



## **Can Values-based Food Chains Advance Local and Sustainable Food Systems? Evidence from Case Studies of University Procurement in Canada and the UK**

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**Abstract.** This article asks whether the concept of values-based food chains (VBFC) can help explain and advance processes fostering sustainability transitions in the food system of the Global North. The VBFC concept is contested in the context of the author's research into Canadian and UK university food procurement experiences designed to promote purchases of local and sustainable foods. Notwithstanding important contributions to the role of values as motivators in emerging food movements, the author argues that the formulations and conceptualizations around VBFCs are problematic because they focus too heavily on market-based differentiation as a driver of the sustainability agenda, and because they underestimate the role of oligopolistic businesses in the shaping of food supply chains. The article posits that public sector institutions have a central role to play in developing sustainable local food systems. I have coined the term 'infrastructure of the middle' as an alternate conceptualization, which highlights public goods and goals, and features the role of the public sector and civil society organizations, as well as farmers and other private sector enterprises.

### **Introduction**

This article interrogates the concept of values-based food chains (VBFCs), asking if it can help explain or advance processes fostering sustainability transition in the food system of the Global North. The VBFC concept is contested in the context of the author's research into Canadian and UK university food procurement experiences designed to promote purchases of local and sustainable foods.

The discussion initiated by proponents of VBFCs – all leading food scholars and policy advocates in the US – is valuable and important. The concept highlights the role of ethical values as motivators of emerging food movements, as evidenced by rising purchases of fair trade, organic, ecological, local, cruelty-free, fair labour and sustainably produced foods. 'Values' are becoming part of everyday discourse about the need for new approaches to food, and the VBFC concept echoes that conversation

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among food scholars and practitioners. VBFCs also speak to the growing awareness of the entire food chain, including the processing and distribution infrastructure that is too often been glossed over in 'farm to table' imaginaries among enthusiasts and analysts.

Notwithstanding these important VBFC contributions, this article argues that the formulations and conceptualizations around VBFCs are problematic in at least two important respects: 1. VBFC writings foreground the centrality of market-based differentiation as the driver of the sustainable food agenda, thereby overshadowing the primary and pivotal role of public policy, practice and institutions, particularly in regard to purchasing policy of public institutions; 2. the foregrounding of values, as distinct from policies, practices and institutions, overshadows the centrality of oligopolistic power relations and oligopolistic business models in the shaping of food supply chains.

This article proposes that the conceptualization of VBFC should be rethought along four lines: 1. sustainable infrastructure needs to be conceived so that public purpose, public power and public goods (environmental and social objectives, for example) are highlighted alongside economic functions; 2. public sector food procurement, particularly by universities, needs to be seen as a critical tool for initiating and fostering sustainable regional food systems that support small and mid-sized farms; 3. food supply arrangements need to be reconceived as networks or ecosystems of relationships going from cafeteria to farm, as well as from farm to cafeteria, a non-linear understanding of relationships that goes to the heart of what Morgan et al. call 'creative public procurement' (Morgan et al., 2006; Morgan and Sonnino, 2008; Morgan and Morley, 2014); and 4. community-based, mid-sized infrastructure needs to be prioritized as necessary and appropriate to the needs of overall sustainability, as well as meeting the needs of small and mid-sized farms, which are indispensable to a sustainable food system.

Public purpose institutions such as universities are critical sites of sustainability transition, partly because of their ability to showcase the power of creative public procurement, which requires active engagement of chefs with suppliers. Creative public procurement can shift the responsibility for sustainability transition away from the individual responsibility to 'vote with one's dollars' towards a purposive institutional response with 'collective impact' (Kania and Kramer, 2011). Creative public procurement can also tap into the multifunctionality of food, i.e. the ability to address multiple health, social, economic, environmental and cultural issues through food, not just agriculture (Roberts, 2013; Franklin and Morgan, 2014; Knezevic and Blay-Palmer, 2015). As large anchor institutions embedded in their community economies, universities are well placed to take advantage of this potential. Universities in North America and the EU spend billions of dollars annually purchasing food for their cafeterias and, as such, can provide long-term stable markets for local farmers and food businesses. They also serve a student population often concerned about social and environmental issues. Therefore, universities, along with other institutions in what is sometimes referred to as the 'MUSH' sector (municipalities, universities, schools and hospitals) are worthy sites of study on the potential for creative public procurement.

The article concludes by briefly presenting an alternative conceptualization to VBFCs. I have coined the term 'infrastructure of the middle' to highlight public goods and goals, and the role of the public sector and civil society organizations, as well as farmers and other private sector enterprises.

## **Materials and Methods**

This article uses data gathered from two civil society initiatives in university food procurement – the Soil Association’s Food for Life (FFL) Catering Mark in the UK, and the Local Food Plus (LFP) programme in Canada – with a view to contesting the capacity of the VBFC conceptualization to help explain realities of sustainability transition in the food system. Data was gathered through 67 detailed semi-structured interviews with practitioners, conducted between 2013 and 2016. In England, interviews were conducted with Soil Association staff responsible for the Food for Life Catering Mark and staff at leading universities using the mark, as well as farmers, processors, and distributors taking part in the programme. In Canada, interviews were conducted with staff from Local Food Plus, the University of Toronto (U of T), and a range of food suppliers. Before entering the academic world, I was a sustainable food practitioner, as founder and former president of Local Food Plus. LFP, in partnership with the University of Toronto, pioneered public procurement of sustainable local food in Canada. As such, this article brings a perspective informed by praxis – insights gleaned from extensive and direct experience wrestling with supply chain issues – as well as by empirical research.

Beyond trends and analysis revealed by the comparison of one Canadian and two English case studies, this article makes no claim to establish international standards for the study of sustainability initiatives. Certain elements of the transitions in these cases, such as the need for something akin to ‘infrastructure of the middle’, are likely to be universal, but this is something that must be tested, not assumed.

## **Two Case Studies**

The Food for Life Catering Mark is a certification scheme for institutional purchasers of sustainable and healthy food in the UK. It was developed by the Soil Association, which describes itself as ‘the UK’s leading membership charity campaigning for healthy, humane and sustainable food, farming and land use’ (Soil Association, 2016). The Catering Mark supports the Food for Life programme, designed to transform both meals and food culture in British schools. The programme promotes tastier, healthier and more sustainable meals, together with a curriculum on food literacy, growing and cooking.

The Catering Mark is not an either/or proposition. It features a ladder for improvement, with bronze, silver and gold awards to encourage progress. This ladder is designed to engage as many food-service operators as possible, and move them toward increasingly healthy and sustainable offerings. Food-service operators can move through the three levels by demonstrating an increasing commitment to four principles: 1. food freshly prepared on-site; 2. ingredients sourced sustainably and ethically when possible; 3. ingredients sourced locally when possible; and 4. healthy eating made easy. At the silver and gold levels, there is also a requirement to purchase a percentage of organic food. More than 1.6 million Food for Life Catering Mark-certified meals are served each day (Stahlbrand, 2016a). For this article, the supply chains of two universities using the Catering Mark were analysed – Nottingham Trent University (NTU), a university of about 27,000 students in the Midlands city of Nottingham with a self-operated food service; and the University of the Arts London (UAL), a multi-campus university of about 26,000 students in downtown London, which contracts with a regional independent food-service company.

In Canada, Local Food Plus (LFP) certified farmers, rather than food-service operators, for sustainable practices. LFP was in existence for a decade, operating primarily in the Canadian province of Ontario. It ceased active operations in 2014 due to lack of funds. LFP 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. Farmers must achieve a score of 75% or better to be entitled to call their operation 'Certified Local Sustainable' and use the LFP certification seal. The LFP certification programme was unique in its effort to combine local with sustainable practices.

In 2006, LFP launched a partnership with the University of Toronto to offer Certified Local Sustainable food in selected cafeterias and retail outlets on the St. George campus (the largest of three campuses), representing the first time that a Canadian university made a formal commitment to purchase sustainable local food. Participating cafeterias agreed to purchase 10% of the dollar value of their food in the first year from Certified Local Sustainable farmers and processors, with a 5% increase each year going forward. The University of Toronto is one of the largest universities in North America, with 85,000 students. It has both self-operated and contracted food-service operations. The LFP programme was implemented in several self-operated units, as well as the cafeterias and campus retail outlets operated by the food-service contractor Aramark.

### Values-based Food Chains

The concept of values-based food chains (VBFCs) was developed by Stevenson and Pirog (2013, p. 3), who write that VBFCs are 'distinguished from traditional food supply chains by the combined way they differentiate their products (food quality and functionality, and environmental and social attributes), and how they operate as strategic partnerships (business relationships).' Stevenson and Pirog adapted the concept of VBFCs from business literature on supply chains, particularly the automobile industry. Although they do not reference well-known business strategy thinkers, Porter and Kramer (2006, 2011), their terms and assessments are similar. Porter (1985) uses the term 'value chain' to highlight clear expectations that supply chains can add value to a good, not simply transport it from one place to another. Porter and Kramer (2011, p. 66) define what they call 'shared value' as 'policies and operating practices that enhance the competitiveness of a company while simultaneously enhancing the economic and social conditions in the communities in which it operates'.

The emphasis of VBFCs is on farmer relationships with processors, distributors and retailers – people with whom farmers have 'business to business' relationships. VBFCs are different from conventional food supply chains, according to Stevenson and Pirog (2013), because members of conventional food supply chains are competitive or even adversarial with each other. Price, not values, is the key competitive advantage each party looks to maximize. Anonymous and isolated upstream producers are interchangeable and exploitable in this scenario. Farmers receive the least income and profit, while dominant players operating at national and international scale do well because farmers outbid each other to meet the price point imposed by aggregators further downstream.

To counter this downward spiral, Stevenson and Pirog (2013, p. 5) highlight several characteristics of VBFCs. They say values-based food chains are designed to achieve collaborative advantages for all the participants in the chain by emphasizing trust, transparency, shared values and decision-making, and ‘commitments to the welfare of all strategic partners in the chain, including appropriate profit margins, fair wages and long-term business agreements’. In other words, the ‘values’ in values-based supply chains comes from the social glue that helps producers of values-differentiated foods hold fast against hard bargains driven by large players at the top of the chain. As theorized by Stevenson and Pirog, VBFCs are supply chains that are mutually supportive, collaborative, cooperative and community engaged, in sharp contrast to conventional supply chains, which rely on ‘cheap food’ from around the globe produced in bulk by unidentified farmers who compete against each other on price, not ethics or sustainability (Carolan, 2011).

More recently, Lev et al. (2015, p. 1417) have defined VBFCs as ‘strategic business alliances formed between organized groups of farms and ranches and their supply chain partners to distribute significant volumes of high-quality, differentiated food products and share the rewards equitably.’ They distinguish VBFCs from traditional supply chains by foregrounding the strategic relationships among participants and by featuring high quality products differentiated by environmental and social responsibility (Lev et al., 2015). VBFCs are in the tradition of collective self-help, and designed to protect producers from the challenges they face in a world where small independent businesses must buy from large oligopolies that sell inputs, and sell to large oligopolies that process, distribute or retail food. Proponents of VBFCs acknowledge that farmers, ranchers and fishers – who usually receive the least financial benefit from conventional food supply chains – face particular challenges when attempting to construct VBFCs. These challenges include identifying appropriate partners and building relationships of trust, distinguishing points of product differentiation, setting price, determining strategies to address quality control and food safety issues, finding adequate financing, sourcing research and development support, developing meaningful standards across the supply chain, and creating governance structures (Stevenson and Pirog, 2013).

In a 2008 article, Stevenson and Pirog (2008, p. 138) propose a pledge for VBFC participants, to encourage ‘the creation of economic value chains distinguished by a mutual commitment to sustainability, fairness, and food quality’. The pledge asks that ‘all partners in the value chain pledge to make business decisions that will ensure the economic sustainability of all other partners in the chain’ and that ‘the success of values-based business chains will be measured by increases in the volume of food sold by companies that are committed to food-quality enhancement, environmental and resource stewardship, transparency, and the equitable sharing of power and economic returns across the value chain’ (Stevenson and Pirog, 2008, p. 138). By recognizing that farmers are usually price-takers, proponents of VBFCs argue that farmers need to articulate their visions, develop unique, high quality products that reflect their identity, and then collaborate, so they are not competing against each other on price. Diamond and Barham (2012) suggest that although the ‘value’ in the term ‘value chains’ usually refers to economic value, Stevenson and Pirog deliberately overlay a second meaning, which highlights ethical or social virtues and values.

This discussion of values-based food chains happened simultaneously with another shift in thinking about the role of small and mid-sized farmers and the in-

frastructure they need. McMichael and Schneider (2011), in particular, point to the World Bank's *World Development Report 2008* (World Bank, 2007, p. 8), which proposes a 'new agriculture' where 'the private sector drives the organization of value chains that bring the market to smallholders and commercial farmers'. McMichael and Schneider (2011, p. 125) argue that the World Bank's agenda is 'to incorporate small farmers into the World Bank's neoliberal conception of a "new agriculture"', and that on a global scale this has created a divide over 'the question of whether agriculture is a servant of economic growth, or whether it is truly multifunctional and should alternatively be developed as a foundational source of social and ecological sustainability' (McMichael and Schneider, 2011, p. 129). In a more recent article, McMichael (2013, p. 672) is even harsher about the design of value chains as applied to the Global South. He argues that 'value chains serve to generate *value* that can be appropriated by agribusiness and its financiers – in the commodity form of food, feed and agrofuels for elite consumers, redistributing value from producers to corporate financiers (whether in agribusiness or any other economic sector)'.

Given this international context of the 'value' and 'values' conversation, the term VBFC can have different implications than those intended by Stevenson, Pirog, and their colleagues. The Stevenson and Pirog language is framed as a critique of conventional agriculture. This critique supports social and environmental values likely to arise from small and mid-sized farmers, who are central to the vibrancy of rural communities. However, when rhetoric is converging, but strategy is diverging, words must be carefully chosen. Under these circumstances, this article argues that fresh terminology and more precise conceptualizations are called for, in order to avoid the word 'values', which has lost meaning as a result of overuse and appropriation.

### **Differentiation and Power in the Food Supply Chain**

This article challenges two critical features of the VBFC approach to food supply chains: elevation of product differentiation to a strategic tool of sustainability transition in food supply chains; and failure to recognize the power imbalance and conflicting interests within supply chains dominated by oligopolies. Product differentiation commonly refers to the creation of a niche with unique qualities that sidestep direct competition on price, and thereby provide additional profit margins. During the 1990s, the term 'niche' began to be widely discussed in food marketing literature. A 'niche' referred to a specialty food product that commanded a premium price, while 'niche marketing' was defined as 'a marketing strategy that uses product differentiation to appeal to a focused group of customers' (Phillips and Peterson, 2001, p. 1). This type of niche is often tolerated by the dominant food system because it is too small to pose a threat to the system, does not disrupt or otherwise require the dominant system to change its practices, and may even offer additional opportunities for profit and control, as is the case when oligopolies incorporate certified organic foods (Guthman, 2004; Smith, 2006).

The VBFC approach emphasizes the contribution of values to product differentiation. However, the term 'product differentiation', borrowed from market-based business strategy, is problematic. It sidesteps the need to address food system issues, such as the role of oligopolistic aggregators who have the market power to drive down the prices they pay (Constance et al., 2014; Howard, 2016). It also conflates the needs of producers for competitive advantage with sustainability, implying that a

marketing strategy can address environmental and social protection.

It is the argument of this article that the provision of public goods such as environmental sustainability in the food system is not properly conceived or framed as a supply chain issue, to be addressed by private sector actors, some of whom represent global corporations exercising oligopolistic power. Public sector institutions and civil society organizations need to be included in order to address issues of public goods and public purposes (Morgan, 2008; Marsden and Morley, 2014; Morgan and Morley, 2014). Legislation, restructuring of markets, and use of public funds need to be considered in order to correct imbalances in market power (Appleby et al., 2003). The need to embed public purposes and public goods in law and public institutions, rather than self-regulating markets, is well established historically. Farm organizations, for example, have traditionally highlighted advocacy for government measures to limit the power of corporations (Goodwyn, 1978).

The paradox of the VBFC conceptualization is that small and mid-sized farmers – the most vulnerable and most competitively disadvantaged players in the food system – are increasingly being asked to shoulder costs of environmental and social protection through their production practices. These are the farmers who are embedded in their local communities and economies, whose numbers provide the population necessary for schools, hospitals, and other services in rural communities, and who contribute to local economies with their daily expenditures. They are also the farmers most likely to farm the diverse agricultural landscapes that provide the most global nutrients and help maintain the genetic diversity of our food supply (Fanzo, 2017; Herrero et al., 2017). While small and mid-sized producers who meet standards for environmental and social sustainability strive to charge prices that capture and internalize many of the costs associated with sustainability, many large-scale producers maintain their market power and price advantage by externalizing the cost of unsustainable practices. This puts smaller and more sustainable farmers at a competitive disadvantage within the dominant food supply system. Even if they are successful at creating niches for their products, their costs of production are higher, and return on labour and capital is lower (Carolan, 2011; Roberts, 2013). Leaving such critical choices about the future of the planet to marketplace differentiation risks commodifying sustainability. This is clearly at odds with the intentions of VBFC thinkers.

The VBFC conceptualization also fails to acknowledge or address the extreme power imbalance and conflict of interest in the corporate and oligopolized food system, which this article argues cannot be corrected by a simple non-binding declaration of values. An example of VBFC governance is described in the appendix to a USDA report on food value chains, which includes a ‘Sysco Partnership Charter’. In this charter, Sysco, the largest food distributor in the world with sales of USD 49 billion in 2015, agrees to work ‘in a trust relationship, using sound business practices and open communication to ensure the realization of a fair return for effort and investment to all participants in the values chain – fieldworkers, farm owners, packinghouse operators, aggregators and shippers, distributors, foodservice operators, and the consumers they serve’ (Diamond et al., 2014, p. 44). The power imbalance in this partnership is obvious, yet there is no neutral mechanism for oversight or dispute resolution if one of the strategic partners fails to uphold or apply principles of the charter. As human rights and public health scholar Claudio Schuftan (2003) writes, ‘equal relations between unequals simply reinforce inequality’.

Most food supply chains are controlled by a handful of giant multinational food-

service companies, distributors and retailers. These corporations set terms and price. As Mike Schreiner (personal communication, 25 July 2016), the co-founder and former vice-president of Local Food Plus notes, they can refuse to pick up smaller orders, or demand that food is packaged or labelled in certain ways that may pose an unnecessary burden on small and mid-sized farmers. These corporations have the power to demand the supply chain relations that work best for them, whether or not these arrangements work for farmers, the community, or the environment.

Food service, for example, is dominated by three transnational corporations (Compass, Sodexo and Aramark). Their business model has been described as 'based on centralized supply chains and management structures, with a reliance on prepared and "ready to eat" food, intended to lower procurement and labor costs' (Martin and Andrée, 2012, p. 162). This model, developed since World War II, relies on cheap food from anywhere in the world.

Together, this food-service oligopoly had combined revenues of USD 80 billion in 2015. They employ more than one million people at colleges and universities, schools, hospitals, sports facilities, workplace cafeterias, airlines, railways, remote mining camps, offshore platforms, the military and prisons. Compass and Sodexo are ranked among the largest private sector employers in the world (Martin and Andrée, 2012). Oligopolistic domination of food service means that new entrants find it very difficult to gain a foothold because the three main players drive prices down by using their enormous aggregate purchasing power, and by externalizing any social and environmental costs (Clapp and Fuchs, 2009; Martin and Andrée, 2012; McMichael, 2013).

Food distribution is also dominated by a small number of powerful players known as 'broadline' distributors – multibillion dollar global corporations that provide one-stop shopping to food-service operations. In Ontario, for example, the two major broadline distributors are Gordon Food Service (GFS) and Sysco. GFS is the smaller of the two, with revenues of more than USD 12 billion in 2015 (Forbes, 2016). Steve Crawford (personal communication, 15 August 2013), a Category Manager with GFS in Ontario, says the company lists 17000 different products. He describes broadline distribution when he says, 'if you picked up a restaurant up-side down and shook it, whatever falls out, we usually sell.' Besides both fresh and processed foods, this includes napkin holders, cutlery and staff uniforms.

The introduction of producers and processors certified by Local Food Plus into the food supply chain at the University of Toronto provided an opportunity to compare the experience of working with a multinational food-service corporation with the experience of a self-operated food service. Anne Macdonald (personal communication, 5 May 2015), the University of Toronto's Director of Ancillary Services, says she worked to ensure that Aramark was meeting the contract requirements to buy from Certified Local Sustainable farmers. But at the same time, Macdonald was only willing to push Aramark so far. 'When you don't self-operate, there's a limit to the number of people you can afford to supervise the contractor,' she says.

In contrast to Aramark, Chef Jaco Lokker (personal communication, 13 July 2015), who implemented the LFP programme at a self-operated cafeteria on the University of Toronto's St. George campus, was keen to see how far he could go with the LFP programme. Lokker says he was able to maintain his food budget, despite the premium price of LFP certified products, because he cooks from scratch with whole foods, rather than relying on pre-prepared products. He says this means he incurs higher labour costs, but lower food costs. He also minimized food waste, especially

the food that students left on their plates, through an educational campaign. The savings helped to offset the extra costs of the LFP programme by allowing Lokker to reduce the amount of food he had to buy.

It is not only the power imbalance of food-service and distribution companies that makes a values-based collaboration fragile; the very business model of global corporations is also in direct conflict with the needs of small and mid-sized farmers. The role of rebates in food service and distribution illustrate this point. Rebates are a defining feature of the dominant food system. Rebates are an entrenched system of price incentives based on volume sales that essentially blocks small and mid-sized farmers from selling to food-service contractors, while generating hundreds of millions of dollars for the global food-service corporations (Fitch and Santo, 2016). Rebates and other vendor agreements are the ‘price of admission’ for farmers to be listed with distributors, and for distributors to be listed as ‘preferred vendors’ with food-service contractors – similar to slotting fees in the food retail sector, where suppliers pay for access to shelf space in supermarkets (Hendrickson et al., 2001). Kaya and Özer (2012, p. 739) argue that rebates are pricing mechanisms designed ‘to share two important operational risks in supply chains: inventory risk and capacity risk’. There are many different kinds of rebates in food service, and they can be unimaginably complex, cunning and ingenious (Neal et al., 2015). Although rebates are a subject of study in business economics, few scholars of local and sustainable food systems have identified them as a barrier. However, rebates have become a disciplinary tool of the ‘cheap food’ system, because they drive down prices paid to farmers, who are in the unenviable position of being price takers. As a result of the pivotal role of rebates, one of the most important positions in a food-service company is the procurement agent, because he or she is able to generate the most value to the corporation by negotiating rebates.

University of Toronto’s Macdonald (personal communication, 5 May 2015) argues that a food-service company ‘is not really a food-service company. It’s a procurement company. They run these operations at the campus level, but behind the scenes they’ve got all these procurement contracts with big vendors, such as [fast food companies]. That’s what funds the big engine’. Lokker (personal communication, 13 July 2015) says a distributor typically will only list a product if the vendor pays a marketing or promotion fee, which can run into the thousands of dollars. LFP ran headlong into this operational reality when it tried to get certified farmers and processors listed as vendors with Aramark’s preferred distributors and with Aramark itself. By contrast, Lokker, as the executive chef of a self-operated food-service unit, did not demand rebates when he bought from LFP-certified farmers and processors.

### **A New Conceptualization**

In their review of food hub literature, Berti and Mulligan (2016) note that the terminology associated with VBFCs conceals a deep division between two streams of thinking. One stream, which Berti and Mulligan refer to as ‘values-based agri-food supply chains’, aligns with Porter and Kramer, who interpret what they call ‘shared value’ as a means of securing competitive advantage (Porter and Kramer, 2011). This ‘shared value’ analysis is notable for the absence of any reference to public policy, public goods, public purpose, public interest, government leadership, trade agreements, subsidies to agribusiness, deregulation, power relations, or externalities.

The second stream of thinking identified by Berti and Mulligan (2016) is the ‘sus-

tainable food community development' approach, which is oriented toward building a more sustainable food system. An illustration of this approach is the definition of food hubs proposed by Blay-Palmer et al. (2013, p. 524) 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'.

The evidence from research presented in this article aligns with the second approach, and leads to a proposal for a new way of conceptualizing infrastructure, which I call 'infrastructure of the middle' (Stahlbrand, 2016b). 'Infrastructure of the middle' is adapted from Kirschenmann et al.'s concept (2008, p. 3) of 'agriculture of the middle', which describes the mid-sized farms and ranches most at risk in a globalized food system. These farms and ranches are said to be 'too small to compete in the highly consolidated commodity markets, and too large and commoditized to sell in the direct markets'. Like agriculture of the middle, 'infrastructure of the middle' is also at risk in oligopoly-dominated supply chains (Constance et al., 2014) and must be strengthened if local food is to be produced in ways that are environmentally, socially and economically sustainable.

The concept of 'infrastructure of the middle' is also influenced by the concept of 'infrastructure of collaboration' articulated by Harvard business professor Rosabeth Moss Kanter (1995, p. 363), who argues that the 'infrastructure of collaboration' is 'the means by which people and organizations can come together across sectors to recognize, value and leverage their area's assets for mutual gain'.

Infrastructure is commonly defined as 'the basic physical and organizational structures and facilities (e.g. buildings, roads, power supplies) needed for the operation of a society or enterprise' (*Oxford English Dictionary*, s.v. 'Infrastructure'). With food systems, this usually refers to 'hard' infrastructure such as roads, warehouses, distribution centres and processing facilities. However 'infrastructure of the middle' pays equal attention to 'soft' infrastructure – the relationships, civil society organizations and individual public sector, private sector and civil society champions who actively create 'soft power' and 'community capitals' (Nye, 2004; Flora et al., 2005), the main power sources of the food movement, which cannot compete against the economic might of global agribusiness. Although the term 'values-based food chains' is evocative and generative, this article suggests that the concept of 'infrastructure of the middle' can contribute to a more fulsome understanding of the complexity of the alternative supply-and-demand chains required for sustainable food systems.

### **The Central Role of the Public Sector**

A wide range of food scholars and analysts are generally in agreement about three major points: 1. small and mid-sizes farms are disappearing; 2. small and mid-sizes farmers are vital to rural communities and a resilient food system; and 3. small and mid-sized farmers need to find ways to avoid competing on price. VBFCs, short food supply chains (SFSCs) and alternative food networks (AFNs) are all terms that have been used to characterize ways of organizing aspects of the food system to address these problems, as well as the social and environmental problems associated with the conventional food system (Renting et al., 2003; Whatmore et al., 2003; Stevenson and Pirog, 2008; Goodman, 2009; Bloom and Hinrichs, 2011; Conner et al., 2011; Feenstra et al., 2011; Goodman et al., 2011; Kneafsey et al., 2013). The term

'infrastructure of the middle' is part of the same broad discussion and exploration.

A basic component of this conceptualization is the central role of the public sector and civil society in enlisting support for community-based food systems. A public sector presence in 'infrastructure of the middle' serves two functions. It embeds public purpose in food system outcomes, while simultaneously bolstering the economic power of mid-sized farmers currently placed at risk by the price demands of private sector aggregators. Anchor institutions such as universities can play a critical role in creating robust, diverse and sustainable local food systems through their purchasing decisions. Indeed, anchor public sector institutions are arguably the basis of the 'foundational economy', where 40% of jobs can be found (Bentham et al., 2013). Bentham et al. (2013, p. 7) define the foundational economy as 'that part of the economy that creates and distributes goods and services consumed by all (regardless of income and status) because they support everyday life'. Food, healthcare, education and transportation are all examples of sectors in the foundational economy. In the foundational economy analysis, anchor institutions can be seen as 'social franchises with explicit and implicit obligations to collectives including the local, regional and national state' (Bentham et al., 2013, p. 3).

This article argues that one essential function of the public sector is to support the transition to sustainable local food systems through procurement decisions. The concept of 'infrastructure of the middle' attempts to redress the problem of the power imbalance within the food system by using the purchasing power of large public institutions during the initial phase of increasing the capacity of sustainable local food producers and suppliers, before they venture into other sales areas. By including public purpose institutions as anchors in food supply chains, 'infrastructure of the middle' emphasizes the importance of the public realm if the world is to move towards more environmentally, socially and economically sustainable local food systems.

The VBFC concept, by contrast, focuses on strategic business partnerships, which may well feature transnational corporations. These corporations, which have profit as their mandate and no inherent public purpose, cannot be expected to ensure that social and environmental values are built into the food system. This is particularly so for global corporations, which are not embedded in the communities in which they operate. By contrast, public institutions – including universities, schools, municipalities and hospitals – are embedded in their communities. These institutions can use creative public procurement to achieve multiple goals that support the growth of sustainable local food systems (Friedmann, 2007; Morgan and Sonnino, 2008; Morgan and Morley, 2014).

Recognizing food's potential for multifunctionality is a priority of effective public policy, because it presents food as a value enhancer. It allows us to ask what food can do for an institution, not only what an institution can do for food. Multifunctionality recognizes that food (not just agriculture) can address health, economic, environmental, social, cultural and reputational goals of public institutions (Roberts, 2014). Lacking such a multifunctional perspective, university food has been relegated to an ancillary revenue-generating service, rather than a strategic tool and core part of the university's mandate. By contrast, recognizing the multifunctionality of food allows public institutions to be identified as pivots for food system transformation and enablers in local economies. In terms of food procurement, they can provide significant and stable markets for food businesses, showcase new options to the public, and open 'more sustainable spaces of possibility' (Marsden and Franklin, 2013, p. 639).

Marsden et al. (2016) develop this argument further in a report for the Public Policy Institute of Wales. They make a case for 'more proactive and reflexive food governance' that puts food at the centre of public policy (Marsden et al., 2016, p. 22). Furthermore, they argue for a more 'demand led production arena' that creates a 'far more public demand-oriented food system which delivers diverse sustainability and nutritional health benefits' (Marsden et al., 2016, p. 12). That way, food becomes a tool to address issues such as the loss of independent farm businesses, rising food poverty and food inequality, and the need for food and farming to make a significant contribution to reducing GHG emissions.

This article argues that the infrastructure required for sustainable local food systems is composed of 10 distinct and interactive elements, all of which ideally are present for sustainability transition. This research adds to the work of scholars who have enumerated some of the best practices to create infrastructure for sustainability transitions in the food system (Landman et al., 2009; Blay-Palmer et al., 2016). The 10 elements comprise: 1. anchor institutions; 2. civil society organizations with skills and knowledge dedicated to food system transformation; 3. tools, such as certification systems, that measure progress towards sustainability; 4. individual champions at many levels of the institution; 5. self-operated food service and local, independent food-service contractors; 6. innovative suppliers; 7. a public policy and public education capacity; 8. a marketing and promotion capacity; 9. food hubs as spaces of aggregation, transformation and collaboration; and 10. a connection to community and the environment.

'Infrastructure of the middle' is a way of understanding the range of resources, services, skill sets, capacities, networks and communities of practice required to connect mid-sized farmers to public purpose institutions such as universities, a market from which they have been largely excluded. While these 10 elements may be enacted in different ways at different times, the data suggest that all 10 are necessary for an effective sustainability transition. The 10 elements are described briefly below. A more complete discussion of the concept appears in another article (Stahlbrand, 2016b).

1. *Anchor institutions*, such as universities, have the purchasing power to create stable markets for mid-sized farmers and processors who can supply large cafeterias (Dragicevic, 2015). In addition to purchasing power, anchor institutions have societal heft, which can arouse interest, attract media attention and create momentum in the larger community. They also manifest the place of public institutions as actual participants in the food system – not just as regulators, but as actors.

Anchor institutions can begin to address the power imbalance in a food supply chain dominated by transnational corporations. For example, Ivan Hopkins (personal communication, 28 May 2015), Head of Catering and Hospitality at Nottingham Trent University, relies on an 'infrastructure of the middle' company such as Owen Taylor and Sons Ltd, a local family-owned butcher, for the meat the university purchases. By purchasing in significant quantity, Hopkins is helping to ensure that Owen Taylor will thrive and retain its independence from mainstream retailers. Jaco Lokker (personal communication, 13 July 2015) at the University of Toronto buys produce directly from nearby Carron Farms without requiring rebates. Partly because of regular purchases from Lokker, Carron Farms decided to shift its business strategy to primarily local sales, with institutional sales being a significant component of this. John Wood (personal commu-

- nication, 2 June 2015), Operations Manager at BaxterStorey, a UK-owned caterer that provides food service to the University of the Arts London, claims he and his UAL colleagues have been able to create more sustainable supply chains for a variety of products, including chicken, pork, free-range eggs and frozen peas. These are instances of how high-volume orders can support mid-sized producers and encourage them to expand into new markets moving towards more environmentally and socially sustainable production to meet the needs of institutions.
2. *Civil society organizations (CSOs)* – Much of the leadership in sustainable local food work has been initiated by public interest CSOs that work on both public policy goals and supply chain issues that are normally seen as the purview of for-profit businesses (Friedmann, 2007; Orme et al., 2011; Blay-Palmer et al., 2013; Campbell and MacRae, 2013; Morgan and Morley, 2014). CSOs are logical champions and members of any supply chain with public interest goals that involve partnerships bridging distinct communities. This manifests the role of civil society organizations as social entrepreneurs, not just charitable service providers. The people directly responsible for food-service operations at the three universities profiled – Jaco Lokker (currently Director of Culinary Operations and Executive Chef for the St. George campus of the University of Toronto), Ivan Hopkins (Head of Catering and Hospitality at NTU), and Alastair Johns (Head of Retail and Catering at UAL) – all emphasized the importance of independent third-party standards developed by CSOs, as well as their ongoing support. Lokker (personal communication, 13 July 2015) confirms the importance of ongoing and persistent work at relationship building: ‘It’s all well and good to say “okay, we connected you, and now we’re going to walk away.” But when you have issues, you need to go back to that third party to bring it back together.’
  3. *A tool to measure progress towards sustainability* – Farmers with enough volume to sell to people with whom they have no direct relationship need to have a certification tool to vouch for their authenticity. Otherwise, they risk having their value proposition diluted by charges of greenwashing. Certification standards can encourage continuous improvement among participants, as well as provide third-party verification of the value proposition offered by certified farmers. ‘One of the biggest values was making sure the farmers were vetted. That’s where I saw value in LFP because everyone says “How do you know that farmer is responsible?” Well, now I can tell you how I know’ (Lokker, personal communication, 13 July 2015).
  4. *Individual champions* break down silos within an institution, which is essential to make a new multifunctional approach to food procurement possible. In addition to advocating the use of procurement to leverage a wide range of benefits for both the institution and society, champions hold a position of some authority and possess a range of social skills and knowledge competencies that permit them to move the agenda. Typically, sustainable food champions are senior administrators, sustainability and food-service department heads, chefs, and managers/owners of key food suppliers. Champions are essential in this phase of development because the functions they are fulfilling lack system embeddedness, and therefore require unusual levels of personal courage, talent and creativity. Numerous champions at all levels were essential for the successful implementation of the Food for Life Catering Mark and the Local Food Plus

programme at the institutions studied.

For example, David Clandfield (personal communication, 4 May 2015), a senior administrator at the University of Toronto, now retired, championed the introduction of the LFP programme at the University of Toronto. Under Clandfield, the University of Toronto had pioneered an academic programme in Equity Studies, and wanted to demonstrate the university's commitment to social justice and equity beyond the classroom.

Alastair Johns, another champion, authored UAL's Sustainable Food Policy, which overtly stated that, 'healthier, ethically sourced, more sustainable food may help to encourage lifestyle changes both inside and outside the university, leading to a positive impact on health and wellbeing, as well as the environment' (Lane and Johns, 2017). He then worked to implement this aspirational statement.

5. *Self-catered/self-operated foodservice or local independent food-service contractors* – As already discussed, the business model of global food-service companies – based on volume purchases of standardized low-cost food from anywhere – leads them to resist cost increases associated with support for local food security and sustainability. Mike Schreiner (personal communication, 25 July 2016), the co-founder and former vice-president of Local Food Plus, says global food-service corporations commonly discriminate against small and mid-sized producers by requiring high volume purchases and/or high levels of insurance, both often unachievable for smaller businesses. Consequently, food-service departments committed to sustainable local food orient to keeping ownership and management in-house, or contracting to local and independent providers. This was the case in all three examples studied here.
6. *Innovative suppliers* – Business to business relationships are fundamental to localized economies (Shuman, 2015). Many suppliers to foodservice companies are innovators interested in reconfiguring resources, not just mobilizing them (Marsden and Smith, 2005; Marsden, 2010), and therefore buy as much as possible from local producers. They include processors, distributors, aggregators, and allied food businesses. Support for such 'new food-economy SMEs' (Blay-Palmer and Donald, 2006) is both a boost to their sales and to their reputation in the larger community. For example, businesses such as Owen Taylor and Sons, a local butcher, and Millside-Barrowcliffe, a local produce distributor, were prepared to innovate and change their practices in order to respond to NTU's needs. In Canada, Carron Farms, the Norfolk Fruit Growers Association, and Harmony Organic Dairy were all examples of Ontario suppliers who underwent LFP certification in order to be able to supply the University of Toronto.
7. *Public policy and public education capacity* – Civil society organizations, anchor institutions, and food policy councils can educate the general public about public policy issues, and can challenge food oligopolies in the court of public opinion. This reaffirms the importance of public objectives in the way individuals, as citizens, evaluate food, and expresses a 'whole of government/whole of society' approach to sustainability (Dubée et al., 2014). Both the Soil Association and Local Food Plus considered public education an important part of their mandates. In Toronto, the Toronto Food Policy Council, which convenes a citizen body committed to local and sustainable food systems, played a key role in introducing the future leaders of LFP.
8. *Marketing and promotion capacity* – As in conventional food systems, supporters

of sustainable local food need to inform and influence individuals, as consumers, with a view to normalizing the decision to change buying and eating habits. Point of sale material, social media, trade shows, public food celebrations, public speaking, as well as consistent coverage in the mass media are essential to the visibility and branding of all sustainable goods. The universities themselves contributed significantly in this regard, as did the CSOs which spearheaded the certification programmes.

9. *Food hubs* – Like the hub of a wheel that brings the spokes together to share their collective strength, a food hub brings a variety of food producers and consumers together to share their collective strength and buttress their economic power. Hubs are places where food from small outlets can be aggregated, where unprocessed foods can be processed, and where food-based relationships and advocacy can be established. Within the ‘infrastructure of the middle’ model, hubs are ‘vehicles for sustainable transformation of the dominant food system’ (Blay-Palmer et al., 2013, p. 524). The universities themselves acted as food hubs, bringing together sustainable producers and processors. The CSOs acted as virtual hubs of information, expertise and relationship building (Campbell and MacRae, 2013).
10. *A connection to community and environment* – By its very existence, an ‘infrastructure of the middle’ organization makes two transformative statements. First, food is a public interest issue relevant to the economy, environment, health and community – not just a matter for private decisions and for-profit corporations. Second, small businesses, public agencies and individual citizens all have important roles to play by choosing foods that support community food security, community heritage, the local environment, local jobs and the well-being of community-based food producers.

## Conclusion

Clapp (2015, p. 305) argues that ‘distant agricultural landscapes’ make it easier for global corporations to externalize social and ecological costs and distance themselves from responsibility for them. Localized food systems, by contrast, confront the deeply embedded pricing mechanism of global food-service corporations. This system – composed of a handful of large purchasers and many smaller sellers – also serves to suppress prices by allowing corporations to circle the globe to find farmers who will produce food at a cheaper price, while limiting farmers to just a few potential buyers. A focus on local food has the potential to become transformative, because it offers farmers more individual sales opportunities, and begins to rectify the imbalance between buyer and seller. Through an exploration of case studies and an elaboration of ‘infrastructure of the middle’, this research attempts to identify some of the community assets and communities of practice that need to be in place in order to begin to overcome the impact of these forces. This article also confirms Markard et al.’s (2012, p. 956) definition of sustainability transitions as ‘long-term, multi-dimensional and fundamental transformation processes through which established socio-technical systems shift to more sustainable modes of production and consumption.’

At its most effective, ‘infrastructure of the middle’ is an ecosystem of operational relationships, a co-learning system that includes dialogue and negotiation, and a set of community relationships. Indeed, ‘infrastructure of the middle’ has the potential

to embrace elements of the entire food cycle, including inputs and food waste, both of which are often excluded from discussions about food supply chains, because their costs are typically externalized to the environment.

Both the Food for Life Catering Mark and Local Food Plus certification represent conscious attempts to reduce externalization to the environment, to shift responsibility for sustainability transition away from individual consumer behaviour and purchases, and look towards collective and policy responses through institutional procurement. Key informants at universities stated in several interviews that certification helped them to set procurement goals, and remain current on 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 win university contracts (Stahlbrand, 2016b). This represents a breakthrough in the dominant discourse about sustainability, which puts the onus of leadership responsibility on individuals, not institutions or governments.

In effect, 'infrastructure of the middle' is the operating system of a new framework for food-system analysis based on principles of environmental, social and economic sustainability. It is not only about connecting farmers to a market. It is about connecting citizen-farmers to citizen-consumers who share a common vision of a food system that affirms values of sustainability, equity and health. It is a prototype of a 'holistic model of the agri-food system' that addresses the 'grand challenge' of food security set out by leading UK biochemist Peter Horton and colleagues (2017, p. 2). As descriptions of operational changes in the three institutions discussed here reveal, sustainable local food transitions represent a sociotechnical revolution requiring new social and technical practices – and new social metrics for evaluating these practices – at every level.

In 2016, the University of Toronto decided to assume food-service operations on the St. George campus for all venues previously run by the food-service contractor Aramark, rather than enter into another contract with a global food-service company. Senior University of Toronto food-service administrators acknowledge that the LFP-University of Toronto partnership paved the way for that decision (Macdonald, personal communication, 22 August 2016; Lokker, personal communication, 25 August 2016).

Rather than requiring local farmers or processors to match their production to meet the needs of large-scale food purchasers, this article posits that scale is a matter of infrastructure, and that 'infrastructure of the middle' firms, such as mid-sized aggregators and distributors that meet the needs of mid-size farmers, can provide a link to larger purchasers such as universities without requiring producers themselves to 'scale up' at the risk of diluting their value proposition or sustainability. Public sector institutions – and their food-service directors and chefs – can play a role in shaping the food system to respond to institutional, producer and societal needs. If we accept that the overall project is about values-based food, not just supply chain reform, then the policy dialogue needs to be framed in terms of public values, public goods and public purposes, and cannot be based primarily on aspects of private markets, such as product differentiation and collaboration among private sector actors.

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