Developing Mid-Tier Supply Chains (France) and Values-Based Food Supply Chains (USA): A Comparison of Motivations, Achievements, Barriers and Limitations

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Developing Mid-Tier Supply Chains (France) and Values-Based Food Supply Chains (USA): A Comparison of Motivations, Achievements, Barriers and Limitations

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Abstract: Mid-tier supply chains/values-based food supply chains have emerged, in both France and the United States, as viable alternatives for small and mid-sized farms that had previously struggled. These supply chains deliver more products to a larger region than short supply chains such as farm-direct markets and are distinguished from the dominant long supply chains by (1) products that are differentiated from the mainstream based on superior quality, environmental stewardship and social responsibility; and (2) the characteristics of the strategic relationships that link the supply chain participants. On the demand side, regional supermarkets, restaurants, public and private institutional buyers, and individual consumers have demonstrated their eagerness to seek out and pay premiums for these types of high-quality food products that are delivered via trusted and transparent supply chains and characterized by their authentic farming stories. The set of case studies presented in this paper (three from each country) will highlight both the parallels and differences in the development of these innovative supply chains between two countries with quite dissimilar agricultural and food sector traditions and policies.

Keywords: values-based food supply chains; mid-tier supply chains; comparative analysis; France/the United States

1. Introduction

In both France and the United States, mid-tier supply chains and values-based food supply chains have emerged as viable alternatives for some small and mid-sized farms that had previously struggled. These new supply chain configurations have succeeded by occupying a market niche left vacant by short and long supply chains. They deliver more products to a larger region than short supply chains such as farm-direct markets and they provide products that are differentiated from the dominant long or mainstream supply chains through superior quality, environmental stewardship, and social responsibility.

This paper presents case studies of these new systems and the underlying concepts and philosophies that explain and justify them. In both countries the dominant food system consists of large-scale, long supply chains. In France, two approaches "territorial food systems" (TFS) (système alimentaire territorial) [1] and "localized agrifood systems" (LAS) (système alimentaire localisé) [2] developed based on the recognition that territorial or place-based supply chains can be effective alternatives to globalization and long supply chains. More recently, in France, "mid-tier supply chain"

(MTSC) (système alimentaire du milieu) [3], has emerged as a designation for other supply chains that are intermediate in size and are not as strictly defined by either territory or the geographic proximity of stakeholders.

In the United States, local food systems (LFS) [4] and organic production systems (OPS) [5] have represented the most significant alternatives to the mainstream food supply chain. It was because of the limitations of these two approaches that "values-based food supply chains" (VBFSCs) [6–8] developed as a strategy for "farms of the middle" that is based on mid-scale farms organizing themselves, producing high quality farm products, and forming strategic relationships with other supply chain participants.

This paper will first present and discuss the different concepts that define these mid-tier supply chains and then examine a set of case studies, three from each country, to highlight the parallels and the differences in the development of these innovative supply chains in two countries with quite dissimilar agricultural and food sector traditions and policies.

2. Materials and Methods

The theory section is based on a bibliographic review of French and American research. We relied mainly on the seminal papers that developed the concepts listed in the previous section. The comparative analysis of case studies is based on a field survey. In order to make comparisons between the two countries, we examined three MTSCs in France and three VBFSCs in the United States. The case studies vary in terms of size (number of stakeholders, volume sold), types of stakeholders involved, and economic strategy. The detailed analysis of the case studies is based on interviews of participants in each supply chain (farmers, processors, distributors, retailers and supporting partners such as public funding bodies or public or private advisors, at least three people for categories with numerous people like farmers), website visits, and analysis of documents. For each case study, we collected data about its origin, size, geographic scope of both production and distribution and the products sold. We also obtained qualitative information about price differences, as compared to a standard product for farmers and/or for consumers. During interviews the main topics discussed were market strategy, organization, relationships between stakeholders (especially strategic partnerships), and shared values.

The case studies are:

- France:
    - Pain de Belledonne [9]
    - Filière CRC La Forézienne [10]
    - La coopérative Vercors Lait [11]
- United States:
    - Organic Valley [12]
    - Shepherd's Grain [13]
    - Country Natural Beef [14]

3. Theoretical Foundations

The concepts that define these new food system configurations are based on different theoretical foundations and emphasize different food system features. The French approaches are mainly based on the concept of territory—the belief that place-based supply chains can provide positive outcomes from producers through to consumers. For example, in France, localized agrifood systems highlight the origin of the products and are closely linked to the concept of "terroir". In the U.S., the focus is more on local and products that can be traced back to specific groups of farmers. This section provides a detailed analysis of these concepts.

3.1. Alternatives to the Mainstream: Geographical Indications, Localized Agrifood Systems, and Territorial Food Systems (France); Local Food Systems and Organic Agriculture (U.S.)

The European Protected Designation of Origin (PDO) is a protection scheme for agricultural products and foods that are produced and processed in a given geographical area using clearly delineated and recognized techniques. In Europe, "traditional" or "typical" products often carry this type of geographical indication. PDO have been used extensively to protect and to promote wine, spirits, and also cheese and meat products. Origin labeled products are seen both as manifestations of quality and endogenous supply chains [15] and as an alternative to the conventional agricultural model [16]. Despite its successes, the European PDO model has two significant limitations. First, the process to obtain a PDO is long and arduous and is restricted to the production of place-based products that are defined by very specific standards. Second, the PDO label does not guarantee farm-level or market-level price premiums.

Built upon a strong tradition of local food markets, the French localized agrifood system (LAS) approach defined as "production and service organizations (agricultural and agrifood marketing, services and gastronomic enterprises, etc.) linked by their characteristics and operational methods to a specific territory" emerged during the 1990s [17]. "The environment, products, people and their institutions, know-how, culinary traditions and relationship networks get together within a territory to produce a type of agricultural and food organization in a given spatial scale" [17] (p. 8). It is this collective sharing of values and knowledge associated with a territory that confers particular qualities to the product [2]. The LAS concept allows researchers to analyze supply chains more complex than short supply chains sensu stricto by taking the territory as the point of reference both to determine the products that qualify and as a relevant scale for collective action.

More recently, from a macroeconomic perspective, Rastoin [1] proposed the notion of territorial food systems (TFS) to describe intermediate systems located between the agro-industrial system of mass-market production and the very small and fragmented systems working at the scale of the farm or village in a self-sufficient economy. He defines a TFS as a "consistent set of supply chains located in given geographic area of regional size" [1] (p. 30).

A territorial food system is thus composed of a set of supply chains that furnishes a significant contribution to a region's food supply. It groups together all the initiatives run by producers, consumers, companies, regional and local authorities engaged in a collective dynamic that organizes local resources and integrates food supply chains within a region. While territory remains a core component in the configuration of TFS, their key contribution are participative governance and their broad range of ambitious goals: quality of products, social and economic equity, favoring family farms and small and medium agrifood businesses, sustainable management of natural resources, and preservation of cultural heritage.

In the U.S., organic agriculture emerged in the 1990s as an alternative to the dominant production system and has continued to gain a larger share of the market. However, even as organics have expanded, their overall environmental and social impacts have been questioned. Many observers conclude that organics has become another version of the mainstream food system [5,18].

The U.S. focus on Local Food Systems (LFS) developed as a second response to a dominant agro-industrial system that was not meeting the needs of some consumers and producers [4,19]. The rapid development of farmers markets, Community Supported Agriculture (CSA) farms, and other local initiatives had already become a full-fledged movement in 2007 when "locavore" was selected by the New Oxford American Dictionary word of the year. Although most of the attention was focused on fresh products sold directly to consumers, a 2011 United States Department of Agriculture (USDA) study documented that sales of local products through intermediated channels were three times as great as direct sales. A still unresolved question is how local should these new food systems be with one influential paper arguing that regional systems make more sense than very local ones [20].

3.2. Emerging Concepts Providing Additional Alternatives: Mid-Tier Supply Chains (France) and Values-Based Food Supply Chains (U.S.)

The very recent French formulation of mid-tier supply chains (MTSC) [3] provides a name for a set of features common to a range of heterogeneous initiatives. They differ from short supply chains because they involve more intermediaries and deliver more products to a larger region than short supply chains. Their intermediate size requires them to set up more structured forms of organization than short supply chains because they must optimize logistics and minimize production costs. Even though they may include some participants from the dominant agro-industrial economy, these supply chains still represent something distinctive because they operate on a smaller scale in terms of volume and number of contributors, the participants share common values, and the products are differentiated from mainstream products. A key additional challenge they face is to develop and maintain relationships between farmers and consumers who are not in geographic proximity. Indeed, while the coordination among supply chain participants continues to be built on interpersonal relationships, face to face relations between farmers and consumers in these supply chains are rare. Still, MTSC participants are working to maintain and to highlight the links between the food products and their environmental, social and cultural embeddedness. The MTSC (and the VBFSC below) are part of what Campbell [21] defines as a "Food from Somewhere Regime".

The French MTSC construct differs from other French concepts by its willingness to address the development of new diverse supply chains without making any pre-established assumption about the role played by different parameters, especially territory and the geographical proximity between stakeholders. MTSCs, are not exclusively linked to the concept of territory and may sometimes reach a regional or national scale. The conceptual challenge is to open the scope of analysis by using multi-perspective approach that links diverse components that other concepts tend to consider in isolation: Place-based, "terroir", territory, third-party versus own "certifications" based on trust, relationships between farmers and consumers, ecological sustainability, terms of trade, etc.

In the United States, the recognition that many small and mid-sized U.S. producers continued to struggle even with the development of vibrant local food systems led first to a focus on the problem of "agriculture of the middle" (AoTM) [8] and with a short delay to the recognition that numerous groups were experimenting with solutions now known as VBFSCs [6,7]. Working together academics and practitioners constructed a set of case studies focused on better understanding the key elements needed for the development of supply chains that fill a niche between direct (or short) supply chains and mainstream supply chains. AoTM addresses the business strategies set up by farms which, in the North American context, are too small to be competitive on the commodities market but too large to sell their products only through direct marketing channels.

VBFSCs are strategic alliances between midsized farms/ranches, and other supply chain partners who deal in sufficient volumes of high-quality, differentiated food products and distribute rewards equitably across the supply chain [8]. Central to these food supply chains are transparent and trusting relationships between partners that generate win-win outcomes for all parties [22]. Farmers function as strategic partners rather than easily replaced suppliers. These supply chains accord importance to both the values embedded in the production of the food products and the values characterizing the business relationships, higher and stable prices for each participant including the farmers, authentic farming story behind the product, high-quality food, ethical and social values, trust, transparency and cooperation between participants, ecological sustainability, etc.

3.3. Comparing and Contrasting These Concepts

Table 1 summarizes the different components that define these new supply chain configurations. They are based on different theoretical foundations and emphasize different features. The French approaches of PDO, TFS, and LAS are mainly based on the concept of territory, which refers to the idea that sets of place-based supply chains can produce positive outcomes from the producers through to the consumers. They assume that proximity between participants is an efficient precondition of

trust in business. The American LFS share many of these beliefs but is more firmly grounded in very localized production and consumption exchanges. Organic production in both countries is focused on how things are produced much more than where or by whom they are produced.

Table 1. Main concepts that define alternative supply chains.

Concept	Definition	Features Emphasized in the Supply Chain Analysis
Protected designation of origin (PDO)	European protection for agricultural products coming from a given geographical area and using recognized know-how	Geographical, cultural and historical identity of place-based products
Localized agrifood systems (LAS)	Farms and agrifood enterprises linked by their characteristics and operational methods to a specific territory	Territory, the "terroir" effect confers its qualities to the product
Territorial food systems (TFS)	A consistent set of supply chains located in a given geographic area of regional size	Territory and locally shared values related to sustainable production and food safety
Local food systems (LFS)	Food from here	Direct or close contact between producers and consumers
Organic production systems (OPS)	Characteristics of the production technologies used—no synthetic inputs or genetically modified seeds	Aside from the organic label, there are no unique features of the supply chain—can be either short or long supply chains
Mid-tier supply chains (MTSCs)	Multi-perspective approach of intermediate supply chains associating farmers and diverse intermediaries	Diversity of scales, key-player, modes of organization and values embedded
Agriculture of the middle (AoTM) and Values-based food supply chains (VBFSCs)	Strategies that fall between short and long supply chains set up by mid-sized farms and partners to sell their products	Farmers as strategic partners and not easily replaced suppliers. Story of the farmer and his family connects all the supply chain

The initial interest in the American AoTM problem, which led to the development of VBFSC strategies, placed the farm family and farm at the center. These mid-scale farms and family farming values are mobilized to create a story, and in fact may be given greater importance than third-party certifications, such as organic, which, although sometimes present are viewed as insufficient by some. Stassart [23] speaks of "logic of identity" for this process that qualifies at the same time the products and all the participants involved, from farmers to consumers.

MTSCs represent a further extension of the other French models. The major difference is that MTSCs put less emphasis on the concept of territory and therefore new MTSCs that are not restricted to a geographic location can emerge. Indeed, we note the development of MTSCs working at a national scale or creating a non-place based network with the help of internet and transportation logistics.

The similarities between the French MTSCs and the U.S. VBFSCs are much greater than their differences. Both seek to fill open niches within the broader food system by providing superior products and by focusing on fostering shared-values and equitable relationships among supply chain participants. In the U.S., many VBFSCs were motivated by concerns for the lack of competitiveness of mid-sized farms. As a result, these farms often play a central role in organizing and managing the supply chains and their stories are fundamental to the marketing messages. Two qualifying observations are needed. From the start, U.S. researchers recognized that the size of farms that would profit from participating in these supply chains is scale-related rather than scale-determined and many of the farms that participate are relatively large [24]. Second the article by Feenstra and Hardesty in this volume presents three U.S. VBFSCs that provide new opportunities for mid-sized farmers and have farmer-centric marketing messages but were initiated and are managed by supply chain participants other than farmers [25].

Still in a comparative sense, the French supply chains examined here are much less mid-size farmer focused and family farming values play a less central role. Furthermore, more frequently than is the case in the U.S., the supply chain organizers are intermediaries, such as private companies or cooperatives. In sum, the French MTSCs shift the focus from the farms to the whole supply chain.

A comparative analysis between French and American case studies will highlight the differences and similarities between the two countries. Table 2 provides a summary look at the six case studies.

Table 2. Presentation of the case studies.

Case Study	Origins and Products	Organization and Strategic Partners	Strategic Partners	Values
Pain de Belledonne (F)	1991, bread, biscuits and chocolates (all organic)	Private enterprise of 70 employees, 3 bakeries in France, distribution network covering the whole France	The baker who created the SME is the key player. Contracts with farmers	Local supply, craft work, organic, fair trade, environment
Filière CRC® la Forézienne (F)	2000, breads from superior quality certified flour, local supply chain (two departments)	80 farmers, a mill, cooperative for collection and storage of grains, 120 bakers	The head of the mill is the key player, strategic partnership between participants	Environment preservation, human scale of the supply chain, local origin
Coopérative Vercors Lait (F)	2003, cheeses from Vercors massif , one with a protected designation of origin (Bleu du Vercors Sassenage)	Dairy cooperative, 35 farms, 33 employees, 3 stores, an increasing network of retailers	The co-op is the key player (the manager and the president who is a farmer), the farmers and the retailers	Safeguarding dairy farms, terroir products and environment
Organic Valley (US)	1988, organic dairy and other products	Co-op of 1800 farmers in 30 states, multi-stage supply chain: dairies, transportation, retailing mainly in supermarkets	The farmers are the key players. The co-op develops strategic partnerships (contracts) with diverse companies to process and deliver the products	Ecological and economic sustainability, good tasting, nutritious food, cooperative principles
Shepherd's Grain (US)	2003, wheat flour grown sustainably	Limited liability company, 60 growers, a mill, sales agents, bakeries and restaurants	The 2 farmers at the origin of the company are the key players. Strategic partnerships with all participants	Story of farmers and supply chain, environment, high quality flours
Country Natural Beef (US)	1986, natural beef products	Co-op, 100 family ranches, a feedlot, slaughter facility financial/logistic associate, retailers	The farm families in the co-op are the key players. Strategic partnerships with private companies and retailers	Story of ranches and families, identity of the product, environment

4. Case Studies

4.1. Pain de Belledonne

In 1991, Bruno Anquetil, a baker, founded an organic bakery in the "Belledonne" mountain range (department of Savoy). Growth has been steady and he is now the head of a business with seventy employees and three bakeries, one in Savoy, one in Ile de France, and one in Midi-Pyrénées. "Pain de Belledonne" produces 3.5 tons of bread per day, four tons of biscuits per week, and chocolates. All products are organic. The distribution network covers all of France and includes direct marketing, organic food stores, and conventional supermarkets. The head of Pain de Belledonne gives priority to purchasing organic grains from growers equipped with their own small mills or from regional mills. Imports are limited to products unavailable in France such as cocoa.

Bruno Anquetil holds strong ethical, environmental, and social values. He participates in official third party certification programs, such as purchasing imported products certified by the Fairtrade Labelling Organizations (FLO) and flours certified "Bio solidaire". Bio solidaire combines the European organic agriculture regulations with a set of social and economic criteria (participation of employees and revitalization of rural areas). Anquetil has also formulated his own set of obligations such as the contracts he establishes with farmers that clearly specify the respective commitments and the terms for calculating prices. The company is also committed to preserving traditional methods and craft work (flour ground with a traditional grindstone) and to reducing its environmental impact (use of renewable energy sources and reduction of packaging).

Bruno Anquetil foresees two significant future challenges. First, in an increasingly competitive marketplace, he must both expand the product line while continuing to operate the business in line

with his values. Second, he also seeks to be an ambassador for the standard "Bio solidaire" and for the principles of solidarity and a sustainable economy. As a part of this goal in 2012, he hosted the first national forum focused on "Small and Medium Enterprises and Sustainable Development".

This MTSC differs from the LAS and TFS models because it operates in three widely dispersed regions in France. The key player is a baker who has established the key values and recruited the supply chain partners.

4.2. Filière CRC® la Forézienne

The supply chain "CRC® la Forézienne" was created in 2000 through the initiative of the Dupuy Couturier mill in the department of Loire. This mill specializes in the production of organic flours and high quality flours. Currently this supply chain consists of 80 farmers producing wheat certified CRC® (culture raisonnée controlee or controlled integrated agriculture with environmental requirements) on 7000 ha, a cooperative (Eureacoop) that transports and stores the grains, the Dupuy-Couturier mill, and 120 bakers who produce the bread "Le Forézien" and sell it locally. All these participants operate in either the Loire department or the neighboring department of Haute-Loire. The flour brand "la Forézienne" and the related bread brand "la Forézien" were created in 2001. The production is about 4000 tons of grain and 2500 tons of flour. The CRC® certification, recognized by an official third party, the National Commission on Labels and Certifications, plays a key role in the strategic partnerships that link the supply chain from the farmers all the way through to the bakers.

This certification guarantees the traceability of the products, defines the production characteristics (no trace of pesticides, wheat stored without treatment, and good environmental practices including recently added biodiversity objectives), and results in the 20% premium above commodity prices that the growers receive. Consumers appreciate the local origin and human scale of the supply chain in which "all the participants know each other and work in partnership to ensure quality, traceability and food safety". The label on the bread bag states: "I am a bread of the Loire, the baker who molded me is from the Loire, just as the flour used to back me, the Loire makes me better". Efficient logistics allow the bakers to sell their bread to consumers at prices that are similar to standard bread prices while still paying farmers a premium. In the future the challenge for the mill is to continue to develop additional supply outlets. The CRC® managers seek to continuously adapt their standard to the increasing requirements for traceability, quality and environmental preservation while still respecting the economic and technical constraints of farmers.

This MTSC operates on a scale similar to that of LAS and TFS but is more narrowly focused on the participants of a single supply chain. The mill plays the key role of organizing activities and defining the product produced.

4.3. Coopérative Vercors Lait

The dairy cooperative "Vercors Lait", established in 1956, belonged to a private group until 2003 when the farmers took over the management. The co-op headquarters are at Villard de Lans, in the heart of the mountain massif of le Vercors (department of Isère). Currently Vercors Lait processes the milk of 35 farms including 11 organic farms. The co-op direct markets its products through three stores, one at the headquarters and two in the nearby towns of Grenoble and Romans. The co-op employs about 32 people.

Vercors Lait is the only co-op that processes and markets the cheese "Bleu du Vercors Sassenage" which has had an official label of origin (protected designation of origin (PDO)) since 1998. It also produces a wide range of local cheeses (Vercorais, Saint-Marcellin, Saint-Félicien) and some of which are certified organic. Nearly 550 tons of cheeses are produced each year including 255 tons of Bleu du Vercors and almost six million liters of milk are collected. Due to insufficient markets for the co-op's own products, 35% of the milk is sold to an industrial cooperative and a private company. The values upheld by the cooperative and communicated to consumers are the safeguarding of the dairy and cheese activities of le Vercors and maintaining the economic viability of farms. These values combine a

passion for the farming profession and the unique mountain terroir products produced in a "gentle, reasoned and environmentally friendly manner".

The co-op has paid farmers a slightly higher rate than the national average for only the last three years and providing even this small price premium remains a major challenge. In terms of end products, the co-op has refocused on producing a wide range of products grouped together under the brand "Vercors Lait" cheese because the initial strategy of producing only the Bleu du Vercors Sassenage cheese was not successful. The co-op diversifies its products for local and tourist consumers. The new strategy which includes products for local consumers and tourists represents a departure from the narrow prior strategy of producing a single PDO product linked to its terroir. This new model involves equally the design and the implementation of a whole food system able to manage the supply chain from farmers to consumers. The co-op is working in this way by developing both direct marketing and strategic partnership with distributors and retailers such as restaurants and cheese retailers.

This MTSC has developed as a hybrid since it produces and markets both a PDO product that is distributed widely and a set of cheeses focused exclusively on the local market. The co-op plays the central role in organizing this venture.

4.4. Organic Valley

Organic Valley [26] is a national farmer cooperative that produces and distributes dairy and other products. It started in 1988, when a small group of organic vegetable growers in Wisconsin formed a cooperative to provide stable and fair prices to its members. Organic Valley has expanded rapidly and is now the largest farmer-owned, organic cooperative in North America, with nearly 1800 members in 30 states and the Canadian province of Ontario and more than $500 million in gross sales. The cooperative itself employs more than 500 people.

Organic Valley seeks to achieve a broad range of goals—regional farm diversity, ecological and economic sustainability, energy conservation, good tasting and nutritious food and advancement of cooperative principles. Organic Valley follows a set of strategies to maintain farm prices above commodity prices. First and foremost, the co-op carefully manages the supply of products by accepting new members only when market demand increases and decreasing milk supply when prices weaken. Secondly, prices paid to farmers are based on production costs and vary from region to region.

Organic Valley focused from the start on selling its products through multi-stage supply chains rather than through direct marketing channels or through a series of vertically integrated businesses. The standard arrangement is to have milk processed on contract with dairy manufacturing plants located close to the regionally organized milk pools. It also contracts for transportation of both its raw milk and finished products. For this, Organic Valley prefers working with family owned companies. While initially Organic Valley products were available primarily through natural food stores, the growing popularity of organic milk in conventional supermarkets has made that the dominant market channel. Even as Organic Valley have entered into mainstream market channels, their products can still be traced back to a set of regional family farms and farmer ambassadors reach out to supply chain partners and final consumers to tell the Organic Valley story.

Organic Valley differs from the LFS model because of its national scope and distinguishes itself from other organic milk producers as a function of the diverse values the co-op has established as priorities. As for all three of the U.S. VBFSCs examined, the farmers are the key supply chain organizers.

4.5. Shepherd's Grain

Shepherd's Grain [27] is a limited liability company in the Northwest that markets high-end, sustainably grown wheat flour. In the mid-1980s, Karl Kupers and Fred Fleming, a pair of wheat producers in eastern Washington became convinced that their conventional dryland wheat farming was not sustainable and began a slow process of first experimenting with alternative cropping systems and later developing a new business model that uses strategic business partnerships to market high-quality,

regionally identified flours at premium prices. They sold their first flour in 2003 and have continued to maintain slow and steady growth. In 2011, Shepherd's Grain marketed more than 550,000 bushels of wheat for 33 growers and currently provides marketing services for nearly 60 growers.

The Shepherd's Grain story includes three elements: the farming system, the farmers and the supply chain partnerships. The environmentally friendly farming system results in the use of fewer pesticides and significant carbon sequestration from reduced tillage and soil disturbance. The wheat is produced on family farms. Aggregating their products and controlling quality are ways to gain leverage in the marketplace. Shepherd's Grain decided to set stable, yearlong prices based on cost of production plus a reasonable rate of return rather than charge a premium above commodity wheat prices. It only seeks new growers when market demand exceeds the capacity of the group.

This group of farmers has been able to market identity-preserved flours even though the product passes through multiple hands from field to consumer. Shepherd's Grain has developed strategic partnerships based on common values with a local mill that guarantees that their flours remain separate. It works also with a set of distributors that act as sales agents for their products. Their customers, such as pizzerias, bakeries and restaurant chains, place the highest priorities on the Shepherd's Grain story and quality. Price for them is a secondary consideration. Third party certification through the Food Alliance plays a key role in communicating the environmental and social standards met by Shepherd's Grain farms.

The individual Shepherd Grain farmers live in lightly populated areas and produce much too much grain to market it locally so the LFS approach is not an option for them. They do not choose to farm organically and have, instead, chosen to establish their own third party certified production system that highlights a broad set of values.

4.6. Country Natural Beef

Country Natural Beef [28] is a cooperative of family ranches that produces and markets natural beef products. It started in 1986, when 14 Oregon ranchers concerned with low cattle prices formed the cooperative to gain back control of their farm businesses. It now consists of nearly 100 family ranches in multiple states. These families own more than 100,000 brood cows and manage more than six million acres and sell almost $50 million of products.

Country Natural Beef distinguishes itself by the quality of its products and the story behind its production system. Cattle are raised from birth on family ranches without growth hormones, antibiotics or animal byproducts and are fed rations that are, to every extent possible, sourced locally and forage based. All Country Natural Beef ranches are third-party certified under the Food Alliance's environmental and social standards and much of output is also certified under the Whole Foods' Good Animal Practices guidelines. All Country Natural Beef families are involved in the major decisions of the co-op under a very egalitarian structure in which major decisions are made by consensus. Money earned from the sale of cattle flows directly back to individual ranching families with few middlemen.

Country Natural Beef and its partners are engaged in a values-based supply chain where everyone reaps the benefits of market premiums and price stability associated with an identity-preserved, high-value product. Country Natural Beef focuses on what it does best—raising cattle and providing a differentiated product with a story behind it and developing collaboration with like-minded supply chain partners: Beef Northwest Feeders, which provides humane animal handling and on-antibiotic first treatment of ill cattle, AB Foods serves as both butcher and financial/logistical associate. The co-op's rancher members individually sell live cattle to AB Foods, and Country Natural Beef buys back boxed beef cuts that the cooperative then markets. The retail partners selected share an interest in marketing high-quality natural beef products to health- and eco-conscious consumers who are willing to pay premium prices.

Similar to Shepherd's Grain producers, Country Natural Beef ranchers do not have viable local options and have chosen not to produce using organic methods. Instead they have created their own VBFSC in order to develop another alternative to simply marketing commodity beef.

5. Discussion

The six French and U.S. supply chains face many similar challenges but with certain unique elements. In this section we highlight the motivations, achievements, barriers and limitations faced by supply chains participants. We focus on the parallels and differences between the two countries with quite dissimilar agricultural and food sector traditions and policies.

5.1. Motivations

Economic considerations, specifically fair prices and fair wages, were clearly central to the development of these supply chains. The supply chain participants did not feel that either the mainstream channels or the existing alternative channels provided acceptable economic returns. But other social, ethical, and environmental values also motivated participants to break away from the past and create new alternatives. The recognition that some consumers would purchase these generally higher priced products that are differentiated by both sensory and credence characteristics, such as those mentioned above, has also been essential.

In the U.S. the initial impetus was clearly desperation on the part of farmers who did not see a way forward through existing short and long supply chains. These farmers sought higher, more stable prices that were determined by something other than simple supply and demand factors. While some in the U.S. have proposed the development of a French-style PDO system for the U.S. to achieve these goals, the VBFSC approach represents a different, less structured alternative [29]. In all three case studies presented here, farmers were the key organizers and sought out supply chain partners.

In France, the development of MTSCs is related to diverse factors. First, the limitation that short supply chains generally cannot deliver products to a larger region motivates some key players in these supply chains to overcome this by developing MTSCs. Second, the PDO system for protecting and promoting agricultural products with geographical and cultural identity does not always provide sustainable price premium. This is the case for Vercors Lait and the PDO cheese "Bleu du Vercors Sassenage" as it is for other PDOs. Thus, some co-ops are moving from a strategy based solely on the marketing of a PDO product to a strategy that includes the design and operation of an entire supply chain from farmers to consumers. They do this by either developing their own set of products or by establishing agreements with other food producers to satisfy the diverse expectations of consumers in an efficient manner. A third observation is that mid-sized private companies that are not competitive in international markets are developing these types of mid-tier supply chains to improve their performance in domestic markets.

5.2. Achievements

In both countries, opportunities outside of the mainstream commodity-driven supply chains existed but had shortcomings. In France, the two main options were very locally-focused supply chains such as farm-direct sales and LAS or the very complex and restrictive PDO system. MTSCs have emerged as an alternative that is much less limited by geography and government regulations and still provides the opportunity to supply significant quantities of highly differentiated products. Thus we observe more the importance of a combination of different factors to guarantee the quality of the products and their embedded values: of course products linked to a farm and also to a place, third-party certifications (PDO, organic farming or various environmental standards).

In the U.S., LFS and OPS represented the non-mainstream opportunities, but LFS volumes were small and had limited growth prospects, while, as organic supply chains became more successful, they were often absorbed into the mainstream system. The VBFSC approach in the U.S. has resulted in quite a different set of opportunities for all the supply chain participants. In the three examples presented here, the farmers are able to obtain higher and more stable prices by marketing differentiated, high-quality food produced with an authentic farming story, delivered through transparent supply chains that customers can trust. To achieve this, the farmers have identified enthusiastic supply chain

partners with compatible values, thus enabling the farmers to avoid the expense and complexity of vertical integration.

5.3. Barriers and Limitations

The goal of providing fair prices to farmers continues to prove challenging and is not always attained. The French co-op Vercors Lait, despite having a PDO label for one of its cheeses, has only recently begun to pay farmers a small premium over the national average milk price and the co-op managers continue to regard the premium as "fragile". In both countries, food markets are very competitive and succeeding in convincing consumers to pay for credence characteristics of goods, such as animal welfare, and public aspects of goods, such as environmental protection, varies with the economy. Indeed, consumers are very price sensitive and are not always willing to pay premium prices excepted for certain well-known products. Consequently, MTSCs and VBFSCs, as alternative supply chains, continue to face major challenges related to the trade-off between affordable consumer prices and fair prices for farmers and other supply chain participants: transparent communication about values and costs of production; the maintenance trust between supply chains participants over time; and the development of efficient logistics to overcome the higher costs related to the moderate size of these supply chains.

In the U.S., all three of the supply chains face their greatest challenges when commodity market farm prices are high because that is when the farmers begin to question whether it is worthwhile to meet the requirements that participating in a VBFSC imposes on them. If significant numbers of farmers opt out to supply the commodity markets instead, the VBFSC withers.

Another limitation common to both countries is the difficulty that the key supply chain players face in developing the additional skills that they need. The key players whether farmers or heads of small processing companies need to think through an alternative economic model for the supply chain (for example how will prices bet set initially and how will they vary over time), find partners and then negotiate partnerships, and develop and implement an effective marketing strategy. The difficulty of these tasks explain why the founders of Shepherd's Grain took 15 years to go from their initial concept to their first sales. As these case studies demonstrate, the growth of these alternative supply chains is often slow and uneven; some simply fail. Often, the key players do not have the resources to pay for assistance during these difficult periods, particularly early on.

Related to this management issue is the need to develop new leaders over time. In all six case studies, the founders had skills and passions that may be difficult to foster in those that follow. To address this requirement, the key firms and organizations must devote resources and time to identifying and training new leaders.

Competition from providers of similar products must also be recognized. Mainstream supply chains participants, both processors, and retailers, have shown great interest in moving in this direction and have the expertise and capital resources to do this quite effectively. The alternative supply chains examined in this paper will need to continually work to maintain their differentiation from these competitors.

The lack of firm standards that define which supply chains qualify for either of these designations is a final and quite significant limitation. There is a temporal element to this issue as well as there is definitely the possibility for slippage over time so a stellar alternative supply chain at T1 might be questionable by T2 as practices have changed. The article by Wu and Pullman explores just this issue with its more recent examination of the practices followed by Country Natural Beef and Trubek and Bowen provide a similar overall critique of these sort of ad hoc initiatives [29,30].

6. Conclusions and Implications

The analysis of these six case studies give deeper insight into how MTSCs and VBFSCs are working and the challenges they face. Before these new supply chains began to emerge, both countries already had some alternatives to the dominant mainstream supply chains. The MTSCs and VBFSCs examined

here provide additional opportunities for farms, co-ops, private companies to flourish. For consumers, they offer a wide range of quality products embedded with social, cultural or environmental values. In recent years, much has been achieved to expand and strengthen these supply chains. Their future remains rich in opportunities but also in risks. In both the U.S. and Europe, policies dedicated to the support of organic farming are well established and in Europe that is also true for PDO products. The results presented here should serve as an initial step toward the consideration of public policies that will support the development of MTSCs and VBFSCs.

The case studies compiled in this report provide significant lessons that can be integrated into outreach programs for others who will seek to construct similar new initiatives. As an example, the founders of Shepherd's Grain were able to build upon the experiences of Country Natural Beef as they developed their own model.

The qualitative research results, as is true for all similar case study efforts, must be cautiously interpreted when drawing more general conclusions. Further research, both additional supply chain case studies and more quantitative approaches to look at these alternative systems, will provide new insights.

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Abbreviations

The following abbreviations are used in this manuscript:

PDO	Protected designation of origin (France)
TFS	Territorial food system (France)
LAS	Localized agrifood system (France)
MTSC	Mid-tier supply chain (France)
VBFSC	Values-based food supply chain (U.S.)
LFS	Local food system (U.S.)
OPS	Organic production system (U.S.)
AOTM	Agriculture of the middle (U.S.)
CSA	Community supported agriculture (France and U.S.)
FLO	Fair Labelling Organizations (France)
CRC®	Controlled integrated agriculture (France)

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