

# Short food supply chains and "infrastructure of the middle": The role of university food procurement in sustainability transition

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**Abstract:** This paper argues that university food procurement can play an important role in the development of short food supply chains (SFSCs) supporting sustainable local food systems. The paper presents evidence from two programs that have contributed to the creation of successful SFSCs in university settings – the Food for Life Catering Mark in England and Local Food Plus in Canada – based on detailed interviews with practitioners. The author herself was a practitioner (as the founder and former leader of Local Food Plus), and thus brings a perspective informed by both theory and praxis.

The paper discusses why the notion of SFSCs is especially useful in describing the evolution of local and sustainable food systems. The paper then introduces the term “infrastructure of the middle”, and proposes that the understanding of SFSCs can be amplified by this concept. Infrastructure of the middle describes the hard and soft infrastructure that enables mid-size farmers and institutional purchasers such as universities to develop meaningful connections. In effect, infrastructure of the middle is the operationalization of SFSCs, to move beyond direct markets into working relationships with larger purchasers. The author adapted the term from Kirschenmann et al.’s concept of “agriculture of the middle”, which describes to the mid-size farms and ranches most capable of meeting the needs of a sustainable local food system.

A typology of infrastructure of the middle is presented briefly (Stahlbrand, forthcoming). The paper concludes with a discussion of how SFSCs and infrastructure of the middle can be positioned within Sustainability Transition Theory.

## 1. Introduction

### 1.1 Background

The term "Short Food Supply Chains" (SFSCs) has gained credence over the last decade among policy makers and academics, especially in Europe, as a term of choice to describe emerging alternative food networks which feature local food with a distinctive ethical association. In a comprehensive report for the European Commission, Kneafsey et al. define a SFSC as follows: "The foods involved are identified by, and traceable to a farmer. The number of intermediaries

between farmer and consumer should be 'minimal' or ideally nil" (Kneafsey et al., 2013, p. 13). They point out that, unlike the term "local food systems", which is focused on distance, short food supply chains are about reducing the number of hands food passes through from the farm to the eater. Kneafsey et al. acknowledge that, in and of themselves, SFSCs do not guarantee a commitment to environmental principles or a reduction in GHG emissions, yet "it is clear that ethical, social and environmental concerns, in addition to quality aspects are the key drivers of consumer interest in this sector" (Kneafsey et al., 2013, p. 14).

Kneafsey et al. credit Marsden et al. (2000) and Renting et al. (2003) for shaping the early discussions around SFSCs. Both of these sets of authors identify proximity between the producer and the consumer as only one of several attributes of SFSCs. As Renting et al. point out,

SFSCs on the one hand 'short-circuit' the long, anonymous supply chain characteristics of the industrial mode of food production. On the other hand, producer-consumer relations are 'shortened' and redefined by giving clear signals on the provenance and quality attributes of food and by constructing transparent chains in which products reach the consumer with a significant degree of value-laden information. Lastly, SFSCs are an important carrier for the 'shortening' of relations between food production and locality, thereby potentially enhancing a reembedding of farming towards more environmentally sustainable modes of production" (Renting, Marsden, & Banks, 2003).

The growth of interest in SFSCs is in keeping with recent trends throughout North America and Europe toward what are sometimes referred to as Alternative Food Networks (AFNs) or Values-Based Supply Chains (VBSCs) – the mix of networks, movements, projects and businesses that promote a systemic approach to relocalizing food while addressing environmental and social sustainability (Barham, 2002; Blay-Palmer, 2011; Goodman, 2004; Hardesty et al., 2014; Lerman, 2012; Levkoe, 2011; Morgan, Marsden, & Murdoch, 2006; Stevenson & Pirog, 2008). These have been largely focused on direct farm sales, farmers markets and box delivery schemes. To date, SFSCs have had minimal uptake in institutional procurement, despite the fact that this area has enormous potential for scaling up and out the volume of such food across the system (Friedmann, 2007; Morgan & Morley, 2014; Morgan & Sonnino, 2008; Roberts et al., 2014)

## **1.2 Research Task**

The research task is to evaluate two organizational approaches -- the Food for Life Catering Mark in England developed by the Soil Association, and the Local Food Plus program in Canada -- as examples of SFSCs in university settings. This paper argues that universities are especially well-positioned to play a key role in the development of short food supply chains (SFSC) that support the growth of more sustainable local food systems.

In addition, this paper proposes that the notion of SFSCs can be deepened by incorporating a new concept – "infrastructure of the middle". This concept builds on the term "agriculture of the middle" developed by Kirschenmann et al. to describe the mid-sized farms and ranches which "operate in the space between the vertically-integrated commodity markets and direct markets" (Kirschenmann, Stevenson, Buttel, Lyson, & Duffy, 2008, p. 3). The concept of infrastructure of the middle is also informed by Morley et al.'s concept of the "missing middle" which emphasizes the need for a "mechanism by which small producers can collectively access a middleman facility that enables them to trade with large customers...[including] public procurement consortia" (Morley, Morgan, & Morgan, 2008, p. 2).

As used in this paper, infrastructure of the middle emphasizes the importance of both hard and soft infrastructure in supporting universities to procure from SFSCs. Typically, universities in both North America and Europe contract out their foodservices to global corporations which are geared towards farmers and distributors providing high-volume, anonymous products. This generally excludes small and mid-size farmers and processors. Infrastructure of the middle refers to the networks, resources, facilities and relationships that enable mid-size farmers and institutional purchasers such as universities to develop meaningful connections. In effect, infrastructure of the middle is the operationalization of SFSCs to enable them to move beyond direct markets into working relationships with larger purchasers such as universities.

### **1.3 Methodology**

This paper takes a qualitative approach to exploring the role of SFSCs in university procurement. It is based on 67 detailed semi-structured interviews with practitioners, and is informed by both theory and praxis. The author was a practitioner, as the founder and former President of Local Food Plus, the Canadian civil society organization which pioneered procurement of sustainable local food in partnership with the University of Toronto. As such, this paper brings insights gleaned from the daily experience of wrestling with supply chain issues. The interviews were conducted between 2013 and 2015. In England, they included Soil Association staff responsible for the Food For Life Catering Mark and staff at leading universities using the Catering Mark, as well as farmers, processors, and distributors taking part in the scheme. Interviews in Canada included Local Food Plus staff, University of Toronto staff and administrators, as well as a range of suppliers.

The paper begins by outlining the two organizational approaches to procurement that are the subject of these case studies. The paper then discusses why the notion of SFSCs is especially useful in describing the evolution of local and sustainable food systems. The paper proposes that the understanding of SFSCs, especially in institutional settings, can be amplified by the concept of infrastructure of the middle. A typology of infrastructure of the middle is presented (Stahlbrand,

forthcoming). The paper concludes with a discussion of how SFSCs and infrastructure of the middle can be positioned within sustainability transition theory.

## **2. The Case Studies**

### **2.1 Background**

The supply chains of two English universities using the Food For Life Catering Mark, and one Canadian university working with the Local Food Plus (LFP) program, are analyzed. The English Universities are Nottingham-Trent, a university of about 27,000 students in the Midlands city of Nottingham with a self-catered food service, and University of the Arts London, a multi-campus university of about 26,000 students in downtown London which works with a contracted domestic caterer. The Canadian university is the University of Toronto, one of the largest universities in North America with 85,000 students over three campuses. The focus of this study is on the downtown (St. George) campus, with about 60,000 students.

### **2.2 The Food For Life Catering Mark**

The Food For Life Catering Mark is a project of the Soil Association, which describes itself as "the UK's leading membership charity campaigning for healthy, humane and sustainable food, farming and land use" ("The Soil Association - About Us," n.d.). The mark grew out of the Food For Life Partnership, a program launched in 2007 to transform food culture in British schools. The Catering Mark was launched two years later in order to provide third party certification to institutional foodservice providers. It offers a ladder for improvement, with bronze, silver and gold awards to encourage progress. By moving through the three levels, foodservice operators demonstrate an increased commitment to four principles: 1. serve fresh food; 2. source environmentally sustainably and ethical food; 3. make healthy eating easy; and 4. Champion local food producers. More than 1.6 million certified meals are served every weekday. More than 35 universities currently use the Catering Mark ("The Food For Life Catering Mark," n.d.).

### **2.3 The Local Food Plus Program**

The Canadian case study focuses on the partnership between the civil society organization Local Food Plus (LFP) and the University of Toronto. Although the LFP program was significantly less resourced and embedded than the Food For Life Catering Mark, at its launch in 2006, it marked the first time that a Canadian university made a formal commitment to purchase sustainable local food. (At that time, Local Food Plus was known as Local Flavour Plus; the organization has been in hiatus since 2014.) (Girard, 2006; Local Food Plus, 2006).

At the time of the launch, the U of T had both self-operated units and cafeterias operated by Aramark, a global foodservice company. As part of a program of continuous improvement,

participating cafeterias agreed to purchase 10% of the dollar value of their food in the first year, with a 5% increase each year, from farmers and processors who carried the “Certified Local Sustainable” mark developed by Local Food Plus (confidential document, University of Toronto, 16 January 2006).

The centrepiece of the LFP program is a farm certification that encourages a transition towards more sustainable practices. The certification standards are based on five guiding principles – 1. Employ sustainable production systems to reduce or eliminate synthetic pesticides and fertilizers, and conserve soil and water; 2. Provide healthy and humane care for livestock; 3. Provide safe and fair working conditions for on-farm labour; 4. Protect and enhance on-farm biodiversity and wildlife habitat; and 5. Reduce on-farm energy consumption.

LFP certification is unique in its effort to combine local with sustainable practices. Farmers must achieve a score of 75% or better to be entitled to call their operation “Certified Local Sustainable” (Local Food Plus, 2009).

### **3. Conceptual Frame – Advantages of SFSC Terminology**

As Marsden points out, one of the contributions of the term SFSC is that it allows an examination of how supply chains are “built, shaped and reproduced over time and space”, a conceptually richer approach than simply a measurement of the unilinear distance of product flows (Marsden, Banks, & Bristow, 2000, p. 424).

Evidence from the case studies analyzed for this research confirms that the concept of the SFSC resonates deeply with developments in university procurement that enhances opportunities for sustainable food systems, and adds nuance to other commonly used terms such as “local food”, “alternative food networks” (AFN) or “values-based supply chains” (VBSC). The following section elaborates those nuances.

First, SFSC encompasses more than local food. Because it highlights the central role of the food chain and the producer-consumer relationship, as distinct from the physical location of food production, it can embrace fair trade and diaspora-based foods, essential in multicultural societies. This acknowledges that, for the foreseeable future, a just food system will include a global exchange of many products (coffee, tea, chocolate, sugar and rice are prime examples) which can be traded ethically.

“Short” also implies a more direct route. In this sense, SFSCs indirectly exclude “ultra-processed foods”, a term developed by Monteiro et al. to describe “a vast range of palatable products made from cheap ingredients and additives (Monteiro, Moubarac, Cannon, Ng, & Popkin, 2013, p. 22). Monteiro et al. developed this term to describe food that is typically high in fat, sugar and salt,

made with processing aids and highly refined ingredients, and often aggressively marketed by transnational corporations. Ultra-processing is fundamentally a process of distancing food, independent of the actual geographical distance, because it distances food from nature and holistic health. In this way, the term "short" opens the door to inclusion of nutritional needs and benefits as part of the definition of sustainability.

Second, unlike the term "alternative food networks", the term SFSC is a neutral description which doesn't imply relative stature. The term AFN inherently marginalizes the emerging food system by describing it in relation to the mainstream or dominant system. By contrast, the term SFSC is positioned as a positive project with the potential to become the norm.

Third, because it emphasizes directness of relationships as a key variable, SFSC is a more functional and practice-based term than values-based supply chain. Stevenson and Pirog argue that VBSCs are "distinguished from traditional food supply chains by the combination of how they differentiate their products (food quality and functionality, and environmental and social attributes), and how they operate as strategic partnerships (business relationships)" (Stevenson & Pirog, 2013, p. 3). They contend that VBSCs are supply chains that are mutually supportive, collaborative, cooperative and community-engaged. However, the term itself is not explicit about whose values are being counted. It can be argued that the conventional food system is also values-based – based on narrow values of efficiency, competition and low price, which exclude values about health and nature.

## **4. Results and Discussion**

### **4.1 Enriching the term SFSC**

The term SFSC describes the chain itself as the defining feature. This is compatible with the concept of infrastructure of the middle, which concerns itself with the universe of relationships, not just where the food is produced. In other words, SFSCs and infrastructure of the middle are about the "to" in such phrases as "farm to table", "field to fork", or "farm to cafeteria". Both SFSCs and infrastructure of the middle acknowledge what happens in between.

However, the concept of infrastructure of the middle goes beyond the notion of a food chain, which implies linearity and a single direction leading from farmer to consumer. Infrastructure of the middle is not inherently unidirectional. As Slow Food advocates argue, consumers must take on a new role where "Consumption becomes part of the productive act and the consumer thus becomes a co-producer" ("Slow Food Manifesto for Quality," n.d.). Infrastructure of the middle is about communication from farmer to consumer, and from consumer back to farmer. At its most effective, it is a set of relationships and a co-learning system that includes dialogue and

negotiation. Indeed, it has the potential to embrace the entire food cycle including inputs and food waste, both of which are often left out of discussions about food supply chains.

However, perhaps the most important contribution that infrastructure of the middle can make to thinking about food supply chains is that it takes the discussion beyond conceptualization to operationalization. As SFSCs grow in numbers and complexity across Europe and North America, a key challenge is how to scale up and out, as the system shifts from the early adopters to the early majority. The next section of this paper presents a typology of infrastructure of the middle that attempts to add operational details to an understanding of how university procurement can contribute to the scaling up and out of SFSCs.

#### **4.2 A Typology of infrastructure of the middle**

This typology of infrastructure of the middle has emerged from analysis of the successful application of the Food For Life Catering Mark and Local Food Plus program in England and Canada, respectively. The typology is based on the data collected, combined with the author's in-depth experience of the challenges faced in promoting and implementing university procurement of local and sustainable food. This paper presents a brief introduction to the ten organizational characteristics that are present in the university-based sustainable local food initiatives studied here. (The typology is developed more fully in a forthcoming paper (Stahlbrand, forthcoming).) These characteristics include both actors and capacities. Conventional foodservice supply chains are controlled by a handful of multinational foodservice providers and distributors. A distinguishing characteristic of infrastructure of the middle is that it distributes power and benefits throughout the system, both directionally and sectorally. In considering infrastructure of the middle, the "universe of relationships" must be assessed, rather than any one element.

The ten organizational characteristics are:

- 1. The need for an "anchor institution"** -- Anchor institutions, defined as "large public or nonprofit institutions rooted in a specific place, such as hospitals, universities or municipal governments" (Dragicevic, 2015, p. 5), are essential because they can use their purchasing power to create long-term stable markets that attract and support mid-size farmers and processors who have the capacity to feed large cafeterias. Universities in both the UK and Canada qualified as anchor institutions.
- 2. A civil society organization (CSO) providing leadership** -- Evidence suggests that much work related to the development of sustainable local food systems has been initiated by public interest CSOs (Blay-Palmer, Landman, Knezevic, & Hayhurst, 2013; Campbell & MacRae, 2013; Friedmann, 2007; Morgan & Morley, 2014; Orme et al., 2011), despite the fact that food production, processing, distribution and sales are

generally considered the purview of the private and for-profit sector. Local Food Plus and The Soil Association are examples of such CSOs.

3. **A tool to measure progress towards sustainability** -- Scaling up and out means farmers producing at volume and selling to parties with whom they have no direct relationship, frequently through an aggregator or distributor. Tools, often in the form of certification schemes, offer a way to identify values and best practices beyond personal relationships, as well as to protect all parties from greenwashing and dilution of the values proposition. Both the Soil Association and Local Food Plus had sophisticated certification tools.
4. **Individual champions** -- Champions break down silos within an institution to make a new approach to food procurement possible. In a university setting, for example, they can initiate conversations among foodservice, waste management, student recruitment and fundraising – parts of the institution that rarely talk to one another – to discuss how sustainable local food procurement can be leveraged to benefit the larger institution and its public purposes. In addition to being committed to larger public purpose principles, champions must hold a position of some authority, and possess a range of social skills and competencies. Both the UK and Canadian cases studies feature champions in many key roles, including university administrators, heads of sustainability and foodservice, and chefs, as well as champions among partnering food suppliers. The term "champion" is deserved because the functions fulfilled lack system embeddedness and incentives, and require personal courage, talent and commitment.
5. **A self-operated foodservice or domestic foodservice contractor** -- Currently, global foodservice contractors are the norm in institutions. However, their business model -- based on volume purchases of standardized low-cost food from anywhere -- is incompatible with sustainable local food systems. Global foodservice corporations also have rules and regulations that discriminate against mid-size producers such as minimum volume requirements or minimum insurance requirements. In both the UK and Canada, the facilities that were most effective at supporting local and sustainable food were self-operated units or worked closely with domestic caterers.
6. **Innovative private sector companies** -- Infrastructure of the middle is rich in B2B (business to business) relationships, which have been identified as fundamental to the growth of local economies (Shuman, 2015), much as they are to conventional economies. They include processors, distributors, aggregators, and other food businesses. Many are innovators, interested in reconfiguring resources, not just mobilizing them (Marsden, 2010; Marsden & Smith, 2005). Unlike global corporations, these "new food-economy SMEs" (Blay-Palmer & Donald, 2006) are regionally-based



- and independent. In both the UK and Canada, innovative entrepreneurs saw their university sales as part of a strategy to differentiate themselves in the market.
7. **Public policy and public education capacity** – This role may be played by a civil society organization, an anchor institution, or an actor with dedicated capacity, such as a food policy council. This capacity is essential because it contests the hegemonic activities of global food companies. Eventually, this capacity must be buttressed and embedded in policies of institutions and/or governments. Food literacy which includes sustainability is a key component of food system transformation, because an engaged and educated consumer is more likely to choose products that foster sustainable local food systems. In England, the Soil Association has a public education function to present emerging research and policies that enhance sustainability. This was also part of LFP's mandate in Canada.
  8. **Marketing and promotion capacity** -- Marketing and promotion capacity is essential to motivate and normalize sustainable procurement initiatives. It can encourage the involvement of new actors, create transparency, and move towards normalizing the products and values of sustainable local food systems, thereby establishing the purchase of sustainable local food as an everyday habit. In both England and Canada, there was significant promotion at the universities themselves, as well as by the CSOs through signage, mainstream and social media, trade show booths, participation in food celebrations and fairs, and public speaking. The Soil Association also holds an annual Catering Mark Awards dinner to recognize champions who have contributed to the success of the mark.
  9. **Connection to community and environment** -- Infrastructure of the middle challenges "agribusiness" at the level of its fundamental presumption – that food is essentially a private sector activity that belongs in the private sphere, removed from public interest issues such as health and sustainability, costs which are externalized by agribusiness. By contrast, the underlying assumption of sustainable local food systems is that food is a policy matter that affects such public goods as identity, heritage, environment, and so on. In both the UK and Canada, public policy goals were explicitly recognized, and sustainability requirements were important and prominent features of both certifications.
  10. **Existence of food hubs.** Blay-Palmer et al. argue that food hubs are "vehicles for sustainable transformation of the dominant food system". They define food hubs as "networks and intersections of grassroots, community-based organizations and individuals that work together to build increasingly socially just, economically robust and ecologically sound food systems that connect farmers with consumers, as directly as possible" (Blay-Palmer et al., 2013, p. 524). Hubs are spaces of aggregation, transformation and collaboration. They offer opportunities to pool resources to provide

hard infrastructure such as warehouses, loading docks, processing facilities and meeting spaces. But they can also be part of soft infrastructure, in that they are spaces for relationship-building, and clearing houses for innovation and information-sharing. Hubs are essential to the development of infrastructure of the middle because they can provide both hard and soft infrastructure that few infrastructure of the middle businesses can bear alone. In both the UK and Canada, the universities themselves acted as physical hubs, receiving and preparing food, and bringing together various actors in new ways. The CSOs acted as virtual hubs (Campbell & MacRae, 2013), forming critical relationships, providing tools, expertise and support.

## **5. Conclusions**

The focus of this paper is ultimately how the transition to more sustainable and local food systems can happen. Sustainability Transition Theory (STT), and the Multi-Level Perspective (MLP) in particular, have made important theoretical contributions in linking technical and social innovation (Geels, 2010, 2011, Shove & Walker, 2007, 2010; Smith, 2006). The following is a brief discussion of how SFSCs and infrastructure of the middle can be positioned within STT.

By focusing on university procurement and arguing that procurement is a key tool of the sustainability transition, this paper extends the range of STT. This paper also enriches and addresses gaps in STT by providing operational details of the sustainability transition in university food procurement, as it has ensued in the case studies presented here.

Notably, both the Food For Life Catering Mark and the Local Food Plus certification represent deliberate attempts to shift responsibility for sustainability transition away from individual consumer behaviour and purchases, towards collective and policy responses through institutional procurement. University key informants stated in several interviews that certification helped them to set procurement goals, and remain current around sustainability trends. Farmers, processors and distributors who supplied the universities confirmed that certification motivated them to adopt more sustainable practices or source more local food in order to get and keep university contracts. This constitutes a breakthrough in the dominant discourse about sustainability, which usually identifies the individual, not institutions or governments, as the key mover.

This analysis suggests that the missing link in food chains that can support a scaling up and out of local and sustainable food systems is the weakness of the connective tissue – the processors, distributors, aggregators, connectors, advocates, marketers and foodservice providers – to manage the sustainability transition, rather than the ability of farmers to produce enough food. The connective tissue can be collectively referred to as infrastructure of the middle.

The concept of infrastructure of the middle can add theoretical depth to the conceptualization of sustainability transitions in the food system in general, and SFSCs in particular, because it demonstrates how this universe of relationships has the potential to embed public sector food procurement in local society, nature, and economies. In effect, infrastructure of the middle is the operating system, not only of SFSCs, but of embeddedness in socio-technical systems for sustainable food transitions.

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