

Chapter 2. The contribution of conversion to organic food and farming to the analysis of dynamics and governance in transitions towards sustainable agri-food systems

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Abstract

Sustainable agri-food system approaches are rooted both in the environmental movements and in the political-economic critique of the contemporary system. Organic food and farming (OF&F) as an alternative agri-food system among others encompasses multiple dimensions and performances, enabling the study of conversion as a prototype of transition. We use the multi-level pathways framework to describe the transition process. We first present OF&F as a heterogeneous entity and examine the consequences of acknowledging its diversity. We show that OF&F as an innovation influences the mainstream design of agri-food systems, and we explore the strategies of the actors in charge of its development. We then introduce how different levers can influence types and levels of conversion, with actors who have diverse expectations to articulate. This raises the issue of time frames with short-term adaptations and long-term transitions. Finally, we introduce the market itself as a composition of sectors and territories. We argue that this diversity has to be kept beyond consensus to build multiple strategies. We represent the initiatives of different networks in their spatial and social dimensions. This begs the question of the coexistence of these models. We conclude that the policy level has a prominent role to play in enabling this coexistence.

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1. INTRODUCTION

At the beginning of the 21st century, agriculture has reappeared as the key for the world's major balances (Mazoyer, 2004). It has been pointed out that common representations in terms of a hierarchy between economy, society and nature need to switch to a new paradigm (Passet, 1996). Establishing links between the fields of agriculture, ecology, economics, and the social sciences may be seen as the burgeoning of a new regime, which could be a response to sustainable development challenges (Possas and Salles, 1996).

Several authors argue that conventional agriculture is not sustainable and that radical changes are needed (e.g. Pretty, 1995). Although the extent of the necessary changes may be questioned, there is general consensus about society's desire to internalise some of the externalities of agriculture (Buttel, 2003). Princen (2002) argues that agriculture is a “modern frontier economy” with two main problems: *shading* (the obscuring of costs) and *distancing* (the spatial separation of production and consumption). To picture the re-design of the agri-food system, Organic Food and Farming (OF&F) is considered as a prototypical answer:

- as an ecologically-based agriculture, it tends to internalise societal costs of production;
- its bottom-up governance initiatives confront the forms of governance vested in the dominant regime (Smith et al., 2008).

We use the conceptual theory of “transition pathways” to present OF as an innovation in the mainstream agriculture and a prototype of sustainable agri-food systems. The case of conversion to OF&F is considered as a development process and is to study the ways stakeholders influence the global paradigm, in interaction with the conventional actors, and the tools used to stimulate these transitions: advice, market, and public policy.

Following national or EU development plans, the rapid growth of OF&F expected by public authorities and civil society pleads for upscaling OF&F and for a variety of stakeholders. The ambition to develop OF&F suggests new farmers and new actors who come from various institutions, have diverse relations with nature and markets, and generate diverse patterns to “enter” in OF&F. OF&F development is increasingly collective and multi-dimensional, since both farmers' trajectories and society's expectations are manifold. Indeed, it appears that different actors take part in the dual societal role of OF, where it “*on the one hand provides for a specific market responding to a consumer demand for organic products, and on the other hand delivers public goods contributing to the protection of the environment and animal welfare, as well as to rural development*” (CE 834/2007). One pending question is whether this multiplication of stakeholders can sustain or counteract OF development. At least it can be assumed that competing development models are at stake.

In the first section we show that OF&F is a heterogeneous entity, which entails consequences both for its development and in terms of research. We then consider how the diverse expectations and capabilities of actors can be articulated during conversion processes. Finally, we introduce the market as a composition between sectorial and territorial logics. This enables us to represent the initiatives of different networks in their spatial and social dimensions, and raises the question of coexistence of these multiple models. By matching dynamics and governance, we are able to examine the different ways of combining growth, development and integrity of OF&F.

2 CONVERSION TO OF&F AS A FIGURE OF A TRANSITION PROCESS

2.1. A shift in paradigms

Many authors suggest that OF&F may provide solutions to the current problems in conventional agriculture (Lotter, 2003, Bengtsson et al., 2005), and OF&F has often been suggested to be a new paradigm in agriculture (Beus and Dunlap, 1992). New paradigms in research areas arise when there are problems and issues associated with the current state that cannot be solved. We use the term “paradigm”, introduced by Kuhn (1970), while drawing on the work of Foucault (1966) regarding the “*episteme*”, the whole scientific and cultural project and value system of a society in a given period. Busch (1994) suggested that public agricultural research is at an impasse partly because of the continued hegemony of the key goal to increase productivity (Chrispeels and Mandioli, 2003). Historically, the evolving paradigms of agronomy can be identified as successively chemical, physical, biological and, more recently, ecological (Robin and Aeschlimann, 2007). Ecological engineering suggests that the relationship between short-term productivity and sustainability will inevitably be negative, and considers production strategies in terms of “trade-offs” (Weiner, 2003).

OF&F, which represents certain values – ecology, equity, health and care (IFOAM, 2005) – can be considered as a model of value-laden agriculture, going beyond classical agro-economic performance and managing the tension between profits and values. Conversion to OF&F is an exemplary and well-informed case that we can use for broader reflection on changes in agricultural and agri-food systems. It can be seen as a general figure of the transition of agriculture (Sangar and Abrol, 2004), which can refer to the notion of sustainability (Elzen & Wieczorek, 2005). But OF&F is also sometimes considered as not being productive enough, and the supposed systematically lower yields following conversion are pointed to as an obstacle for farmers adopting OF&F. However, yield increases would create a conflict of objectives in OF&F, shifting it from an ecologically-based farming to an intensification process relying on external inputs. This process is also called “conventionalisation” of OF&F (Darnhofer *et al.*, 2009). On the other hand, in conventional farming, attempts to maintain yields close to their current high levels while improving sustainability are manifold. Such low-input or ecological

strategies can be related to “organification”, as a counterpart of “conventionalisation” (Rosin & Campbell, 2009). We assume that beyond formal oppositions or potential bifurcations among production patterns, these two approaches can converge by the incorporation of the idea of long-term sustainability into overall agro-ecosystem design and management.

2.2. Network of actors use conceptual frames to disseminate innovation in a “transition process”

The *network* concept can be applied in two ways: first, as a heuristic device to describe linkages and interactions among actors; and second, as a variable that depends on different factors, such as the institutional environment and the ideas and strategies of the organisations of actors involved (Moschitz & Stolze, 2009). In this chapter actors are taken not as individuals but as collective entities, i.e. private or public. A public actor may be the facilitating agent, but transition initiatives may also be initiated within business communities or civil society (Kemp and Rotmans, 2005).

Social movements struggle to define the meaning of specific practices and policies. They use a *frame*, composed of ideas and practices that are strategically articulated through language to identify a problem, propose a solution, and motivate others to act (Bateson, 1972; Goffman, 1974; Snow et al., 1986). According to Benford and Snow (2000), frame transformation is defined as the process of adding new meanings to already existent social movement frames. Framing is an interactive process of social construction and one of the most symbolic strategies. The theoretical frame helps the efforts of social movements in institutionalising changes. The frames, or “rule-based models of action”, are multi-dimensional (Giddens, 1984). The demonstration of viable alternatives may change perceptions and lead to innovation and transition.

The *transition process* has been described as a multi-level pathway: the level of “niche innovations”, where radical novelties emerge, the socio-technical regime as the dominant design, and the socio-technical landscape as the macro-level (Geels & Schot 2007). Literature on niche development emphasises three main processes: learning, network building, and articulation of expectations (Kemp et al., 1998). The fourth process comes from research diffusion : the diffusion curve may take off beyond a certain threshold (e.g. between 5 and 20% of cumulative adoption, according to Rogers (1996)) when the frame has achieved such legitimacy and resonance that diffusion can happen faster and wider. Further frame transformation poses a challenge to the movement’s identity, goals, and strategies. More powerful interests can manipulate meaning or transform a frame for its own purpose (Frye, 2009).

Geels and Shot (2007) also proposed a typology of four transition pathways: “*transformation, technological substitution, de-alignment and re-alignment, reconfiguration*”, depending on the stage of development of the niche innovations to interact on the dominant regime. In the same way, several approaches have

been used to take into account the transitions in agriculture, and the possible conversion steps from conventional farming to the design of sustainable agro-ecosystems. This typology can be compared to another model proposed by Hill (1985), which analyzes transition pathways, with three levels “*Efficiency-Substitution-Redesign*” (ESR) that can be applied both to farms and to large organisations. The Efficiency level is close to “transformation” in so far as the changes are within the conventional system and based on incremental improvements (e.g. reducing the consumption of scarce resources). The Substitution, -similar to “technological substitution” - level corresponds to a replacement of technology (the products and procedures are more environmentally benign). The Redesign approach demands greater and deeper changes in the way it necessitates the taking into account of a more global perspective (and the need for a construction of interactions between agriculture and ecosystem components). It can be correlated to the “reconfiguration”, which generates real adjustments in the basic architecture of the regime. A fourth level can be added to E-S-R (Gliessman, 2007) to reconsider the link that can be built between food production and local consumption.

Finally, the level of “redesign” can potentially bring permanent solutions to problems, in the way it acts proactively, but there can be different timing, because changes are gradual and integrated processes are adaptive in the short term and evolutionary in the long term (Norghaard, 1984). The observed progression of conversion is often the efficiency-substitution-redesign pathway (Hill & Mac Rae, 1995). Paradoxically, the initiatives of redesign often generate much larger efficiency gains than innovations aiming only at the efficiency of the system do (Fletcher & Olwyler, 1997).

2.3. Analyzing OF&F diversity, development models and dynamics

OF&F as a heterogeneous entity

A historical approach can help to identify the founding paradigms and their differences, mainly between Steiner’s organic vision of a farm integrating animal raising as a key component of the farming system, and Howard’s vision favouring soil fertility and humus management (Lamine & Bellon, 2009a). This belies the idea of a unique original paradigm for organic farming and contributes to the necessary acknowledgement of organic farming's internal diversity (Besson, 2007).

Most publications or public policies implicitly consider OF&F as a relatively homogeneous entity. For example, OF&F performances, technical bottlenecks, and consumption or supply chain issues are often studied and discussed as a whole. But OF presents multiple combinations of performance criteria, exhibiting successful “trade-offs”, beyond the classic distinction between “economic versus environmental performances”, “ethical versus opportunistic”, “small versus big farms”, “redesign versus incremental changes”, “local versus globalised food

chain". Some studies emphasise organic diversity. For instance the differentiation among farming situations can be identified through production systems and marketing channels (Desclaux et al., 2009), or related to three main approaches: no chemicals, agro-ecological, and integrity approach, close to the holistic biodynamic principles (Verhoog et al., 2003).

Many variables could be relevant to account for this diversity. However two comprehensive axes can be identified (Sylvander et al., 2006). The first axis opposes basic compliance with OF standards to system redesign. It is consistent with the ESR model introduced previously (Hill, 1985). The second axis refers to governance patterns, whether individual or collective (Sylvander & Kristenssen, 2004). The proposed framework can also help meet the needs of this diversity of farmers, to facilitate their transition towards a global management of their agro-ecosystem. It also requires different forms of knowledge from producers, advisers and certifying agents (Seppanen & Helenius, 2005; Sautereau 2009). Although the ESR model makes it possible to differentiate farming situations, it should not be considered as a unique and linear pathway for farming systems development. In OF&F, inputs substitution is a basic requirement, since alternative production methods are advocated. It is also possible to search for a higher efficiency of inputs in OF, without redesigning the system. For instance, the prevalence of inputs substitution and efficiency does not challenge monoculture or the dependency on external inputs, and limits the potential solutions to the socio-economic and ecological crisis of modern agriculture (Bellon et al., 2010).

Is the growth of OF&F uprooting it from its historical "niche"?

While there are overall decreases in farmed acreage and the number of farms, the opposite is true in organic agriculture (Klonsky & Tourte, 1998; Agence Bio, ONAB, 2009). Apart from natural food stores, organic food is increasingly available in supermarkets, convenience stores, and restaurants. This growth in the market share, by virtue of the sheer number of people involved, is bound to lead to growth in the organics movements as the number of people who understand organic agriculture and care about it also grows. As more actors become interested in organic farming, interactions among actors also increase (Lynggaard, 2006). Moreover, general agricultural policy networks are opening up to organic farming policy actors.

Smith (2006) has demonstrated the dynamics of niche innovation for OF&F, which was initially pioneered by dedicated green activists in secluded niches and whose lessons and practices were translated and picked up by conventional actors (especially supermarkets). Niche actors thus acted as front-runners, whose practices gradually changed regime rules. Dedicated translation activities are important in such niche–regime interactions.

3. STIMULATING CONVERSION: DYNAMICS WITHIN TRANSITIONS

3.1. Various components in a seamless web

The indicators for the stabilisation of viable niche-innovations that are ready to break through widely are the following:

- learning processes have been stabilised in the dominant design,
- powerful actors have joined the support network,
- price/performance have improved and there are strong expectations of further improvement (e.g. learning curves) and
- the innovation is used in market niches, which cumulatively amount to more than a 5% market share (Geels & Shot, 2007).

We place the productive activity of farmers in its social, economic and political context, which strongly influence the capacities of farmers' evolutions. The factors determining the adoption of OF&F by farmers are widely diverse, and these farmers' motivations have been studied extensively (Lamine and Bellon, 2009 a). Economic studies have shown that three external key factors are also really decisive incentives to convert to OF: clear signals of public policies (financial support in particular), positive signals from the market (increasing demand for organic products, better prices paid to the producers), and easier access to information and advice (Padel et al, 1999). A comparison of European cases indicates that the joint implementation of incentive policies and advice seems to allow for a greater increase in conversions than does the effect of each of these actions individually (Kauffman, 2009). Agricultural professionals (namely extension officers, scientists, researchers and academics) play a big role in encouraging the adoption of innovations (Van den Ban and Hawkins, 1988).

We assume that the extension of OF&F has been made, and will be made in a dual movement:

- a generalised global and diffuse up-scaling, with an increase of OF&F in extension programmes for the producers: advisory services, learning processes, subsidies, etc.
- a multiplication of "spots of excellence", in which regions and local authorities have a major incentive role and potential identity (eco-regions, etc.).

Consequently public policies and extension services have to influence these two forms of development, with adequate individual support (agri-environmental contracts, subsidies for the costs of certification, specialised advice, etc) and collective actions (e.g. for the conservation of water-resources). Different forms of support are proposed by several stakeholders to facilitate conversion: organisation of knowledge (constitution of references and networks), of learning sessions and of advice. The introduction and promotion of new practices

mobilises multiple strategies, because of the diversity of farmers' expectations and trajectories (including in the stewardship of attached biological processes). The way technical or economic problems are addressed and the possible solutions will vary accordingly, with specific needs for adapted references and support.

3.2. An intrinsic difficulty: managing a more holistic, complex and autonomous system

OF&F represents values which are difficult to codify. For instance, when an ecological principle recommends valuing abundant resources and saving scarce resources, how can this be translated into prescriptions for technical advice? How can the essence of the agronomic, ecological and social project of OF&F be conveyed? When the agricultural systems and the answers are over-specialised, how can the global concepts such as the founding principles of OF be implemented, and what propositions for improving extension services can be made?

Conversion to OF may appear difficult because of transitional costs and lack of knowledge of new production methods, which require more autonomy (OF calls for observation, anticipation and adaptation). It may also appear difficult because of a more systematic approach to the time lag due to the slower response of an ecosystem managed in an ecological way (for instance soil fertility). Kilcher and Zundel (2007) show that it takes years after a conversion to get back to the yield which was observed with conventional practices, and the more intensive the previous system was, the more time it could take. Conversion is a global transition pathway; it can take far longer than the administrative time of two or three years (Lamine & Bellon, 2009b) which claims to take into account the temporality of the changes. It often raises both levels of complexity (internal and external) with reference to system modelling (Le Moigne, 2000), because both the production methods and the farm environment are re-defined.

One of the main difficulties for specialised technical advisers is to envisage the system in its coherence, when their advice is given at plots or species levels, with a specific problem-solving approach. It is moreover not easy to persuade farmers to accept additional risks, which can be more or less significant depending on their production and site-specific conditions. These risks are connected to a more autonomous management with a lower use of inputs. It is often easier to recommend a phytosanitary treatment, which anyway does not cost much in comparison with the risk of losing part of the production. Some advisers claim that they were forced to envisage alternatives, even upstream of the problem, due to the banning of a treatment for instance. The use of regulations in this case can favour proactive initiatives (Sautereau, 2009).

The reorganisation of advisory schemes is another relevant factor. Because it is increasingly privatised (Rémy et al. 2006), advisers who have to keep their clientele will make farmers take fewer risks and will encourage them less to

reduce inputs. Sectors are also more and more "integrated", with heavy involvement of the supply cooperatives, whose turnover depends on the sale of inputs.

Support for producers to adopt more complex systems aiming at input autonomy implies that the acquisition of diversified and articulated skills is facilitated. Accompaniment of conversion is in itself a model of accompaniment of transitions towards systems presenting higher adaptability to change.

3.3. The OF&F networks and the “actors of the regime” in charge of extension

Spreading the reference frame of OF&F

The agricultural extension system integrates a dual function which can sometimes be contradictory: a function of "extending" established references, but also a contribution to the "innovation" and construction of "alternatives", which sometimes requires to question this diffusion model and the used references.

In France, OF&F has been developed by two networks:

- the “organic specialised” network with groups of organic farmers, included in regional federations within the FNAB (National Federation of organic farmers) with 250 advisers, as well as the ITAB (Technical Institute of Organic Agriculture) and its network of specialised Centres (CREAB, SEDARB, GIS Bio, etc.) for the coordination of experiments and the references acquisition in OF&F.
- The classical or “conventional” network, with “actors of the regime”: i) the departmental Chambers of Agriculture (CA), themselves with their regional and national level, with 160 advisers, and ii) the Agricultural Technical Institutes (ITA), federated by the ACTA (Association of Agricultural Technical Coordination), and all the experimental Stations. The Chambers, like the ITA, generally have one organic adviser, sometimes more, whose time dedicated to the development of the OF is variable.

The local importance and roles of each of the networks differ considerably, depending on the context, the history of the development of OF&F, and its perception by the “actors of the regime”. Today, the latter generally consider that OF&F should not be separate from agriculture as a whole, and suggest that all existing knowledge can provide technical answers to organic farmers as well (in particular issues on weed control, irrigation, characteristics of varieties, etc). The CA consider that it is part of their mission to accompany the development of OF&F. And within the context connected with the “Grenelle de l’Environnement” and the French national OF&F development plan (Agriculture Biologique “Horizon 2012”), which had the ambitious objective of tripling land used in OF&F by 2012, certain CA recently invested more in actions for OF&F, which were made compulsory within the PRDA (Regional Agricultural Development

Programme). Sometimes OF&F is also considered as one of the "modalities" to be taken into account by the technical institutes producing references, which are increasingly either forced or inclined to work on "alternative" techniques (green manure, biological control, etc). In this way, techniques of OF&F are "compared" to conventional ones.

But the specificity of OF&F is also questioned: the production system, an incentive to think globally – including on the food system in a broad sense –, should also be studied and assessed, and not necessarily in comparison with the performances of the general regime. Is it necessary to use the same indicators, assessment and decision-making methods as the conventional ones? Or is it necessary to agree to be "confused" a while by new reference values based on other criteria and optima? The performance criteria of conventional agriculture need to be questioned, because the system was built to maximise these criteria. If not, the transition cannot occur, or it will get no further than simple improvements in an unchanged reference frame. For instance, could autonomy, mutualistic relationships, conscious caring, the dedication of a part of the resources to reproduction *versus* production, and finally sense of place be part of the assessed values (Hill, 2003)?

The "lock -in" of the socio-technical regime

Technical change is always a complex process with both biophysical and socio-economic aspects. It results from changes in the thinking and activities of individuals, households and communities, as well as in market and organisational relationships. In such transitions, learning is applied to new systems of behaviour and valuation, not just techniques or methods. (Pretty & Uphoff, 2002)

The conventional actors tend to mobilise more "experts' statements" within the framework of "technological transfers", while OF actors of the associative type tend to implement more discussion groups to assess knowledge and adaptive management. It has often been said that in organic farming, the transfer of knowledge does not have to follow a "top-down" model from research towards the producers via the advisory services (technological transfer, or diffusionist model), but should develop as a system of knowledge including all the actors ("ecological and fair knowledge system"). This reflection spreads the concept of "system" to the elaboration of the knowledge, by integrating multi-disciplinarity, a systemic approach, a strong consideration of farmers' experiences, and the implementation of on-farm research. The necessary integration of the various types of knowledge, in particular local and traditional knowledge, in the processes of innovation seems to be gaining recognition today, beyond the circles of OF&F (IAASTD, 2009). A specific challenge for the knowledge system is the conversion from conventional to organic farming. Conversion to organic farming requires merging scientific knowledge with local knowledge, stimulating learning and triggering agricultural innovations in rural communities (Röling and Wagenmakers, 1998). The knowledge in OF&F is sometimes characterised as "between tradition and modernity" (Kummer et al., 2010). The important point is

the interference of niche-knowledge with knowledge from the actors of the regime: they often spread by the hybridisation of networks, as for instance in the RMT DévAB in France – a “mixed technology network” for OF&F development (Sautereau, 2010).

Farmers have to incorporate the idea of long-term sustainability not only into overall agro-ecosystem design and management, but also into all segments of the food systems, especially those stakeholders who are used to “product-focused thinking” (Gliessman, 2010). A survey on approximately 1200 US organic farmers found that the greatest restraint to organic farming conversion was uninformed extension officers (OFRF, 1999).

The reluctance, even resistance, of farmers and advisers to modify their practices and advice, in spite of available solutions, have led to the hypothesis that their appropriation implies a new conception of their relationship with nature. For example, in the case of tree crop production, beyond the uncertainties inherent in the efficiency of the alternative techniques of protection, an ecological management of the orchard deeply questions categories of thought around which the professional identity and excellence of orchard farmers has been built (Paratte, 2010). The same analysis can be made of the change of status of practices formerly implemented and then depreciated by the dominant technical culture. Not long ago considered as indicators of a lack of technicality of wine growers, and more or less abandoned, certain practices are being “rehabilitated” and reintroduced today, in line with current tastes (mechanical work of the ground in vineyards, for instance). This leads to a re-qualification of both farmers' and advisers' practices, which is not something to be taken for granted. It implies the need to overcome incompatibilities between cognitive systems, understood as wide sets of knowledge and standards, which stabilise a network of production (Stassart & Jamar, 2009). Farmers or advisers who initially opted for a technico-economic model that was hardly compatible with organic standards can with difficulty envisage a change because they are blocked by requirements pertaining to the whole production sector, and which echo their own knowledge and initial practices. It makes the transitions between conventional and organic systems particularly tricky. Only professionals who believe conventional agriculture is currently unsustainable will be likely to be looking for alternative forms of farming to take its place (Wheeler, 2007).

Darré (1996) underlined the importance of the imposed “conformity” on social and cultural standards generated by the group to which the farmer (or the adviser) belongs. For instance, narratives like “ecological intensification” are blossoming: the process of intensification, which has been largely developed, is applied to ecology and therefore would be more easily accepted than a global switch to OF&F. After having increased *the use* of inputs to control the agro-ecosystem, the perspective is to search for a better *use* of the functions of the environmental components in order to keep on increasing production (Griffon, 2006). Here the paradigm has not really been reconfigured, but the trend is to pursue maximisation by extending intensification to eco-systemic services, which until now tended to be neglected. This large audience is also linked to the

controversial question of OF&F productive performances in a context of the growing question of fulfilling the needs of 9 billion people in 2050 (Paillard et al., 2010).

4. THE ORGANIC AGRI-FOOD SYSTEM

4.1. Organic market: organic certified products, giving value to farmers' practices?

The political-economic critique of the food system analyzes the changes in this system over the past 50 years (Goodman & Redclift 1991, Winson 1993): the marginalisation of small-scale primary producers and processors; the loss of rural ways of life; horizontal and vertical integration, consolidation and monopolisation in the food industry; manipulation of food and its packaging to increase profits; alienation of food consumers, including “de-skilling,” or the loss of people’s abilities to grow and prepare food (Power, 1999). Furthermore, anonymous markets alienate or separate us from “true understanding of our relations with others, and with nature” (Pepper, 1996). Latacz-Lohmann and Foster (1997) have identified the contradiction between an ecological agriculture and mainstream commercialisation as a structural incompatibility. Is it then possible for organic agriculture and organic markets to create changes within the political-economic system in which they are embedded?

By shedding light on production methods encouraging us to look beneath the superficial appearance of commodities as mere depersonalised things, green businesses can reduce or eliminate the alienation between consumption and production that conceals natural-social relations in the production process and is at the root of the problems in our agri-food system (Elkington et al., 1990). Still, there are contradictions between organic ideals and practices, e.g. the reductionism of organic standards, the limitations of private organic certification, and the widespread practice of input-substitution. As the market matures, competitive pressures are already beginning to lead some producers away from strict adherence to the goal of ecological soundness. The market for organic products probably can enhance ecological soundness in agriculture, but in the long term it requires changes in political, social, and economic structures and relationships. The question then becomes: does the market for organic agriculture have the potential to instigate these larger changes, possibly fuelling a vital social movement?

This is what will be required. Organic labelling is simply not enough to create an agri-food system that provides real values. After all, as Marx (1977:437) pointed out long ago, “*Value does not stalk about with a label describing what it is*”. Fundamental change, therefore, is not likely to occur through the market alone. Despite these limitations there are nevertheless ways in which the organic market could contribute to a broader movement leading to collective action. The

organic market tends to strengthen civil society and is becoming a catalyst for real social change (Allen, 2000).

The values conveyed by the quality market (organic, slow food, local food, fair trade, etc.), which were considered as characteristics of the social-political protest movements are no longer “niche markets” next to the dominant ones. They have an increasing impact, as they influence and change the dynamics of the dominant agri-food system. The big companies themselves recognise that they have to integrate these values, and consequently create segmentation of the market (Wilkinson, 2008). The “universalisation” of these values engenders the question of the coexistence in the same territory of industrial farms and small farmers, with all intermediate structures in between. The risk of an exclusion of the pioneers exists. Some of the biggest changes in the food system probably need to come at the policy level (Gliessman, 2008). Another success has been to negotiate price rates for collective certification, in spite of the fact that the industrial agri-food system manages a private certification for export products.

The framework of efficiency/substitution/redesign can also be used to identify and to categorise strategies for modifying agribusiness practices. Diverse short, medium and long-term strategies can be implemented by governments, community groups, academics and agribusiness to support transition, for instance corporate greening, ethical investment, changing the legal status of the corporation, new business forms and the development of ecological economics (MacRae et al, 1993).

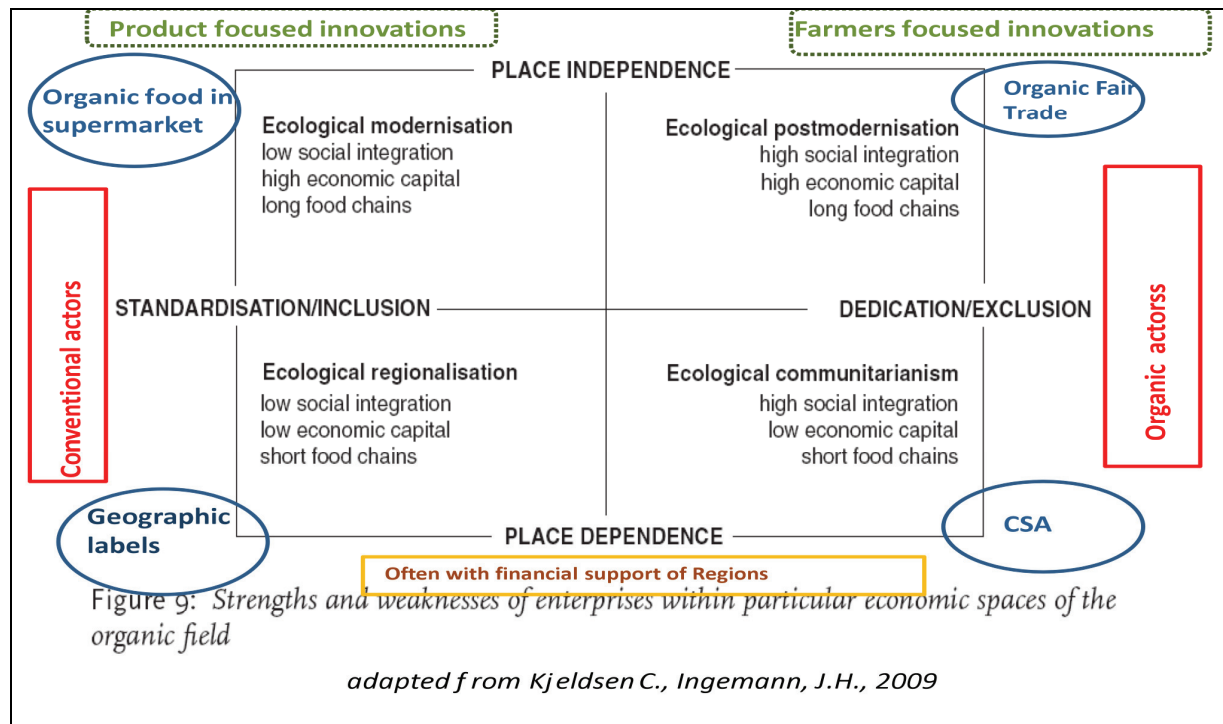
4.2. The issue of the coexistence of organic models

Private groups tend more and more to pay incentives to farmers to convert their farms, in order to meet the market demand. Government subsidies for conversion are related to the land area used, so that small farms often do not benefit from public subsidies. This can be considered as a failure of the policy with regard to the multi-functionality of agriculture. But civil society plays an increasing role, being concerned by fair, ecological and regional trade, for instance through CSA (Community Supported Agriculture). As Morris (1996) mentioned, “small is the scale of efficient, dynamic, democratic, and environmentally benign societies”. In Canada, the sustainable food system’s approach is often labelled “community development”. This approach is compatible with “communitarianism,” as described by Frazer and Lacey (1993). But these types of projects have only limited potential as alternatives on a larger scale, and cannot be considered more authentic just because of their degree of exclusivity (Kjeldsen & Ingemann, 2009).

The classification of Kjeldsen and Ingemann (2009) has been used to represent the panel of organic strategies and initiatives (Fig 1). The vertical axis refers to place dependence, and the horizontal one to social dependence. The standardised OF&F strategies tend to respond to the market demand for a “certified organic product”, with low social integration. In contrast, the dedicated OF&F strategies

are more focused on innovations based on farmers' initiatives. Post-modernist networks share the characteristic of social exclusivity with ecological communitarianism, but can operate on a much larger scale, thanks to the effective mechanisms they employ (for instance organic fair trade, or organic box schemes through e-web).

Figure 1: Coexistence of organic initiatives



Public order in favour of fast development of OF begs a fundamental question: does OF have the capacities to meet the fast-growing organic demand in compliance with the principles underpinning it? The depth and the speed of changes towards sustainability are not easily compatible. The risk is that OF may be summed up in a series of elements matching the guidelines, and of the fundamental principles being neglected, without necessarily being translated into statutory points (Seppanen & Helenius, 2004). Indeed, OF&F is questioned on its capacities to develop an alternative food system in view of the strengths of dilution and appropriation to which it is subjected: risk of "conventionalisation" (Darnhofer et al., 2009).

In order to take into account the strengths and weaknesses of the diverse strategies and to put them into the perspective of OF&F development, we cross (i) the actors' representation of OF&F and the way they envisage conversion (levels of changes in relation with the ESR model from Hill), with (ii) the potential growth of OF&F and its development (according to Kjeldsen & Ingemann), and (iii) the distance with the integrity of the OF&F and its values (cf. theory of "conventionalisation") – see Table 1 which illustrates the internal debates of OF&F regarding its own roads and future (Niggli et al., 2008).

Table 1: Link between conceptions of conversion, OF development process, and integrity

Conception & implementation of conversion and OF&F	OF&F potential growth	OF&F development in the spatial and in the social dimensions	Risks
<p>OF is considered as a simple agroenvironmental measure to contractualize, or as a segment of the market to be supplied. Conversion corresponds to some technical points "to be adapted". The changes are marginally, and can be purely incremental: Efficiency or Substitution in ESR model (Hill, 1985) Transformation, or Technological substitution in Geels & Schot (2007)</p>	<p>Rapid growth</p>	<p>Objectives are attained in terms of converted areas Everyday acceptance of OF (Standardisation : OF inclusion (Keljdsen & Ingemann, 2009) Logistics to supply long chains, public procurements (economy of scale and ecological modernisation)</p>	<p>Conventionalisation of OF&F: loss of "integrity" (Guthman, 2004) Darnhofer <i>et al.</i> 2009) Greenwashing of products</p>
<p>Strong vision of OF as revision of the system and corresponding to a real project of the farm, including innovative links with consumers. Conversion corresponds to radical changes, in a more holistic view: "Redesign Paradigm" in ESR model, (Hill, 1985) "Reconfiguration" in Geels & Schot (2007)</p>	<p>Slow growth</p>	<p>Organic land area is developed below public objectives OF Strong identity ("exclusion", Keljdsen & Ingemann, 2009) Recomposition of marketing towards shorter circuits (ecological communitarianism)</p>	<p>OF not developing fast enough, and potentially rivaled by imports</p>

An important issue is to consider the changes towards sustainability as continuous processes. Parts of alternative elements are incorporated in the regime, thus adding new meanings to the term "conventional", and making the global environment change. Unless exclusivity is a goal in itself for the actors involved, these actors will try to make it more inclusive or "conventional" (Kjeldsen & Ingemann, 2009). Once the new frame has been legitimated, the alternative networks tend to re-position themselves, considering the parts of the alternatives, which were not taken into account when included in the socio-technical regime. That is what is actually at stake in France with new dynamics in the organic networks, which study new organic standards in order to promote more coherent practices (as suggested by the name of this label: "Bio Coherence") than the ones allowed by the current European Regulations - CE 834/2007.

4.3. Multiple frames, strategies and involvement of stakeholders: beyond consensus

Our hypothesis is that the variety of ways followed by the currents and the movements is not in itself contradictory to global efficiency of an "ecologised farming", and to a transformation of the agri-food system: food security and sustainability encompass a diversity of approaches to a variety of problems. This is important to understand, because the way we frame a problem determines the ways we try to solve it (Tesh 1988), and when there are various players involved in the adoption process, different approaches are needed (Rieken & Boland, 2010).

Transitions are contested phases, and different groups struggle, negotiate, and form coalitions (Geels, 2005). Outsiders are important, because they translate socio-technical landscape pressures and draw attention to negative externalities, which regime insiders tend to neglect (Van de Poel, 2003). This is why some authors underline the necessity of a "creative conflict" between organic networks (which hold up ethical values) and those of conventional agriculture (which argue that sustainability cannot omit profitability), to maintain a strong identity of OF&F and innovations in OF&F, which would not allow in a generalised consensus (Schermer, 2007; Moschitz & Stolze, 2005; Michelsen, 2001).

It has been shown that possible conflicts could lead to a "mutual adaptation" (Moschitz *et al.*, 2005). Others assume that maintaining "creative conflicts" can be a strategy to keep OF from being captured by strong global market forces. Depending on the country, the relations between the organic and conventional networks are either "pure competition" or "pure cooperation", conversely compromising the possibility of constructive debate.

Furthermore, different actors may accelerate or widen the adoption of a frame or innovation by offering different reasons why various audiences should adopt it. For instance, the use of an economic approach, "the soil as capital", or the affective metaphor "mother earth" can reach different audiences (Frye, 2009).

In the same way, Alrøe and Noe (2010) suggest that intervention in complex problems should not strive for consensus on problems and goals. The heterogeneity of stakeholder perspectives and their relations can maintain a dynamic, multi-dimensional space of understanding and sometimes even cooperation throughout the process.

5. CONCLUSION

Conversion to OF&F supposes transformations in farmers' practices as well as in their representations, values and links to various social networks. Conversion to OF&F is an exemplary case for broader analysis of changes in agri-food systems (Lamine & Bellon, 2009). We have emphasised the role of the diversity of actors disseminating a global ecologisation, because their expectations differ according

to their trajectories (Sautereau, 2009). We consider that, beyond consensus, multiple frames, strategies and involvement of stakeholders contribute to introducing more sustainability into overall agro-ecosystem design and management, with different levels of ambition regarding the reforming of the system.

Both *shading* and *distancing* processes, which are considered as the main problems of our agri-food systems, could in some sense be solved if agricultural-structural changes could return to more diversified farms, crop rotations, smaller production units, and a closer integration of crop and livestock enterprises. But doing so is difficult to accomplish since there are huge investments and sunk capital costs involved, occurring not only at the farm level but across the entire commodity chain, from inputs through production, processing, and marketing (Princen, 2002). OF&F enables an increased transparency of production processes and promotes bottom-up governance, but unless this transparency is extended to include more social relations, its potential to effect fundamental change will be circumscribed. Other alternatives are appearing, such as the trend to consider agro-ecology as a prototype of sustainable agri-food systems, emphasising stronger linkages between social and environmental components (Wezel et al., 2009).

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