

A TYPOLOGY OF “INFRASTRUCTURE OF THE MIDDLE” IN UNIVERSITY FOOD PROCUREMENT IN ENGLAND AND CANADA: ELABORATING THE “TO” IN “FARM TO CAFETERIA”

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ABSTRACT

This article introduces a new term – “infrastructure of the middle” – and explains how it helps understand how sustainability transition will happen in the food system. The evidence comes from 67 interviews with leaders of university food procurement initiatives in England and Canada. As founder and former president of the civil society organization which played a central role in the Canadian example, I bring a perspective informed by praxis, both as a practitioner and as a scholar applying Sustainability Transition Theory. I adapted the term infrastructure of the middle from Kirschenmann et al.’s concept of “agriculture of the middle”, which describes the mid-size farms and ranches most at risk in a globalized food system. Infrastructure of the middle refers to the resources and networks that create a critical mass, enabling mid-size sustainable food producers to meet the needs of foodservice clients, especially public sector institutions.

Keywords: Infrastructure of the Middle; University Food Procurement; Sustainability Transition.

UMA TIPOLOGIA DA “INFRAESTRUTURA MEDIADORA” NA AQUISIÇÃO DE ALIMENTOS POR UNIVERSIDADES NA INGLATERRA E NO CANADÁ: ELABORANDO O “PARA” NO “FAZENDA PARA O REFEITÓRIO”

RESUMO

Este artigo introduz um novo termo – “infraestrutura mediadora” – e explica como esse conceito pode ser instrumental para o entendimento da transição sustentável nos sistemas alimentares. Para tal, parte de um estudo de caso em duas universidades inglesas e uma canadense por meio da realização de 67 entrevistas com atores envolvidos em iniciativas de aquisição de alimentos sustentáveis nessas universidades. Como fundadora e presidente de uma ONG que desempenhou um papel central no exemplo canadense, a abordagem traz uma perspectiva informada pela práxis, mas também mediada pela reflexão acadêmica, por meio da aplicação da Teoria da Transição para a Sustentabilidade. Adaptado de conceito original de Kirschenmann et al., o termo “infraestrutura mediadora” refere-se a recursos, instalações e redes que criam uma massa crítica que permite aos produtores de alimentos de médio porte atender às necessidades dos consumidores, especialmente em instituições públicas.

Palavras-chave: Infraestrutura mediadora. Aquisição de alimentos por universidades. Transição para a sustentabilidade

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INTRODUCING "INFRASTRUCTURE OF THE MIDDLE"

This article introduces a new term – infrastructure of the middle – and explains how it helps understand how sustainability transition will happen in the food system. The evidence comes more than 60 interviews with leaders of university food procurement initiatives in England and Canada. As founder and former president of Local Food Plus, the civil society organization which played a central role in the Canadian example, I bring a perspective informed by praxis, both as a practitioner and as a doctoral candidate writing about an application of Sustainability Transition Theory (STT).

I adapted the term “infrastructure of the middle” from Kirschenmann et al.’s concept of “agriculture of the middle”, which describes the mid-size farms and ranches most at risk in a globalized food system. These farms and ranches “operate in the space between the vertically-integrated commodity markets and direct markets” (KIRSCHENMANN *et al.*, 2008, p. 3). They are big enough to meet the quality needs of large-volumes purchasers, but not so big that they are locked into commodity production for the global industrial food system (*Idem*).

In this article, I use the term “infrastructure of the middle” to emphasize the essential role of infrastructure in connecting mid-size farmers to regional public institutions – an opportunity for large-volume sales. Usually, such institutions rely on global distribution and foodservice corporations, which typically exclude mid-size farmers and processors. Infrastructure of the middle refers to the resources, facilities and networks that create a critical mass, enabling alternative food producers to meet the needs of high volume, high profile foodservice clients, especially public sector institutions. Like mid-size farmers, infrastructure of the middle is disappearing (CONSTANCE *et al.*, 2014; NOLAN, 2010; WALKOM, 2008,

2013), and needs to be strengthened if sustainable local food is to become the norm.

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”¹. With food systems, this usually refers to roads, warehouses, processing and distribution facilities. Infrastructure of the middle, by contrast, is an expansive term that also includes “soft” infrastructure. In effect, infrastructure of the middle encompasses the moving parts of a socio-technical system needed for food system transformation.

This article will present a typology for infrastructure of the middle, and place it in the context of SST. I extend the range of STT to public sector food procurement and argue that public sector procurement – specifically at universities – is a key tool for sustainability transition. The STT framework used in this article is a modified version of the Multi-Level Perspective (MLP), an approach to sustainability transition elaborated by GEELS (2002, 2004, 2005, 2007, 2010, 2011). I have modified the MLP with a “social practices approach”, which puts greater emphasis on agency (RAUSCHMAYER; BAULER; SCHÄPKE, 2015; SHOVE; WALKER, 2007, 2010). I will first explain why universities are critical to sustainability transition in food, then present the typology, and illustrate how the typology can be applied to successes of university food procurement in England and Canada.

1. THE UNIVERSITY AS A SITE OF SUSTAINABILITY TRANSITION

Scholars have noted a recent flourishing of alternative food projects, networks, businesses and movements which promote more sustainable local food systems (ACKERMAN-LEIST, 2013; BLAY-PALMER *et al.*, 2013; FEAGAN, 2008; GOODMAN; DUPUIS, 2011; HINRICHS, 2003; MORGAN; MARSDEN; MURDOCH, 2006; MOUNT,

1 <https://www.oxforddictionaries.com/>

2011), However, alternative food channels and food represent a tiny percentage of food sales² (AGRICULTURE AND AGRI-FOOD CANADA, [n.d.]; ELITZAK, [n.d.]). University procurement is pivotal at this juncture because it presents an opportunity for “scaling up” the volume of sustainable local food across the food system (BARLETT, 2011; FRIEDMANN, 2007; MORGAN, 2008; MORGAN; MARSDEN; MURDOCH, 2006; MORGAN; MORLEY, 2014; MORGAN; SONNINO, 2008; ROBERTS; ARCHIBALD; COLSON, 2014)” This paper reports on a relationship between the University of Toronto and a non-profit, non-governmental (“third party”), and “scaling out” new procurement models that make scaling up viable.

Creative public procurement to advance sustainable local food systems is overwhelmingly based in the education field (MORGAN; SONNINO, 2007, 2008). Besides providing a rich site for development of food system transition theory, publically-funded universities are common to both England and Canada. Universities differ from other public sector institutions in that they have neither a monopoly over a service nor a captive population (as is the case in prisons, hospitals or elementary schools). Thus, universities are subject to popular and client pressure in ways few public institutions are. Universities must respond to a client group – students – who increasingly demand values beyond price (including fair labour practices, environmental stewardship and animal welfare, among others) in food procurement and university policy generally (GRIGG; PUCHALSKI; WELLS, 2003; MGONIGLE, 2006; PARK; REYNOLDS, 2012; RAYNOLDS, 2002; ROBERTS; ARCHIBALD; COLSON, 2014).

Universities are also uniquely place-specific and place-dependent. Frequently named after the city in which they are located, universities are often connected with the communities surrounding them in numerous ways (SHAW; ALLISON, 1999). Increasingly, uni-

versities are understood as “anchor institutions”, which have been identified as “among a region’s biggest employers and purchasers of goods and services” (DRAGICEVIC, 2015, p. 5). Such institutions have economic power that can be converted into “anchor missions”, defined as “the deliberate and strategic use of resources to benefit communities” (*Idem*). With the decline of manufacturing in Europe and North America, such institutions play a pivotal role 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; FRANKLIN, 2013).

2. THE MULTI-LEVEL PERSPECTIVE

The Multi-Level Perspective has its roots in sociological work on technological change, and focuses on the interplay of socio-technical systems, social groups in society who maintain these systems, and regimes or rules that guide these social groups (GEELS; KEMP, 2007). The MLP identifies three components in the process of transition or socio-technical “regime shift” – niches, regimes and landscapes. The central point of the MLP is that the interplay of these three components, at different levels and in different phases, leads to socio-technical system change.

According to the MLP, niches are protected spaces where innovations can be nurtured. Theoretically, when managed strategically, innovative niches may rise to challenge a regime (GEELS, 2002). Regimes are defined as the critical level, setting out “the specific rules of the game” (SPAARGAREN; LOEBER; OOSTERVEER, 2012). The landscape is the broader context – social, technical and environmental – that can influence the relationships between niches and regimes. The landscape level represents the material context of society (how cities, roads, energy infra-

² Figures drawn from Agriculture and Agrifood Canada suggest that food sold through alternative channels may account for about 1% of total food sales.

structure, etc. are configured), as well as a mix of additional factors such as climate change, wars, oil prices, water availability, and cultural values (GEELS, 2002). Geels calls the MLP a “process theory”, in that the analyst “needs to trace unfolding processes and study event sequences, timing, and conjunctures” (GEELS, 2011, p. 35).

An essential concept underlying STT is that transitions require intervention to break the momentum of old patterns or “path dependence” and “sunk investments” (GEELS, 2010). Agency – in the form of people who develop and use policies and programs that construct sustainability initiatives – is essential. Transitions are structural changes that lead to new power relations, new players and new technologies.

3. TOWARDS A TYPOLOGY OF “INFRASTRUCTURE OF THE MIDDLE”

The concept of infrastructure of the middle is anticipated by Renting et al. in their 2003 exploration of “short food supply chains” (SFSC) in rural development (RENTING; MARSDEN; BANKS, 2003). SFSCs, they write, serve to “resocialize and respatialize food, thereby allowing consumers to make new value judgements about the relative desirability of foods based on their own knowledge, experience, or perceived imagery” (RENTING; MARSDEN; BANKS, 2003, p. 398). They argue that the word “short” is relevant in three ways. SFSCs ““short-circuit” the long anonymous supply chain” of the industrial food system; they create transparency which can provide information about quality and values (environmentally sustainable practices, humane treatment of animals, and fair labour practices, for example); and they shorten relations between where food is produced and where it is consumed, and thereby personalize the responsibility of produc-

ers and consumers (RENTING; MARSDEN; BANKS, 2003).

SFSCs arose from “the active construction of networks by various actors in the agri-food chain, such as farmers, food processors, wholesalers, retailers, and consumers” (RENTING; MARSDEN; BANKS, 2003, p. 399). With this phrase, Renting et al. anticipate the human agency and social construction, both of which are key to the expanded notion of infrastructure of the middle presented in this article.

The concept of infrastructure of the middle addresses a deep-rooted problem in both the scholarly literature and the public discourse about sustainable local food systems. Both discourses understate the central roles of human agency and infrastructure in the transition to sustainable local food *systems*. Public discourse can be summarized by the titles given to typical programs featuring sustainable local food – “farm to school”, “farm to cafeteria”, “farm to fork” and “field to table”, for example (HEISS *et al.*, 2015; IZUMI; WRIGHT; HAMM, 2009; IZUMI; WYNNE WRIGHT; HAMM, 2010; NG; BEDNAR; LONGLEY, 2010).

In this discourse, an entire and complex set of tasks within the food system is covered by the one little word “to”. While much of the early alternative food projects did feature direct producer to customer relationships³, foodservice on any significant scale requires the inclusion of many intermediaries. Yet the notion of direct relationships imbues the mindsets of both practitioners and scholars. As a result, a discussion of infrastructure is absent from scholarly articles (IKERD, 2011; YOUNGBERG; DEMUTH, 2013).

Many discussions of infrastructure in recent scholarship highlight the central role of hubs (BLAY-PALMER *et al.*, 2013; CLEVELAND *et al.*, 2014; HORST *et al.*, 2011; LEBLANC *et al.*, 2014; LERMAN; FEENSTRA; VISHER, 2012; MORLEY; MORGAN; MORGAN, 2008; ROGOFF, 2014;

³ Community supported agriculture (CSA) and farmers markets are examples of early forms of this direct producer to customer relationship which shaped the creation of these terms.

STROINK; NELSON, 2013). I emphasize that food hubs are best understood as one part of the infrastructure necessary for a sustainable local food system, and that they must be supported and allied with other actors with relevant capacities. Each of the elements in my typology of infrastructure of the middle refers to an actor with particular capacities. I suggest that the emphasis should be on the universe of relationships, rather than on the hub.

This article attempts to establish the centrality of infrastructure of the middle and identify its key elements. Each of these elements is a “disruptive innovation” within the existing regime, in that each presents “a different package of attributes valued only in emerging markets remote from, and unimportant to, the mainstream” (CHRISTENSEN, 2003, p. 6). In effect, infrastructure of the middle refers to a new “nexus of practice” for food system transformation (SHOVE; WALKER, 2007). This typology establishes the elements present in successful sustainable local food initiatives at the institutional level.

Based on my experience and analysis, I identify ten actors with distinctive capacities which comprise infrastructure of the middle capable of food system transformation.

1. Anchor institutions. 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 use the clout of their purchasing power to create long-term stable markets that attract mid-size farmers and processors. In addition, anchor institutions are respected players in society, and lend credibility to initiatives to scale up sustainable local food systems, thereby propelling these initiatives from the margins towards the mainstream.

2. Civil Society Organizations.⁴ Civil society organizations (CSOs) are prime movers. This is major shift because the food sector is generally considered the purview of the private sector. However, evidence suggests that much work related to the development of sustainable local food systems has been initiated by civil society organizations. (BLAY-PALMER

et al., 2013; CAMPBELL; MACRAE, 2013; FRIEDMANN, 2007; MORGAN; MORLEY, 2014; ORME *et al.*, 2011) Government has not invested significantly in infrastructure for sustainable local food. The heavy lifting traditionally performed by government has been performed by CSOs. CSOs are essential connectors, facilitators and strategists. (BLAY-PALMER *et al.*, 2013; FRIDMAN; LENTERS, 2013). They also can develop the range of scarce professional skill sets around food procurement and sustainability that are not always easy to find in the public sector (MORGAN; MORLEY, 2014).

3. Tools to measure progress towards sustainability. Scaling up means selling to people with whom there is no direct relationship, frequently through a third party 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 protecting producers from greenwashing and dilution of their values proposition. Standards and certification schemes establish guidelines that create opportunities for dialogue, learning, and continuous improvement among practitioners. They are a way to measure progress. These tools must be flexible, science-based, affordable, and relatively easy to explain, implement and modify.

4. Individual champions. Although alternative food networks have been developing since the 1990s (GOODMAN; WATTS, 1997; MARSDEN; MURDOCH; MORGAN, 1999), my practitioner experience, as well as independent scholarship (MORGAN; MORLEY, 2014), indicate that the food movement is at a stage where individual champions play an indispensable role in establishing and maintaining the relationships necessary for sustainable local food initiatives. Champions are the ones who 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 them all. In addition to being committed to sustainability principles, champions must hold a position of some authority, and possess a range of social skills. They must

⁴ How these civil society organizations will be funded over the long term is a complex and critical issue that I intend to address.

also be collaborative, solutions-oriented, pragmatic and models of competency.

5. Self-catered/Self-operated food-service or domestic foodservice contractors. (The term “self-catered” is more common in the UK, while “self-operated” or “self-op” is more common in North America.) In a mature system, infrastructure of the middle would feature self-operated foodservice units or mid-size domestic foodservice contractors. Currently, global foodservice contractors are the norm. However, their business model – based on volume purchases of standardized low-cost food from anywhere – is incompatible with sustainable local food systems. This is because sustainability involves inserting other values into purchase criteria, and local food inherently restricts placeless volume purchases. Global foodservice corporations have rules and regulations that discriminate against mid-size producers. Minimum volume requirements or minimum insurance requirements, for example, can exclude mid-size farmers. Self-catered/self-operated foodservice is more open to mid-size producers and offers greater flexibility. Reclaiming foodservice also begins to displace the path dependent thinking which assumes that food is an ancillary, rather than an essential, service of the institution.

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. They must be collaborative, open to exploring new approaches, and interested in differentiating themselves in the marketplace.

7. Public policy and public education capacity. In pioneering scenarios, this role may be played by a CSO or an anchor institution. But in a mature system, the function of public policy development, public education, and the promotion of food literacy is performed by an actor with dedicated capacity, such as a food policy council. This is essential because it contests the hegemonic activities of global food companies, which includes lobbying and

public campaigns (the campaign to prevent labelling of foods containing genetically-modified organisms is one example). Finding space in a food system increasingly monopolized by global corporations (CONSTANCE *et al.*, 2014; ETC GROUP, 2013) requires infrastructure of the middle to make the case for a sustainable local food system, and for public policy that evens the playing field. This includes policies and legislation that support “multiscalar and multidimensional strategies for regional development” (BLAY-PALMER; DONALD, 2006, p. 394), such as sustainable local procurement. 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.

8. Marketing and promotion. Few businesses of the middle have the capacity to do significant marketing and promotion, yet they are in competition with an industry that spent \$4.6 billion in 2012 on fast food advertising alone. Indeed, McDonald’s advertising spend was 2.7 times that for fruit, vegetables, bottled water and milk combined (HARRIS *et al.*, 2013). Marketing and promotion capacity is essential to motivate and justify alternative 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.

9. Connection to community and environment. Infrastructure of the middle puts the culture back in agriculture, while challenging “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 sustainability. Externalizing the costs of agribusiness onto society and the environment flows easily from this presumption. By contrast, the underlying assumption of sustainable local food systems is that food is a public policy issue. Infrastructure of the middle has the potential to respond to the demand for foods that reflect such public goods as identity, heritage, environment, and so on.

10. 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.

4. TWO EXAMPLES OF INFRASTRUCTURE OF THE MIDDLE IN ACTION⁵

The next section will illustrate the typology of infrastructure of the middle using data collected in the UK and Canada between 2013 and 2015. It will examine two specific approaches to increasing procurement of sustainable local food in universities – both developed by CSOs – the Food For Life Catering Mark developed by the Soil Association in England and Certified Local Sustainable certification developed by Local Food Plus in Canada.

4.1 AN INTRODUCTION TO THE SOIL ASSOCIATION AND THE FOOD FOR LIFE CATERING MARK

The Soil Association, which describes itself as “the UK’s leading membership charity campaigning for healthy, humane and sustainable food, farming and land use”, developed and manages the Food For Life Catering Mark. The Catering Mark was designed to support the work of the Food For Life Partnership, a program designed to transform food culture in British schools through tastier, healthier and more sustainable meals,

combined with an emphasis on food literacy, growing and cooking. The Catering Mark provides third party certification to foster increasingly sustainable and healthy food. 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. 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. More than 1.2 million certified meals are served each day.

4.2 AN INTRODUCTION TO LOCAL FOOD PLUS AND THE CERTIFIED LOCAL SUSTAINABLE STANDARDS

Local Food Plus (LFP) certification encourages farmers to move toward more sustainable practices. The launch of the University of Toronto-LFP partnership in 2006 represented 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.

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. 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

⁵ Prior to pursuing a PhD, I was the founder and President of Local Food Plus, and played a key role in the development of LFP’s standards and their implementation at the University of Toronto. The initial connection with U of T foodservice came as a result of a course I taught in the Equity Studies Program at New College, a college of the U of T. New College operates a residence cafeteria which feeds more than 800 students a day. This cafeteria became one of the early sites for the implementation of the LFP program. I currently teach at New College.

“Certified Local Sustainable” and use the LFP certification seal.

5. APPLYING THE TYPOLOGY OF INFRASTRUCTURE OF THE MIDDLE⁶

Both programs shift responsibility for sustainability transition in the food system away from reliance on individual consumer purchases. For the universities involved, certification helped them set goals, and keep abreast of sustainability trends. For the farmers, processors and distributors, certification encouraged them to adopt more sustainable practices to gain and hold university contracts. For producers already Certified Organic, the programs opened significant and stable markets.

In both the UK and Canada, all ten dimensions of the typology of infrastructure of the middle were present.

1. Anchor institutions. Universities in both countries qualify as anchor institutions. The English case studies are Nottingham-Trent University and the University of the Arts London (UAL). Nottingham-Trent is a university of about 27,000 students in the Midlands city of Nottingham with a self-catered food service. UAL is a multi-campus university of about 26,000 students in downtown London. The Canadian case study is the University of Toronto, one of the largest universities in North America, with about 85,000 students over three campuses. At the time of this research, it had both self-operated units and cafeterias operated by Aramark, a global food-service company.

2. Civil Society Organizations. There were entrepreneurial CSOs in place actively promoting institutional procurement of sustainable local food.

3. Tools. Both CSOs had sophisticated certification tools to measure progress towards more sustainable local food.

4. Champions. Both the UK and Canadian cases studies feature champions in many key roles -- university administrators, heads of sustainability and foodservice, and chefs, for example. Partnering food suppliers also benefitted from in-house champions.

5. Self-catered foodservice or a domestic provider. In both countries, the facilities that achieved the best results were self-catered/self-operated units or domestic caterers, rather foodservice provided by transnational corporations.

6. Innovative private sector companies. All three universities worked closely with innovative private sector companies, including farmers, processors and distributors. Several of these organizations saw their university sales as part of a strategy to differentiate themselves in the market.

7. Public policy and public education capacity. 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. 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. Sustainability requirements were important and prominent features of both certifications. Public policy goals were explicitly recognized in both countries.

10. Food hubs. 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.

6. SUSTAINABILITY TRANSITION THEORY AND INFRASTRUCTURE OF THE MIDDLE

Kirschenmann et al.’s insight expressed in the concept of “agriculture of the middle”, while powerful, flows from the productionist paradigm of mid-20th century industrial agriculture – a paradigm that puts primacy on agricultural production, rather than on the supports

⁶ For a full discussion of the case studies, see my PhD thesis, forthcoming

and services necessary for a community-based food system. Infrastructure of the middle gives prominence to the vast middle ground – the metabolic, geographic, sociological, and indeed physical rift (WITTMAN, 2009) – separating farmer from eater and eater from farmer. The concept of infrastructure of the middle, which includes social as well as physical infrastructure, can begin to heal this separation by re-embedding the economy into society. Moreover, there is a growing realization that both the economic and social spheres must be embedded in the environmental sphere, the life support system of the planet.

The concept of infrastructure of the middle acquires its theoretical significance from the MLP's identification of the centrality of the niche-regime interaction, and the socio-technical systems required for transition. However, the MLP does not adequately capture the level of contestation involved in establishing niches and challenging the regime. A more appropriate term than niche might be "beachhead" or "toehold" to reflect the more tenuous nature of the niche's challenge to the existing regime around food procurement. The MLP also underemphasizes the complexity of the landscape, which includes factors such as government subsidies, regional and national regulations and legislation, tax law and international trade agreements, not to mention the unpredictable impact of climate chaos and changing weather patterns. As well, the MLP does not adequately recognize the importance of individual champions to allow the toehold to become established in the first place, and protect and nurture it within the foodservice regime.

The typology presented here attempts to deepen the conceptualization of the MLP in particular, and STT in general, by challenging their implied narrative – that transition arises from incremental niche expansions within a regime. By contrast, the narrative made explicit by infrastructure of the middle indicates that the transition to sustainability requires confrontation because it inherently challenges the privilege and path dependency of the

mainstream foodservice regime. As such, sustainability itself represents a disruptive innovation in foodservice.

CONCLUSION

The shift to sustainable local food procurement requires new approaches to university food procurement, as well as a critical analysis of the dominant role of transnational corporations in university and public sector foodservice. Three global foodservice corporations – Sodexo, Aramark and Compass – and one global distributor, Sysco, have risen to prominence since the 1980s, during what food system analyst Philip McMichael describes as "the third food regime" (MCMICHAEL, 2013). This third regime is characterized by the "unprecedented market power and profits of monopoly agrifood corporations, globalized animal protein chains, growing links between food and fuel economies, a 'supermarket revolution', liberalized global trade in food, increasingly concentrated land ownership, [and] a shrinking natural resources base" (HOLT GIMÉNEZ; SHATTUCK, 2011, P. 111; cf. MCMICHAEL, 2013).

One of the stated goals of Renting et al.'s work on SFSCs is to assess whether the growth of SFSCs constitutes a countermovement with the potential to challenge industrial agriculture, or a series of short-term local initiatives (RENTING; MARSDEN; BANKS, 2003). Using the language of the MLP, this article argues that when SFSCs are conceptualized as infrastructure of the middle, and linked with public institutions such as universities, niches or toeholds can be created that begin to give mid-size farmers the critical mass they need to contest a commodity-based food system and challenge the existing global agro-industrial regime. However, the process is much more disruptive and confrontational than the MLP suggests. As Blay-Palmer and Donald note, "large firms are reformulating the rules of the game for small suppliers, transforming traditional supply chains, making it more difficult for smaller players to maintain their

presence in the market or for new players to enter it” (BLAY-PALMER; DONALD, 2006).

This article argues that the missing link in scaling up and out sustainable local food systems is not the inability of farmers to produce food, but the weakness of the infrastructure of the middle – the connective tissue. As Senge notes, “transforming systems is ultimately about transforming relationships among people who shape those systems” (SENGE; HAMILTON; KANIA, 2015, p. 6) and involves embodying an ancient understanding of leadership; the Indo-European root of “to lead”, *leith*, literally means to step across a threshold – and to let go of whatever might limit stepping forward (SENGE; HAMILTON; KANIA, 2015, p. 2). The concept of infrastructure of the middle is crucial because it embeds public sector food procurement in communities, nature, and economies. As such, it has the potential to be the midwife of an emerging sustainable local food system.

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