AKIS and advisory services in *Greece*

Report for the AKIS inventory (Task 1.2) of the i2connect project

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Executive summary

The main aim of the report is to provide a comprehensive description of the Agricultural Knowledge and Information System (AKIS) in Greece, with a particular focus on agricultural advisory services. This report is one of the AUA outputs[1] in the framework of Task 1.2 of the i2connect project (Connecting advisers to boost interactive innovation in agriculture and forestry) aiming "*... to update the existing AKIS descriptions for the 27 EU member states (cf. http://proakis.webarchive.hutton.ac.uk/) and to expand the inventory through elaboration of reports for Croatia, Switzerland, Montenegro and Serbia.*" (i2connect Grant Agreement). Thus, it is one of the country reports that were produced in 2020 by project partners and subcontractors for compiling an inventory of Agricultural Knowledge and Information Systems. In this report, AKIS description is based on the infrastructural concept. The report at hand thus includes AKIS characteristics (actors, policy, governance and coordination), a short history of the advisory system, and an overview of the current advice providers and their key characteristics (such as funding, human resources, advisory methods, clients and topics, etc.).

The agricultural sector in Greece is characterised[2] by the fourth smallest average farm size in Europe (average 6.6 ha. vs. 15.2 ha. in EU-27), one of the highest proportions of small scale family farms (51.5% less than 2 ha.) and the second highest percentage of employment in agriculture (11.1% vs. 4% in EU-27). The average age of farmers is higher than in most European countries (33.5% over 65 years old vs. 32.8% in EU-27); the number of young managers less than 40 years old by 100 elderly managers (65 years and over) is among the lowest in the EU (24.9 vs. 32.5 in EU-27) while, at the same time, their education is the second lowest in the EU (93.2% of the farm managers have practical experience only vs. 68.3% in EU-27). Labour productivity in agriculture (EUR/AWU[3]) is well below (67.8%) the EU-27 average.

Crop production is much more important than livestock production (75:25 in terms of gross output, 2018); farms with livestock account for 35% of all farms.

[1] The second one concerns the Cypriot AKIS report.

[2] The data cited here were drawn for the CAP context indicators.

[3] Euros per Annual Work Unit

Fruits, vegetables, olive oil, industrial crops and cereals account for 60% of total output value.

Arable cultivations cover about 54% of agricultural land followed by permanent cultivations (around 34%) and fallows (11%). Main crops[4] are cereals (mainly wheat, maize and barley), olive trees, fodder crops, cotton, fruit trees, vineyards and vegetables. Small ruminants (sheep and goats) predominate in animal production (64% of all LSU[5]), esp. in mountainous areas.

The Greek AKIS is highly fragmented and ineffective. Decentralisation, the split up of research and (farmers') training from the Ministry of Rural Development and Food and the inadequate or lacking coordination mechanisms between stakeholders have led, at best, in extremely weak linkages and thus cooperation among the main public AKIS components; the recent financial crisis further aggravated the situation. Furthermore, cooperation with private actors is largely opportunistic.

Given that, since the accession to the EEC[6]/EU in 1981, the Greek Extension Service gradually got heavily involved in fulfilling the increasing administrative/ bureaucratic tasks of the State, advice to farmers is largely provided by private agronomists who run or work for input shops at the sub-regional/local level. On the other hand, private consultants (agronomists) serve those interested in having access to EU programmes and are thus severely restricted in terms of providing advice. An exception to this picture concerns producer groups, esp. the ones under Integrated Production Management.

Overall, in the last 30 years, despite continuous calls for the reorganisation and reorientation of extension/advisory service(s) in Greece, the system has been disrupted. The underway CAP Strategic Plan procedures are expected, through the appropriate utilization of the tools provided, to trigger the revival of advisory services in the country.

[4] In terms of cultivated area.

[5] LSU = Livestock Units

[6] EEC = European Economic Community

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Abbreviations

CAP: Common Agricultural Policy
DA: Development Agency
Dir RE&V: Directorates of Rural Economy and Veterinary (sub-regional/prefectural level)
EIP-AGRI OGs: Operational Groups of European Innovation Partnership – Agriculture (in red = not yet operational)
ELGO DIMITRA: Hellenic Agricultural Organisation DIMITRA
FAS (M2 of the RDP): Farm Advisory System of M2 of the RDP (in red = not yet operational)
GSRT: General Secretary for Research and Technology
HEIs: Higher Educational Institutes
KEA: Farmers Service Centres of GAIA Epicheirein
KEGE: (Local) Agricultural training center of ELGO DIMITRA
KEPPYEL: Centres for the quality control of propagation materials & fertilizers
MoA: Ministry of Agriculture
MRDF: Ministry of Rural Development anf Food (ex MoA)
NAGREF: Gen. Dir of Rural Research of ELGO DIMITRA (ex: National Agricultural Research Foundation)
NEA PASEGES: Farmers' Union
NFAS (in red): National Farm Advisory System
NRN: National Rural Network
RDP MA: Rural Development Programme Managing Authorities
OGEEKA: Gen. Dir of Rural Education & Training of ELGO DIMITRA (ex: Organisation of Agricultural Vocational Education, Training and Employment)
PEGEAL: Regional laboratory of agricultural extension and fertilizer analysis
SASOE: Farmers' Union

1. Main structural characteristics of the agricultural and forestry sector

General country information[7]

Following some key-data about Greece are provided. The total area of land covered by the Greek state is 130,048 km` (AFF) with the share of farmland being 35% (2016, AFF). The country's population is 10.7 million (2018, AFF). The GDP[8] is 184.7 billion EUR and the GDP per capita 17,264 EUR (2018, ASF). Following the considerable rise of unemployment in the 2010s, owed to the economic recession, currently unemployment is as high as 19.6% of labour force (2018, ASF). The exports of agricultural products are 5,901 million EUR while the imports are 6,558 million EUR (2018, ASF).

Information on the agricultural sector

Following an overview of the agricultural sector is given, using topical data that underline the agricultural features of the country. The agricultural sector in Greece is important for both the rural areas and the national economy, in general. Indeed, agriculture's contribution to employment is as high as 10.6% (2017, AFF[9]) while it contributes 2.7% to the GDP (2018, AFF) and further affects significantly other sectors of the economy[10] as well as the country's social and cultural development.

The farmland (Utilised Agricultural Area - UAA) is estimated to 4,554 thousand hectares (2016, AFF) with 684,950 (2016, AFF) farms (agricultural holdings). The average farm size (UAA per holding) is 6.6 ha. (2016, ASF) with the majority of the farms (67.7%) being characterized as very small in terms of either standard output (with < EUR 8,000 of standard output; 2016, AFF[11]) or size (77.3% have UAA below

[7] Sources: AFF: Agriculture, Forestry and Fishery Statistics 2019 and ASF: Agristatistical Factsheet 2019
https://ec.europa.eu/eurostat/documents/3217494/10317767/KS-FK-19-001-EN-N.pdf/742d3fd2-961e-68c1-47d0-11cf30b11489

[8] Gross Domestic Product

[9] Agriculture: Labour force in % of total employment (2017): 11.5% (ASF)

[10] For example, food processing is the largest sub-sector of manufacturing in Greece. This owes to the availability of high quality raw materials, specialized know-how and reasonable costs.

[11] Economic size < 4,000 € (2016): 49.7% (ASF)

5 ha.; 2016, ASF). The great majority (99.3%) of all farms are family farms, i.e. more than 50% of regular labour comes from family members (2016, AFF).

With regard to organic farming, the area under organic farming is as high as 9.32% of UAA (2018, Eurostat)[12] with the organic crop area (fully converted area) being 316,753 ha (2018, Eurostat)[13].

Furthermore, according to ASF (2016) the farm holders less than 35 years old account for the 3.7% of all holders while the ones over 64 for 33.5%. The total labour force input in agriculture is 428 thousand annual work units[14] (2018, AFF). Young farmers (under 40 years old) (2016) account for 8.3% of all farm managers with female farmers being 27.5% of all farm managers (2016, AFF). Farmers with full agricultural training account for only 0.6% of all farm managers (2016, AFF).

Table 1.1: Structure of farm labour force (2016, ASF)

Family labour force	1,164,560 persons AWUs: 378,450	**Non family labour force**	24,390 AWUs
Holders	**Family members**	**Regular non-family labour force**	**Non regular non-family labour force**
684,250 persons 237,930 AWUs	480,310 persons 140,520 AWUs	24,390 AWUs	54,320 AWUs
Total farm labour force: 457,160 AWUs			

The value of agricultural output (production value at basic prices) (2018) is 10,942 million EUR with the Gross value added (at basic prices) being 5,386 million EUR[15]. The value of crop output is 7,568 millions EUR while the value of animal output is 2,524 millions EUR (2018, AFF). The main branches of agricultural production are illustrated in Table 1.2.

[12] https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=sdg_02_40&language=en

[13] https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=tag00098&language=en

[14] AWUs = Annual work units. An AWU is equivalent to a worker employed on a full time basis for one year.

[15] Gross value added from Agriculture, forestry and fishing (2018): 4.3% of total GVA (ASF)

Table 1.2: Crop and Animal Production (in thousand tones) [16]

Cereals	2018	2,997
Root crops	2018	530
Fresh vegetables	2018	2,669
Permanent crops	2018	5,237
Raw milk	2018	1,845
Bovine meat	2018	40
Pig meat	2018	82
Poultry meat	2018	220
Sheep and goat meat	2018	70.10

Specifically as far as animal production is concerned, all livestock categories account for 2,102,870 LSU[17], with the livestock density index (2016) being 0.46 LSU/ha UAA[18]. A more detailed account of Heads and LSUs is provided in Table 1.3.

Table 1.3: Livestock in Greece

Livestock[19]	Year	Heads	Livestock Units (LSU)
Bovine	2018	541,845*	389,884*
Pigs	2018	721,390	179,873
Sheep	2018	8,429,654	842,965
Goats	2018	3,624,719	362,472
Poultry	2016	30,390,000	280,410

* Includes buffaloes.

Information on the forestry sector.

The forest and other wooded land is 6,539 thousand hectares (2015, AFF) while the farms with wooded area Greece are 8,960 holdings[20]. An overview on the forestry sector is provided in Table 1.4.

[16] Source: Agriculture, Forestry and Fishery Statistics 2019 (AFF); for sheep and goat meat: https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&plugin=1&pcode=tag00045&language=en

[17] The livestock species aggregated in the LSU total, for the purpose of this indicator, are: equidae, bovine, sheep, goats, swine, poultry and rabbits.

[18] Source: https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tai09&plugin=1

[19] Source: Hellenic Statistical Authority (2018); for poultry see Eurostat (Main livestock indicators by NUTS2 regions)

[20] Source: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ef_lus_main&lang=en

Table 1.4: Forestry in Greece

Forestry	Year		
Forest and other wooded land	2015	6,539	thousand hectares (AFF)
Persons employed in forestry and logging	2016	4,260	Working units
Gross value added (at basic prices)	2016	66	EUR million
Roundwood (in the rough)	2017	:	Thousand cubic metres

Source: Agriculture, Forestry and Fishery Statistics, 2019

The output of forestry and connected secondary activities is 93.58 millions EUR (2015, Eurostat)[21] and the Gross Value Added (at basic prices) is 66 millions EUR (2016, AFF).

Finally, while the persons employed in forestry and logging amount to 4,260 working units (2016, AFF), a more recent account is illustrated in Table 1.5.

Table 1.5: Employment in forestry related activities (2019)[22]

Type of employment	**Number of employed persons** (in *thousands*)
Forestry and logging	6.9
Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	10.1
Manufacture of paper and paper products	7.4
Manufacture of furniture	12.9
Total (for manufacture)	30.4

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[21] https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=for_eoutput&lang=en

[22] https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=for_emp_lfs&lang=en

2. Characteristics of AKIS

2.1. AKIS description

In Greece, the AKIS structure and functions have not been changed since the previous report (re: PRO-AKIS). Few changes have appeared, esp. in the private advisory companies, which will be dealt with below.

At national level the main actors are: the Ministry of Rural Development and Food (MRDF/ ex-Ministry of Agriculture/MoA), ELGO DIMITRA (incorporated in 2011 the ex-semi-autonomous organisations NAGREF, OGEEKA, AGROCERT and ELOGAK[23],[24]), the National Rural Development Programme Managing Authorities (NRDP MA), Higher Education Institutes (HEIs)[25], private input companies (branches of transnational companies) and Farmers Cooperatives' Unions[26]. Other actors are the Ministry of Education[27], the General Secretary of Research and Technology (currently under the Ministry of Development[28]) and the Geotechnical Chambers of Greece[29].

[23] NAGREF: National Agricultural Research Foundation; OGEEKA: Organisation of Agricultural Vocational Education, Training and Employment; AGROCERT: Agricultural Products Certification and Supervision Organization (responsible for the implementation of national policy on quality in agriculture); ELOGAK: Greek Organisation for Milk and Meat.

[24] ELGO DIMITRA at national level operate, on the one hand, 11 research Institutes and their experimental stations (re: ex-NAGREF) and, on the other hand, seven (7) occupational schools (re: ex-OGEEKA DIMITRA). Through the latter, ELGO provides initial training (2 years of studies) on the following topics: dairy-cheese making, viticulture-oenology, animal production, greenhouses, agricultural machinery, landscape architecture and wood curving-cabinetmaking in 6 specialized occupational schools located all over Greece. Such courses usually attract 250-300 students per year with almost half of them attending the dairy-cheese making courses at the Ioannina School (Epirus region, northern Greece).

[25] Agricultural University of Athens; School of Agriculture, Aristotle University of Thessaloniki; Dept. of Plant Production and Dept. of Animal Production, University of Thessaly; Dept. of Agricultural Development, Democritus University of Thrace; in parallel, ex-Higher Technological Institutes have been recently upgraded to university status.

[26] The previous Pan-Hellenic Confederation of Unions of Agricultural Co-operatives (PASEGES) has been split into two new Unions (see below).

[27] The Ministry of Education provides agricultural education through the Technical Lyceum's programme "Agronomy, Food and Environment". The numbers of students attending such courses revolves around 5% of the Technical Lyceum and 1.5% of all Higher Secondary Education (Lyceum) students. Among the students following this programme of studies, almost half attend the specialized courses on Agronomy/agriculture (3rd year of studies) and the other half follow either the Food Technology or the Landscape & Environment specializations.

[28] Till recently GSRT was operating under the Ministry of Education. Some of its research Institutes carry out research relevant to the agrifood system.

[29] The Geotechnical Chambers represent Higher Education Graduates in Agronomy, Veterinary, Forestry, Ichthyology and Geology and they are an official consultant to the MRDF.

The rising importance of the secondary and tertiary sector actors has to be underlined (esp. through contract farming arrangements). Such actors (processing industry, wholesalers, Super Markets, retailers, exporters) in many cases set, in fact, the quality standards that often concern not only the agricultural production per se but the whole value chain.

A further development at the national level, since 2014, has been the establishment of GAIA EPICHEIREIN and RURAL INNOVATION S.A., i.e. nation-wide structures involving a range of actors (see below).

At the regional level the main actor is the regional Directory of Agricultural Economy (of the elected Regional government) and at the sub-regional (ex-Prefectural) level, the Directorate of Agricultural Economy & Veterinary (under the elected prefectural authority) and local Development Agencies. ELGO DIMITRA at this level operate local training centres (KEGE[30]; ex-OGEEKA DIMITRA). Unions of Cooperatives are also found at regional or sub-regional level. Finally, private consultants-agronomists and private input shops (run by agronomists) are found usually at sub-regional/ex-prefectural level[31],[32].

In Greece there is neither a national (agricultural/ rural development) policy framework nor any kind of coordination mechanism or agreements between the aforementioned AKIS actors. Indeed, it is a common understanding that, despite rhetoric and marginal, fragmented actions, MRDF has long ago ceased to put together an overall national strategy for agriculture and rural development (including a strategy about extension/advisory services and AKIS); instead MRDF rather plays the role of an intermediary transferring and controlling the

[30] KEGE are located all over Greece and are mainly used for short courses, predominantly for the obligatory courses (duration: 150 hours) for those who access the 'Young Farmers' Measure of the National Rural Development Programme/ CAP. Occasionally, other trainings also take place in KEGE.

[31] MRDF also operates some structures such as KEPPYEL (Centres for the quality control of propagation materials & fertilizers - 39 all over Greece); PEGEAL (Regional laboratory of agricultural extension and fertilizer analysis), carrying out water, soil and leaf analyses and provide advice to farmers on fertilization - 7 all over Greece); 7 regional centres for plant protection and quality control (providing information/recommendations on necessary/appropriate plant protection measures/interventions, according to agro-climatic, etc. conditions, per season) and 5 centres of genetic improvement (re: traditional/native livestock breeds).

[32] In the past, Agricultural Extension/Rural Development Offices (branches of the Extension Section of Directorates of Agriculture – nowadays Dir. of Rural Development & Veterinary which have abolished the Extension Section) were operating at municipality level. Nowadays the agronomists working at the Municipality level do not play any role in farmers' training or advice provision any more as they are occupied in various administrative tasks of the municipalities (thus they are not included in the AKIS diagram).

implementation of the EU policies (CAP Regulations and relevant financial resources/subsidies) in the country.

Thus, at national level, one can observe stable interactions only between, on the one hand, MRDF and, on the other hand, its semi-autonomous organisation ELGO DIMITRA and the NRDP Managing Authorities[33]. No other official or organised kind of interactions among the actors/stakeholders is observed. All kinds of links are rather opportunistic (for example, projects; ad-hoc, short-term/emergency committees; stakeholders; lobbying to express their demands to the Ministry, etc.) and/or due to (past) acquaintance (for example, agronomists working in various organisations/companies contacting their ex-professors to ask for advice, etc.). Of course, HEIs have an indirect link with all other actors and the Geotechnical Chambers comprising their ex-students[34]. But overall there are no established/official links between actors. The only exception to the rule is the National Rural Network (located in the RDP MA) who keep some contact with farmers, advisors/consultants, development companies/LAGs, etc.

MRDF keeps links with the regional GDs of Rural Economy and the latter with the sub-regional Dir. of Rural Economy and Veterinary (and vice-versa) but mostly for administrative reasons. Since the 1990s, in the name of the downsizing of the state, i.e. decentralization (Decentralisation Laws I-Kapodistrias and II-Kallikratis; see below) and, lately, the economic crisis, the previously existing structures under one authority – i.e. the Ministry of Agriculture (from the national to the sub-regional to the local level), have become (semi)autonomous (see below) and/or transferred under new administrative structures/authorities (notably the various levels of (elected) Local Authorities: regional, sub-regional/prefectural, and local). On the other hand, the role of extension in both the Ministry and the sub-regional/prefectural Directorates has been seriously downgraded. Nowadays a Dir of Research, Innovation and Education (in the place of GD Research & Extension)

[33] Of course, all organizations provide information (to those who are actively seeking it) through their portals/sites.

[34] Universities have sporadic interventions, esp. in terms of training provision, in the rural space, depending on funding by foundations, etc. For example, the Agricultural University of Athens, the Rutgers University (N.J. USA) and the American Farm School of Thessaloniki realize an initiative funded by the non-governmental organization Stavros Niarchos Foundation (SNF), aiming at the provision of targeted support (including training) to young farmers in certain areas of the country. Nowadays, universities identify some potential in the establishment of their Centers of Lifelong Learning, through which they aspire to be able to play, to some degree, the role played by the Land Grant Universities (university extension). These Centers aim at satisfying the increasing demand for university classes delivered to the general public and, among them, to farmers.

mostly for historical and symbolic rather than essential, functional reasons is found in the Ministry's chart; on the other hand, the Extension Section has been abolished from the Dir of Rural Economy and Veterinary charts.

The structures of ELGO DIMITRA, besides dysfunctional relationships among the General Directorates (i.e. the ex-organizations) which made-up the organisation, do not contribute essentially to (either the national or regional) AKIS. This is largely so since research is isolated from farmers and other structures (i.e. extension services/mechanisms) are not in place[35]. The same is true for universities as well, since most of the funding for research comes from the EU; as a result, the problems tackled by the EU-wide research consortia often do not correspond to the needs of the Greek agriculture/farmers[36]. The only exception, albeit in terms of training, is ELGO's 7 occupational schools and training centres (KEGE)[37].

Therefore, at the local/sub-regional level the main provider of advice to farmers are input shops (run by private agronomists) followed by private advisory companies and consultants. The input supply shops are, in general, isolated from other AKIS-actors. There are about 4000 input supply shops all over the country; nevertheless, no more than 700 of them are direct, important clients of the input industry. The most dynamic ones have been expanding their activities to include the provision of advisory services, business plans and applications for modernization EU-supported schemes, the Integrated Administration and Control System (IACS) declarations, etc. Regardless their size and complexity, the input shops are very close to farmers and even the smallest ones exert considerable influence on farmers' decision making, given that they are the first stop shops for farmers requesting guidance and advice on all kinds of technical issues. Nevertheless, farmers do not trust input industries and input shops; this is so since farmers consider that they provide biased advice, bounded to their own specific products, while overselling is their ultimate goal in order to increase profits. On the other hand, through its connection with large numbers of input stores, the input industry is very successful in disseminating its products (including innovative ones) to farmers.

[35] ELGO's mandate includes the provision of advice and technology transfer (the organisation's structure includes a relevant Section) which has not been activated since the organisation's establishment in 2011.

[36] Moreover, researchers tend to focus their research more on issues with academic interest rather than on local problems, which is 'reasonable' since their careers largely depend on the numbers of their publications (not on the provision of services to the farming community).

[37] See footnote 6.

Independent advisers/ consultants (either in companies or freelancers) can be distinguished in relation to their know-how, the range of services they offer and their scale of operation (local, national). The majority of independent advisory companies, which are mostly active at local rather than at regional or national level, support farmers' access in investment funding, available through the RDP measures, and subsidies (direct payments) through IACS declarations. A significantly smaller number of independent advisory companies operate at national level, providing specialized services on issues such as products' certification and marketing, integrated production management and smart farming.

Another actor embracing all levels are farmers' coops. However, a large number of cooperatives are in general very weak to develop substantial independent action, while others function essentially as brokers mediating between farmers and input traders. In some cases cooperatives act more as intermediaries transferring production requirements/ required standards from the markets to farmers, with some of them also undertaking various actions to facilitate farmers' access to knowledge/know-how. Among them a limited number of producers' groups and cooperatives, appear to be very dynamic and successful in dealing with their membership's needs by building collaborations mainly with independent advisory companies but also with input shops and industries and financial institutions. Overall, though, the picture of cooperatives after the collapse of the National Union (PASEGES) is fragmented with most cooperatives being divided in two new nation-wide alliances – SASOE and NEA PASEGES. An implication of this division is that these two entities do not agree in favor of a single representation of farmers in the national and EU decision -making centers.

In this framework the partnership of GAIA Epicheirein was established in 2014, comprising 71 (regional/local) unions of agricultural cooperatives, cooperatives and coop companies, the Piraeus Bank and a communication technology company (Neuropublic) active in the production of precision farming technologies/ digitization. GAIA have developed a broad network of collaborating local agronomists (mainly through its 88 Farmers Service Centres – KEA, most of which are affiliated/hosted by the cooperating coops) providing its membership with a variety of advisory services[38] and training (offered to both agronomists and

[38] Many services are also provided on-line (through the company's portal).

farmers) and a vehicle for farmers' representation in COPA COGECA, while disseminating valuable information and connecting them with EU fora.

A recent development (2019) releasing a new dynamic among the independent advisory companies concerns the creation of a partnership (Agricultural Innovation) in the form of a limited company founded by 25 independent advisory companies[39], 17 (regional/local) unions of cooperatives and Neuropublic (see above). This move puts again the spotlight to the question and need for the provision of independent advice and rules that contribute to transparency; advanced/ digital technologies must be available to farmers along with independent/impartial advice to support farmers in making sound decisions which, in turn, implies that such advice cannot be provided by entities involved in products' development and sales.

Finally, at the local/ prefectural level a number of Development Agencies (incl. LEADER Local Action Groups/LAGs) are activated since the early 1990s. Quite a few of the DAs (which largely belong to local authorities, farmers coops and local chambers), on the one hand, implement various projects (besides local LEADER/CDLD) to support local development and, on the other hand, try to support farmers (and, in general, local entrepreneurs) playing the role of innovation brokers and animators.

As a result, nowadays, the overall picture is that of a highly fragmented, uncoordinated and dysfunctional AKIS. It is further worth noting that the RDP (2014-2020) Measures concerning 'knowledge transfer' (M1), the 'provision of advice to farmers' (M2) and Operational Groups of the EIP-AGRI (M16) are either curtailed (M1[40]) or not (fully) implemented yet[41]. Currently, the obligation of Member-States, put forward by the new CAP Regulation, to include AKIS into the planning of the National Strategic Plans for the next programming period may, given that there will be the political will to prioritize relevant work/Measures

[39] The interest here is that ex-competitors decided to come together and co-operate mainly in the framework of digitization while on other topics each company follows their own strategy.

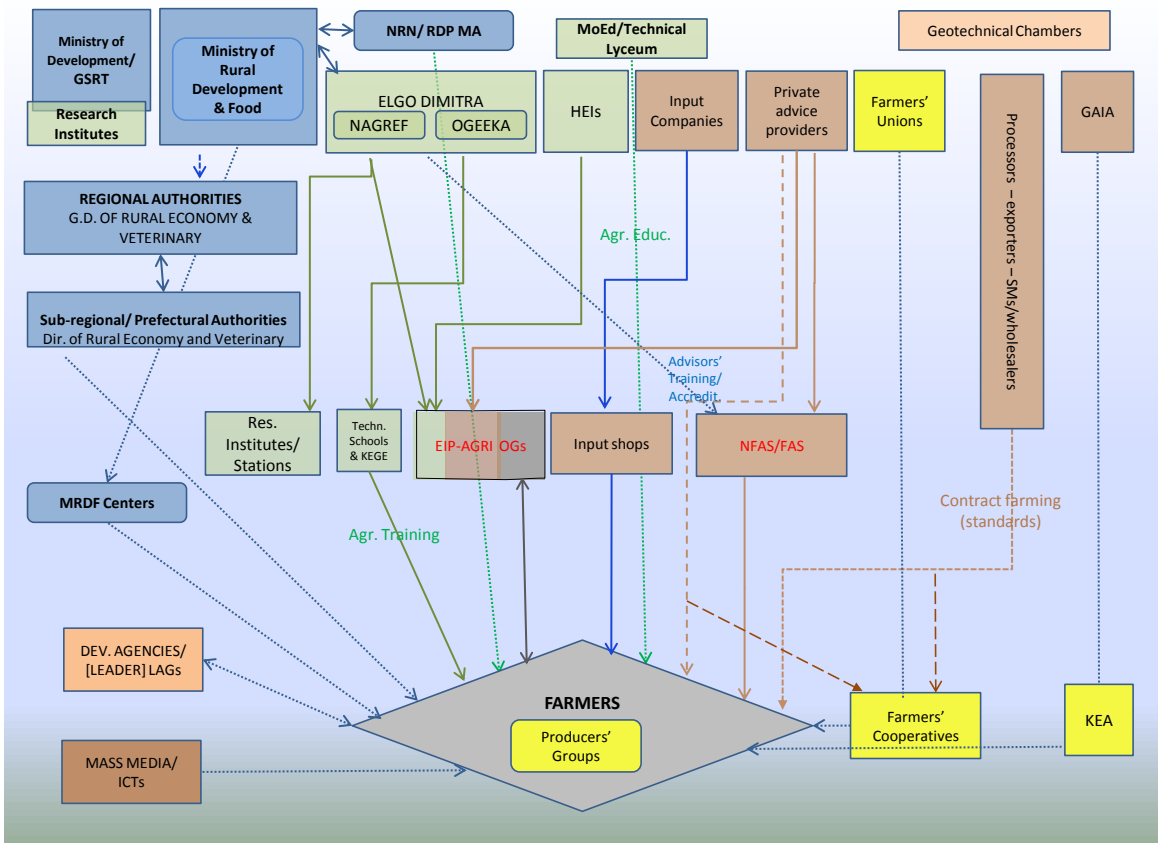
[40] Training (150 hours) only for those eligible for the Young Farmers programme is taking place. The sub-meters on exchanges and demonstrations have been cancelled.

[41] Three thousands eighty-four (3,084) advisors have been accredited in the framework of the National Farm Advisory System but the Measure (M2) has not been launched. Currently 229 OGs have been approved but the second phase (which is the essential phase of experimentation for innovation) has not been launched. In the previous RDP neither knowledge transfer nor OGs Measures were implemented; in parallel, the FAS Measure largely failed to achieve any of its espoused targets.

which, in turn, means to devote resources, result in a more structured and coherent AKIS in the country.

Below the updated account of the Greek AFKIS (AFKIS Diagramme) is illustrated.

2.2. AKIS diagram



MEMO:
GSRT: General Secretary for Research and Technology (previously under the Ministry of Education)
NRN: National Rural Network
RDP MA: Rural Development Programme Managing Authorities

NAGREF: Gen. Dir of Rural Research of ELGO DIMITRA (ex: National agricultural Research Foundation)
OGEEKA: Gen. Dir of Rural Education & Training of ELGO DIMITRA (ex: Organisation of Agricultural Vocational Education, Training and Employment)
HEIs: Higher Educational Institutes
KEGE: Local training centres of ELGO DIMITRA
EIP-AGRI OGs (in red): not yet operational
NFAS/ FAS (M2 of the RDP) (in red): not yet operational
KEA: Farmers Service Centres of GAIA Epicheirein

3. History of the advisory system

Following WWW II, the 'modern times' Extension Service was established in the Ministry of Agriculture (MoA) in 1951. Then, each of the prefectural Directorates of Agriculture was a branch (and integral part) of MoA; each Prefectural Dir. was further branched with Extension Offices in major towns and villages in each Prefecture, supervised by the Dir's Extension Section. The Dir. was also responsible for the local Training Centres (KEGE). In some cases other branches of the MoA were also present at Prefectural level (irrigation/land improvement Dir., veterinary Dir., specialised labs, etc.). This way there was a two-way communication between MoA headquarters in Athens and the decentralized services in the countryside. Furthermore extension programming (involving tangible, quantified targets) and evaluation were carried out.

After the country's accession in the EEC (1981), the role of MoA and especially the extension service gradually changed in becoming a bureaucratic mechanism responsible for the distribution of subsidies and the relevant controls. Therefore, information provision and training faded out and experimental and demonstration fields were abandoned on behalf of the maximisation and distribution of subsidies to farmers.

In 1989 NAGREF was established in an effort to promote agricultural research in Greece. The new organization mainly recruited MoA staff. The ambition of the first Boards to initiate NAGREF's own extension service was never realized.

With the first wave of decentralization (Kapodistrias plan, 1997), the Prefectural Directorates of Agriculture were cut away from MoA and transferred under the jurisdiction of the (for the first time elected) Prefectural authorities. The agronomists were thus transferred from MoA to the Local Authorities (supervised by the Ministry of the Interior) and controlled by the Prefect (prefectural governor) although the great majority of their tasks still proceeded from MoA. Furthermore, the Prefectural service became vulnerable to local pressures and politics.

The establishment of the OGEEKA DIMITRA as a semi-autonomous organization in 1997 implied the further downgrading of farmers' training due to the lack of staff and funds of the new organisation. Farmers' training focused on those entering

EU programmes, mainly Young Farmers (300 hours) and participants in modernisation schemes (150 hours). On a later stage (1994) training was restricted to Young Farmers (150 hours). On a later stage OGEEKA expanded its activities to other target groups such as rural women (150 hours) as well as through short seminars (60 hours) among which those for beekeepers are quite popular. Overall though, and despite improvements, the level of training (duration, topics, content, trainees, methodology, organization and evaluation) are but satisfactory.

The establishment of OPEKEPE, the Greek Payment Authority of Common Agricultural Policy (C.A.P.) Aid Schemes in 1997 (operational since 2001) implied the creation of a central service in Athens and its own branches at regional/sub-regional level which nevertheless were cut off from the Prefectural Dirs, responsible thus far for the control and payments of subsidies, grants, etc.

In 2005, in an effort to counterbalance the lack of extension services in the countryside the MRDF (MoA was renamed to MRDF in 2004) established (by Law) the TOKAA (Local Centres for Rural Development). These centres were actually in operation in 2008, staffed with highly qualified agronomists. However, they never got off the ground and in 2010 they were closed down and their staff was transferred mainly to OPEKEPE and the headquarters of MRDF and KEPPYEL.

The Kallikratis plan in 2010 (aiming at saving public money through the reorganization and decentralization of the public services) implied the breakup of the regional services in two levels: regional and sub-regional (ex-Prefectural), and municipal. In parallel, various Dirs (agriculture/agricultural economy, veterinary, fisheries and land policy) were amalgamated into a single Dir. of Rural Economy & Veterinary at sub-regional (ex-Prefectural) level.

Overall the two waves of decentralization resulted in a dual structure: the headquarters of the MRDF and the regional and sub-regional services with no actual coordination among them. The changes introduced by the Kallikratis plan as implemented nowadays (local level) create still another, rather disconnected level, the Municipal Offices of Agricultural Production which evolved to a purely bureaucratic office.

According to a Presidential decree for MoA (1990), the MRDF comprised seven General Directories one of which was the GD of Agricultural Extension & Research. This, in turn, comprised five Directories, one of which was the Dir. of Agr. Extension[42]. The new organization scheme of the MRDF 2017 downgraded the ex-GD to a Dir of Research, Innovation and Education under the Gen. Dir. of Rural Development. The Dir comprises the following Sections: Agricultural research and innovation; Education, training and supervision of occupational schools; and, Butchers' schools.

A further problem is that services at all levels are understaffed a phenomenon which is expected to intensify due to the retirement of a large number of agronomists who entered the service in the period 1981 – 1987 and the prohibition of hiring new staff (imposed due to the financial crisis in the 2010s). On top of this, the restriction of travelling by 2/3 further confines agronomists in office and thus curtails the contacts between agronomists and farmers.

Overall, in the last 30 years the need for extension/advisory services has been seriously downplayed as a result of the dominant attitude according to which the absorption of available EU funds (subsidies and grants) overwhelmed 'the need to produce'; in this sense, the scientific support of farmers (being thought of as 'entrepreneurs') was not deemed 'necessary' or was totally left to the market without at the same time any kind of accreditation or controls by an competent authority.

It is only now that some timid steps are undertaken, largely due to the EU legislative framework pressure, to deal with the establishment of (private) extension/farm advisory services the first of which was the accreditation of advisors. Nevertheless it is but clear how these advisors are expected to function; it thus seems possible that accreditation will be used by the RDP Managing Authorities to launch Measure 2 of the RDP and by advisors to have access to it.

[42] For further details see the PRO-AKIS report for Greece at https://proakis.webarchive.hutton.ac.uk/inventory/country-reports-%E2%80%93-inventory-akis-and-advisory-services-eu-27; https://430a.uni-hohenheim.de/pro-akis

4. The agricultural and forestry advisory service(s)

Introduction:
The survey was based on the instrument (questionnaire) developed by the University of Hohenheim in consultation with project partners; the questionnaire was then translated into Greek by the AUA team. Following, based on the country's AKIS diagram 'representatives' of the main providers of advice to farmers (private advisory/consultancy companies[43], freelance advisors and consultants; input shops; cooperatives; Development Agencies; and, Dir of Rural Economy & Veterinary) were conducted and asked to contribute to the survey (i.e. to visit the questionnaire at https://ec.europa.eu/eusurvey/runner/i2connectAKISsurvey?surveylanguage=EN#page0 and respond to the questions). The AUA team provided assistance whenever needed. Overall 25 questionnaires were completed[44].

The 25 questionnaires come from all over the country (11 out of the 13 regions – the regions of South and North Aegean islands are not included). Half of the questionnaires come from the two main plain and productive areas of the country i.e. Central Macedonia and Thessaly regions[45]. On the other hand, 2 of the freelance advisors and one Dir of Rural Economy & Veterinary are exclusively working with livestock farmers.

4.1. Overview of all service suppliers

As seen in the previous sections, the Greek is AFKIS is fragmented and weak. Therefore one can find multiple uncoordinated entities providing farmers with all kinds of advice with the notable absence of the public domain (except for bureaucratic and administrative matters).

[43] The American Farm School of Thessaloniki (AFS) in included in this category (see: https://www.afs.edu.gr/) as, besides being an educational institute, they are also doing advisory work. Due to its distinctive character, when needed, special reference will be made to AFS.

[44] To secure that at least 3 providers from each category would respond to the on-line questionnaire we got in contact with 54 providers across the country. It seems that 3-4 providers although they filled the questionnaire they failed to submit it.

[45] In these two regions almost 40% of the recently accredited (by ELGO DIMITRA) advisors are found; according to the Geotechnical Chambers 30% of the Greek freelance consultants work in these two regions.

In this respect for the present study representatives from all kinds of providers were sought. The providers who participated in the survey are depicted in Figure 1[46].

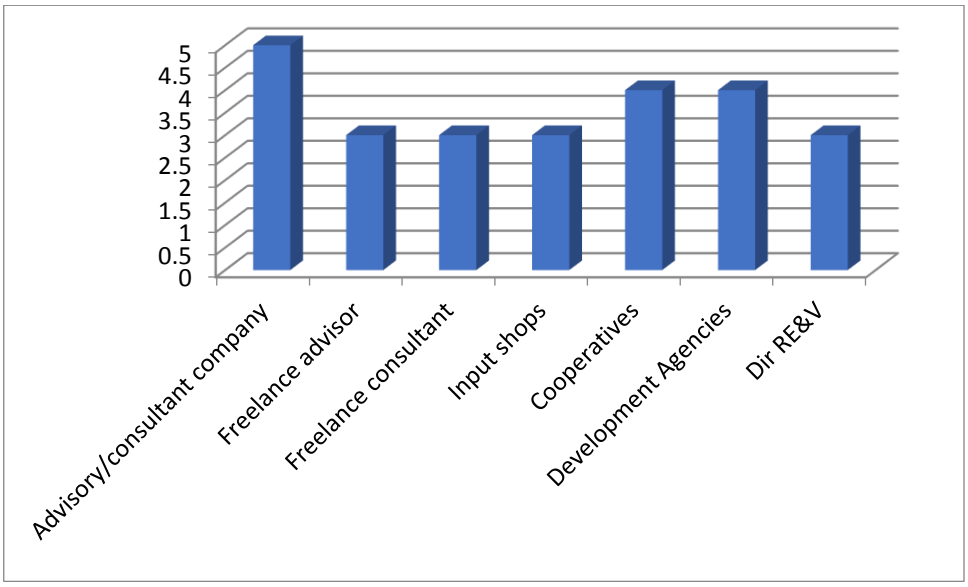


Figure 1: No of participants in the survey per category of advice provider

The Cooperatives, Development Agencies and the Directorates of Rural Economy and Veterinary (Dir RE&V) work at sub-regional/prefectural level and the same is true for the input shops (prefectural/local level).

Half of the freelancers (consultants and advisors) declared that they work at national level with the other half working at sub-regional/prefectural level.

Finally, the private advisory/consultancy companies claim that the scale of their operations is either international (2 cases), national (1 case) or regional (2 cases).

4.2. Public policy, funding schemes, financing mechanisms, advisory service providers

In Greece, amidst a weak and fragmented AKIS, there is no coherent policy and thus support for advisory services. Despite the ministerial decision of 2018 for the

[46] The numbers of different categories of providers in the Graph are not representative of the presence of these categories across the country.

establishment of a National Farm Advisory System, thus far only the accreditation of 3,084 advisors (following on-line self-directed training and central exams organized by ELGO DIMITRA) has been attained. Moreover, the Measure 'provision of advice to farmers' (M2 of NRDP) has not been launched yet.

Cost-recovery from farmers (fee for service financing) is the common source of funding for all advisory providers with the exception of the Dir of Rural Economy and Veterinary (public) and Development Agencies (funded mainly through EU and national/regional projects); in the case of cooperatives the cost may be partially covered by EU/national (project) funds or membership fee. Some among advisory companies and cooperatives may also be involved in (and funded by) EU and national projects.

The lack of a public mechanism which would be focused on the provision of extension/ advisory services to farmers results in a situation in which farmers either have to pay for such services or to access/buy 'free' advice through/along with the purchase of inputs s/he buys from a shop[47].

Among advisory providers, advisory/consultancy companies claim that their budget has increased more than 10% in the last 3 years due to the increase of clients; the same is true for 2 out of the 4 interviewed cooperatives.

4.3. Human resources and methods of service provision

Human resources

The number of employees in advisory/consultancy companies (with the exception of AFS) range between 4 and 10 (average: 6) out of whom 4 are advisors (ranging between 3 and 6); on average 1.5 women work as advisors. Cooperatives[48] employ on average 22 persons (ranging between 9 and 30 persons) out of whom 8 are advisors (ranging between 2 and 10); on average 3.5 women work as advisors.

[47] Research (2005) among rural inhabitants (between 18 and 45 years old) showed the perceived need for extension/advisory services with almost half of the sample farmers claiming that they would be willing to pay for such services. See: Alexopoulos et al. (2009).

[48] In the categories of organizations that follow advisors may well be confused with agronomists working in the organization.

Development Agencies employ on average 26 persons (ranging between 7 and 50 persons) out of whom 8 work (range: from 5 to 10) as advisors equally divided between women and men. The Dir. of Rural Economy and Veterinary employ on average 47 persons (ranging between 20 and 70 persons) out of whom 23 are advisors (ranging between 19 and 30); on average, 9 advisors are women.

Among the 9 interviewed freelancers there is only 1 woman.

Most (4 out of 5) of the advisory/consultancy companies declare increases in their personnel in the past 5 years owing to the increase of their clients. The same is true for half of the interviewed cooperatives while, on the contrary, the personnel in 2 out of the 3 Dir. of Rural Economy and Veterinary since the retired personnel was not replaced (a consequence of the recent economic crisis in Greece).

As far as back-offices are concerned only 3 of the advisory/consultancy companies (1 to 3 persons) and 2 of the Development Agencies (on average 3 persons) claim to occupy personnel in such a task.

Education level of advisors

In all cases advisors have a bachelor (3-4 years of studies) or an agronomist/engineer degree (5 years of studies). Higher qualifications are mainly found in the Dir. of Rural Economy and Veterinary (on average 2 PhD and 12 MSc) and advisory/consultancy companies (on average 1 PhD and 2 MSc, excluding AFS); Development Agencies and Cooperatives have on average 3 and 2 MSc holders, respectively, in their personnel.

Among the 9 freelancers interviewed only 2 have a MSc degree. All others hold the agronomist/engineer degree.

In only 5 cases (2 companies; 2 Development Agencies; 1 Cooperative) in was said that in order to hire someone organizations require further qualifications, mainly (re: multiple responses) personal and communication skills (2 cases); training in advisory work or adult education (3 cases); relevant experience (1 case); or specialized training/knowledge (1 case).

Professional experience in years

In all the interviewed organizations the majority of advisors (with the exception of AFS and 1 cooperative) have a working experience exceeding 10 years with the

notable absence of advisors having less than 3 years experience (overall 1 person only). This is especially problematic for the Dir. of Rural Economy and Veterinary due to the abovementioned restriction in hiring new personnel.

Freelancers are also experienced; 7 out of the 9 have professional experience exceeding 10 years. The two less experienced (but with experience more than 3 years) are the MSc holders.

Advisory certification

All the advisory/consultancy companies (or most of their staff) and 3 out of the 4 cooperatives (or most of their staff) have the Advisory Certification provided by ELGO DIMITRA; two of the freelancers also hold this Advisory Certification.

As mentioned in the description of the Greek FAS, last summer, more than 3,000 advisors have been accredited in the framework of the National Farm Advisory System but the Measure (M2 on FAS) of the RDP has not been launched yet.

The only other staff certifications mentioned concern cross-compliance (1 case) and integrated farming/IPM (1 case); one freelancer also has IPM certification.

4.4. Clients and topics

Clients

All advisory providers serve quite a number, each, of client groups; only in two cases (one freelancer advisor and one input shop) the clientele is clearly defined. Almost all (23 out of 25) providers support 'farmers with small/medium-scaled farms'; 'farmers with large commercial farms' are clients for less than half the providers (all the advisory/consultancy companies and freelance consultants and few of the rest of the providers). More than half of the providers support farmers groups, young farmers and/or new entrants; women farmers are clients for half of all the advice providers (all advisory/consultancy companies and most of the freelance consultants and cooperatives). Slightly less of the providers support farmers with semi-subsistence farms as well as part-time farmers. The 'SMEs' are served by all the Development Agencies, most of the advisory/consultancy companies and half of the freelancers; 'advisors/consultants' are served by half of the Development Agencies and sporadically by other advice providers with the

exception of Cooperatives and Dir of RE&V. Support to forest owners/managers appears only twice.

One might observe that freelance advisors and input shops have a rather restricted range of clientele as compared to other advisory providers. There is no obvious relationship between client group and advisory activities/topic, as topics do not differ radically between advisory providers (see below).

Topics

As seen in Figure 2 (below) the advisory topics are most demanded by clients are: 'entrepreneurship and farm management' (20), 'rural development support and diversification' (20); 'support with grant application and compliance with regulation and standards' (16); 'agri-environmental stewardship measures and nature conservation' (12); and, 'production technologies' (10).

Figure 2: Most demanded, by clients, advisory topics

It is clear that 'production technologies' is not a topic for which farmers would ask Development Agencies and to a lesser degree cooperatives and Dir. of Rural Economy and Veterinary; 'agri-environmental' is not a topic for which farmers would ask Development Agencies and most among the freelancers (advisors or shops). Freelance advisors and shops as well as half of the Development Agencies are not the place where farmers ask about 'support with grant application and compliance with regulation and standards'.

The number of clients ranges between 20 and 1,000 farmers. The Dir. of Rural Economy and Veterinary claim on average around 370 farmers/clients (ranging from 200 to 1,000) followed by advisory/consultancy companies with an average of around 350 clients (ranging from 60 to 1,000). Freelancers' (consultants or advisors) clientele ranges from 20 to 300 with an average of 125 clients. Shops appear to have more clients than freelancers (average: 180 farmers). The data for Development Agencies and Cooperatives are not consistent as they address different clienteles (municipalities, etc.) as well.

Advisory activities revolve mainly around 'consultancy and backstopping' for advisory/consultancy companies (4 out of 5 also mention 'training and capacity building'), and 'creating awareness and facilitating exchange of knowledge; consultancy and backstopping' for the rest of the providers. Only Development Agencies consistently refer to 'networking/ facilitation/ brokerage' and 'enhancing access to resources' among their activities.

Only in 5 cases outsourcing is mentioned. These mainly concern constructions and cases in which the organization is under considerable pressure (to support clients) or deals with something totally new (for example, Farmer Field Schools).

Advisory methods

The most frequently used advisory methods are the individual ones (see Figure 3). This is especially true for all freelancers – consultants, advisors and shops (between 70% and 100%; average 90%), and advisory/consultancy companies (between 45% and 90%; average 77%). Individual methods account for 68% of the methods used by Dir. of Rural Economy and Veterinary, 65% for cooperatives, and 50% for Development Agencies. On the other hand, Development Agencies use group and mass methods to quite some extent (23% and 27%, respectively), followed by cooperatives (14% and 21%, respectively) and Dir. of Rural Economy and Veterinary (13% and 15%, respectively). Advisory/consultancy companies use group and mass methods in a restricted manner (around 11% each category).

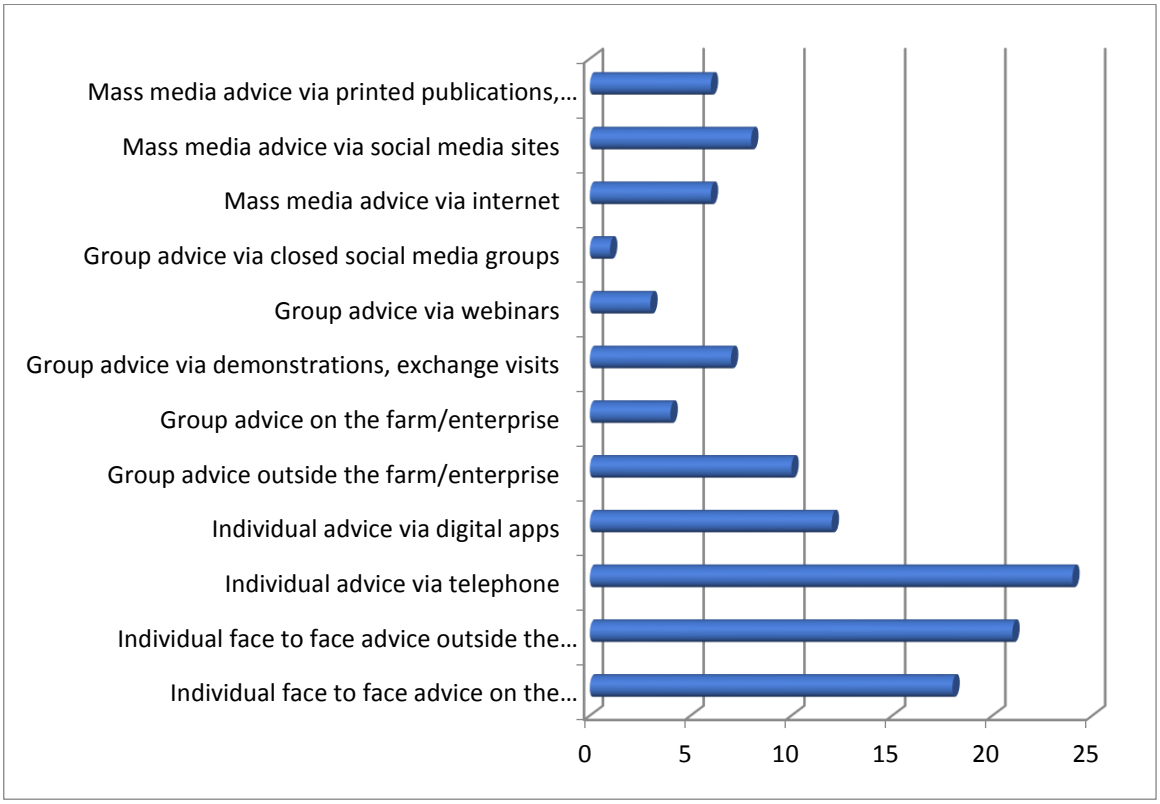


Figure 3: Most frequently used advisory methods

Face-to-face advice (either outside or on-farm) and advice via telephone were mentioned by more than half of the interviewees; when Individual advice via digital apps is added to these, then all individual methods account for more than 60% of the methods mentioned. Individual methods predominate among freelancers (78%) as well as companies/organizations (56%). Group methods are used by companies/organizations much more than by freelancers (26% vs. 8%, respectively); most of them are non-digital (21% and 8%, respectively). Digital mass media account for around 11% (companies/organizations) to 14% (freelancers) of the methods used; the more traditional mass media are used only by companies/organizations (7% of all the methods used), half of which are advisory/consultancy companies. On average, freelancers use fewer methods as compared to companies/organizations (4 vs. 5, respectively); five providers (2 cooperatives, 2 Dir of Rural Economy and Veterinary and 1 advisory/consultancy company) do not use any digital means to contact/advice their clients.

Half (13 advisory providers, dispersed in all categories) state that the way to provide advice has changed due to the covid-19 pandemic. In all cases but two (in which increased telephone contacts are reported as the means to provide advice

replacing face-to-face contacts) advice is provided to a larger extent through the use of new technologies (internet and apps; in two cases both telephone and new technologies are used).

4.5. Linkages with other AKIS actors/knowledge flows

As seen in Figure 4 (below) advisory/consultancy companies have medium-to-strong links with public administration (2.40[49]) and FBOs – professional organizations (2.40) and medium links with other similar companies (2.0).

Freelancers, with the exception of consultants who have medium-to-strong links with public administration (2.33) due to the nature of their work, do not have noticeable (medium or more) links with other AKIS actors.

Cooperatives have medium-to-strong links with FBOs – professional organizations (2.75) and public administration (2.50).

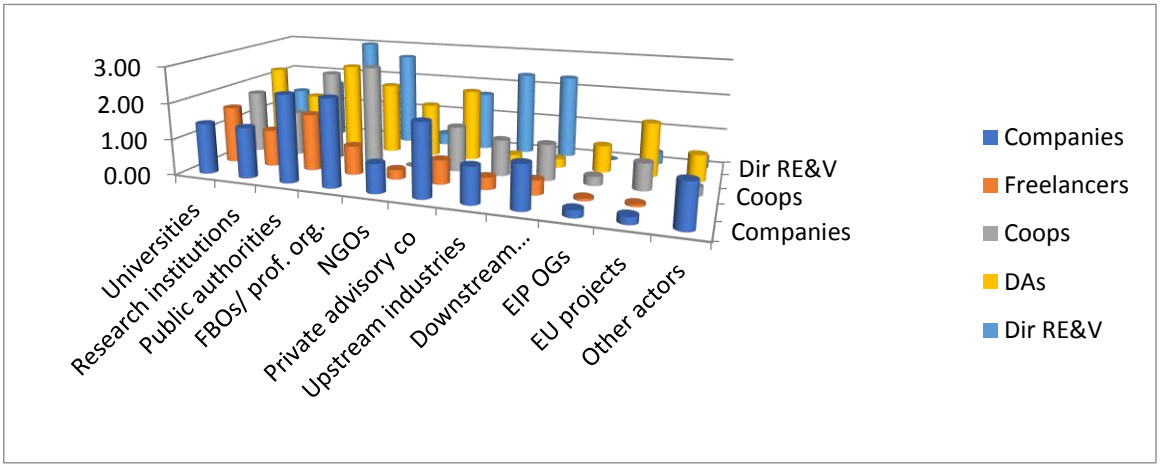


Figure 4: Degree of cooperation of advice providers with other AKIS actors
MEMO: 0= no cooperation; 1= weak cooperation; 2= medium cooperation; 3= strong cooperation.

Development Agencies have medium-to-strong links with public administration (2.50) and universities (2.25) followed by medium links with FBOs – professional organizations (2.00) and private companies such as consultancies, advisory organisations, etc. (2.00).

[49] For these calculations it is assumed that: no cooperation = 0; weak cooperation = 1; medium cooperation = 2; and, strong cooperation = 3.

Finally the Dir of Rural Economy and Veterinary have strong links with public administration (3.00) and FBOs – professional organizations (2.67) and medium-to-strong links with industries, either upstream or downstream (2.33 each).

4.6. Programming and planning of advisory work

Two of the advisory/consultancy companies along with 1 cooperative and 1 Development Agency declared that they have staff development strategy. In two cases (1 company and 1 coop) it concerns training on precision agriculture; the other two cases refer to the fact that the organization facilitates its staff to undertake postgraduate studies, attend seminars and conferences, etc.

Only two organizations (1 advisory company and 1 coop) said that they have a trainer/training unit. In another company the sections' directors take care of their staff training; in 1 DA training takes place through the participation in projects (with research centers and universities); 1 coop said that each of its agronomists attends at least one seminar per year; finally 1 Dir of Rural Economy and Veterinary mentioned that staff can attend courses provided by the National Centre for Public Administration & Local Government (EKDDA).

In all cases training is said to last between one and two weeks.

In 3 out of the 5 advisory/consultancy companies attending training implies economic rewards (salary raise or bonus); in another one they have a competition (with economic reward) of the employee of the year. In 1 DA training is a component of the annual staff evaluation.

Time allocation for advisory work

All organizations, except the Dir of Rural Economy and Veterinary (see Figure 5, below), provide targeted services to (on average) similar degrees (from 42% for DAs and Coops to 44% for companies). The other most important (on average) activity in all categories of organizations is 'information dissemination - face to face, via digital tools': companies (20%), cooperatives (41%), Development Agencies (18%) and Dir of Rural Economy and Veterinary (40%). Finally, important for companies are 'teaching and training activities' (12%, largely owing to AFS) and 'further development of one's knowledge and skills' (10%).

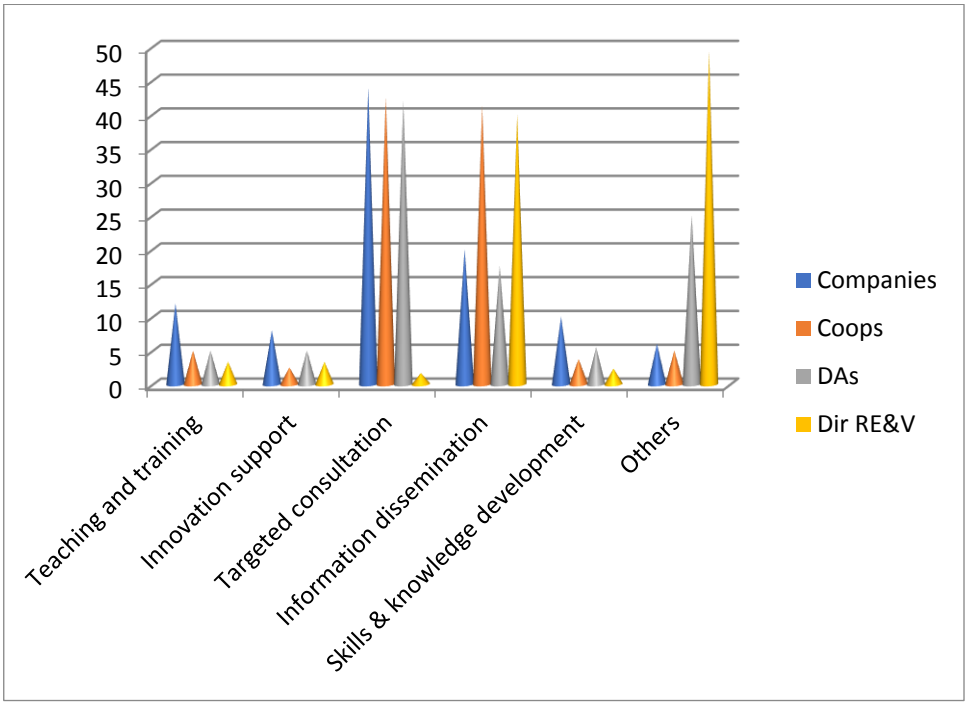


Figure 5: Allocation of advisors' time (%) in various activities

Other activities refer to project work and studies/plans (DAs and companies) and administrative/ bureaucratic tasks (almost 50% of the time, for Dir of Rural Economy and Veterinary).

4.7. Advisory organisations forming the FAS and evaluation of their FAS implementation

Overall, 9 among the 16 interviewed organizations (3 out of 5 companies, 3 out of 4 coops, 1 out of 4 DAs and 2 out of 3 Dir RE&V) state that advice concerning the cross-compliance requirements (re: EU-FAS) is embedded in their other advisory activities[50].

[50] Here is must be noted that the implementation of the RDP Measure concerning FAS in Greece has been either a failure (2007-2013) or not activated thus far (2014-2020). For the former see: Koutsouris (2014a).

5. Summary and conclusions

The Greek Extension Service (Ministry of Agriculture; nowadays, Ministry of Rural Development & Food) has, during the last three decades, been in a painful process of bureaucratisation leading to its absence from the rural development field. This largely owes to the fact that following the accession of Greece into the EC (1981), the administrative burden of the Common Agricultural Policy (CAP) implementation was designated to the Extension Service. However, no major functional re-structuring of the Service took place; thus, extensionists were ensnared in a bureaucratic-administrative role. Extensionists became more than ever severely restricted vis-à-vis the provision of advice to Greek farmers; information was provided to those of the farmers who actively sought for it albeit in a rather fragmented, inadequate and inefficient manner. Furthermore, changes, which took place in the mid 90s, such as the Ministry divisions' restructuring, the decentralisation of services and the establishment of semi-autonomous organisations for training and research respectively did not yield any substantial positive effects and did not make extension services more flexible and relevant to the needs of farmers.

Such a situation has been verified by a number of studies which have attempted to explore both farmers' perceptions about the Service's interventions and the intervention policy and practice of the Service. For example, Koutsouris and Papadopoulos (1998) have criticized the mainly bureaucratic role of public agronomists given that they have abolished their advisory role due to their involvement in controlling the implementation of Regulations and farmers' applications for subsidies and compensations, often creating a tension between extensionists and farmers. In this respect, Kaberis and Koutsouris (2012), Pappa and Koutsouris (2016) and Charatsari and Lioutas (2019) point to the negative perceptions of Greek farmers vis-à-vis public agronomists who are nowadays conceived of as 'bureaucrats' not serving farmers' interests. Such an inefficient and inadequate advisory function is found to be a key factor with respect to the current socioeconomic and environmental problems facing the Greek agriculture while also eliminating farmers' willingness to engage in public extension activities.

The vacuum created due to the weakness of the public as well as of farm based organizations to provide efficient advisory services to farmers is covered, locally, by private agronomists - consultants and input suppliers (Kaberis and Koutsouris,

2012). Private consultants mainly support farmers interested in having access to EU programmes so their scope is rather limited. Input suppliers/retailers (private agronomists) provide advice for free in the framework of their commercial activity. Their shops are the main points where farmers seek and obtain free information on inputs and technical requirements; shops, in turn, generate income from the trade of inputs. On the other hand, the potential conflict of interest arising from the involvement of private agronomists (input providers) in the provision of advice has been clearly pointed out (Michelsen et al., 2001; Dinar et al., 2007; Kaberis and Koutsouris, 2012; Pappa and Koutsouris, 2016).

Private agronomists/companies also support producers' groups mainly in the framework of Integrated Production schemes, thus constituting an exemption to the general "rule", according to which technical advice is not paid, since in their case the provision of advice is their exclusive job.

Overall, quite a number of papers in journals and international conferences in the last couple of decades (see, inter alia, Koutsouris and Papadopoulos, 1998; Koutsouris, 1999; Michelsen et al., 2001; Gidarakou et al., 2006; Dinar et al., 2007; Alexopoulos et al., 2009; Charatsari et al., 2011; Kaberis and Koutsouris, 2012; Koutsouris, 2014a; Pappa and Koutsouris, 2016; Österle et al., 2016; Charatsari and Lioutas, 2019; Koutsouris and Zarokosta, 2019; Lioutas et al., 2019; Zarokosta and Koutsouris, 2019) as well as two PhD theses in the Dept of Agr. Economics & Rural Development, AUA (Papaspyrou, 2016; Sergianni, 2019) have pointed to the negative consequences in the Greek farming sector due to the luck of an extension/advisory mechanism and, in general, the weak and fragmented Greek AKIS.

Indeed, as shown in the framework of the "Prospects for farmers' support: Advisory services in European AKIS (PRO-AKIS)"[51] project (FP7-EU) the Greek AKIS (Koutsouris, 2014b) was found to be 'weak and fragmented' in the sense that

"*In a strong AKIS, there are influential actors or organisations at national level that support (parts of) the knowledge system. 'Strong' also indicates that dedicated resources are allocated to the AKIS, for example public investment is available to enhance advisory services, knowledge production and exchange. Finally, in a*

[51] https://430a.uni-hohenheim.de/pro-akis; http://proakis.webarchive.hutton.ac.uk/

strong AKIS there would be evidence that farmers are being reached by and benefit from advisory services. A weak AKIS would be lacking of these features.

The 'level of integration' refers to the formal links between AKIS actors. A fragmented AKIS is characterised by several independent knowledge networks that operate in parallel. They are typically not well coordinated, rarely cooperate and even might compete. An integrated AKIS features a coordinating structure, often a public body, and the system is supported by national policies on AKIS and advisory services that frame the (inter)actions of AKIS actors. In addition, in an integrated AKIS there is evidence of linkages between various actors."[52]

This has been illustrated in the following Figure 6.

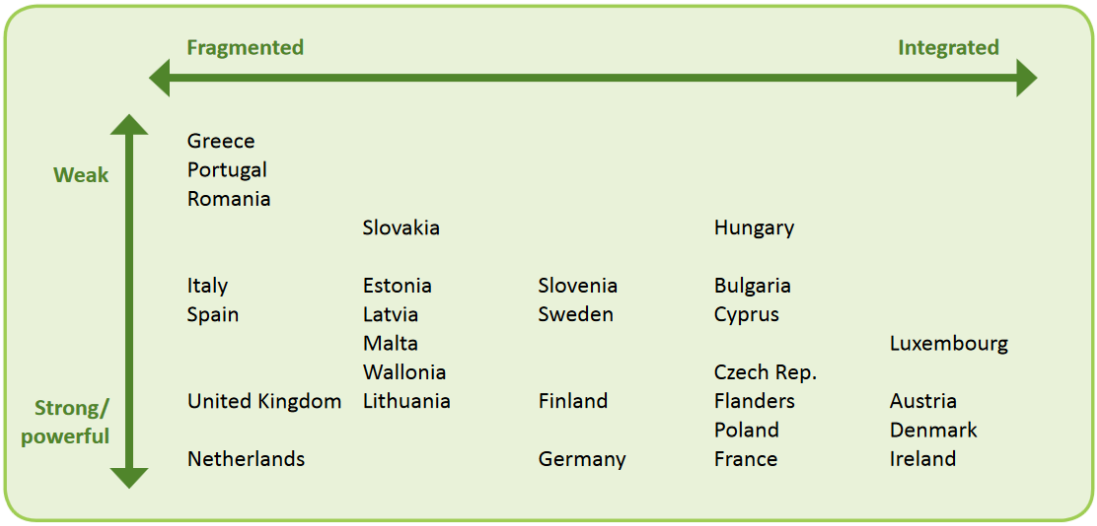


Figure 6: The European AKIS

Seven year later, the updated version (2020) was elaborated in the framework of the i2connect H2020 project. This was attained based on an updated version of the PRO-AKIS diagram prepared by the AUA research team and discussed in depth with 15 key-informants[53] based on the interview guide prepared by the University of Hohenheim. The final 2020 AKIS diagram shows a largely similar picture of the Greek AKIS and extension/advisory services as the 2013 one.

[52] https://proakis.webarchive.hutton.ac.uk/sites/proakis.hutton.ac.uk/files/AKIS_characterisation_briefing_final.pdf

[53] Based on the interview guides provided by the H2020 projects i2connect (https://cordis.europa.eu/project/id/863039) and AgriLink (https://www.agrilink2020.eu/).

Indeed all the interviewees underlined that in the coubtry AKIS is not coordinated and it is rather 'extreme (wishful thinking)' to characterise the situation as 'as system'; this is so given the fragmentation, complexity ('labirinthine situation') and ineffectiveness that currently predominate and 'do not help those who wish to get invlovled in farming'. The interviewees stressed the 'obvious lack' of links between various actors which, among others, results in 'overlapping jurisdictions/mandates or contradictory duties' as well as 'lack of both theoretical background and practical orientation'. According to the interviewees the intercations that occur as largely 'occasional/ opportunistic'; the inteviewees thus claimed there is 'plenty of room for improvemnet' as well as that 'efforts are currently made'. The latter owes to the fact that in the framework of the CAP Strategic Plan currently desinged in Greece (and all over the EU) the (re-)structuring of AKIS and within it of advisory services is obligatory.

In conclusion, all sources of information (papers, projects, reports, key-interviewees) and the data collected through the i2connect project survey (see Section 4) point to the same picture: multiple actors claim/ compete for the 'advisory field' (quite sometimes having in mind the funds that are/ should be available in Measure 2 of the RDP) albeit with minimal links between them, no back-office function or support/ links, addressing very wide ranges of potential clienteles and largely funded through fees and with a largely top-down ethos. Thus large groups of farmers are not served or are served through non-impartial input shops with regard to their pressing everyday needs[54], and opportunities concerning for example the establishment of an advisory system, running bottom-up projects (interactive innovation) etc. have been/are missed. Nowadays, many are looking to the design of the CAP Strategic Plan (2021-2027) as an opportunity to mitigate some of the negative aspects and consequences of the weak and fragmented Greek AKIS.

[54] This is further verified by the Greek case studies of the H2020 projects AgriSpin (https://agrispin.eu/reports/) και AgriLink (https://www.agrilink2020.eu/).

6. Acknowledgement of partners, information sources and gaps

The AUA team wishes to acknowledge the cooperation of the interviewed key-persons concerning the Greek AKIS as well as of the advice providers who responded to our call to answer the on-line questionnaire.

List of key-interviewees

1	Maria Christina Makrandreou – Head of the National Rural Network
2	Athanasios Theodoropoulos - Managing Authority of the GREEK RDP
3	Demetrios Vacamis – Head of Agro Q (independent advisory company)
4	Antonis Andronikakis – Journalist at the farmers journal "Ypaithros Chora"
5	Apostolos Polymeros – Gen. Director, Ministry of Rural Dev. & Food
6	Nikolaos Pavlonassios - representative of PENA, the Young Farmers' Union
7	Zografakis Stavros - Vice-Rector, President of the Research Committee of the Agricultural University of Athens
8	Spyridon Mamalis - President, Geotechnical Chambers of Greece
9	Nikolaos Stoupis - Managing Director at Agricultural Innovation; Former Gen. Secretary of the Ministry of Rural Development & Food
10	Francesca Ydraiou – Director, Greek Crop Protection Association
11	Elli Tsiforou – Gen. Dir. of GAIA Epicheirein
12	Paul Satolias – President of New PASEGES (Farmers' Union)
13	Panagiotis Chatzinikolaou - Managing Director of the Hellenic Agricultural Organization Demeter (ELGO DIMITRA)
14	Kostas Tsiboukas – Dean of the School of Applied Economic & Social Sciences, Agricultural University of Athens; Former President of NAGREF (nowadays part
15	Vasilis Bellis – Gen. Dir. of the Development Agency of Karditsa S.A. O.T.A.

List of survey participants

	Advisory/ consultancy companies
1	AgroCon, https://www.agrocon.gr/
2	SYPA consultants, www.sypa.gr
3	InfoAgro, https://www.infoagro.gr/
4	GP&A Consulting & Planning, http://www.gp-a.gr/
5	American Farm School of Thessaloniki, https://www.afs.edu.gr/
	Freelancers - advisors
6	I. Konstantopoulos, info@gp-a.gr
7	D. Sotiropoulou Consultants, http://www.geo-aitol.gr
8	S. Papasotiriou, Rural Dev. Consultants, www.spapasotiriou.gr
	Freelancers - consultants
9	INNOVact, Business Consultants, https://www.innovact.gr/en/
10	does not wish to disclose his/her data*
11	does not wish to disclose his/her data*
	Input shops
12	E.G.I.S./AssosSeeeds, https://www.assosseeds.com/index.php?lang=129&mpage=1
13	AGROPLACE, https://www.agroplace.gr/profil-3/
14	GEOFORIA, www.geoforia.gr
	Cooperatives
15	EAS Thessalonikis, https://www.easth.gr/
16	General Agricultural Coop of Ioannina, http://www.enosiagroton.gr/
17	Orealios Gaea - wine growers of Robola, Cephalonia, https://www.orealios.gr/en/
18	EAS Arkadias, https://www.easarcadias.gr/index.php/el/
	Development Agencies/ LAGs
19	Pelio Development Co. S.A., https://eapilio.gr/
20	Regional Development Agency of Western Macedonia S.A. O.T.A., http://anko.gr/index.php/en/
21	Development Agency of Karditsa S.A. O.T.A., www.anka.gr
22	Development Agency of Larisa S.A. O.T.A., http://aenol.gr/
	Dir of Rural Economy & Veterinary
23	Dir of Rural Economy & Veterinary of Drama, daokdr@pamth.gov.gr
24	Dir of Rural Economy & Veterinary of Larisa, d.pihlivas@thessaly.gov.gr
25	Dir of Rural Economy & Veterinary of Pieria, daokdr@pamth.gov.gr

* Data known at the AUA team

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