Advisory services within national AKIS – concepts and empirical evidence from selected EU member states

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Abstract: Recently, Agricultural Knowledge and Innovation resp. Information Systems (AKIS) have gained considerable attention in scientific and political fora in the EU. AKIS is considered a key concept to identify, analyse and assess the various actors as well as their communication and interaction performances for innovation processes in the agricultural sector. Through qualitative expert interviews and with the help of institutional mapping, the national AKIS, and especially the role(s) and functions of advisory services as one major actor within these systems, were investigated in selected EU member states (BG, DE, F, IRL, PT and UK). We present the varied national conceptions of AKIS and compare them qualitatively with regard to their institutional settings, and their overall policy frameworks and coordinating structures. Specific attention is given to agricultural advisory services and their integration within the respective national or country-wide AKIS. Conclusions are drawn with regard to the practiced conceptual and the methodological approach towards AKIS.

Keywords: AKIS appraisal, Europe, AKIS diagram, advisory service providers

Introduction

The European Union (EU) is experiencing times of drastic economic risks and huge challenges for social cohesion between member states. As a political mid-term goal for the ten-year period from 2010 to 2020, the declared 'Strategy 2020' (COM 2010/2020) orients all member states towards economic growth based on knowledge and innovation, resource efficiency and social and territorial cohesion. In this context, the Common Agricultural Policy (CAP) plays a crucial role. Especially through rural development policies, both the agricultural sector and rural territories shall be supported in their development efforts towards competitiveness, environmental and social balance, resilience and innovativeness (EU 1305/2013). Several instruments aim to enhance the processes of knowledge exchange, information dissemination and innovation creation, namely knowledge transfer and information actions (Art. 14), advisory services (Art. 15) and cooperation in networks (Art. 35). The underlying conceptual framework for this approach is that of the Agricultural Knowledge and Innovation Systems (AKIS), which is conceived as the purposeful interaction for innovations of actors from the four subsystems: 'socio-economic system' (farmers, processors, networks of SMEs), 'public decision-making system' (administrations at regional and

local level), 'information and knowledge system (research institutions, extension services, colleges, schools etc.) and the 'end users' (consumers, NGO) (EU SCAR 2012:30).

In the frame of the EU FP7 project PRO AKIS ("Prospects for Farmers' Support: Advisory Services in the European AKIS"), an overview on the AKISs within the EU member states was compiled. A major goal consists of empirically testing the potential of the AKIS concept for reflecting public policies aiming at supporting farmers in today's Europe to get access to reliable and relevant knowledge, orientation and support. In other words, PRO AKIS investigates the status and the potential of AKISs in EU member states. It focuses especially on the advisory (sub-) systems taking into account that i) extension services have recently undergone many institutional changes induced by privatization policies; ii) these services are the ones that are supposed to tackle directly the question of farm diversity (for the diffusion of innovation, etc.); and iii) advisory services were thought right from their creation as a way of bridging science and practice. In the presented paper, selected findings for a number of countries (BG, DE, F, IRL, PT and UK) are extracted and comparatively presented.

The paper starts with a very brief presentation of our conceptual framework, i.e. how we conceptualize an 'AKIS'. Then, the methodological procedure is briefly described. Results are compared for the investigated countries. Conclusions are drawn with regard to the practiced conceptual and the methodological approach towards AKIS.

The AKIS concept

Within the agricultural sociology and extension sciences, system approaches to the complex processes of knowledge generation and exchange, learning and innovation practices are rather common. As Klerkx et al. (2012) summarise, at least four different system concepts can be differentiated – addressed under the titles 'social (adoption and diffusion) system', 'farming system', 'agricultural knowledge and information system' and 'agricultural innovation system.' These concepts evolved partially in parallel, partially intertwined, partially competitively. In the PRO AKIS context and with regard to the initially mentioned political trends, especially the use of and the distinction between the two latter concepts are relevant (Labarthe et al. 2013). They both relate to functions like knowledge generation, knowledge exchange and the existence of knowledge flows, although their purpose (problem solving or innovation creation) might differ. For several authors it is especially the increased range of actors and the institutional diversity of involved organisations that characterizes the shift from 'knowledge and information' to 'innovation' systems (EU SCAR 2012; World Bank 2012). With regard to the latter concept, Klerkx et al. (2012) identify a relevant difference in analysing agricultural innovation systems according to whether the focus is on *infrastructures* (i.e. the institutional setting) or *processes* (i.e. the organisational and self-organisational dynamics) or *functions* (i.e. the normative dimensions).

Within PRO AKIS, it is our objective to conceptually substantiate a research approach to agricultural advisory services within their larger institutional settings, applicable in the diverse EU member states. Therefore, PRO AKIS adopted a pragmatic stance on AKIS (Labarthe et al. 2013) where

- the AKIS concept aims at describing knowledge infrastructures (Klerkx et al. 2012)

- it gives a central role to the analysis of agricultural advisory services (Assefa et al. 2009)

- it aims at better understanding knowledge flows within the system, focusing on the issue of knowledge access for a diversity of actors (Hall et al. 2006), and

- it works with a scale that fits the study aim (mostly national or regional).

In PRO AKIS, the core interest remains with the knowledge and information dimensions of the investigated systems. Based on this concept, an inventory of the AKISs in the EU member states was designed to allow for a comprehensive investigation of their institutional diversity, an appraisal of their political governance and coordination structures, and of linkages and interactions between the different organisations and bodies.

Methods and Material

The findings presented here result from the PRO AKIS inventory that was conducted in 27 EU member states (excluding Croatia). A concerted methodology was applied across the countries by using a common guide for qualitative expert interviews and a harmonized questionnaire for a survey of advisory services (Knierim et al. 2013). As 'experts', we considered specialists in agricultural knowledge and information processes from a diversity of groups of interests: public decision, research and education, advisory services, and farmers based organisations, mainly at the national level. For this paper, results from six countries were selected whose investigation fell in the authors' responsibilities. Most results stem from the expert interviews that were conducted between May and September 2013 (see table 1).

Table 1: Interview partners in the six countries according to organisational affiliation

Country Organisational affiliation	France	Bulgaria	Germany	Ireland	Portugal	United Kingdom
Politics, public administration	1	2	4		7	4 (3 with advice function)
Research, Education	4	1	1			1
Advisory organisation	7	1	2	4		
Other	2	6	4		7	2
Total	14	10	11	4	14	7

As shown in the table, the findings of the presented paper rely on a total of 60 expert interviews in the six countries. The interview guide included questions regarding AKIS organisations and their linkages, knowledge creation and transformation processes, advisory services, the policy framework, trends for AKIS and advisory services and knowledge needs. In line with the conceptual understanding of AKIS as a predominantly *infrastructural* one (cf. section 2) and based on literature and grey documents, the authors developed a visualized idea for each national AKIS in form of a diagram. This draft diagram was used and refined in the expert interviews as a basis for the comprehension and the appraisal of the AKISs.

Results

Results are presented in four sections. We start with reporting on the interviewees' perception of the concept itself. Following that we describe and compare the (national) AKIS as they were seen by the interviewed experts. In the third section we describe and compare the political frames and coordinating structures of the AKIS. Finally, we comparatively locate the organisations providing agricultural advice within the investigated AKIS.

The AKIS concept as perceived by national experts

The AKIS concept, i.e. the idea that knowledge and advisory services provided to farmers are result of a complex and systemic interactions of manifold actors, is not yet commonly held by the interviewees. In Bulgaria, Germany, France and the UK most experts did not actively refer to the AKIS concept, while in Ireland and Portugal they were rather familiar with it in general.

The literature-based, draft AKIS diagram served different purposes, it was useful in the interviews as a structuring tool (in Germany), for the identification of missing actors (in Bulgaria and France) or for the mere assessment of the breadth of the organisational landscape (in the UK). However, the diagram tool was less appropriate to integrate and visualize different perspectives or to qualify linkages and interactions. E.g. in Germany, the final outcome was a tabular structure without linkages, and the Portuguese findings revealed the perspective of a historical AKIS (differentiating the three subsystems 'research', 'extension' and 'education'). The Irish case showed two contrasting results – one formalized institutional overview (from the interviewer) and one oriented and qualified from the perspective of a predominant national AKIS organisation – that differ considerably in the number of the perceived total actors (Figure 1).

Figure 1: Contrasting AKIS diagrams for Ireland (PRO AKIS and Teagasc version).
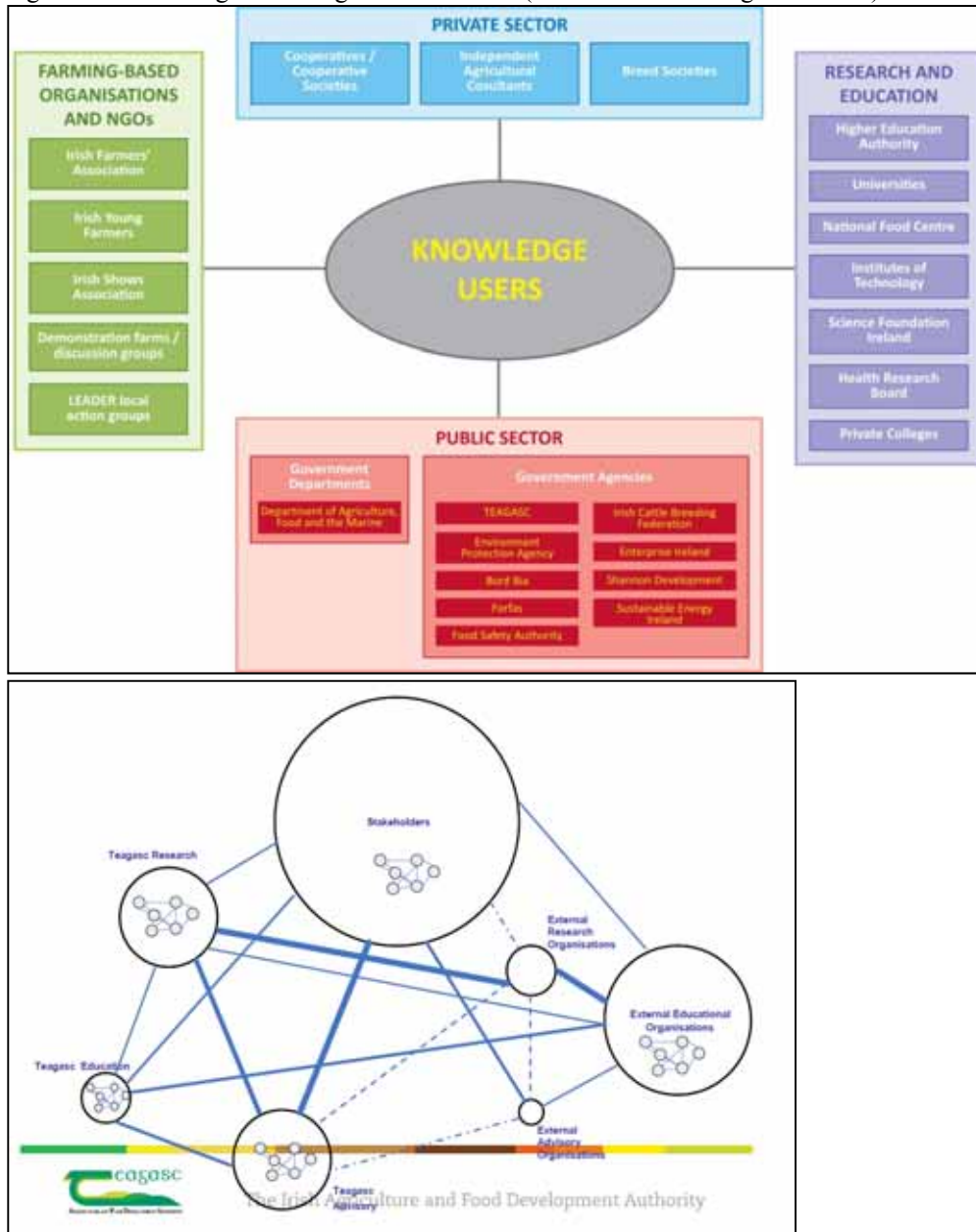
A particular situation occurs in the UK: Here, the AKIS is characterised by diverse and increasingly separated arrangements in the four UK countries and a "UK AKIS" exists only in theory. In practice, there are four quite separate knowledge systems in England, Wales, Scotland and Northern Ireland and accordingly, none of the interviewed experts felt in the position to speak for the whole UK.

Country-level AKIS - appraisal of organisational structures and diversities
The objective of the country – level AKIS appraisal was (i) to present a general AKIS 'picture', (ii) to identify and describe the various types of organisations involved and (iii) to qualify and appreciate connecting ties and linkages.

Following Birner et al. (2009), five types of service providing organisations were distinguished when operationalising the AKIS concept: a) public sector organisations (ministries and subordinated public administration), b) research and education (universities, research institutes, schools

etc.), c) private sector (industries, independent consultants and advice providing companies etc.), d) farmer-based organisations (chambers of agriculture, cooperatives etc.) and e) non-governmental organisations (e.g. charity organisations, environmental groups, etc.).

As a whole, in all six countries all types of service providing organisations were identified. It proved difficult to record all the concrete organisations in detail, as their sheer number and diversity is overwhelming. Equally, in all cases it was not always possible to clearly differentiate between the types and to assign them to one type only. e.g. chambers of agriculture fall between 'public sector' and farmer-based' organisation.

As noted in 4.1, the construction of a 'general picture' for the country-level AKIS varied between 'not possible at national level' for the UK and a fairly structured and hierarchized organisational graph for France (cf. Fig.2). To illicit this range, summarizing features are presented for each country in the following. For **Germany**, recent observations on the implications and challenges of the federalised system (Hoffmann et al. 2013) can be confirmed. The interviews show that the multi-faceted organisational setting at national level has only limited impact on the *Länder* level (states). Especially public research bodies at state-level were mentioned as important knowledge sources. Like research, the institutional setting of agricultural advisory services is governed by the state authorities but varies considerably horizontally. Agricultural chambers play an important role for the provision of information to farmers in several states. At national level, the federation of agricultural chambers holds topical committee meetings which were mentioned by several interviewees as an important platform for knowledge exchange. Especially emphasized was also the role of the DBV, the German farmers' association, which presents a strong lobby group in agricultural policy and is well-connected both to other non-state and private organisations and to public administration.

In **Bulgaria**, main knowledge and information sources are the Ministry of Agriculture and Food (MAF) and the National Agricultural Advisory Service (NAAS). Its subordinated offices at the regional and municipal levels have support and consultancy functions and work closely with the farmers. The MAF closely cooperates and exchanges information and knowledge with research institutes and universities. The universities are involved together with the public advisory services for providing trainings and seminars to the small scale farmers, while private advisory companies, often, cooperate with professional farm organizations for offering specific advises (i.e. preparing applications for rural development measures) to their members. NGOs, including professional farm associations and foundations have strong linkages with some large private advisory companies and provide information and knowledge to their members. There is no cooperation between NAAS and private advisory services and professional farm associations.

In **Portugal** there is a fragmented AKIS, with a very large number of organisations involved, mostly farmer based, poorly articulated, making it difficult to produce synergies. Overall, signs of the economic crisis can be detected in the AKIS description: There are farmer-based organisations, governmental research centres and remnants of the public agricultural services while the university agricultural research and educational institutions have an even weaker role in the national AKIS. The weakened public agricultural services are now more involved with subsidy payments, and the universities support the Ministry and farmer-based organisations in a non-continuous, ad-hoc manner, particularly through research and experimentation, training and information exchange.

Ireland is unique in having a substantial component of its AKIS within a single organisation,"Teagasc". Teagasc (Agriculture and Food Development Authority) is a public organisation, a government agency. It undertakes activities in research, extension services, and education, as well as offers support structures, thereby spanning the various elements of an AKIS. Public advi-

sory services are complemented by about 250 independent private advisors. The survey showed that there is serious competition for public funds between these two actors.

The UK may be described as having four independent AKIS, with only a limited number of organisations linking across two or more UK-countries in terms of work and subsequently knowledge flows. They are hybrids with public, private commercial and non-governmental charitable advisory services co-existing. AKIS structures are determined by specific sets of policy, government departments and agencies, and to a large degree also by discrete sets of NGOs, farmer organisations and private commercial actors in each of the UK countries.

In **France**, there is progressive shift from a co-management of advisory services towards a situation of contractualisation and delegation of services (Labarthe 2009). The French system used to be characterized by centralized institutionalized arrangement between the State and the dominant farmers' union to decide about how to spend public money (a tax on agricultural product) to the benefit of farmer-based organisations (chambers of agriculture and applied research institutes). The system is now characterized by complex setting of contracts between the state and a growing diversity of AKIS actors. Parts of these contracts are based on competitive calls. If public research institutes and farmers' based organisations are still very sources for the knowledge flows within the system, industries (up- and downstream) and R&D firms owned by cooperatives play a growing role in that respect (Labarthe 2009).

Figure 2: The French AKIS
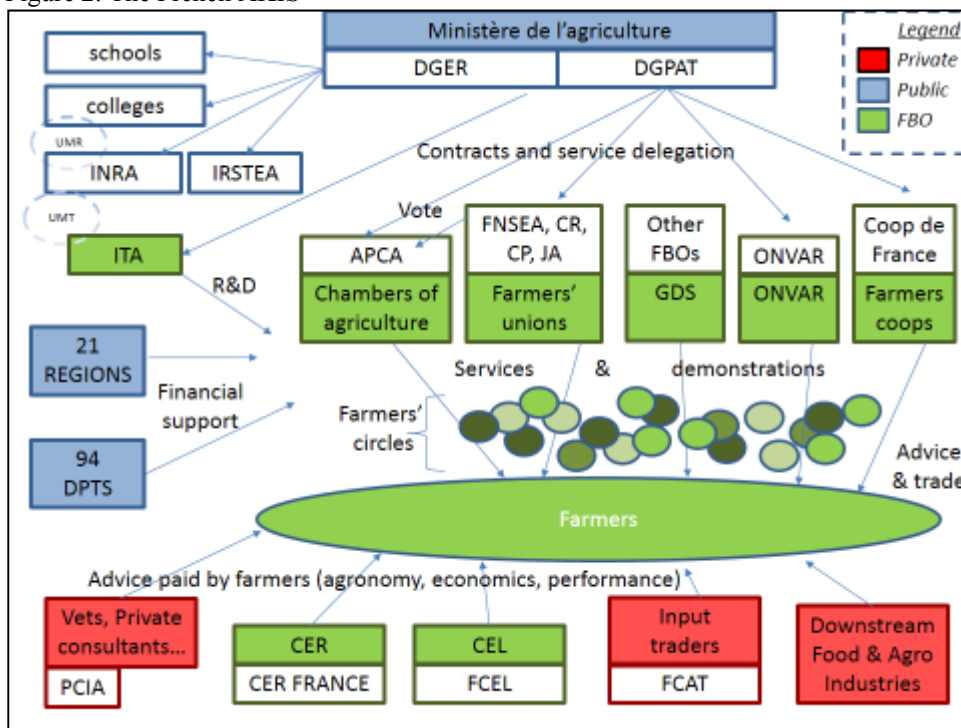
Looking closer at the proposed organisational differentiation, the different country cases show distinct shortcomings. For the UK AKISs, the differentiation was considered very restrictive because of the various set ups and status of organisations. In Ireland, public, private, research & education associations were identified. Monitor farms and discussion groups were listed as farmer based organisations although they are set up and facilitated by Teagasc. Cooperatives would intuitively classify as a farmer-based organisation but due to their commercial nature we classified them as private sector organisations. Private colleges, again, could have been classified as private organisations but, because their main remit is education, they went into another box. Similar observations were made for France. As above, it can be stated that the distinction between organisational types cannot always be maintained: some farmers' associations that were

supported by the state to provide specific services to farmers now use their database or competencies to provide commercial advice to farmers. If the distribution of role between organisations was rather clear in the past and was the result of negotiations between the state and farmers' unions; this is not the case anymore (Compagnone *et al.* 2010) as organisations tend to broaden their scope of activities in a context of increased competition to attract both farmers' contributions and public subsidies.

With regard to the inter-organisational linkages, in many countries the complexity was too high to be reported through the diagram. In some cases emerging features can be stated in the form of hypotheses: e.g in the German situation, the picture of two parallel AKIS with few linkages among them becomes apparent – a dominant one for conventional and integrated farming, involving many and powerful organisations throughout the country; and a smaller one, focusing partly on family and partly on organic farming.

National AKIS policies and coordinating structures
The presence and the importance of national-level AKIS policies and coordinating structures vary considerably among the investigated countries. Although in France there are both policies and institutional settings for AKIS coordination and research planning, the system is characterized by the growing complexity of the relations between public administration (mainly the Ministry of Agriculture) and the diversity of AKIS actors benefiting from public financial support. Two problems emerge from this situation: i) the difficulty to integrate and coordinate the various available public instruments; ii) the lack of evaluation of the effectiveness of the systems; an absence of debates about who should benefit first from public investments in AKIS (which farm types? which production systems?). There has been little impact of EU innovation policies regarding French AKIS so far. An important trend in the next years might consist in the growing role of region in the integration of innovation and rural development policies, including European ones.

In Bulgaria, a strong top down integration of the knowledge system can be observed with a centralized governance structure and a good coordination at least among the public bodies. In Germany, education and research are the mandate of the federal states, the *Laender*. With regard to agricultural policy, certain coordination among the federal states and the national level takes place through the 'Joint task for the Improvement of Agricultural Structures and Coastal Protection' (GAK), which provides the framework for many funding mechanisms for farmers and rural areas. National governance happens also through R&D program incentives and through ensuring transparency; additionally, horizontal coordination is taking place in ministerial working groups.

Table 2: Overview on policy frameworks and coordinating structures

Country	France	Bulgaria	Germany	Ireland	Portugal	United Kingdom
National AKIS policies	Several policies on - Farm advice - Basic and applied research - Education - Connecting research, advice, practice	National programs for supporting farmers RDP (2014-2020) for establishing and developing the agricultural advisory services	Incentives through research programs on - Innovation in agriculture - Research in organic and sustainable farming	Strategies and policies on - 'Stimulating Sustainable Agricultural Production through R & I' - Beef and dairy production - 'Food Harvest 2020' to increase competitive-ness	Lack of policy on - Agricultural advisory service - ResearchFAS implemented by farmer organisations, on limited scale	No 'national' programs however a 'cross-government agri-tech strategy' which seeks to increase industry engagement
Coordinating structure(s)	Institutions for research planning Institutions for coordination of R&D programs	MAF and its secondary administrators (State Fund Agriculture and NAAS)	National administrative structures: - Joint task for agric. structure and coastal protection 'GAK' - 18 working panels integrating federal states' interests - German Institute for Network(DVS)	Teagasc unites public advisory services, research and education; acknowledge efforts are needed to enhance coordination with private providers	Rarely visible coordinating structure	No national coordinating structure

The Republic of Ireland has various policies relating to sustainability and efficiency in agricultural production, as well as enhancing innovation adoption through discussion groups. There is strong institutional integration with strategic orientation via Teagasc who by this is a powerful competitor in the market for advisory services. Although there are private advisors, Ireland could be described as having one of the least diverse AKIS among the compared countries. Portugal has the political framework and infra-structure but lacks inter-institutional coordination. The inter-organisational linkages from the advisory services to agricultural research and agricultural education sub-systems in the AKIS need to be strengthened. As already mentioned, in the UK, four different but no national AKIS can be observed with few overarching linkages among them. Generally, they can be characterised as pluralistic systems and diverse advisory communities with a high degree of institutional diversification.

Again, the range of cases is very broad: while in Germany, UK and Portugal there are no national policies on AKIS or agricultural advisory services – though strong regional policies on this exist - , those fields are explicitly addressed by national policies or programmes in France, Bulgaria and Ireland. Coordination structures exist in France, Germany and Ireland, while they are missing in Portugal and the UK and not necessary in Bulgaria.

Location(s) of advisory services within the investigated AKIS
Finally, our research interest was guided by the questions on where advisory services are located within the national AKISs and how they are institutionally related and integrated within public governance structures.

In France, the advisory services are present at national level and their diversity in manifold aspects is obvious. Although they can generally be considered as well integrated, the emerging

competition among them and a lack of debate on priorisation in public expenditures may weaken their effectiveness. Indeed, interviews show clearly that there is a growing competition both in terms of the front-office dimension of services (for delivering services to farmers in a context of sharp decrease in the number of farms) and in its back-office dimension (for producing data bases about farm structures and performances that may be used to elaborate new services to farmers. The German situation of advisory services is also a very heterogeneous, varying institutionally from one *Land* to the other with little horizontal exchange. A formal coordination at national level exists only through the federation of agricultural chambers. Interestingly, although pure private organisations are nowadays common in most German states, there is no private national-level structure. In Portugal, if it is a fact that the subsystem is pluralist in nature, given the inclusion of a great diversity of actors, it is also true that such fragmentation raises issues such as the lack of focus and coordination. Besides, in most (or all) cases these organisations perform a variety of tasks, where the administrative ones, related to the application for grants and financial support available through the Common Agriculture Policy, were very often dominant, and advisory work restricted to training courses and the provision of information. In Ireland, advisory services can be (and currently are) influenced by government department and national policy. Teagasc is required to implement and follow national growth targets and priorities for the food and agricultural sector. Most private advisors are organized in the Agricultural Consultants Association who may lobby for their interests at national level. In contrast, there is no national organisation of all advisors in the UK. Instead, private advisors are organised in various professional bodies. Large consultancies, levy bodies, confederations and associations operate on a UK-wide basis. The environmental agencies and department of agriculture in each UK-country coordinate environmental, public good and rural development advice.

Figure 3: The Bulgarian AKIS - (PRO AKIS – Country report for Bulgaria).
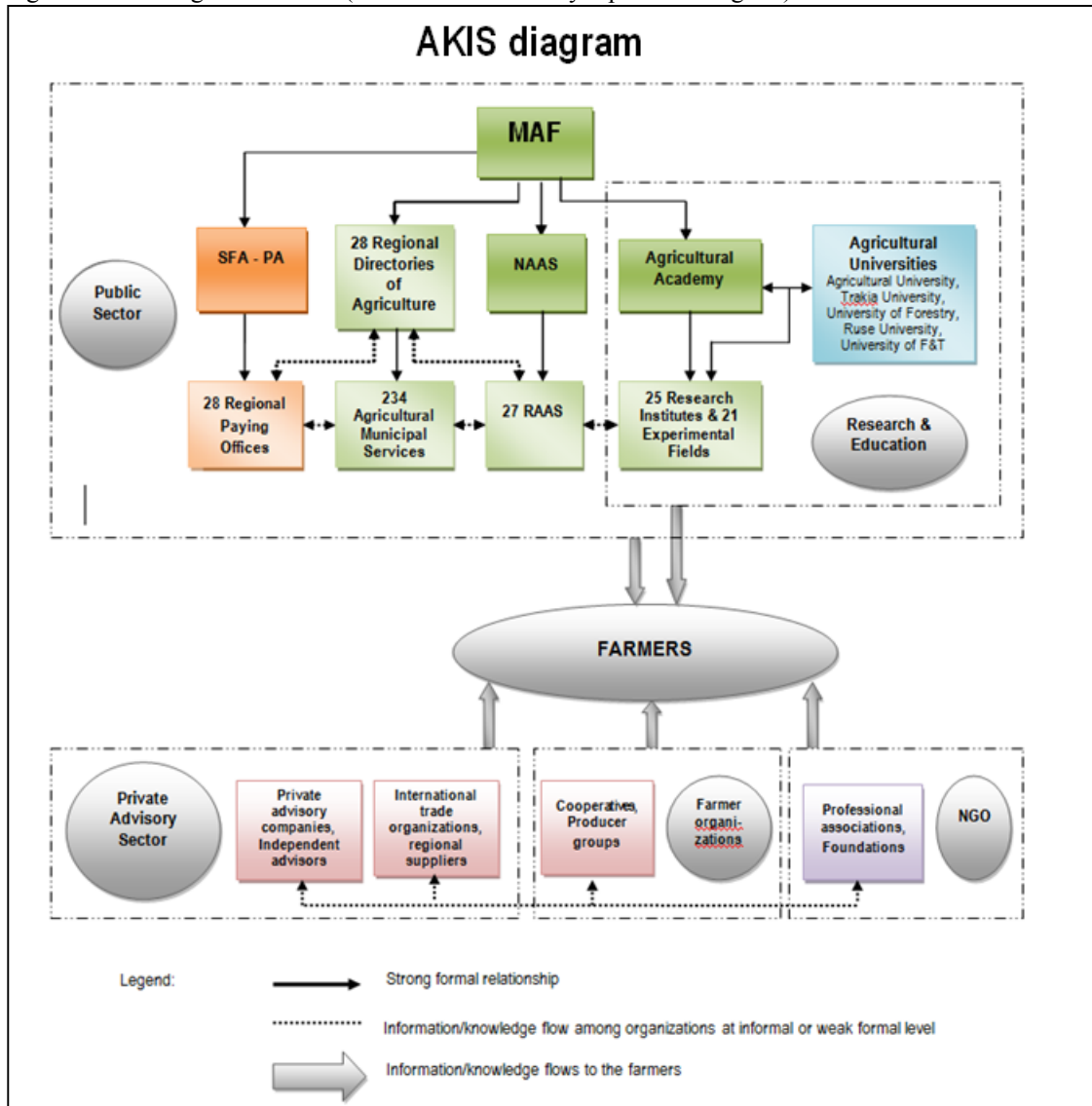
In Bulgaria, advisory services are present at the national level through the NAAS (cf section4.1). Private advisory companies exist in the country, but there is no evidence how many they are, and also there is no communication and exchange of information among them and the NAAS. The Fig. 3 shows the AKIS diagram for Bulgaria, including the three types of advice that different AKIS organisations provide to the farmers: (i) for direct payments, mainly provided by public sector; (ii) for the Rural Development Program (2007-2013), NAAS, private companies and farm professional associations support farmers with advises related for development measures; and (iii) for agricultural issues, all types of AKIS organisations in the country provide specific advice.

Conclusions

From this comparative appraisal some first conclusions can be developed with regard to the current situation of the investigated AKISs and the practiced conceptual and methodological approach.

The examined AKISs differ considerably – on the one hand there is a high degree of pluralism and little public governance and coordination, as e.g. in the UK and Portugal, and on the other, a strong public structure that dominates the system as e.g. in Bulgaria and Ireland. Private advisory bodies meanwhile exist everywhere although their implication in the service provision varies distinctively between Portugal on the one side (low) and UK and Germany on the other (high). In countries that pro-actively tackle this emerging pluralism like in France, the AKIS is now characterized by complex settings of contracting between public farmers based organisations and private actors, which is associated with difficulties of monitoring of the systems, and with a clear knowledge gap in terms of evaluation of the effectiveness of the systems. In others like the UK, the lack of coordinating structures strongly affects the transparency of the system(s) and hampers effective cooperation. This diversity implies that a comparative approach for the appraisal of the AKISs as a whole cannot be recommended. However, cross-cutting emerging questions become visible as e.g. the need for respective the lack of coordination related to the increasing organisational pluralism.

The five different categories used to describe the diversity of actors involved in the AKISs revealed severe limitations, as the categories are not exclusive, so that e.g. 'farmer-based' and 'private' are not mutually exclusive but can both characterise one organisation. Nevertheless, this diversity reflects the mixture of interests and positions and the plurality of organisational forms that emerge within the course of time. More conceptual work has to be done here in order to give more robustness to the applied framework.

The methodology applied, especially the use of AKIS diagrams, proved to be useful. While the infrastructural perspective on AKIS was helpful to create an overview country-wise and to compare among the countries, it may on the other hand lead to concealing the fact that some (particularly larger) organisations have multiple roles and functions. The exertion of their advisory role and associated knowledge flows may be strongly influenced by their other roles (e.g. education, commercial interactions, research, lobbying). As the AKIS concept was rarely used by the interviewees themselves, we conclude that the European-level conceptual understanding has not yet reached the national political discussion in most of the addressed countries. This may be because for national or regional actors this broad overview of the system they are part of is not immediately operational or useful. However, with regard to the upcoming AKIS policy that is manifest in the EIP "agricultural productivity and sustainability", this neglect may constitute a serious disadvantage in countries like Germany, the UK or Portugal.

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