworkers' Alliance and the Soil Association are very relevant; other potential industry and production networks to explore could include those focused on organic growing, market gardening or seed saving.
(f) Regulations and government policy.	Agricultural policy and food regulations are key, but many others have relevant aspects, from education and skills, business, and health.
(g) Societal and environmental effects.	The focus of CSA is societal and environmental effects, but there is always more to learn about the individual projects and the environment they sit within. What impact is each CSA having on local people and the local environment?

Strategic niche management literature emphasises that learning is not simply about understanding the mechanics of a new innovation, although this is important.

> *"Lessons derived from the niche need not be restricted to narrow, technical appraisals of performance. Such 'first-order' learning can be supplemented by 'second-order' learning that generates lessons about the alternative socio-cultural values underpinning the niche and implications for diffusion" (Seyfang and Smith, 2007, p590).*

For CSA, first-order learning could be said to include the more technical aspects of running a successful, sustainable CSA project, such as crop planning, direct marketing, and volunteer engagement. The evidence from the interviews conducted suggests that first-order learning is highly developed in the CSA movement. CSA Network UK has produced an A-to-Z guide which acts as a technical manual for setting up a CSA, drawing on the expertise of a broad range of existing CSAs – an important element of learning, ensuring that knowledge is not only held in the minds of individual participants (Seyfang and Smith, 2007; CSA Network UK, 2017a). CSA Network UK also provides advice directly to members, signposts to other sources of information, runs events, and offers a

peer mentoring scheme. Additionally, interviews revealed a high level of peer-to-peer learning outside the formal network – as seen in a previous strategic niche management analysis of the community currency field (Seyfang and Longhurst, 2013) – including phone support, visits, and training events, particularly for new entrants, but also ongoing sharing of expertise in areas where CSA projects are geographically close.

The picture for second-order learning is less clear. It can be understood in these terms: "first-order learning relates to asking 'are we doing things right', while second-order learning relates to asking 'are we doing the rights things'" (Raven, 2012). Strategic niche management literature values second-order learning, as it enables not only the technical success of an innovation, but the ability of its stakeholders to consider and question how to move the innovation forward and to identify the constraints and pressure points in the existing systems within which they live and work (Seyfang and Haxeltine, 2012).

Although this type of learning does not appear to be formalised within the CSA movement, there is plenty of evidence from the interviews in this research to suggest that individuals have a high level of awareness of the regime and the attitudes, values and systems which motivate and constrain members and potential members of CSAs. In some strategic niche management literature, innovations are developed quite separately to their end-users, whereas for CSA (and other grassroots innovations), niche development is happening in the real world, with and by end-users, deeply embedded and giving a much fuller picture of the issues they face.

How could this wealth of knowledge be better recognised, valued, shared and used by the network and what impact might that have? Does the CSA movement have the ability to react nimbly to what it learns (Raven and Geels, 2010) or to steer the direction of learning based on its vision (Schot and Geels, 2008)? Broader sharing of second-order learning could facilitate niche development: shared insights could help individual projects with recruitment and interaction with other local actors (e.g. potential members, schools, health services, food-related businesses or public sector institutions); pooled knowledge could strengthen and influence the direction of collective campaigns; and discussion could lead to new ideas and the better alignment of vision. Similarly, where there are geographic clusters of CSAs, these insights could be used to have greater impact at a regional level, potentially increasing demand and awareness. For the network in its broadest sense, aggregated learning from individual projects supports the development of the niche as a whole (Schot and Geels, 2008).

5.3. Vision

Rather than simply highlighting the importance of having 'a vision', much of the strategic niche management literature frames this third pillar in terms of 'expectations and visions' – particularly managing, refining, aligning and articulating the expectations of those involved in the network. Having a shared vision, with measurable and achievable goals, enables better collaboration within the network and clearer communication with people outside the network about what the innovation does and the problems it aims to solve (Kemp, Schot and Hoogma, 1998; Seyfang and Haxeltine, 2012).

Discussing and agreeing expectations and visions is not a one-off event, but rather something that is an ongoing process over time, shifting and evolving as the network grows and learning is shared.

The interview data from this research suggest that this is the weakest of the three pillars for CSA. Where there is consensus and shared vision around CSA, it is broad and quite vague, often framed in opposition to the current prevailing food and farming system in the UK. Individuals expressed a range of visions for the future of CSA – some highly developed and specific, others more philosophical – but with little agreement on the way forward for CSA beyond agreement that more CSA projects would be welcomed.

A shared vision for a niche innovation is important in terms of setting the direction of travel. With the current limited resources available, directing and prioritising the focus of networking and learning activities could be the key in making progress towards a goal. Within the CSA movement, this could be a crucial step, although not an easy one, as there is such variety within the movement that agreeing on goals would not be straightforward.

A visioning exercise, involving a diverse range of CSA actors, could have multiple benefits: inspiring and sparking imagination, throwing open the range of possible futures for CSA; further strengthening the relationships within the network; naming and narrowing the key challenges to CSA's development, enabling focused work on priority issues; and providing clarity and a point of reference for future activities, campaigning and funding proposals (Smith, Stirling and Berkhout, 2005).

The interview data suggest that there are a variety of visions or areas of development which could be explored. For example, setting out to diversify the range of food supplied by CSA projects (e.g. bread, pulses, meat, dairy and eggs) would involve a different set of activities than might be expected if the key agreed goal was based around feeding cities, diversifying membership or engaging with existing farmers around conversion to CSA. Each goal could be conceptualised in terms of key steps, and institutions and individuals that might support its success. Without agreement on a shared vision, the limited capacity of the network is overstretched, and limited progress can be made in any direction.

The work involved in exploring, agreeing and focusing on a shared vision can in itself strengthen a network and potentially engage new involvement. This is summarised in the strategic niche management literature:

> *"Expectations would contribute to successful niche building if expectations were made: (a) more robust (shared by more actors), (b) more specific (if expectations are too general they do not give guidance), and (c) have higher quality (the content of expectations is substantiated by ongoing projects)"* *(Schot and Geels, 2008).*

Related to vision, interviewees articulated the tension within the CSA movement between people who want to dilute some of the original model's key principles to appeal to a wider audience (e.g. making access to CSA-grown produce more convenient for members through wider delivery or online ordering, which potentially involves introducing a 'middleman' and reduces the connection with the producer) and those who want to keep the model as it is, accepting that it may never have broad appeal. This tension is

acknowledged but unresolved in transitions literature (Smith, 2006). Earlier strategic niche management literature assumes a willingness to compromise, or choose less radical options, in order to enter the mainstream (Weber *et al.*, 1999); however, literature focused on grassroots innovation highlights that diffusion may be more difficult as innovations tend to be set up in deliberate opposition to the mainstream (Smith, 2006; Seyfang and Smith, 2007).

Interviewees highlighted that the impact of a CSA – or multiple CSAs – on a local food system is hard to measure. A successful CSA project, while only directly supplying a small proportion of local households, could still impact on awareness and attitudes, and potentially drive positive sustainable change in other food businesses.

5.4. Regime interaction

These tensions around vision and difficulties in evidencing impact are important in the context of niche interaction with the regime – the dominant values, rules, norms, structures, institutions and practices. One role for a niche can be to demand, stimulate and create space for change in the regime (Kemp, Rip and Schot, 2001).

Strategic niche management literature which focuses on grassroots innovation highlights three ways in which niche innovation can influence the regime: replication (the current status of CSA – creating more local projects, each making change at a local scale); scaling up projects (making individual projects bigger, in terms of land and/or members), to have more impact at a local or regional level; and translation of the innovation and its ideas from the niche to the regime, for example, through CSA becoming the dominant model of food and farming (Seyfang and Haxeltine, 2012).

Interviewees discussed regime interaction in various terms, from shifting individuals' values around food and farming, through to lobbying central government to change policies which would facilitate the replication of CSA projects.

The literature is clear that niche development faces challenges in the form of vested interests and indeed that even the strongest niche cannot expect to easily challenge or replace the *status quo*, but should be ready to take advantage of changes or shocks in the landscape – a strong niche has the best chance of being ready to take that opportunity (Smith, 2007; Geels, 2014). Interviewees identified that, in the medium-term, shocks are likely to come in the form of increasingly obvious problems with the dominant food and farming system. As soil health depletes and climate and ecological breakdown effects have more impact, the agroecological principles of CSA may come to be seen as less radical and its produce less expensive relative to that which is available elsewhere. In the short- to medium-term, the UK's departure from the European Union could also benefit CSA, as imported food may become more expensive, and the UK's agricultural policy (and subsidies) could be redesigned to support more sustainable practices and small-scale farming.

Among a broad range of topics and ideas, key themes from the interview data were: the need to raise awareness of CSA; the need for a change in agricultural policy; and the need for more funding for CSA, particularly for start-up costs. These cover three potentially different audiences and paths for the CSA movement – work with the general

public; work on political lobbying and campaigning; and potentially the involvement of sympathetic grant-makers or other methods of fundraising and investment (in the absence of or in addition to public funding).

Reflecting CSA's broad range of benefits, interviewees also highlighted other policy areas (and potentially funding and network areas) where further exploration could be beneficial, in particular health and education policy. Again, with multiple potential avenues for regime interaction, the CSA movement could benefit from a clear vision, to focus available resources, and to record and share learning.

6. Conclusions

6.1. Summary

This research focused on the question:

'How can the strategic niche management framework help in understanding the potential spread of community-supported agriculture in the UK?'

The strategic niche management literature offers insights into radical innovations which have developed to influence, challenge and change the mainstream. Community-supported agriculture (CSA) is a unique and positive force in agroecological food production in the UK but occupies a very small part of the overall food and farming system.

Critical analysis of key literature on strategic niche management, within the context of CSA, was carried out in conjunction with in-depth, semi-structured interviews with experienced participants in the CSA movement. This research applied lessons from strategic niche management to the CSA context in the UK. It has found that each of the three key pillars of strategic niche management – network, learning and vision – are already in place in CSA, but that there is room for further development and strengthening of each pillar.

Since its recent inception in 2013, the membership organisation CSA Network UK has already established strong processes for sharing learning, particularly first-order learning, and has created opportunities for the key functions of a network to develop. Networking also happens informally between CSA projects, but there remains great untapped potential for a network of interested parties to build on this foundation, and expand the reach and influence of CSA in the UK.

As a niche which is already operating as a network of businesses within the food system, CSA stakeholders hold a wealth of knowledge about the values and motivations of its supporters, and the barriers and challenges to membership and wider scale-up, all of which could be categorised as 'second-order learning', although this resource is not yet widely acknowledged or utilised.

The weakest of the three pillars is 'vision', not because of a lack of ideas, but due to the wide range of opinion expressed around the potential directions that CSA could take in the UK. With relatively limited resources, greater coherence and agreement on direction could benefit the movement, enabling prioritisation of resources and the development of relevant learning and network expansion. This was further highlighted by the interview data around regime interaction, where a wide range of potentially transformative ideas were aired.

Although the strategic niche management framework is not a guarantee of success, and indeed niches exist within a broader context which they cannot expect to change by themselves (Seyfang and Smith, 2007), it does usefully highlight what CSA has already achieved, and where there might be areas that can be prioritised to give the movement the best chance of affecting the *status quo*.

6.2. Limitations

The growth of the CSA movement in the UK is not merely in the hands of the existing stakeholders. This research focused on people who are actively involved in CSA, and particularly those who have had extensive experience of CSA. While this was a deliberate choice of sampling frame, it is also a limitation, as many potentially relevant voices,

particularly of those currently not involved in CSA who would be supportive of its development, are not represented here.

Time constraints influenced the choice of methodology. Multiple focus groups or participatory action research with participants, to explore potential expansion of the network, or agreement around vision, could have produced a greater depth of understanding, as participants would have had an opportunity to discuss and refine their thinking with their peers.

The strategic niche framework was considered at a national scale, but could also have been used in other ways, such as considering an individual CSA project as a niche within a local food system, or considering other agroecological models alongside CSA as a national niche. Again, time constraints meant this was not possible, but it could be an interesting area for further research.

6.3. Implications for the strategic niche management field

Strategic niche management literature usually deals with technical transitions which have been at least partially successful and, as such, can draw lessons from transition processes with the benefit of hindsight (Darnhofer, 2015). This research has looked at a work in progress – a potential transition that is still in its early stages. As such, it is less concerned with lessons that can be drawn from CSA and more focused on the practical lessons that CSA can learn from other transitions.

Each CSA project has created a transition for the participants involved, but the wider work of scaling up to a broader audience is where the strategic niche management framework is useful in guiding development.

This research follows in the footsteps of other studies of grassroots innovations, a distinct group from government- or business-led innovations, with different strengths and challenges. Similar patterns to those seen in previous research have been identified, such as drawing strength from individuals' values, and building on community and place-specific resources and motivation. The movement also has similar challenges to other grassroots innovations, including the constraints of underfunding and unhelpful government policy.

6.4. Suggestions for further research

This research, and conversations with advocates of the CSA approach, has highlighted a wide range of potential avenues for further research.

In making the case for CSA to policymakers and other stakeholders, more research that investigates and quantifies its impact would be useful. This could include comparing food provision through a CSA project with supermarket shopping and the impact on participants' diets, food waste and packaging waste, or comparing the environmental impacts in terms of greenhouse gas emissions, soil health or biodiversity. CSA goes further than being ecologically regenerative, as it has social and economic impacts too (European CSA

Research Group, 2016). These could be investigated in terms of the value of individual projects to the local economy, the impact on community cohesion, and the physical and mental health benefits of participation.

There is some evidence in the academic literature that niche development is strongest where projects are clustered geographically (Coenen, Raven and Verbong, 2010). This also appeared to be the case for CSA in this research, and an investigation of regional impacts of CSA and regional niche development could be taken further.

Other countries in Europe have had more success in scaling up CSA, often through government support. Investigating the lessons learned from these, such as the Association pour le Maintien d'une Agriculture Paysanne (AMAP) in France, could provide useful insights and ideas for the UK context.

In deciding which projects to interview, it became clear that many of the projects listed on the CSA Network UK website did not mention 'community-supported agriculture' explicitly on their own websites or social media channels. This could be explored with them, to establish whether this relates to not feeling a part of the network, finding the term itself problematic, or whether they have other reasons for not strongly identifying with the term.

Some of the ideas for developing CSA in the UK suggested by participants are also worthy of further investigation. For example, participants highlighted the need for CSA to go beyond horticulture. There are already some projects which specialise in bread, meat, dairy products, honey and fish and these could be further researched, in terms of acceptability to consumers and practicality for producers e.g. implications of caring for animals, higher regulatory burden for meat and dairy production, and decline in local abattoirs.

Other participants highlighted that CSA, and other alternative food networks in the UK, tend to be dominated by white, middle-income people, and this opens up possibilities for research around inclusion and diversity.

Expanding the reach of CSA to enable greater participation in urban locations is also an area where more research would be useful. Exploring potential land access within cities and towns, and in peri-urban areas would be one important aspect.

Looking specifically at the intersection of strategic niche management and CSA, there are several next steps for research, building on the three recommendations made: a focus on developing a broader network; emphasising second-order learning; and building a coherent vision for the movement. Each opens research possibilities and ideas, which could be explored, tested, and evaluated.

Several participants highlighted the policy areas of health and education, in addition to agriculture, as being potential avenues for CSA to explore. Work that looks at these intersections could illuminate this discussion, examining existing work within CSA and other community food production projects, and highlighting potential key stakeholders in these areas with which the network could work.

References

Altieri, M. A. *et al.* (2015) 'Agroecology and the design of climate change-resilient farming systems', *Agronomy for Sustainable Development*, 35(3), pp. 869–890. doi: 10.1007/s13593-015-0285-2.

Anderson, C. (2010) 'Presenting and Evaluating Qualitative Research', *American Journal of Pharmaceutical Education*, 74(8). Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2987281/ (Accessed: 18 May 2019).

Anderson, C. R., Maughan, C. and Pimbert, M. P. (2018) 'Transformative agroecology learning in Europe: building consciousness, skills and collective capacity for food sovereignty', *Agriculture and Human Values*. doi: 10.1007/s10460-018-9894-0.

Andersons (2016) *The cash flow crisis in farming and its implications for the wider rural economy*. London: Prince's Trust Countryside Fund. Available at: https://www.princescountrysidefund.org.uk/downloads/research/cash-flow-crisis-in-farming-report-april-2016.pdf.

Auerbach, C. and Silverstein, L. (2003) *Qualitative data: An introduction to coding and analysis.* New York: New York University Press.

Balázs, B., Pataki, G. and Lazányi, O. (2016) 'Prospects for the future: Community supported agriculture in Hungary', *Futures*. (SI: Futures for Food), 83, pp. 100–111. doi: 10.1016/j.futures.2016.03.005.

Belz, F.-M. (2004) 'A transition towards sustainability in the Swiss agri-food chain (1970-2000): using and improving the multi-level perspective', in *System Innovation and the Transition to Sustainability.*

Béné, C. *et al.* (2019) 'When food systems meet sustainability – Current narratives and implications for actions', *World Development*, 113, pp. 116–130. doi: 10.1016/j.worlddev.2018.08.011.

Bergman, N. *et al.* (2010) 'Bottom-up, social innovation for addressing climate change', *Sussex Energy Group Conference*, p. 27.

'Blue Planet II' (2017). BBC Natural History Unit.

Bond, A. (2006) *Your masters thesis*. 1st edn. Studymates Limited.

Born, B. and Purcell, M. (2006) 'Avoiding the Local Trap: Scale and Food Systems in Planning Research', *Journal of Planning Education and Research*, 26(2), pp. 195–207. doi: 10.1177/0739456X06291389.

Bryman, A. (2015) *Social Research Methods*. 5 edition. Oxford: OUP Oxford.

Campbell, B. *et al.* (2017) 'Agriculture production as a major driver of the Earth system exceeding planetary boundaries', *Ecology and Society*, 22(4). doi: 10.5751/ES-09595-220408.

Caniëls, M. and Romijn, H. (2006) 'Strategic niche management as an operational tool for sustainable innovation: guidelines for practice', *Reliability Engineering & System Safety*, ECIS working paper series; Vol. 200607. Available at: https://pure.tue.nl/ws/portalfiles/portal/1887236/612843.pdf.

Carney, P. A. *et al.* (2012) 'Impact of a Community Gardening Project on Vegetable Intake, Food Security and Family Relationships: A Community-based Participatory Research Study', *Journal of Community Health*, 37(4), pp. 874–881. doi: 10.1007/s10900-011-9522-z.

Charles, L. (2011) 'Animating community supported agriculture in North East England: Striving for a "caring practice"', *Journal of Rural Studies*. (Subjecting the Objective–Participation, Sustainability and Agroecological Research), 27(4), pp. 362–371. doi: 10.1016/j.jrurstud.2011.06.001.

Chirban, J. (1996) *Interviewing in depth*. Sage Publications.

Coenen, L., Raven, R. and Verbong, G. (2010) 'Local niche experimentation in energy transitions: A theoretical and empirical exploration of proximity advantages and disadvantages', *Technology in Society*, 32(4), pp. 295–302. doi: 10.1016/j.techsoc.2010.10.006.

Cone, C. A. and Myhre, A. (2000) 'Community-Supported Agriculture: A Sustainable Alternative to Industrial Agriculture?', *Human Organization*, 59(2), pp. 187–197.

Cooley, J. P. and Lass, D. A. (1998) 'Consumer Benefits from Community Supported Agriculture Membership', *Review of Agricultural Economics*, 20(1), pp. 227–237. doi: 10.2307/1349547.

Corbin, J. and Strauss, A. (2008) *Basics of qualitative research*. 3rd edn. Sage Publications.

Cottrell, S. (2014) *Dissertations and project reports: A step by step guide.* Palgrave Macmillan.

Cox, R. *et al.* (2008) 'Common ground? Motivations for participation in a community-supported agriculture scheme', *Local Environment*, 13(3), pp. 203–218. doi: 10.1080/13549830701669153.

CSA Network UK (2017a) *A-Z to setting up a CSA: How to set up and run a successful community supported agriculture scheme.*

CSA Network UK (2017b) *Helping CSA Farms to Grow - CSA UK Annual Report 2017*.

CSA Network UK (no date) *CSA Network UK*. Available at: https://communitysupportedagriculture.org.uk/ (Accessed: 28 March 2019).

Darnhofer, I. (2015) 'Socio-technical transitions in farming: key concepts', in *Transition pathways towards sustainability in agriculture: Case studies from Europe*.

Darnhofer, I., Sutherland, L.-A. and Pinto-Correia, T. (2015) 'Conceptual insights derived from case studies on "emerging transitions" in farming', in *Transition pathways towards sustainability in agriculture: case studies from Europe*. CABI.

Darrot, C. *et al.* (2015) '"The missing actor": alternative agri-food networks and the resistance of key regime actors', in *Transition pathways towards sustainability in agriculture: Case studies from Europe*. CABI.

Dawson, C. (2009) *Introduction to research methods*. Fourth. How To Books.

DeLind, L. B. (1999) 'Close encounters with a CSA: The reflections of a bruised and somewhat wiser anthropologist', *Agriculture and Human Values*, 16(1), pp. 3–9. doi: 10.1023/A:1007575521309.

DeLind, L. B. (2011) 'Are local food and the local food movement taking us where we want to go? Or are we hitching our wagons to the wrong stars?', *Agriculture and Human Values*, 28(2), pp. 273–283. doi: 10.1007/s10460-010-9263-0.

Denscombe, M. (2007) *The good research guide for small-scale social research projects*. 3rd edn. Open University Press.

Eakin, H. *et al.* (2017) 'Identifying attributes of food system sustainability: emerging themes and consensus', *Agriculture and Human Values*, 34(3), pp. 757–773. doi: 10.1007/s10460-016-9754-8.

Elzen, B., Geels, F. W. and Green, K. (2004) 'Conclusion. Transitions to sustainability: lessons learned and remaining challenges', in *System Innovation and the Transition to Sustainability - Theory, Evidence and Policy*, pp. 282–300. Available at: https://research.utwente.nl/en/publications/conclusion-transitions-to-sustainability-lessons-learned-and-rema (Accessed: 24 October 2018).

European CSA Research Group (2016) *Overview of community supported agriculture in Europe*.

Feagan, R. and Henderson, A. (2009) 'Devon Acres CSA: local struggles in a global food system', *Agriculture and Human Values*, 26(3), pp. 203–217. doi: 10.1007/s10460-008-9154-9.

Feenstra, G. (2002) 'Creating space for sustainable food systems: Lessons from the field', *Agriculture and Human Values*, 19(2), pp. 99–106. doi: 10.1023/A:1016095421310.

Find a CSA (no date) *Community Supported Agriculture*. Available at: https://communitysupportedagriculture.org.uk/find-csa/ (Accessed: 7 November 2018).

Fressoli, M. *et al.* (2014) 'When grassroots innovation movements encounter mainstream institutions: implications for models of inclusive innovation', *Innovation and Development*, 4(2), pp. 277–292. doi: 10.1080/2157930X.2014.921354.

Geels, F. W. (2011) 'The multi-level perspective on sustainability transitions: Responses to seven criticisms', *Environmental Innovation and Societal Transitions*, 1(1), pp. 24–40. doi: 10.1016/j.eist.2011.02.002.

Geels, F. W. (2014) 'Regime Resistance against Low-Carbon Transitions: Introducing Politics and Power into the Multi-Level Perspective', *Theory, Culture & Society*, 31(5), pp. 21–40. doi: 10.1177/0263276414531627.

Geels, F. W., Hekkert, M. P. and Jacobsson, S. (2008) 'The dynamics of sustainable innovation journeys', *Technology Analysis & Strategic Management*, 20(5), pp. 521–536. doi: 10.1080/09537320802292982.

Gliessman, S. (2015) *Agroecology: The ecology of sustainable food systems.* Third. CRC Press.

Gorman, R. (2018) 'Human-livestock relationships and community supported agriculture (CSA) in the UK', *Journal of Rural Studies*, 61, pp. 175–183. doi: 10.1016/j.jrurstud.2018.04.013.

Gubrium, J. (2002) *Handbook of interview research*. Sage Publications.

Heikkurinen, P., Lozanoska, J. and Tosi, P. (2019) 'Activities of degrowth and political change', *Journal of Cleaner Production*, 211, pp. 555–565. doi: 10.1016/j.jclepro.2018.11.119.

von Hippel, E. (1986) 'Lead Users: A Source of Novel Product Concepts', *Management Science*, 32(7), pp. 791–805. doi: 10.1287/mnsc.32.7.791.

Hitchings, R. (2013) 'Key factors determining the long term success of CSA projects in Wales', p. 16.

Hoogma, R. *et al.* (2005) *Experimenting for Sustainable Transport: The Approach of Strategic Niche Management*. Routledge. doi: 10.4324/9780203994061.

Ieromonachou, P., Potter, S. and Enoch, M. (2004) 'Adapting Strategic Niche Management for evaluating radical transport policies—the case of the Durham Road Access Charging Scheme', *International Journal of Transport Management*, 2(2), pp. 75–87. doi: 10.1016/j.ijtm.2004.09.002.

Ilieva, R. T. and Hernandez, A. (2018) 'Scaling-Up Sustainable Development Initiatives: A Comparative Case Study of Agri-Food System Innovations in Brazil, New York, and Senegal', *Sustainability*, 10(11), p. 4057. doi: 10.3390/su10114057.

Intergovernmental Panel on Climate Change (2014) *Climate Change 2014 Mitigation of Climate Change: Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press. doi: 10.1017/CBO9781107415416.

Izumi, B. T. *et al.* (2017) 'Feasibility of Using a Community-Supported Agriculture Program to Increase Access to and Intake of Vegetables among Federally Qualified Health Center Patients', *Journal of Nutrition Education and Behavior*. doi: 10.1016/j.jneb.2017.09.016.

James, T. and Brown, K. (2018) 'Muck and Magic: A Resilience Lens on Organic Conversions as Transformation', *Society & Natural Resources*, 0(0), pp. 1–17. doi: 10.1080/08941920.2018.1506069.

Johnston, J. L., Fanzo, J. C. and Cogill, B. (2014) 'Understanding Sustainable Diets: A Descriptive Analysis of the Determinants and Processes That Influence Diets and Their Impact on Health, Food Security, and Environmental Sustainability', *Advances in Nutrition*, 5(4), pp. 418–429. doi: 10.3945/an.113.005553.

Kanger, L. and Schot, J. (2018) 'Deep transitions: Theorizing the long-term patterns of socio-technical change', *Environmental Innovation and Societal Transitions*. doi: 10.1016/j.eist.2018.07.006.

Kearney (2010) 'Food consumption trends and drivers', *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365(1554), pp. 2793–2807. doi: 10.1098/rstb.2010.0149.

Kemp, R., Rip, A. and Schot, J. (2001) 'Constructing Transition Paths Through the Management of Niches', in *Path Dependence and Creation*, pp. 269–299. Available at: https://research.utwente.nl/en/publications/constructing-transition-paths-through-the-management-of-niches (Accessed: 24 October 2018).

Kemp, R., Schot, J. and Hoogma, R. (1998) 'Regime shifts to sustainability through processes of niche formation: The approach of strategic niche management', *Technology Analysis & Strategic Management*, 10(2), pp. 175–198. doi: 10.1080/09537329808524310.

Kvale, S. (1996) *InterViews: An introduction to qualitative research interviewing.* Sage Publications.

Lang, K. B. (2010) 'The Changing Face of Community-Supported Agriculture', *Culture & Agriculture*, 32(1), pp. 17–26. doi: 10.1111/j.1556-486X.2010.01032.x.

Levidow, L. (2011) *Agricultural Innovation: Sustaining What Agriculture? For What European Bio-Economy?* Co-operative Research on Environmental Problems in Europe (CREPE). Available at: http://crepeweb.net/wp-content/uploads/2011/02/crepe_final_report.pdf.

Loorbach, D. and van Raak, R. (2006) 'Strategic Niche Management and Transition Management: different but complementary approaches'. Available at: https://repub.eur.nl/pub/37247/ (Accessed: 31 January 2019).

MacMillan Uribe, A. L., Winham, D. M. and Wharton, C. M. (2012) 'Community supported agriculture membership in Arizona. An exploratory study of food and sustainability behaviours', *Appetite*. (The 36th annual meeting of the British Feeding and Drinking Group, March 29th and 30th 2012, Brighton, UK), 59(2), pp. 431–436. doi: 10.1016/j.appet.2012.06.002.

Mendenhall, E. and Singer, M. (2019) 'The global syndemic of obesity, undernutrition, and climate change', *The Lancet*, 393(10173), p. 741. doi: 10.1016/S0140-6736(19)30310-1.

Monteiro, C. A. *et al.* (2018) 'Household availability of ultra-processed foods and obesity in nineteen European countries', *Public Health Nutrition*, 21(1), pp. 18–26. doi: 10.1017/S1368980017001379.

Moragues-Faus, A., Sonnino, R. and Marsden, T. (2017) 'Exploring European food system vulnerabilities: Towards integrated food security governance', *Environmental Science & Policy*, 75, pp. 184–215. doi: 10.1016/j.envsci.2017.05.015.

Mylan, J. *et al.* (2018) 'Rage against the regime: Niche-regime interactions in the societal embedding of plant-based milk', *Environmental Innovation and Societal Transitions*. doi: 10.1016/j.eist.2018.11.001.

Nost, E. (2014) 'Scaling-up local foods: Commodity practice in community supported agriculture (CSA)', *Journal of Rural Studies*, 34, pp. 152–160. doi: 10.1016/j.jrurstud.2014.01.001.

Notarnicola, B. *et al.* (2017) 'Environmental impacts of food consumption in Europe', *Journal of Cleaner Production*. (Towards eco-efficient agriculture and food systems: selected papers addressing the global challenges for food systems, including those presented at the Conference "LCA for Feeding the planet and energy for life" (6-8 October 2015, Stresa & Milan Expo, Italy)), 140, pp. 753–765. doi: 10.1016/j.jclepro.2016.06.080.

O'Neill, D. W. *et al.* (2018) 'A good life for all within planetary boundaries', *Nature Sustainability*, 1(2), p. 88. doi: 10.1038/s41893-018-0021-4.

Ornetzeder, M. and Rohracher, H. (2013) 'Of solar collectors, wind power, and car sharing: Comparing and understanding successful cases of grassroots innovations', *Global Environmental Change*, 23(5), pp. 856–867. doi: 10.1016/j.gloenvcha.2012.12.007.

Our history (no date). Available at: https://communitysupportedagriculture.org.uk/about/history/ (Accessed: 2 March 2019).

Phillips, R. L. (2014) 'Green Revolution: Past, Present, and Future', in Van Alfen, N. K. (ed.) *Encyclopedia of Agriculture and Food Systems*. Oxford: Academic Press, pp. 529–538. doi: 10.1016/B978-0-444-52512-3.00208-4.

Pimbert, M. P. (2018) 'Global Status of Agroecology', *Economic and Political Weekly*, 53(41), pp. 7–8.

Polimeni, J., Iorgulescu, R.-I. and Shirey, R. (2015) *Travelling back to sustainable agriculture in a bioeconomic world*. New York: Nova.

Poux, X. and Aubert, P.-M. (2018) *An agroecological Europe in 2050: multifunctional agriculture for healthy eating. Findings from the Ten Years For Agroecology (TYFA) modelling exercise.* Iddri-AScA.

Pretty, J. N. *et al.* (2005) 'Farm costs and food miles: An assessment of the full cost of the UK weekly food basket', *Food Policy*, 30(1), pp. 1–19. doi: 10.1016/j.foodpol.2005.02.001.

Rahman, R. (2015) 'Comparison of Telephone and In-Person Interviews for Data Collection in Qualitative Human Research', *Interdisciplinary Undergraduate Research Journal*, 1(1), pp. 10–13.

Raven, R. (2012) 'Analyzing emerging sustainable energy niches in Europe: A strategic niche management perspective', in *Governing the energy transition: Reality, illusion or*

necessity? Routledge (25th CIRP Life Cycle Engineering (LCE) Conference, 30 April – 2 May 2018, Copenhagen, Denmark).

Raven, R. P. J. M. and Geels, F. W. (2010) 'Socio-cognitive evolution in niche development: Comparative analysis of biogas development in Denmark and the Netherlands (1973–2004)', *Technovation*, 30(2), pp. 87–99. doi: 10.1016/j.technovation.2009.08.006.

Raven, R. P. J. M., S. Bosch, V. D. and Weterings, R. (2010) 'Transitions and strategic niche management: towards a competence kit for practitioners', *International Journal of Technology Management*, 51(1), pp. 57–74. doi: 10.1504/IJTM.2010.033128.

Ravenscroft, N. *et al.* (2012) *Connecting communities through food: the theoretical foundations of community supported agriculture in the UK*. Working Paper. Centre for Research on Socio-Cultural Change. Available at: http://www.cresc.ac.uk/publications/publications-2/ (Accessed: 1 October 2018).

Ravenscroft, N. *et al.* (2013) 'Beyond agriculture: the counter-hegemony of community farming', *Agriculture and Human Values*, 30(4), pp. 629–639. doi: 10.1007/s10460-013-9437-7.

Reisman, E. L. (2018) 'The experience of members of European CSAs'. Available at: https://brage.bibsys.no/xmlui/handle/11250/2574694 (Accessed: 11 February 2019).

Renting, H., Marsden, T. K. and Banks, J. (2003) 'Understanding Alternative Food Networks: Exploring the Role of Short Food Supply Chains in Rural Development', *Environment and Planning A: Economy and Space*, 35(3), pp. 393–411. doi: 10.1068/a3510.

Restall, B. and Conrad, E. (2015) 'A literature review of connectedness to nature and its potential for environmental management', *Journal of Environmental Management*, 159, pp. 264–278. doi: 10.1016/j.jenvman.2015.05.022.

Richards, M. *et al.* (2016) 'How countries plan to address agricultural adaptation and mitigation: An analysis of Intended Nationally Determined Contributions. CCAFS dataset'. Available at: https://cgspace.cgiar.org/handle/10568/73255 (Accessed: 8 February 2019).

Ritchie, J. and Lewis, J. (2003) *Qualitative research practice: A guide for social science students and researchers.* Sage Publications.

Rockström, J. *et al.* (2009) 'Planetary Boundaries: Exploring the Safe Operating Space for Humanity', *Ecology and Society*, 14(2). doi: 10.5751/ES-03180-140232.

Roep, D., Van Der Ploeg, J. D. and Wiskerke, J. S. C. (2003) 'Managing technical-institutional design processes: some strategic lessons from environmental co-operatives in the Netherlands', *NJAS - Wageningen Journal of Life Sciences*, 51(1), pp. 195–217. doi: 10.1016/S1573-5214(03)80033-7.

de Roest, K., Ferrari, P. and Knickel, K. (2018) 'Specialisation and economies of scale or diversification and economies of scope? Assessing different agricultural development pathways', *Journal of Rural Studies*, 59, pp. 222–231. doi: 10.1016/j.jrurstud.2017.04.013.

Rubin, H. and Rubin, I. (1995) *Qualitative interviewing: The art of hearing data*. Sage Publications.

Rut, M. and Davies, A. R. (2018) 'Transitioning without confrontation? Shared food growing niches and sustainable food transitions in Singapore', *Geoforum*, 96, pp. 278–288. doi: 10.1016/j.geoforum.2018.07.016.

Saltmarsh, N., Meldrum, J. and Longhurst, N. (2011) *The impact of community supported agriculture.* The Soil Association. Available at: https://communitysupportedagriculture.org.uk/wp-content/uploads/2015/03/The-impact-of-community-supported-agriculture.pdf.

Saunders, B. *et al.* (2018) 'Saturation in qualitative research: exploring its conceptualization and operationalization', *Quality & Quantity*, 52(4), pp. 1893–1907. doi: 10.1007/s11135-017-0574-8.

Schot, J. and Geels, F. W. (2008) 'Strategic niche management and sustainable innovation journeys: theory, findings, research agenda, and policy', *Technology Analysis & Strategic Management*, 20(5), pp. 537–554. doi: 10.1080/09537320802292651.

Seyfang, D. G. and Smith, D. A. (2007) 'Grassroots innovations for sustainable development: Towards a new research and policy agenda', *Environmental Politics*, 16(4), pp. 584–603. doi: 10.1080/09644010701419121.

Seyfang, G. (2006) 'Ecological citizenship and sustainable consumption: Examining local organic food networks', *Journal of Rural Studies*, 22(4), pp. 383–395. doi: 10.1016/j.jrurstud.2006.01.003.

Seyfang, G. (2007) *Cultivating Carrots and Community: Local Organic Food and Sustainable Consumption*. doi: info:doi/10.3197/096327107780160346.

Seyfang, G. and Haxeltine, A. (2012) 'Growing Grassroots Innovations: Exploring the Role of Community-Based Initiatives in Governing Sustainable Energy Transitions', *Environment and Planning C: Government and Policy*, 30(3), pp. 381–400. doi: 10.1068/c10222.

Seyfang, G. and Longhurst, N. (2013) 'Desperately seeking niches: Grassroots innovations and niche development in the community currency field', *Global Environmental Change*, 23(5), pp. 881–891. doi: 10.1016/j.gloenvcha.2013.02.007.

Seyfang, G. and Longhurst, N. (2016) 'What influences the diffusion of grassroots innovations for sustainability? Investigating community currency niches', *Technology Analysis & Strategic Management*, 28(1), pp. 1–23. doi: 10.1080/09537325.2015.1063603.

Silverman, D. (2014) *Interpreting qualitative data*. 4th edn. London: Sage.

Smith, A. (2006) 'Green Niches in Sustainable Development: The Case of Organic Food in the United Kingdom', *Environment and Planning C: Government and Policy*, 24(3), pp. 439–458. doi: 10.1068/c0514j.

Smith, A. (2007) 'Translating Sustainabilities between Green Niches and Socio-Technical Regimes', *Technology Analysis & Strategic Management*, 19(4), pp. 427–450. doi: 10.1080/09537320701403334.

Smith, A., Stirling, A. and Berkhout, F. (2005) 'The governance of sustainable socio-technical transitions', *Research Policy*, 34(10), pp. 1491–1510. doi: 10.1016/j.respol.2005.07.005.

Smith, A., Voß, J.-P. and Grin, J. (2010) 'Innovation studies and sustainability transitions: The allure of the multi-level perspective and its challenges', *Research Policy*. (Special Section on Innovation and Sustainability Transitions), 39(4), pp. 435–448. doi: 10.1016/j.respol.2010.01.023.

Smith, E. and Marsden, T. (2004) 'Exploring the "limits to growth" in UK organics: beyond the statistical image', *Journal of Rural Studies*, 20(3), pp. 345–357. doi: 10.1016/S0743-0167(03)00044-5.

Smith, G. R., Strachan, G. and Gibbon, D. (2018) 'Rural well-being: the push and pull and the diversity in-between', *International Journal of Sustainable Development & World Ecology*, 25(7), pp. 592–601. doi: 10.1080/13504509.2018.1446369.

Stafford, R. and Jones, P. J. S. (2019) 'Viewpoint – Ocean plastic pollution: A convenient but distracting truth?', *Marine Policy*. doi: 10.1016/j.marpol.2019.02.003.

Steffen, W. *et al.* (2015) 'Planetary boundaries: Guiding human development on a changing planet', *Science*, 347(6223), p. 1259855. doi: 10.1126/science.1259855.

Sutton, M. A., Howard, C., *et al.* (2011) *The European Nitrogen Assessment: Sources, Effects and Policy Perspectives*. Cambridge University Press. Available at: https://www.cambridge.org/gb/academic/subjects/earth-and-environmental-science/climatology-and-climate-change/european-nitrogen-assessment-sources-effects-and-policy-perspectives (Accessed: 7 February 2019).

Sutton, M. A., Oenema, O., *et al.* (2011) 'Too much of a good thing', *Nature*, 472, pp. 159–161. doi: 10.1038/472159a.

Swinburn, B. A. *et al.* (2019) 'The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report', *The Lancet*, 393(10173), pp. 791–846. doi: 10.1016/S0140-6736(18)32822-8.

Tani, A. (2018) 'A Strategic Niche Management approach for shaping bio-based economy in Europe', *Open Agriculture*, 3(1), pp. 98–109. doi: 10.1515/opag-2018-0010.

The Landworkers' Alliance (2017) *Making Food Sovereignty a Reality: Recommendations for Post-Brexit Agricultural Policy*.

Tilman, D. (1999) 'Global environmental impacts of agricultural expansion: The need for sustainable and efficient practices', *Proceedings of the National Academy of Sciences*, 96(11), pp. 5995–6000. doi: 10.1073/pnas.96.11.5995.

Truffer, B., Metzner, A. and Hoogma, R. (2002) 'The Coupling of Viewing and Doing: Strategic Niche Management and the Electrification of Individual Transport', *Greener Management International*, (37), pp. 111–124.

'Urgenci' (no date). Available at: https://urgenci.net/ (Accessed: 28 March 2019).

Vallauri, U. (2014) 'Transition Belsize Veg Bag scheme: The role of ICTs in enabling new voices and community alliances around local food production and consumption', *Futures*. (Urban Food Futures: ICTs and Opportunities), 62, pp. 173–180. doi: 10.1016/j.futures.2014.04.008.

Vasquez, A. *et al.* (2017) 'Community-Supported Agriculture as a Dietary and Health Improvement Strategy: A Narrative Review', *Journal of the Academy of Nutrition and Dietetics*, 117(1), pp. 83–94. doi: 10.1016/j.jand.2016.09.029.

Waitrose & Partners (2018) *Waitrose & Partners Food and Drink Report 2018-19*. Available at: https://waitrose.pressarea.com/pressrelease/details/78/NEWS_13/10259 (Accessed: 5 March 2019).

Weber, M. *et al.* (1999) *Experimenting with sustainable transport innovations: a workbook for strategic niche management*. Universiteit Twente. Available at: https://research.tue.nl/en/publications/experimenting-with-sustainable-transport-innovations-a-workbook-f (Accessed: 24 October 2018).

Wezel, A. *et al.* (2018) 'Agroecology in Europe: Research, Education, Collective Action Networks, and Alternative Food Systems', *Sustainability*, 10(4), p. 1214. doi: 10.3390/su10041214.

Wildlife and Countryside Link (2017) *A future sustainable farming and land management policy for England*.

Winter, M. and Lobley, M. (2016) *Is there a future for the small family farm in the UK?* London: Prince's Trust Countryside Fund, p. 100.

Wiskerke, J. S. C. (2003) 'On promising niches and constraining sociotechnical regimes: the case of Dutch wheat and bread', *Environment and Planning A: Economy and Space*, 35, pp. 429–448.

Wittman, H. (2011) 'Food Sovereignty: A New Rights Framework for Food and Nature?', *Environment and Society*, 2(1), pp. 87–105. doi: 10.3167/ares.2011.020106.

Appendix 1

Interview guide for CSA growers/staff/volunteers

<u>Warm-up questions</u>
Q1. Could you tell me about your involvement with CSA – in what capacity are you involved?

Q2. How did you first get involved with CSA?
> **Q2a. How long have you been involved?**
> **Q2b** (if relevant)**. How did your CSA start?**

Q3. What do you think motivates people to get involved with CSA? What motivated you?

Q3a. What do you think has been the local impact of your CSA?

<u>'Expectation/vision' questions</u>
Q4. I'm interested in the idea of CSA in the UK being a 'movement' – people working together as part of something bigger, to achieve common goals – do you see it in that way?
> **Q4a. Do you personally feel part of a movement, bigger than the individual CSA you are part of?**
> **Q4b** (If yes). **How would you describe that movement?**
> **Q4c** (If no). **How do you feel about the idea of a national or international movement?**

Q5. If you imagine CSA across the UK being a great success, perhaps 15 years from now, what does that look like? (e.g. more projects - replication, more land area - scale, more productive projects, impact on food system - translation)
> **Q5a. What needs to happen for that vision to be realised?**

Q6. What do you think would get more people involved in CSA?
> **Q6a. When you describe CSA to other people, what do they get excited about?**
> **Q6b. Do you think people connect with the ideals behind CSA?**

<u>'Learning' questions</u>
Q7. What have you learned from your time with the CSA – and what have others learned?
> **Q7a. Is any of that learning recorded?**
> **Q7b. Who or what do you learn from?**

Q8. Do you take part in sharing of learning between CSAs?
> **Q8a** (If no). **Do you feel there are opportunities to learn from or share your knowledge with other CSAs in the UK or further afield?**
> > **Q8b** (If no). **Would you like there to be?**

Q8c (If yes). **What would encourage you to get involved with those – or what prevents you from being involved now?**

Q8d (If yes). **What works, what doesn't work?**

Q8e (if yes and not answered already). **What form does that sharing take?**

Q9. Do you take part in any other relevant learning and sharing? (Perhaps with other local or regional organisations that are involved in community food growing, organic horticulture, or local food or business networks.)

Q10 (if involved from the beginning of a CSA). **How did you learn about how to set up a CSA?**

'Network' questions

Q11. Are you part of a formal network, like CSA Network UK, CSA Wales, or Urgenci?

Q11a (If yes). **What do you get out of being part of that network?**

Q12. What (else) do you think a CSA network can do that is or would be useful?

Q13. What contact do you have with other CSAs outside of that formal network?

Q14. What do you think are the barriers to the CSA movement spreading in the UK?

Q14a. What are the challenges for your CSA flourishing?

Q15. What government policies (or other changes) could help? What could a supportive policymaker do to make CSA flourish?

Interview guide for CSA network staff and other niche actors

<u>Warm-up questions</u>

Q1. Could you tell me about your involvement with CSA – in what capacity are you involved?

Q2. How did you first get involved with CSA?
  Q2a. How long have you been involved?

Q3. What do you think motivates people to get involved with CSA?

<u>'Expectation/vision' questions</u>

Q4. I'm interested in the idea of CSA in the UK being a 'movement' – people working together as part of something bigger, to achieve common goals – do you see it in that way?
  Q4a (If yes). **How would you describe that movement?**
  Q4b (If no). **How do you feel about the idea of a national or international CSA movement?**
  Q4c. Do you personally feel part of a movement?

Q5. **How does CSA Network UK** (or other body – e.g. Wales CSA Network) **see its role (within the movement)?**

Q6. If you imagine CSA in the UK being a great success, what does that look like? (e.g. more projects - replication, more land area - scale, more productive projects, impact on food system - translation)
  Q6a. What needs to happen for that vision to be realised?
  Q6b Does CSA Network UK (or other body) **involve its members in long-term visioning?**

Q7. What do you think would get more people involved in CSA?
  Q7a. When you describe CSA to other people, what do they get excited about?
  Q7b. Do you think people connect with the ideals behind CSA?

<u>'Learning' questions</u>

Q8. What does CSA Network UK (or other body) **do to capture, share and evolve learning?**
  Q8a. What is recorded?
  Q8b. Do you feel there are other opportunities to learn from or share knowledge between CSAs in the UK or further afield?
    Q8c (If no). **Would you like there to be?**
  Q8d (If yes). **What works, what doesn't work?**

Q9. Does CSA Network UK (or other body) **take part in any other relevant learning and sharing?** (perhaps with other local or regional organisations that are involved in community food growing, organic horticulture, or advocacy, lobbying and community building)

<u>'Network' questions</u>

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Q10. What do you think members get out of being part of your network?

Q11. What else do you think a CSA network can do that is or would be useful?
Q11a. What activities does CSA Network UK (or other body) **take part in that look outwards from individual CSAs?**
Q11b (if not answered). **What is CSA Network UK** (or other body) **currently involved in lobbying for?**

Q12. What do you think are the barriers to the CSA movement spreading in the UK?

Q13. What government policies (or other things) could help? What could a supportive policymaker do to make CSA flourish?