Integrated farming in Greece: a transition-to-sustainability perspective

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Abstract: The aim of this paper is to explore the linking process between a niche and the regime in the context of an emergent transition, using the concepts of ‘anchoring’ and ‘translation’ embedded in the broader multi-level perspective. The case study concerns the transition of an intensive farming system, from subsidy oriented productivism, towards an integrated farming (IF) system focusing on the market, in the canned peach sector in Imathia, Northern Greece. The study revealed an anchored regime-triggered innovation, which resulted in the creation of a market niche within the incumbent regime. In this transition, all forms of anchoring are involved, and various forms of translation were encountered while a hybrid forum was identified, serving as the ‘fertile ground’ upon which all subsequent networking and translation activities took place. Research findings question a clear-cut analytical separation between the three levels of the multi-level perspective, as well as the relevance of a bottom-up procedure as a prerequisite for niche emergence vis-à-vis policy induced change.

Keywords: transition; anchoring; translation; integrated farming; Greece.


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1 Introduction

The most common theoretical framework for the exploration of transitions is the ‘multi-level perspective’ (MLP), which distinguishes among three analytical levels: socio-technical regimes, niches and an exogenous socio-technical landscape (Geels, 2011). Although, so far, the predominant focus has been on advanced transitions occurring over the course of decades (Darnhofer, 2015), recently, transitions-in-the-making or emergent transitions have attracted research interest (e.g. Sutherland et al., 2015; Hounkonnou, et al., 2012). In exploring such a dynamic process in progress, our paper tries to unravel the complex interactions and interdependences between two of the three building blocks in the MLP, i.e. the niche and the regime. Although central to the understanding of transition, the study of this issue has been largely unexplored (Elzen et al., 2011).

Integrated farming (IF) is an environmentally friendly farming method, which lies between conventional and organic farming (Morris and Winter, 1999). The first substantial implementation of IF in Greece took place in Imathia (a NUTS3 region in Northern Greece) in 2000, in the sector of canned peaches, in which Greece is an important player. This process was the consequence of serious drawbacks created by abrupt changes in the global market of canned peaches (USITC, 2007). It has to be noted that the total area under IF in the country has grown rapidly every year since 2004, surpassing 600,000 ha in 2011. More than 90% of farmers, who apply IF, are certified through the Greek standard ‘AGRO2’, while the rest follow the European ‘GlobalGap’ standard (Papadopoulos et al., 2015).
The objective of the paper is to explore, from a transition-to-sustainability point of view, the evolution of peach production from a subsidy dependent model to a market oriented IF system. Drawing on primary field data from Imathia, the transition process is reviewed under the MLP perspective. Imathia is an interesting case from an MLP theoretical point of view, given that it concerns a medium term and regional level transition process. ‘Anchoring’ and ‘translation’, two promising concepts, which have been recently applied in transition studies, are the main analytical tools used in the present paper.

The paper is structured in six parts. The conceptual framework is followed by a short section on methodology. Next, the description and analysis of the case study are presented, structured in three sub-sections, i.e. the previously existing regime, the socio-technical landscape pressures and the emergence of the niche. Results are discussed in the fifth part, with special focus on the patterns of anchoring and translation, and implications for the implementation of the MLP perspective in the specific circumstances, thus leading to the conclusions.

2 Conceptual framework

In order to deal with the problem of applying the MLP, the conceptual part focuses on two concepts: anchoring and translation, attempting to analyse the niche-regime complex relationship in an emergent transition, triggered, most probably, by driving forces originating in the socio-technical landscape i.e. global market pressures.

In line with the ‘on-going’ character of an emerging transition, anchoring is considered as a continuous interactive process with an uncertain outcome. Nevertheless, through a detailed analysis, one can identify how the links created during the anchoring process become more durable, thus contributing to the mainstreaming of the niche. Anchoring denotes the process of linking between a niche and the relevant regime, which takes place across three dimensions: the technical, the human-societal and the institutional (Elzen et al., 2012a, 2012b). The technical dimension includes all technology or production process-related aspects of a regime. All individual and collective actors, as well as networks, comprise the human-societal dimension, while the institutional dimension consists of three distinct categories: cognitive or interpretative, normative and economic institutions. Disentangling the niche’s internal structure and exploring its (in)compatibilities with the regime, permits the description of the linking process between them and the exact location of connections. Through this process one can, thus, discern technological, network and institutional anchoring.

Of particular importance in this context are the notions of hybrid actors and hybrid forums. Hybrid actors are regime actors who engage in innovative activities at the niche level, by e.g. using regime resources, established networks, etc., thus contributing to the initiation and empowerment of the niche. On the other hand, hybrid forums are the relatively stabilised innovative networks, located at the interface between the niche and the regime.

The second concept deployed is translation, in the sense that regime change is not the result of merely transferring practices from a niche to a regime. Every transition involves a ‘translation’ by actors, i.e. some kind of adaptation of niche practices in the course of
their adoption by the regime (Smith, 2007). Based on the study of two green niches in the
UK – eco-housing and organic farming – Smith (2007) identifies three different forms of
translation, as related to sustainability problems, the adaptation of lessons and altering contexts.

From another perspective, translation is defined as a process through which actors realize their actor-worlds (Callon, 1986). In this context, Raven et al. (2011) conceptualise translation as a sequence of four moments. The first concerns the reframing of problems by the actor, in a way favourable to his view (“problematisation”). Problematisation translates previous experiences and perceived opportunities into a new expectation and is followed by ‘interessement’, i.e. the arousal of interest to/in other actors through actions undertaken by the ‘translator’; expectations are thus translated into networking activities. Successful interessement is followed by ‘enrolment’, implying that the actors accept their new position in networks and engage in processes of experimentation and learning. Finally, ‘mobilisation of allies’ may translate the lessons into wider niche or regime networks.

3 Methodology

The empirical material was collected at Imathia (NUTS 3), Northern Greece. In an attempt to analyse the implementation of Integrated Farming (IF) Standards by peach producer groups (PGs), interviews with 30 persons, representing local and regional authorities, researchers, agricultural cooperatives’ representatives, farmers, as well as agronomists-advisors and technical experts, were conducted in spring 2013 (see Table 1). The interviewees have been grouped in four different categories as follows (see Beopoulos and Vlahos, 2005).

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Interviewees by category</th>
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<tbody>
<tr>
<td>Demand</td>
<td>2 NGOs (environment and consumer)</td>
</tr>
<tr>
<td></td>
<td>1 mayor</td>
</tr>
<tr>
<td></td>
<td>3 members of small businesses associations</td>
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<tr>
<td>Supply</td>
<td>5 farmers</td>
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<td></td>
<td>1 president of a Union of Agricultural co-operatives</td>
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<td></td>
<td>1 director of a Union of Agricultural co-operatives</td>
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<tr>
<td></td>
<td>9 young farmers</td>
</tr>
<tr>
<td></td>
<td>3 professional agronomists</td>
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<td></td>
<td>1 member of a local development agency</td>
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<tr>
<td>Regulation</td>
<td>3 public officers (rural development, environment and water resources, environmental education).</td>
</tr>
<tr>
<td>Expertise</td>
<td>1 academic</td>
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These interviews were taped, transcribed and analysed (exploratory analysis; Sarantakos, 2005). This material was supplemented with the reports on the implementation of the PGs’ business plans.
Integrated farming in Greece

4 Case description and analysis

4.1 The incumbent regime: the period of subsidised intensification

The research area has been mainly dedicated to the production of fruit, predominantly peach both fresh and for canning. The Imathia area is the main peach producing area in Greece. The textile industry that used to be an important part of the economy of the area lost almost all of its dynamics, creating a significant unemployment problem (13% in 2001, which was then well above the national average). Almost 1/3 of the active population works in agriculture, while more than 45% work in the service sector. Peach tree cultivation expanded to areas previously cultivated with other tree crops like cherry, sour cherry, pear, apple etc. Irrigated crops like peach tree, cherry, pear, apple trees as well as cotton, corn and sugar beet, give the picture of an intensive agricultural model. Currently, vast areas are covered with peach tree monoculture while in the foothills of the mountains vineyards for wine are located. The area covered by peach trees (19,182 ha in 2005) constituted almost half (45%) of the total area under peach cultivation in Greece. The distribution of the area under peach trees per holding according to size classes is also indicative. The percentage of farms with peach trees under 5 ha was 97% covering 88% of the area, while the average permanent crop area per holding was 1.6 ha.

In 2006, irrigated crops accounted for 93% of the area’s cultivated lands, a proportion far higher than the national average of about 35%. The area constitutes part of the water catchment area of two rivers, a NATURA 2000 protected area and, since 2006, a Nitrate Vulnerable Zone (Figure 1).

Figure 1 The NUTS3 region of Imathia

The starting point for the creation of the previous regime can be set in the early 1980s when Greece entered the European Economic Community (EEC, nowadays the European Union, EU). Then, given that under the Common Market Organisation (CMO) for fruit and vegetables, subsidies were provided to PGs in order to withdraw large quantities of
their production from the market, as a means to stabilise producers’ prices, about 50 PGs were established in the area. Therefore, the regime and its functions had been largely defined by the European CMO.

Regime functions were restricted to the production aspect, which was exercised in an increasingly intensive way, denoting a ‘monofunctional’ approach to farming. However, such intensification of the production process had not been aimed at improving competitiveness in the market, \textit{strictu senso}. On the contrary, the main aim of farmers and their newly established PGs had been to exploit the full potential of their land and trees in order to produce the largest possible quantities, thus increasing the subsidies received for withdrawal.

One of the main expressions of farm intensification, that of farm specialisation, led to a clear and even visible impact, i.e. a homogenisation of the agricultural landscape that was previously rather diverse. During the 1980s, owing to its high profitability, the result of intense subsidisation, peach production gradually marginalised other land uses, including vineyards, apple and cherry orchards and cattle raising, all formerly important in the area.

Production intensification was reflected in all aspects of the technology used. First, the criterion for the selection of peach varieties to be planted was their high productive capacity, irrespective of the quality and the timing of the harvest, which, in the absence of subsidies, would be far more important in view of creating a slot in the market. This particular aspect of the shift to subsidy-oriented productivism rendered redundant the function of the local public research institution, which, up to that time, used to play a major role in the variety selection procedures. According to a researcher currently working at the institute: “Before the EEC, all varieties were at first tested here. Afterwards, the private nurseries that dominate the market took over. They suggest and actually promote varieties to farmers”.

Another aspect of agricultural intensification, with a serious environmental impact, was the increased use of fertilisers. During this period, farmers in the area, reached the top of the list with respect to the use of Nitrogen fertilisers in Greece, and this was accompanied by increased per ha irrigation water consumption (Beopoulos, 1996). These facts combined with the expansion of irrigation in Imathia may well explain the declaration of the area as one of Greece’s Nitrate Vulnerable Zones (2006), thus pointing to the close relationship of the agro-food regime with the management of water resources. An additional element of intensification was the increased use of pesticides, mainly insecticides, thus concluding the formation of the triangle describing crop intensification in the Mediterranean basin (Beopoulos, 1996).

Concurrently, the network of local private agronomists, who had long acted as retailers of fertilisers and pesticides, saw their role rapidly gaining importance. This informal network, also providing information and advice, filled the gap created by the demise of public extension services which virtually eclipsed public extension officers and rendered the public research services obsolete (Alexopoulos et al., 2009). This, in turn, increased farmers’ dependence on input providers usually resulting in higher costs for farmers (see also Knutson et al., 1998). A further indirect consequence of crop intensification was the marginalisation of a significant part of farmland, mainly of small family farms. Agricultural lands (not appropriate for intensification, due to climatic, soil or geographic limitations) as well as smaller farms, which were unable to cope with the intensification process, were abandoned, and specialised larger farms concentrated their efforts in the most productive parts of the land.
At the other end of the value production chain, marketing decisions were in general left to the leaders and the administration executives of the PGs. The elected leadership of PGs along with their administration comprised a network which was linked to a large degree with partisan as well as local politics, a fact resulting sometimes in local and wider conflicts. This constitutes the most important institutional dimension of the incumbent regime: the existence of direct linkages to political parties and networks mainly functioning through the PGs’ leaders and thus influencing higher level politics i.e. the Ministry of Agriculture. The detachment of street level practitioners, mainly agronomists, from both the upper level bureaucracy and farmers can be seen in the indicative example of EU subsidy management. Although the Prefectural Directorate was formally responsible for controlling subsidies, any problems that arose concerning subsidies were directly negotiated by the PG top management at a higher (national or even EU) level in an informal manner. Thus, local level public administration (the Prefectural Directorate of Agriculture) was bypassed. Other networks in the area (input providers/agrochemical companies) were attached to this policy network with an active role in the negotiation process at the national level. PGs’ executives, directly linked to local partisan politics, capitalised on their increasing influence, gaining the votes of farmers who sought solutions to all their problems through this strengthened clientelistic network, offering them a sense of direct access to policy decision making. The formation of such clientelistic relationships, not only bypassed local agricultural administration but, in many cases, disrupted linkages with the society. The disproportionally increased PGs’ power through patron-client relationship created an eventually false perception of autonomy from other local collective efforts.

Thus, it can be argued that within this populist framework, opportunism was the norm: on the one hand, PGs’ leaders exhibited an opportunist behaviour, using their position as a vehicle for their access to higher level politics; on the other hand, PGs’ members participated in the system expecting various benefits in the form of favouritism (e.g. easier access to resources). The whole operation worked on a ‘partisan’ politics base, with fierce antagonism by political parties for the control of PGs’ elected boards. At the same time, the continuous flux of EU subsidies unwittingly secured the smooth functioning and the reproduction of such a ‘system’, providing financial benefits, though unequally, to all involved parties (Collins and Louloudis, 1995; Louloudis and Maraveyas, 1997).

The formation and functioning of this local political network is also found in the relevant literature for the Greek cooperatives. Despite the acknowledged problems of Greek agricultural cooperatives, such as pervasive rent-seeking and the lack of entrepreneurial incentives, Iliopoulos and Valentinov (2012) have shown that in Greek agricultural cooperatives internal opportunism inflates the formal organisational structure and lowers the cooperative’s effectiveness in serving its members. In addition, the close and mutually beneficial relationship between local or national agricultural cooperative leaders and politicians in recent decades is described vividly in Demakis (2004).

4.2 Socio-technical landscape pressures

As argued, the main instigating factor behind the creation of the incumbent regime had been the EU policy measure providing for subsidies to withdrawals. By the same token, the landscape factor that opened a window of opportunity for the creation of the niche was the radical change of the EU CMO for fruit and vegetables.
The fact that EU compensation for the withdrawal of peach production was, to some extent, used by certain PGs as a means to subsidise their canned peach production, and thus gain in terms of international competitiveness, caused market distortion at a global scale (USDA, 2001) because of the important market share of Greece (USITC, 2007). Hence, Greece’s global competitors issued formal complaints, causing a gradual but severe restriction of the withdrawn quantities to be compensated (1993–1995). This ‘unusual’, in terms of speed, EU policy change process, found the research area’s PGs in the situation of losing export markets.

Furthermore, global competitors also tried to counterbalance such a distortion with technical barriers to trade. Using the ever increasing consumer concerns about food safety, especially pesticide residues, they favoured the application of targeted, stricter residual limits rules. In particular, an absolute prohibition of the use of a specific organophosphoric insecticide (methamidophos), commonly used in Imathia since it was allowed under the EU regulations, was imposed by certain importing countries. This, in turn, resulted in the rejection of shipments from Imathia, an event that when aggregated to the abrupt policy change, depicts the level of pressures exerted to PGs and farmers.

It is also worth mentioning that in Greece as a whole, and Imathia in particular, the spatial and temporal alienation of the urban population from its rural origins led to the gradual social de-legitimisation of the subsidisation of agriculture, especially concerning environmentally harmful support as is the case of production withdrawal. The phrase “Farmers are producing for the dumping areas (chomateres in Greek)” is still, almost 30 years later, a typical phrase used when the primary sector is discussed in Greece.

4.3 The emergence of the niche

At the outset, in order to overcome this barrier when the adverse conditions started to emerge, i.e. 1995, the obvious option for the Imathia peach PGs was to inspect all shipments. Nevertheless, such an ex-post intervention was both inefficient and impractical due to the large numbers of farms and the lack of an effective traceability system. There was an urgent need, thus, to find a way to ensure that the final product, in its totality, would comply with the recently imposed restrictions.

This crisis coincided with the establishment of ‘Agrocert’, a standardisation and certification organisation, under the supervision of the Ministry of Agriculture, mainly aiming at ensuring the smooth functioning of the organic certification system (Agrocert, 2000). However, the initial plan, i.e. to replace private organic certification with a centrally run public system, was abandoned. Hence, Agrocert was forced to change its scope towards the strengthening of farm produce links to the market and hence the improvement of farms’ competitiveness.

The fresh farm produce value chain was the focus of attention in Europe at that time, due to the formation of an alliance of big retailers and producers introducing a standard for controlling fresh products (‘Eurep-Gap’). Given the establishment of various certification schemes for environmental friendly agriculture other than organic (e.g. Little Red tractor, Linking Environment and Farming (LEAF) in the UK, Agriculture Raisonnée in France, Producción Integrada in various Spanish regions), Agrocert, issued the integrated farming standard AGRO2 – Management of the Rural Environment – System of Integrated Management in Agricultural Production (Agrocert, 2000).

Another interesting element of the strategy employed by Agrocert was that instead of getting in contact with agricultural authorities and relying on them to approach farmers
and their PGs, the organisation chose, in Imathia, to address a group of agronomists, up to then excluded or at the margins in the existing productionist regime due to either their young age or a recent involvement in the local market of agricultural inputs, with already strong players having established close collaboration, sometimes exclusively, with large inputs companies. As a local private agronomist said “Agrocert had two choices, either to collaborate with us and spread the idea of Integrated Farming or rely on the bureaucrats of the local directorate of agriculture. They chose us.” This alliance, unusual for a quasi-state organisation, resulted in an extended network of professionals acting as dissemination agents.

The project undertaken in Imathia was the adoption of the AGRO2 standard by an increasing number of PGs. In this respect, the whole production process (technical dimension of production) had to be changed, covering all aspects, i.e. selection of the propagation material, irrigation, fertilisation, crop protection – since the main purpose of IF was to ensure that the pesticide residues would be low enough to allow the produce to re-enter markets – as well as pruning, harvesting, post-harvest handling, traceability, biodiversity maintenance, safety procedures for farmers and crisis management plans. Additionally, the implementation of AGRO2 called for standardised procedures; a thorough plan for the structure, functioning, monitoring and assessment was a prerequisite for the successful outcome of the auditing of the system.

In order to introduce, disseminate and establish this scheme, which was rather difficult to explain and hard to implement, Agrocert devoted staff and collaborators in the area, participating in small meetings with private agronomists and PG representatives, who were also offered two-days short courses for small numbers of participants (ca. 20 persons each). These courses proved quite successful in terms of participation (more than ten short courses organised locally) despite the application of fees, in order to introduce the standard and clarify issues concerning its implementation; experts from various public institutions (universities, research institutes and the Ministry of Agriculture) participated as trainers, thus forming a network promoting IF and the AGRO2 standard.

Given that the implementation of AGRO2 called for standardised procedures on the part of all the PGs’ farmers, new co-ordination mechanisms within and among the existing networks became necessary. Consequently, the input providers’ network was transformed into two new ones. Some of the professionals found a new role as private management consultants assisting PGs in setting up, implementing and monitoring of the management system’s standardised procedures. An integral part of the standardised procedures were the establishment of an internal auditing system, the provision of advice like the proposal of corrective actions. All these elements constituted organisational novelties promoting a collective coordination for producer groups in the area. A second segment of the agrochemical retailers shifted to technical advisors, either as PGs’ employees or as free-lance technical experts collaborating with the PGs.

The detachment of technical advice on plant protection from the provision of agrochemicals, created space for the inclusion of public sector experts such as academics, researchers and highly specialised staff at various levels of the public administration in the endeavour. Moreover, local public research institutions, invited by PGs and in collaboration with private management and technical experts, became gradually re-involved in relevant research projects. On the other hand, input companies, after an initial negative stance, established and promoted links with the management consultants’ network. According to a management consultant: “My term in order to accept the ‘X’
PG’s proposal to consult them on their management system was that the PG should take the responsibility of commercial distribution of pesticides, in order to break the direct linkages of professionals and farmers with the companies.”

Finally, a network of Private Certification organisations has also been created, since the existing organic certification ones were not involved. Agrocert, after their initial involvement in AGRO2 certification, withdrew from this role and is currently limited in ‘accrediting’ private certification organisations. Within IF, the role of advice has been of key importance in the creation of the niche since any individual farmer’s decision is rendered impossible without consulting with and/or be instructed by the supervising expert. As a Co-operative CEO stated: “The main result of IF is that it re-introduced science in the field.” It should also be pointed out that one of the prerequisites of the system is that farmers have to follow short courses on subjects covering practices across the whole production process. Farmers are also held responsible for the training of the farm workers they employ. Moreover, as one of the consultants argued: “There is a two way process of learning. We [consultants] learn together with farmers through visits abroad (Italy, Spain, and France) but we also learn from local farmers (or local technical experts) and we disseminate good practices to other farmers.”

This niche can be characterised as successful (a ‘market’ niche). Available data suggest that more than 6200 small farmers participate in 26 PGs implementing IF, resulting in more than 10,000 ha cultivated according to the AGRO2 standard, thus covering more than half of the peach producing land in the area. Our interviewees argue that input use (especially fertilisers) in IF peach production has been reduced considerably. Evidence from the documentation archives kept by a PG covering 450 ha of peach trees in the area, suggests that during the decade 2006–2015, the amount of pesticides, measured in volume of active substances used, has been reduced by 28% due to the application of a system of monitoring weather conditions and the presence of insects through traps, combined with the application of sexual confusion pheromones. Furthermore, gradual application of chemical fertilisers after careful examination of needs through soil analysis, and application of techniques like green manure, resulted in a reduction in the N application rates of 52% (from an average 250 kg N per ha to 120 kg N/ha). A rational management of crop residues resulted in an addition of 65 t of residues per ha to the soil with the corresponding increase of soil organic matter. Finally, irrigation water consumption per ha was reduced by 500 m3 during this decade, due to trickle irrigation equipment use (Vakamis, 2016).

A recent study on energy flow among conventional, integrated and organic peach orchards in Pieria region (adjacent to Imathia, with similar agro-ecological conditions), showed that, in comparison with conventional farming, IF uses lower energy inputs related to machinery-tools and fertilisers (Michos et al., 2012). Also, using primary data from a representative sample of 100 certified peach farms in Imathia, Theocharopoulos et al. (2007) have shown that even though some reduction in the use of agrochemicals compared to conventional farming has already been achieved, there is a significant potential for further reductions in input use (21% on average) through improvement in the internal organisational effectiveness of IF farms.

Other research findings indicate that IF peach cultivation in Imathia exhibits higher efficiency in terms of product safety and quality, as the concentrations of all detected pesticides were lower than the maximum residue limits in all peach samples grown with the IF system (Tsakiris et al., 2004). On the other hand, compared with conventional peach production, IF exhibits higher gross revenue, profit and return on capital, although it still lags behind in terms of technical and allocative efficiency (Nikolousis, 2009).
5 Discussion

5.1 Patterns of anchoring and translation

The triggering of the niche under examination, in the first place, involves a different, novel way of addressing the problem and the solution to it (interpretative institutional anchoring): instead of the ex-post inspection of all shipments for pesticide residues, it was decided to put in place a well coordinated farming system, covering the totality of the production process in order to ensure that the final product would comply with the criteria imposed by the respective clients.

In this respect, although its main aim was to enhance environmentally friendly practices in agriculture, AGRO2 was actually used by PGs in the research area to address an important deficiency of the existing production system, i.e. the failure to ensure an acceptable (by the market) level of residues in their product. This implies a fundamental translation of a novelty, which resulted in its use as a strategic instrument to address a different problem than the one it was initially designed for. The new IF standard thus became the ‘perfect’ instrument for the operationalisation of the required shift from productivism to safe and quality products. Seen from another angle, this translation of societal concerns about food quality and safety into new comprehensive rules of an IF system, denotes a form of normative-institutional anchoring.

Furthermore, the introduction of IF implies technological anchoring. IF involves a series of principles and practices which have been standardised and codified in relevant protocols; within these protocols, fertilisation and plant protection guidelines are the most common element, accompanied by additional restrictions referring to tillage practices, crop rotation, etc. (EU DG Environment, 2002). Technological aspects of IF are identified not only in terms of reduced use of all kinds of inputs, but also in the deployment of special technologies/practices for the management of pests, genetic resources, energy and farm inputs.

Agrocert initiated the IF project in Imathia through problematisation and interessment processes, which resulted in the enrolment of two crucial actors; firstly, the leaders of a couple of large PGs and secondly a group of agronomists. Thus, two solid new networks of major importance were created (network anchoring). The first one involved established regime actors, but with a strong willingness to address not only the crisis but also the bottlenecks of the existing political networks as well, thus breaking the links with clientelism.

In the second network, the agronomists initially involved were either at the beginning of their professional career, not yet fully integrated in the regime, or at a crossroad, but surely aware of the need for a radical reorientation of private agronomists’ roles. These agronomists, up to then working in input provision, which they accompanied with the relevant technical advice regarding better application of the input, targeting at a maximisation of their sales, had been the first to adopt innovations and adapt to changes. Agrocert collaborated with them in order to enrol PGs to the niche, unlike other attempts in Greece which focused on incumbent regime actors (Koutsouris, 2008). This network-anchoring process continued and, at a later stage, embraced the whole well-established, up to then, network of private agronomists who were transformed from mere input providers to advisors aiming at a rationalisation of input utilisation instead of trying to maximise use, since various socio-technical landscape pressures (notably CMO as well as Maximum Residual Limits rules) were gradually rendering their activities obsolete.
The construction of these most critical initial networks was further followed by the conscious abandonment of the opportunistic behaviour on the part of a few more PG leaders, implying another form of interpretative institutional anchoring.

IF also made necessary new co-ordination mechanisms within and among the existing networks. After its successful introduction, the rapid adoption of the IF standard by hundreds of small farmers in the region indicates further network anchoring. Indeed, a high degree of coordination is needed, since large numbers of farmers need to coordinate specific farming practices, such as spraying, over a large area. In our case network anchoring is further evident in the new broader ‘alliance’ of public (for example, the local public research institute) and private sector actors (as for example agronomists-consultants).

Overall, this transition is characterised by the strengthening of collaborative action and collective institutions. In the case of canned peaches, the whole project can be also thought of as a counter-oligopoly measure with PGs attaining a more balanced distribution of power in the specific value chain. Application of the IF scheme was, eventually, impossible for individual farmers. On the other hand the forced abandonment of production withdrawal, led to a reduction of the number and an increase of the size of cooperatives/PGs. Hence, their negotiating power increased substantially, and, up to a certain degree, market power has shifted from middlemen to PGs, although the problem of the concentrated retail segment of the market still persists. Therefore, economic-institutional anchoring is also present in our case.

Finally, anchoring between different regimes is encountered, because as shown, the adoption of IF has had positive impacts on the management of water resources, thus pointing to the close relationship of the agro-food regime with the water resource regime.

Furthermore, as we have seen, dissemination of information, knowledge processes and learning are central in the shift to AGRO2, thus acting as prerequisites for the implementation of IF, which presupposes a break with existing practices (Röling and Jiggins, 1998). Moreover, while in the beginning, following a top-down approach, all information emanated from Agrocert to the agronomists-consultants, at a later stage, ‘endogenous’ creation of knowledge emerged, i.e. the development of specialised knowledge and co-operation with research.

5.2 The role of hybrid actors and hybrid forums

As argued, Agrocert, although in principle a regime (quasi-governmental) actor, was the niche instigator in Imathia. It acted both as a third party that mediated information dissemination and put forward an innovation (IF) as well as being a major contributor in building mutual trust among local actors. Such a regime actor involved in a series of new/innovative roles can undoubtedly be characterised as a hybrid actor.

The establishment of Agrocert is an innovation in itself within the Greek public administration. Furthermore, in another unconventional step, Agrocert used the existing network of private agronomists to gain access to, attract and finally enrol agronomists, and, secondly, enlist a couple of large PGs to the niche, instead of addressing the public administration and asking them to proceed. According to a private management consultant: “When the whole process started, Agrocert decided to work with us, the private sector and not the bureaucrats of the Directorate of Agriculture.”

Consequently, a strong innovation network was created at the margins of the incumbent regime, including Agrocert, some well-established regional regime actors,
showing a strong pro-innovative attitude (PGs leaders), and a group of regional regime actors at the fringe of the established professional system of input and advice provision to farmers (“young” agronomists). This hybrid forum (Elzen et al., 2012a) is the space in which all subsequent networking and translation activities took place.

In a consequent phase, this hybrid forum was broadened, including new actors (public sector experts including the previously neglected local research institute) as well as existing, but transformed, networks. Of pivotal importance to this process was, as aforementioned, the endogenous creation of knowledge. Furthermore, since our case is about a niche which originated within the regime, the entire niche lies in an overlapping area with the regime.

In terms of the conceptual framework, the case study exhibits a pattern of linking between the niche and the regime, consisting of a sequence of various forms of anchoring: interpretative institutional anchoring, network anchoring, normative-institutional anchoring, technological anchoring, further network anchoring, economic-institutional anchoring, and finally anchoring between different regimes. As argued, within the incumbent regime a ‘core’ element had been clientelistic relationships, through direct linkages of the leaders of the co-operatives, with central government and political parties’ leaderships, using this power in order to attract farmers’ votes, thus ensuring its perpetuity. This strong political network acted as an ‘attractor’ for other important actors in the area (input providers and agrochemical companies), forming a coherent institutional basis/structure. Nevertheless, both the major policy change with the resulting cessation of subsidies and the loss of foreign markets, jeopardised the reproduction of this political network. Following such unfavourable developments, the conscious change of attitude of some of the PGs leaders, who abandoned their opportunistic behaviour, acted as a catalyst for the formation of one of the two crucial networks with Agrocert. Thus, a major change of norms also took place in the research area.

However, it is noteworthy that this has been a partial process, since these PGs’ leaders (especially the first-tier leaders) did not abandon their opportunistic behaviour in the case of apples, pears and fresh peaches. This is due to a number of reasons, e.g. apples and pears are not as vulnerable as peaches, hence they can be handled more efficiently. On the other hand, in comparison with the canned peach, these fruits, as well as fresh peaches, have quite different marketing channels, since there is no need for processing. It is worth noting that processing makes additional investments and economies of scale indispensable. At the same time, the vehicle for the spreading of the innovation, the need for collective handling of the produce, was not available in the case of the fresh produce.

As Smith (2007) noted, usually, the regime adopts part of the niche, not all of it. In our case, the niche (IF - AGRO2) is adopted by a part of the socio-technical regime: local networks adopt IF in a fragment of their activities, i.e. the part of the peach production going for canning.

5.3 Some implications for the MLP perspective

The case study reveals a niche which emerged at the ‘fringe’ of the regime, a rather unfitting case within the ‘classical’ MLP representation. However, this observation is in accordance with recent contributions in the MLP literature, which suggest that “niches may also emerge within a regime and not only at the micro level” (Rotmans and
The importance of the area ‘between’ the niche and regime, or the area where the niche and the regime overlap, questions the relevance of the separation between the three levels of the MLP model. As it has recently been argued, many transformative dynamics occur amongst the ‘micro-’ and ‘meso-level’ where an ‘empowered niche’ (a niche powerful enough to attack the regime) is situated (Haxeltine et al., 2008). In this context, besides the identification of ‘hybrid forums’ and ‘anchoring’ processes, which we have used as our conceptual framework, other researchers have proposed non-hierarchical representations, challenging the existing hierarchical accounts of transition processes: a complex, adaptive systems representation (Loorbach, 2007), and a flat approach inspired by actor-network theory (Jørgensen, 2012).

The exact position of policies within MLP is also an intriguing issue. In MLP, policies are considered as part of the incumbent regime (Lachman, 2013). However, when studying a transition at the regional scale, it is obvious that most policy changes are an exogenous factor; policies could be considered as a landscape factor, beyond the reach of niche and regime actors. In our case study, the use of subsidies concerning withdrawals of production for subsidising exports, caused a serious reaction from global competitors who, on the one hand, raised new technical barriers and, on the other hand, put pressure on the EU, thus inducing a major policy change (CMO for fruit and vegetable within the CAP). This was a ‘landscape’ factor vis-à-vis the Imathia actors. Could this mean that a landscape driving force has been actually induced by regime actors’ deeds and functions? With a view to MLP (Geels, 2002), in the Imathia case, the incumbent regime characteristics had been defined by the policy measures implemented (i.e. a landscape factor). Therefore, the driving force behind the change of the very same regime, has been again a policy change.

Another interesting issue raised when applying the MLP, relates to scales and levels. The regional level (re: spatial scale) as well as the medium term (re: temporal scale), may call for the reconsideration of the terms ‘regime’ and ‘landscape’ (Karanikolas et al., 2015). The MLP approach may be useful if one examines the issue of prices at the farm gate. An essential element of the regime, at the temporal and spatial level, is that farmers and their collective organisations, in the case of generic commodities and not specialised consumer goods, are in general price takers since the quantities demanded and the price offered are defined at a higher level with farmers not being able to exert any influence. However, in the specific case examined here, due to the quasi-dominant position of the country in the global market of canned peaches (USITC, 2007), a more reflective approach is required. In this respect, clear cut categories of the MLP may be replaced by a continuum. This could enrich, instead of weakening, the MLP and allow for its application in different levels of the scales.

In fact, considering the attempt to apply the MLP at the regional level, one could argue that it is an appropriate level, when a spatially dependent regime is examined. Environmental (climatic and physical) conditions and economic and social linkages to the specific area are much stronger than in other cases when an industrial sector or even a “hors sol” agricultural activity is examined. The strong spatial dependence of the regime could, for example, explain the importance of hybrid forums in the Imathia case, in the sense that there was a need to influence and finally form alliances with the deeply rooted regional actors. On the other hand, the fact that hybrid actors are regionally embedded resulted in the mobilisation of a wide spectrum of regional actors, thus broadening the influence of change to sectors other than the agricultural one.
6 Conclusions

The aim of this paper has been to explore the linking process between a niche and the regime, in the context of an emergent transition at the regional level. The transition process has been reviewed utilising the MLP approach, by using the concepts of ‘anchoring’ and ‘translation’. The study of the transition of an intensive farming system, from subsidy oriented productivism, towards a specific integrated farming (IF) system, revealed an anchored regime-originated innovation which resulted in the creation of a market niche within the incumbent regime. This was the result of the development of strong links of this innovation (IF) with the regime, across the technical, human-societal and institutional dimensions.

In this transition various forms of anchoring are involved, with technical anchoring being part of a sequence, in which all other forms of anchoring are present. In order to fit the needs of PGs and address an important deficiency of the previously existing production system the IF standard was translated (Smith, 2007). Other forms of translation (Raven et al., 2011) are encountered as well, such as problematisation and interestment processes on the part of Agrocert, which resulted in the enrolment of two crucial local actors. A strong innovation network was created at the ‘periphery’ of the incumbent regime, as a result of the collaboration among a national-level regime actor (Agrocert), and two regional-level regime actors: one powerful group of PGs’ leaders and another group of agronomists-consultants at the fringe of the established professional system of input and advice provision to farmers. All subsequent networking and translation activities took place at this hybrid forum (Elzen et al., 2012a). Existing networks were transformed (from input to service providers), new networks were created, linkages between actors and networks were broken (professionals – companies), new ones were created (PGs – companies, PGs – consultants), while weakened links were re-strengthened (research community – PGs). Although successful in many respects, the examined niche shows that IF could not have been adopted by regime actors if a particular agricultural branch/produce either has technical characteristics which allow for an efficient distribution of the product in the market, or does not face a major crisis.

Finally, the application of MLP to a medium term and regional level transition process, which is originated in the ‘fringe’ area of the regime, has some implications for the MLP itself, and which could be the focus of future research. Among them, the difficulties of a clear-cut distinction between regime and socio-technical landscape factors question the relevance of the analytical separation between the three levels of the MLP model. The question of whether a bottom-up procedure is a prerequisite for niche emergence vis-à-vis policy induced emergence is a further point in need for re-examination.

References


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Vakamis, D. (2016) Extract from the documentation kept by a PG applying Integrating Farming according to AGRO2.

**Note**

1 Areas designated because the water catchments are vulnerable to nitrate pollution caused by agriculture (Dir 91/676/EEC).