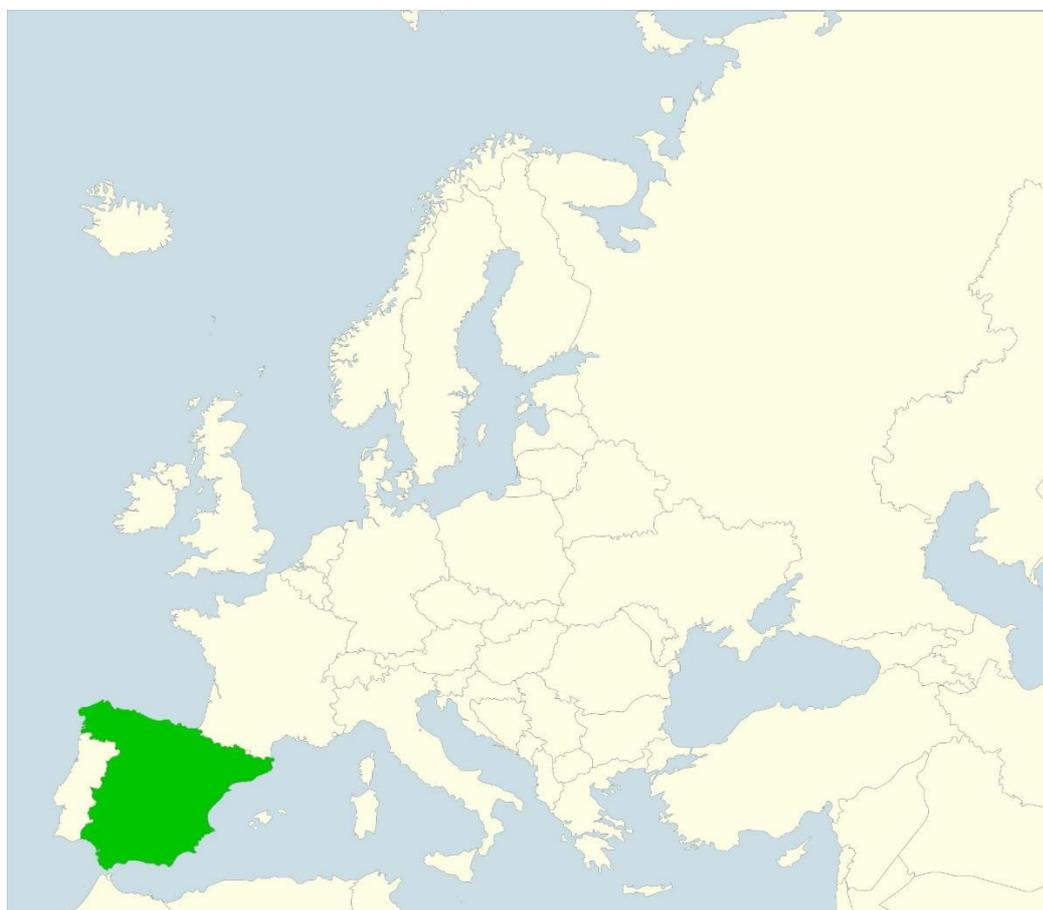


# FROM ANALYSIS TO FORMULATION OF STRATEGIES FOR FARM ADVISORY SERVICES (CASE STUDY: VALENCIA – SPAIN). AN APPLICATION THROUGH SWOT AND QSPM MATRIX

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**Abstract:** European agriculture should meet new increasing internal and contextual challenges. For example, the reform of the Common Agricultural Policy in 2003 introduced the cross-compliance, among other novelties, as compulsory for farmers. To better meet this and other requirements, Member States had to set up the so-called Farm Advisory System, operational across the European Union in 2007. From a sample of actors involved in the provision of farm advisory services in the region of Valencia (Spain), the present study aimed to identify the most appropriate strategies to implement such services. SWOT method has been applied to examine the internal and external environment. Based on this diagnosis, dominance of strengths and opportunities resulted in a set of four prioritised main 'aggressive' strategies (using SPACE and QSPM methods), which in turn may help public decision makers and advisers in a more effective implementation of advisory services.

**Key words:** Farm advisory services, SWOT analysis, SPACE and QSPM methods, Valencia (Spain)

**Resumen:** La agricultura europea debe hacer frente a crecientes cambios internos y contextuales. Por ejemplo, la reforma de la Política Agraria Común de 2003 introdujo la condicionalidad, entre otras novedades, obligatoria para los agricultores. Para abordar mejor este y otros requisitos, los Estados Miembros tenían que poner en marcha el denominado Sistema de Asesoramiento a Explotaciones, que había de estar operativo en la UE desde 2007. A partir de una muestra de actores relacionados con la provisión de servicios de asesoramiento a las explotaciones en la Comunidad Valenciana (España) el presente estudio pretende identificar las estrategias más adecuadas para la implementación de tales servicios. Se ha utilizado el método DAFO para analizar el entorno externo y los factores internos. A partir de este diagnóstico, el predominio de fortalezas y oportunidades ha dado como resultado un conjunto de cuatro estrategias priorizadas (utilizando los métodos SPACE y QSPM), que pueden ayudar tanto a los responsables públicos y asesores en una implementación más eficaz de los servicios de asesoramiento.

**Palabras clave:** Servicios de Asesoramiento a Explotaciones, Análisis DAFO, métodos SPACE y QSPM, Comunidad Valenciana (España)

## 1. Introduction

There has been a broad consensus among scholars and policy makers that European agriculture should meet new challenges related to international competition, food safety, animal health or environmental issues (EEA, 2018). In this context, successive reforms of Common Agricultural Policy (CAP) in the European Union (EU) have sought to respond to these challenges, as well as to the growing pressures arising from the World Trade Organisation negotiations (MacDonagh et al., 2013). This consensus is also related to the consideration of knowledge and information to farmers as one of the key resources to help European agriculture meet these challenges.

The 2003 CAP reform introduced two new features (Cejudo and Maroto, 2010; European Commission, 2013; European Commission, 2018). Firstly, the cross-compliance mechanism, which links direct payments to farmers' compliance with basic standards on the environment, food safety, animal and plant health and animal welfare, as well as the requirement to keep land in good agricultural and environmental condition. Secondly, the obligation by Member States to set up a system to advise farmers on compliance with the new EU standards, the so-called Farm Advisory System (FAS) (Council Regulation (EC) No 1782/2003). It had to be operational in 2007 and farmers can participate in it on a voluntary basis.

The key role of FAS (European Commission, 2014) has been strengthened through a legal (e.g. Article 12 of Council Regulation (EC) No 73/2009) and operational (Rural Development

Programmes – RDPs) architecture, which is at the heart of the 2020 targets (e.g. helping farmers to become more aware of processes related to the environment, food safety, animal health and animal welfare). FAS operates through two main measures in the RDPs (Article 20a of Council Regulation (EC) No 1698/2005, applied to the 2007–2013 programmes): the use of advisory services by farmers (measure 114) and the creation of management, and advisory services by organisations (measure 115).

This orientation continues during the period 2014–2020 (Council Regulation (EU) No 1305/2013 and Council Regulation (EU) No 1306/2013), where RDPs pay particular attention to two aspects. Firstly, knowledge transfer and information actions (Article 14 of Council Regulation (EU) No 1305/2013), including vocational training and skills acquisition by farmers (or SMEs operating in rural areas), such as training courses, workshops and coaching, as well as short-term agricultural exchanges and visits to farms (Cristiano et al., 2015). Secondly, advisory services, farm management and farm support (Article 15 of Council Regulation (EU) No 1305/2013), which include three types of measures: supporting farmers and related operators to use advisory services to improve economic and environmental performance and resilience to climate change, encouraging the establishment of farm management and promoting the training of advisers.

The European Union is therefore committed to creating a consistent system of support for farmers to help them pay for advice on better management of their farm or land, and to help advisers to keep up to date (and to better advise farmers so that they can properly meet EU mandatory requirements and other challenges). The use of these services is voluntary for farmers, but is advisable as the requirements and other challenges become increasingly complex for farmers and related operators (Angileri, 2009, 2010, 2011; Cores, 2010; European Commission, 2010a; Jovanic and Delic, 2013; Moreddu and Poppe, 2013).

Therefore, Farm Advisory Services (FA Services) is one of the main tools of FAS<sup>4</sup>, defined as a set of organisations that allow farmers to produce farm-level solutions, mainly through service relationships with advisors (PROAKIS Project, 2015). In this regard, Prager et al. (2016) have stated that FA services are the most demanded by farmers and rural entrepreneurs. However, the current conception of FA services has not always been predominant. There has been a shift from an approach based on extension services dominated by supply and a top-down perspective with a strong emphasis on technology transfer (Anderson and Feder, 2004; Chipeta, 2006; Faure et al., 2012), to a more participatory and demand-driven approach that allows for a more decentralised provision of advisory services (Garforth et al., 2003; Rivera and Alex, 2004; Klerkx et al., 2006; Povellato and Scorzelli, 2006; Labarthe, 2009; Cristóvão et al., 2012; Labarthe and Laurent, 2013).

CAP reforms have promoted the establishment and operation of FAS and FA services throughout the EU (AGROSYNERGIE, 2013; Kania et al., 2014). This demand-driven approach is therefore characterised by its focus on customers (farmers) and the market, and can be seen as responding to the new, changing and challenging needs of farmers. Thus, advisors should be aware of farmers' needs and act as general practitioners, advising both on EU requirements and on its underlying objectives and policies (European Commission, 2010b). Within this framework, there is a great diversity of FAS across Europe, sometimes even within countries, adjusted to particular institutional situations (ADE, 2009; Kadleciková, et al., 2012; Jovanic and Delic, 2013; McDonagh et al., 2013; Moreddu and Poppe, 2013; Caggiano and Labarthe, 2014; Labarthe et al., 2014; PROAKIS Project, 2014). In this sense, FAS decentralisation can have positive effects, although it is also clear that some adverse effects may arise (Caggiano and Labarthe, 2014; Mantino, 2013; PROAKIS Project, 2015; Nettle et al., 2018).

In Spain, in spite of the former centralised national extension service which used to partly play this role (under the supply – driven perspective), the current situation is characterised by regionally decentralised and fragmented systems (now operating under a demand – driven

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<sup>4</sup> We distinguish Farm Advisory Services from Farm Advisory System (FAS) as it has been stated in European Commission (2010a) and the aforementioned Council Regulations, being the first one part of the global structure of the Farm Advisory System-s developed in each Member State.

perspective), in which they predominate farmer organisations as FA Services providers (Esparcia et al., 2014; PROAKIS Project, 2015; Juhász, 2017).

In Spain, despite the former national centralised extension service that used to play part of this role (under the supply perspective), the current situation is characterised by decentralised and fragmented systems at regional level (now operating under a demand perspective), in which farmers' organisations predominate as providers of FA services (Esparcia et al., 2014; PROAKIS Project, 2015; Juhász, 2017).

The main source of information on FA services in Spain comes from official evaluations of regional RDPs (MAPA, 2018a). In addition, there are analyses related to specific services, such as those related to the rationalisation of water use, the introduction of more effective management methods on livestock farms (López, 2007), or the relationship between cross-compliance and FA services (Sánchez, 2008; Ramos, 2009). Other very interesting studies, such as those carried out in the PROAKIS project, analyse FAS in great detail and from an integral approach in several European countries. However, Spain has only participated in this project with a small analysis, from a very global perspective (Esparcia et al. 2014).

This research aims to contribute to this comprehensive analysis based on the case study of the region of Valencia (Spain). The general objective of this research, based on the perspective of a sample of formal and informal service providers, is to apply this conceptual framework to the case study, identifying the types of dominant strategies and giving priority to their implementation and development. To achieve this, FA services providers and other decision-makers may have better information on how to improve this approach in light of farmers' needs and market application in the context of the case study.

This main aim can be achieved by answering the three main research questions, which guide the research. Firstly, what are the strengths and weaknesses of FA services in terms of internal factors that stakeholders consider in relation to the provision of farm advisory services? Secondly, what are the Opportunities and Threats, in terms of the external factors influencing FMD services, in the view of stakeholders linked to the provision of farm advisory services? And thirdly, what are the appropriate strategies to better develop FA services in the context of the case study? A SWOT analysis is carried out to answer the first two research questions, and a combination of Strategic Position and Action Evaluation matrix (SPACE) and Quantitative Strategic Planning Matrix (QSPM) is used for the latter.

## **2. Theoretical background: the generalisation of demand – driven approach in Farm Advisory Services. Towards a conceptual model based on a SWOT analysis**

The important development of the FAS since the beginning of the 2000's in the EU cannot be separated from the changes in the international context. Therefore, in response to a continuous evolution towards more sustainable approaches in agricultural and rural service delivery, the current understanding of FAS goes beyond technology transfer. The new key features are capacity building to learn and help farmers organise and develop cooperative strategies, learning marketing skills and partnering with a wide range of service providers and other actors to create synergies through participation and collaboration with public, private or civil society organisations (Bohn, 2016; Davis and Suleiman, 2016).

From this global perspective, there seems to be a renewed interest in making FAS more commercialised and varied (Garforth et al., 2003; Klerkx et al., 2006; Labarthe and Laurent, 2013). In addition, due to major changes taking place in the variety of agricultures and the information needs of farmers, the research sector, in order to be effective, must use an efficient mechanism in which its results are relevant and applicable to clients (Agbamu and van den Ban, 2000; Klerkx and Leeuwis, 2008). Therefore, FA services need to move towards a system that is proportionate to the demands and needs of farmers (Blum and Chipetta, 2016). Numerous approaches to agricultural technology transfer have resulted in a chorus of demand-driven requests for FA services. They could also be seen as different activities that farmers demand to help them develop their own technical, organisational and management skills to

improve their livelihoods (Christoplos, 2010). It is also considered as an activity that "enables farmers to co-produce farm level through the relationship with advisors to increase their knowledge and skills" (Labarthe et al., 2013). In addition, it should be noted that many studies and definitions have focused on two dimensions of demand-driven FAS, customer-oriented and market-oriented (Christoplos, 2008; Swannson and Rajalahti, 2010).

With regard to the client-oriented perspective, it should be noted that in recent decades policies related to the role of the State at the global level are declining in the management of the national economy, with a parallel increasing economic deregulation. This has led to new opportunities for farmers to participate in economic development. From this point of view, the main objectives include helping farmers access new information and technologies (Chipeta, 2006; Faure et al., 2012), enabling farmers to adopt new technologies and production systems in order to meet new societal challenges and make better decisions, and linking them to high-value and export markets, inputs, financing and upgrading their agricultural and management skills (Anderson, 2008; Schrijver et al., 2016). In fact, to identify their demands, farmers clearly need to strengthen their capacities to articulate on them and monitor service provision (Davis and Suleiman, 2016).

With regard to the market-oriented perspective, it should be noted that the agricultural market environment is changing with unprecedented speed and in very diverse ways at the global and local levels (Swanson, 2006; BMZ, 2007). This makes it more market-oriented and therefore more competitive. Here, the market refers to the supply-demand mechanism that may have a more positive impact on technology transfer, tending towards high-value crops or valuing added products with a high emphasis on market demand. This will largely depend on the combination of the availability of accessible markets and help farmers to acquire knowledge and information about good products and production and marketing processes (Jaworski and Kohli 1993; Shepherd, 2000). In this regard, this approach focuses on linking farmers to markets and knowledge services designed to assist farmers, rural entrepreneurs and other actors in agricultural value chains and to benefit from marketing, new agricultural opportunities and the economics of new productions (Chipeta et al., 2008; Collett and Gale, 2009).

In conclusion, it can be said that there is no one "better perspective ", since each of them has advantages and disadvantages, and probably many times the best option is to use both in a complementary way. The focus on particular aspects of one or the other would depend on the specific context, the concentration on the nature of the challenge, the demands of clients and the resources available for intervention, among other relevant issues (Davis and Sulaiman, 2016).

To successfully implement the demand-driven FAS approach it is necessary to consider a set of key aspects, which could be summarised in a comprehensive conceptual model. A SWOT analysis is a useful way of showing these elements (summarised in Table 1). This conceptual model will be the base for carrying out the research from the selected case study (region of Valencia, Spain), being the starting point for designing the questionnaire and analysing the obtained results. However, it should also be borne in mind that the development of FAS in the EU has two fundamental peculiarities with respect to the international context. Firstly, its implementation was mandatory for all Member States (as of 2007) and, therefore, a process promoted and supported in part by public funds. Secondly, initially FAS was mainly linked to compliance with the legal and environmental requirements of CAP (mainly cross-compliance), although more recently there is a tendency to encourage farmers and service providers to broaden the range of services, in line with the modern concept of FAS (Kania et al., 2014).

Tab 1. Towards a conceptual model: Potential relevant internal (strengths and weaknesses) and external (opportunities and threats) key elements linked to a FAS

STRENGTHS	References
<p><b>1. Improvement of connections between FA Services providers and farmers and market</b></p> <ul style="list-style-type: none"> <li>- <i>Making empathy sense</i></li> <li>- <i>Providers should be sure that what farmers receive is consistent with their demands and needs</i></li> <li>- <i>Linkages can facilitate sharing knowledge process based on peer learning</i></li> <li>- <i>Successful farmers may conduct peer -level training themselves (informal networks)</i></li> <li>- <i>Better and easier accessibility to market information and channels and technologies</i></li> </ul>	<p>Chipeta, 2006; Labarthe, 2009; Cristóvão et al., 2012; Kania et al., 2014; Madureira et al., 2015; Juhász, 2017; SCAR, 2017</p>
<p><b>2. Empowerment and capacity building of farmers</b></p> <ul style="list-style-type: none"> <li>- <i>It may contribute to effectiveness and efficiencies of farm activities</i></li> <li>- <i>Using local and new knowledge, empowered farmers may properly identify and analyse the key influencing elements and take better decisions</i></li> <li>- <i>Management skills delivered by FA Services may be critical for capacity building</i></li> <li>- <i>Education is important: well-educated farmers tends to be more motivated to improve and modernize their activities</i></li> <li>- <i>FA Services can contribute to motivate farmers' involvement in participatory schemes, which in turn could contribute making capacity building</i></li> <li>- <i>FA Services can positively influence local environment meeting the real farmers' needs and demands</i></li> </ul>	<p>Leeuwis and Van den Ban, 2004; Chipeta, 2006; Cristóvão et al., 2012; Kania et al., 2014; Madureira et al., 2015; SCAR, 2017</p>
<p><b>3. High quality of FA Services</b></p> <ul style="list-style-type: none"> <li>- <i>Effective services should ensure high quality provision by the best to deliver them</i></li> <li>- <i>Main factors on farmers' satisfaction are accesibility, quality and delivery methods</i></li> <li>- <i>Competence among a vast range of FA Services contribute to improve quality</i></li> <li>- <i>Quality is much more than deliver technology: passion to providers to listen, fast response to demands, or educational methods also influence high quality of FA Services</i></li> </ul>	<p>Kania et al., 2014; Madureira et al., 2015; SCAR, 2017</p>
<p><b>4. Organizational development of FA Services providers</b></p> <ul style="list-style-type: none"> <li>- <i>Experience shows that they could have a critical role for an effective and successful provision as well positive impact on farmers' decisions</i></li> <li>- <i>FA Services providers continuously need to re-identify the contexts in which they are working, which would require adaptations or changes</i></li> <li>- <i>Capacity building for farmers needs a continuous providers' organisational development and Improvement of consulting methods</i></li> <li>- <i>Organizational development could also contribute to growing flows of knowledge, structural changes and new market development</i></li> <li>- <i>Organizational development is a precondition to successfully deal with farmers' needs, also those related to information about market changes</i></li> <li>- <i>FA Services with adequate organisational development can help farmers to organize themselves and to cooperate among them</i></li> </ul>	<p>Chipeta, 2006; FAO, 2008; Klerkx et al., 2010; Kadlecikova et al., 2012; Schmidt and Fishler, 2012; Kania et al., 2014; Madureira et al., 2015; Blum and Chipeta, 2016; SCAR, 2017</p>
<p><b>5. Providers' responsibility to environmental demands and changes</b></p> <ul style="list-style-type: none"> <li>- <i>FA Services providers should bring practical adaptive solutions, combining local - expert knowledge, enhancing farmers' resilience to environmental challenges</i></li> </ul>	<p>Navarro, 2008; Rajalahti, 2012; Cristóvão et al., 2012; Kania et al., 2014; Madureira et al., 2015; SCAR, 2017</p>
<p><b>6. Contribution to the improvement of economic situation</b></p> <ul style="list-style-type: none"> <li>- <i>FA Servicies can contribute to farmers' capacity building managing their natural resources in a sustainable way, since income growth is a long-term objective</i></li> <li>- <i>Farmers need to move towards an increasingly competitive enviroment and a commercial and demand orientation</i></li> </ul>	<p>Rivera and Alex, 2014; Chipeta et al., 2008; Collett and Gale, 2009; Cristóvão et al., 2012; Kania et al., 2014; Madureira et al., 2015; SCAR, 2017</p>

Tab 1. (cont.). Towards a conceptual model: Potential relevant internal (strengths and weaknesses) and external (opportunities and threats) key elements linked to a FAS. Source: Authors

WEAKNESSES	References
<b>1. Cost of FA Services: may limit farmers request for them and small or marginal farmers may be ignored</b>	FAO, 2006; Collet and Gale, 2009; Angileri, 2010; Kania et al., 2014
1. Cost of FA Services: may limit farmers ask for them and small or marginal farmers may be ignored	
2. In some socioeconomic and political context, women are scarcely considered	
3. Some public aids could not get to the rightful beneficiaries	
- Successful farmers may conduct peer -level training themselves (informal networks)	
4. Lack of focus dealing with varied demands and mismatch between real needs and ofered services	Rivera and Alex, 2004; Swanson and Rajalahti, 2010; Crisóvao et al., 2012; Schmidt and Fischler, 2012; AGROSYNERGIE, 2013; Kania et al., 2014
<b>OPPORTUNITIES</b>	
1. Market - oriented economy implies an environment which may encourage both competition and cooperation mechanisms between providers and between farmers themselves	
2. In a context of demand - driven perspective, providers can lead to create more opportunities and may be more willing to self-adapt to changes	
3. The market - oriented environment could contribute to capacity building through better coordination of providers, creation of effective networks, more shared experiences between different stakeholders (providers and farmers, farmers and farmers, etc.)	
4. Changes in agricultural sector (such as introduction of innovations and creation and development of new markets and the complex system of trust and networking) may be critical opportunities for farmers and help them to make better decisions	Anderson and Feder, 2007; Cristóvao et al., 2012; Kania et al., 2014; SCAR, 2017
<b>THREATS</b>	
1. Competitive environment would turn from an opportunity to a threat if farmers' protection system are insufficient and they are highly exposed to changes in market: in this context FA Servicies could hardly mitigate risks	
- <i>Unbalance between supply and demand or high fluctuations of prices of inputs and outputs may conduct farmers to a weak position</i>	
- <i>In local markets, unstable prices may force farmers to sell their productions even though with no fair prices</i>	
2. Unforeseen climate changes and low farmers' resilience	

### 3. The context of public policies: Farm Advisory System in Spain and in the region of Valencia

In Spain, rural development and, within this, FAS, is implemented through two major instruments. The first is the National Rural Development Framework (MAPA, 2018b) which, based on EU regulations, sets strategic guidelines and includes common provisions to be integrated into the second instrument, rural development programmes (MAPA, 2018c). These are of two types, on the one hand, the RDP, which includes actions at the level of the whole country, under the responsibility of the central government. On the other hand, a total of 17 regional RDPs, through which regional governments define the specificities of their rural development policy and the use or emphasis they put on each of the different measures, applicable to their territorial scope.

Since it is mandatory to offer the FAS at the national level, it is included in both the National Framework and the national RDP (through its Measure 02, within Axis 1, devoted to improving the competitiveness of the agri-food sector); nevertheless, it is optional for regional governments to include it in their corresponding RDPs. The inclusion in the National Framework aims to harmonise its implementation, establishing common elements that have to be considered in the RDPs that, where appropriate, include this measure. In Spain as a whole, 1.26% of total EAFRD support for the 2014–2020 period is allocated to FAS (above to the 1% of the average of RDPs in the EU). However, there are regional variations ranging from 0.4% in Castilla-La Mancha,

0.5% in Madrid or Catalonia, to 3.1% in Navarra, passing through 1% in the region of Valencia (Aragón, 2016).

The Measure devoted to FAS has a transversal nature, with three sub-measures: the use of advisory services, the creation of agricultural and forestry advisory services, and training of advisors (Council Regulation (EU) No 1305/2013). Almost all regional RDPs originally included the measure related to advisory services (14 of the 17 regional RDPs, in addition to the National Programme), but not all of them included the three sub-measures. Thus, the first of the measures is the most significant, originally present in the 14 regional RDPs, while the third was in 11 of the 14 RDPs. However, the second measure (creation of new advisory services) was present only in four of the RDPs, due to the fact that in most cases there was already a sufficient supply of formally registered organisations such as official service providers. In addition, the increased administrative complexity, due to new rules for tendering procedures, led several regional governments to eliminate this sub-measure (even though it was initially approved) (Aragón, 2016).

The importance given to RDPs in various official documents and regulations is not correlated or adequately reflected in the specific budget. For example, if data for the period 2007–2013 are examined, in the national context, the region of Valencia stands out for a clear underfunding of the whole measure related to the FA Services. This fact contrasts with the high agricultural potential, the important orientation to the market and the equally important need of the Valencian farmers for an almost constant modernisation in their farms, which would highly contribute to maintain or improve their competitiveness (García Álvarez-Coque et al., 2013; Ortiz et al., 2013). Thus, the available public budget was almost EUR 0.52 million (0.63% of the available funding for all 17 regional RDPs). This placed the region practically in last position (except for some other region with a very weak agricultural vocation).

From the data broken down in the measures concerning advisory services, it is confirmed, not only that the budget allocation is very limited, but also that it has been modified downwards during the programming period 2007–2013 (Table 2). Thus, between the original RDP approved by the European Commission (2008) and the last modification thereof (2015, after eight), the reduction of the total public budget has been more than 70%, with more than half related to the use of advisory services by farmers (M.114) and more than 80% related to the implementation of management and advisory services by organisations (M.115). In addition, and considering this sharp reduction, the expenditure incurred has even been far from the latest budgetary provisions (less than 32% on average in both measures). These results contrast very significantly with those obtained in other regions and in the country as a whole, placing Valencia as the region with the worst execution rate, far from the national average, around 86% in both measures (Aragón, 2016). On the other hand, they also contrast in the context of Axis 1 of the Valencia RDP where, on the one hand, the reduction in the programmed public expenditure has been much smaller (only 11% less, funds that have mostly passed to Axis 2) and, on the other hand, practically all the available funds have been executed (98%).

Their effectiveness has also been adversely affected, for example, by the low number of farmers receiving aid (less than 500 over the whole period, i.e., barely 16% of those planned) and by new advisory services (5 out of 10 planned). However, farmers who have used advisory services appear to have experienced a strong increase in GVA. Therefore, from the results for the period 2007–2013, three aspects needed to be improved: under-financing and a very low level of execution (much lower than for the whole country), management (delays and reduction in the number of calls, two over the whole period) and wider dissemination (given that one of the main obstacles is the limited interest of farmers, largely due to the combination of the low average aid -of just over EUR 1,000-, much lower than in other regions, and the lack of knowledge about the benefits that can be derived from effective advisory services).

The new regional RDP for the period 2014–2020 (implementation of Council Regulation (EU) No 1305/2013 and No 1306/2013), in which the public funding available for this measure increased by 13%, has brought some noticeable improvements. However, in the context of the regional RDPs, this growth has been 52%, which again places the Valencian region among the last positions (despite the fact that its budget of EUR 4 million has risen to 2.53% of the budget

allocated by all RDPs to this measure). However, after the change of regional government (2015), the Department of Agriculture promoted a modification of the RDP which led to the abolition of the entire measure 2 "Advisory services, management and replacement of farms", transferring its financial endowment (4 million euros) to "Support for the installation of young farmers" (GENERALITAT VALENCIANA, 2017).

Tab 2. Public expenditure and level of implementation in the Farm Advisory System in the region of Valencia (2007–2013 programming period). Source: GENERALITAT VALENCIANA (2016): Ex-post evaluation of the RDP of the Comunitat Valenciana. 2007–2013 (In Spanish).

	July 2008 (1st official version of RDP)			December 2015 (last official version of RDP)			% of variation 2008 - 2015		Financial implementation of Total Programmed Expenditure (Dec. 2015)
	Programmed Total Public Expenditure (*1,000)	Programmed EAFRD Expenditure (*1,000)	% of RDP	Programmed Total Public Expenditure (*1,000)	Programmed EAFRD Expenditure (*1,000)	% of RDP	Programmed Total Public Expenditure	Programmed EAFRD Expenditure	
M.114	2,260	452	0.46%	950	210	0.21%	-57.96%	-53.58%	34.45%
M.115	3,740	748	0.77%	675	149	0.15%	-81.95%	-80.07%	28.43%
M.114 + M.115	6,000	1,200	1.23%	1,625	359	0.36%	-72.91%	-70.10%	31.95%
Total Axis 1	260,000	52,000	53.45%	230,467	55,058	49.88%	-11.36%	5.88%	97.96%

#### 4. Materials and methods

To carry out the research, the methodological process has three main phases (Figure 1). The first is related to the establishment of the mission (focusing on the analysis of demand-based FMD services and market-oriented agriculture), and the design of an ad hoc questionnaire and its distribution. The objective has been to know, on the one hand, the internal elements of FA services (strengths and weaknesses), in which these actors have a greater capacity for control and action. On the other hand, external elements (opportunities and threats) are studied, over which the actors have a limited capacity for action, but which can significantly influence the situation and changes in the provision of FA services. The questionnaire consists of four sections, including strengths (12 factors), weaknesses (9 factors), opportunities (7 factors) and threats (5 factors). An additional section deals with socio-demographic and professional characteristics (Table 3). Five points on the Likert scale, ranging from 1 (very low) to 5 (very high), were used to systematically collect information. The data are analysed using the Statistical Package for Social Sciences (SPSS-23) and Excel spreadsheet.

Prior to the distribution of the questionnaire, a quality control was carried out, as well as the selection of the sample. A group of ten experts (based at the Polytechnic University of Valencia, the General Study of the University of Valencia and the professional agricultural organisations AVA-ASAJA and UNIO), with a good knowledge of the agricultural sector and the agricultural advisors of the region, carried out this quality control and helped to estimate the population of advisors in the region. The estimated population was about 420 advisors (linked to formal organisations as well as informal networks of professional farm advisors), including related individuals or organisations, formal advisors plus those non-formal but close to them. Thus, 200 advisors ( $n = 200$ ) were selected proportionally and randomly through the Krejcie and Morgan (1970) sample sizes. A total of 167 questionnaires were collected and ready for analysis<sup>5</sup>.

From the treatment of survey results, the second phase of desk research focuses on the analysis of the SWOT matrix, that is, the Evaluation of External and Internal Factors (EFE and IFE). Two matrices are elaborated that include both the EFE and the IFE, with basic survey data, such as the mean and standard deviation of each of the factors. Additionally, for each factor its weighting is calculated (resulting from the level of importance according to the set of experts), the rate

<sup>5</sup> For  $N=400$ , and  $p=0.5$ , the sample size is  $n= 196$ . The final obtained sample is, nevertheless, within the threshold estimating a common proportion of losses ( $R=15\%$ ), thus  $n=167$ . Questionnaires were collected from December 2016 to March 2017.

(assigned on the basis of the average values of the factors according to the responses of the participants) and, as a result of its multiplication, the weighted scores.

The objectives of the third phase are to select the most appropriate strategy and actions for the effective implementation of the FA Service. For this purpose, the SPACE Matrix is developed, resulting from the contrast between the weighted scores for all internal and external factors (Radder and Louw, 1998; Gürbüz, 2013; Sherafat et al., 2013). SPACE allows us to detect the type of strategy that results from the responses of the actors (survey). There are four main types of possible strategies, depending on the combination and predominance of factors: conservative (strengths and threats), defensive (threats and weaknesses), competitive (weaknesses and opportunities) or aggressive (opportunities and strengths).

So far, two types of information are available: the type of strategies that emerge as the most appropriate and the factors that make them up. However, for each of the four types, different combinations of factors can lead to different alternative strategies. With this information, a set of strategies is produced (four in this case, from the resulting aggressive typology). However, the important step is not only the production of such strategies, but their prioritisation. For this purpose, the Quantitative Strategic Planning Matrix (QSPM) is used (David, 1986; Meredith et al., 2017), which consists of a set of experts establishing the importance, from their point of view, of each of the factors in each of the (four) strategies previously defined by the research team and resulting from the SPACE typologies.

Finally, it is necessary to introduce a methodological consideration. As it has been seen, the main source of information is the service providers (formal and informal). This could imply problems of bias, given that, as it will be seen, there is a clear prevalence of positive elements in the results. However, there are two aspects that give confidence to them. Firstly, they have been analysed and verified by the panel of experts, whose assessments go in the same direction. Secondly, that positive results (especially in relation to the very important role of the network of offices of agricultural organisations and cooperatives, which largely carry out advisory tasks almost outside the official measure) has been the main reason why recently the Department of Agriculture (2017) removed the farmer advisory measure in the current RDP. In addition, the robustness of the results does not seem to leave any doubt as to their orientation.

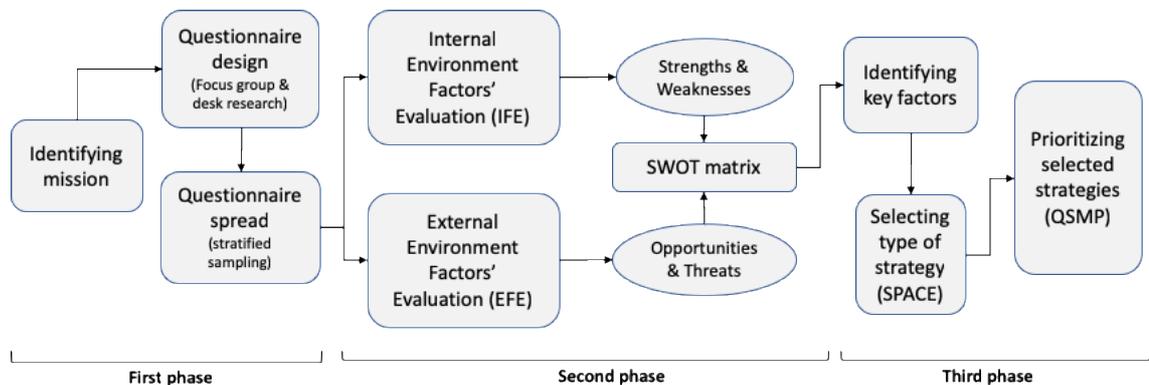


Fig 1. Methodological structure and main flows. Source: Adapted from Riston (2011)

## **5. Results of study: from a sound system to prioritised strategies in the provision of advisory services**

### **5.1 The sample: sound foundations for advisory tasks**

There are currently eight officially recognised advisory service providers in the region of Valencia. From them, three are the most important, the two main agricultural organisations (AVA-ASAJA and L'UNIO) and the Federation of Agri-Food Cooperatives (with growing importance as service providers). All of them have extensive networks in the main agricultural and livestock areas of the region. Therefore, the majority of the survey participants belong to these organisations (almost 60%), being the point of contact with the farmers (many of whom are also farmers) (Table 3). Not all participants are linked to this formal system. In some cases, they are informal advisors, ranging from farmers acting as such (almost 10%), to experts from universities (almost 6%, who advise through, for example, seminars or workshops), NGOs and public foundations (8%) and, above all, consultants and private companies (14%), offering the latter advice related to their products and services (some consultants are also linked to the formal system). The vast majority of participants are farm advisors in direct contact with agricultural activities and therefore have a good knowledge of the situation in the sector. They come from the areas with the greatest agricultural potential.

In regards to sociodemographic characteristics, the predominance of men over women stands out, as well as the high concentration in the age groups between 40 and 60 (i.e., lower presence of young people). Most of them have been involved in the agricultural sector for most of their working lives (2/3 have more than 20 years of experience). The predominant level of education is quite high (with 80% of university degree, whether bachelor's, master's or even doctorate), although not all of them work as such. In fact, a significant part of the surveyed, have a background and experience as farmers, exercising their role as advisers to farmers through the farm organisations to which they belong or the cooperatives in which they work. Moreover, this function is not always fulfilled within the framework of formalised procedures. Notwithstanding the above, another very significant part of the survey participants (almost half of the sample) are professionals with advanced training in agriculture or related subjects (such as agricultural economics and marketing and research in agricultural economics). Probably because of this, a not very high proportion is aware of the need to update their skills (a quarter) or to supplement them with other skills (especially cognitive, personal relationships) or knowledge (on topics related to innovation and economic management). Relationships between advisors and farmers remain fundamentally personal, face-to-face, supported and complemented by telephone and e-mail contacts. These relationships occur mainly in the form of high frequency meetings or contacts (at least 3/4 parts are monthly). However, it can be thought that, of this high frequency, an important part of the contacts is informal, while the more formal contacts tend to extend more over time.

### **5.2 The starting diagnosis: External and Internal Factors Evaluation (EFE and IFE)**

External and internal factors are shown in Tables 4 and 5. Mean and SD for each factor were calculated on the basis of very low=1 to very high=5 responses to the current status of the factors in the related FA services. The factor weights have been calculated from 0.01 to 1.00 depending on the level of importance of the factors (for FA services) according to the group of experts abovementioned. Rating is a score from 1 to 4 given to each factor. In between the scores of 3 and 4 were used for FA Services strengths and opportunities, indicating whether it is a major (4) or minor (3) strengths and opportunities. Also, the different ratings assigned to weaknesses and threats, where 1 indicates the least weakness and threat, and 2 indicates the greatest. This rating was assigned based on the mean values of the factors according to the responses of the participants. The weighted score of a factor is the result of the weight of the factor multiplied by the rating. It allows prioritising strengths and weaknesses (and opportunities and threats). The weighted total score for external and internal factors was 2.72 and 2.85, respectively. The weighted scores show two important results: the EF score (2.72) shows that opportunities were greater than threats, and the IF score (2.85) shows that strengths were greater than weaknesses.

The most two main opportunities that have been identified in the EFE matrix are, firstly, the creation of a new, varied and growing market information system (O4), and secondly, a greater focus on market-oriented strategy (O1). On the other hand, the three most rated threats are, firstly, the inadequate balance and coordination between farmers' needs and the consumer demands (supply and demand) (T1); secondly, the great need for supporting infrastructure (T2); and thirdly, the inadequate budget for the implementation of activities (T3) (Table 4 and Figure 2).

Tab 3. Individual and professional features of study participants.

	VARIABLES	CATEGORIES	%	
<b>Distribution of Sample by type of Organization</b>		Farmers' organizations	36.9	
		Cooperatives	22.5	
		Private & consultancy companies	14.4	
		Farmers	9.4	
		Public Foundation & NGO	8.1	
		Universities	5.6	
		Others	3.1	
	<b>Sociodemographic characteristics</b>	<b>Gender</b>	male	79.6
female			20.4	
<b>Age (year)</b>		lower than 40	18.6	
		40 to 49	33.5	
		50 to 59	34.1	
		60 and older	13.8	
<b>Level of Education</b>		diploma	18.6	
		bachelor	52.7	
		master	21.6	
		PhD	7.1	
<b>Involvement in agricultural sector and background</b>		<b>Years of experience in the agricultural sector</b>	lower than 10	8.5
			10 to 19	29.3
	20 to 29		31.7	
	30 and upper		30.5	
	<b>Background &amp; Expertise</b>	Farmer	35.5	
		Agronomic training (Agricultural Engineering)	23.6	
		Agricultural Economy & Marketing	9.0	
		Research (Agricultural Economics)	4.8	
		Informatics	4.2	
		Other (media. banking. public officials)	6.6	
	n.d.	16.3		
<b>Relationships with farmers</b>	<b>Connection Way to Farmers*</b>	Face to face	57.5	
		Workshop and seminars	24.6	
		Mobile phone	29.3	
		E-mail	21	
	<b>Frequency of Meeting or contacts with Farmers</b>	Weekly	26.9	
		Monthly	52.7	
		Semester	17.4	
		Yearly	3	
<b>Needed skills as Farmer's advisors</b>	Update current skills	27.3		
	Cognitive skills	25.5		
	Innovation management skills	20.5		
	Economic management skills	26.7		

\* Multiple Response Question: Participants could choose more than one answer.

Based on the IFE matrix (Table 5), there are the most three main strength factors. The first is the empowerment of farmers so that they can identify their needs and can clearly define their demands and negotiate on them (S6); the second is the use of advisory services by farmers and, in general, obtain benefits and income from the advices (S5); and the third is the strengthening of farmers' participatory spirit (S8). On the other hand, the most two main weaknesses are the lack of sufficient development of social capital through the grouping of farmers (W7) and an inadequate and sufficiently significant organisational capacity (knowledge and resources to achieve the objectives) (W2) (Table 5 and Figure 3).

Tab 4. External Factors Evaluation (EFE) matrix.

External Factors		Mean	SD	Weight	Rate	Weighted Scores
<b>ID</b>	<b>Opportunities</b>					
O1	More focus on market - oriented strategy	3,31	0,84	0,11	4	0,45
O2	Be informed of principles of changing of farmers' s needs and target market	3,32	0,79	0,07	4	0,28
O3	Making farming systems more diverse to production of high value products	3,17	0,7	0,07	3	0,2
O4	Creating new, varied and growing market and market information system	3,23	0,99	0,12	4	0,48
	Finding the opportunities and environmental potential to develop agriculture	3,09	1,03	0,08	3	0,24
O6	Strengthen policies of pluralist	3,32	0,79	0,09	4	0,36
O7	Get synergistic through cooperation between providers and farmers and taking advantage of other institutions, programs and facilities that could be useful for participants (who are involved)	3,04	0,88	0,05	3	0,16
<b>Total of opportunities</b>				<b>0,60</b>		<b>2,18</b>
<b>Threats</b>						
T1	Inadequate balance and coordination between farmers' s needs and market's willingness (supply and demand)	3,3	1,08	0,09	2	0,17
T2	High need for supportive infrastructure	3,67	0,95	0,12	1	0,12
T3	Inadequate budget for the implementation of activities	3,6	0,98	0,11	1	0,11
T4	Inflation in price of supplies and inputs may occur	3,61	0,85	0,04	1	0,04
T5	Unforeseen environmental changes like weather changes can affect total results	3,14	0,88	0,05	2	0,1
<b>Total of threats</b>				<b>0,40</b>		<b>0,54</b>
<b>Total</b>				<b>1,00</b>		<b>2,72</b>

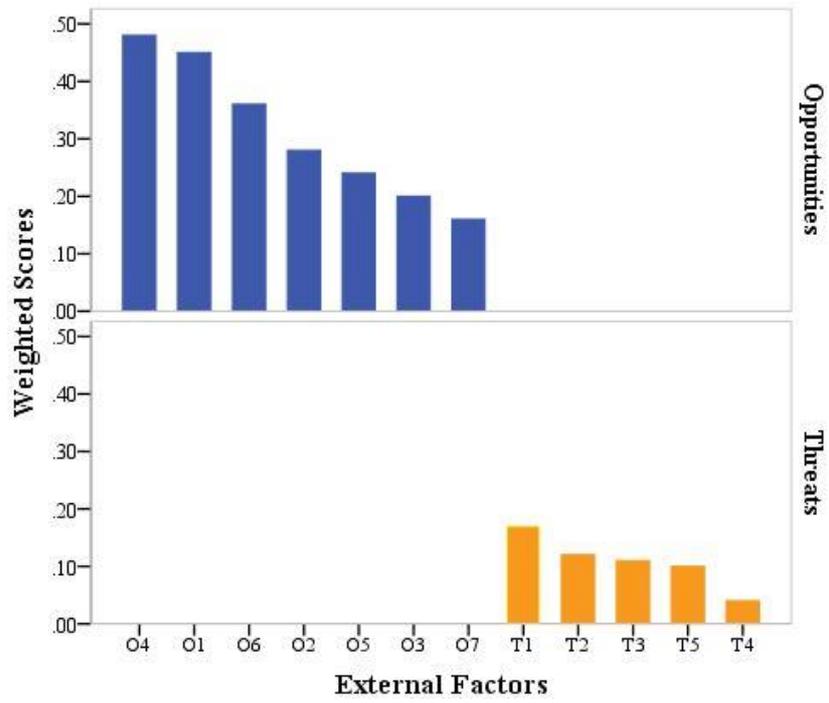


Fig 2. The Bar-chart of External Factor Scores (descending order of score).

Tab 5. Internal Factors Evaluation (IFE) matrix.

	Internal Factors	Mean	SD	Weight	Rate	Weighted Scores
<b>ID</b>	<b>Strengths</b>					
S1	Improving connection between providers and farmer (strengthening of interaction learning through sharing of knowledge between providers and farmers)	2,99	1,07	0,05	3	0,15
S2	Improving farmers' s access to market information and connection to market	2,77	1,18	0,06	3	0,19
S3	Educating farmers to improve management skills such as IPM	2,89	1,06	0,06	3	0,19
S4	High quality of services due to good competition among providers	2,82	1,12	0,06	3	0,17
S5	Farmers use the advisory services and generally gain profit and income from advices	3,05	1,11	0,07	4	0,28
S6	Empowerment of farmers to be able to identify their needs and negotiate demands	3,08	1,21	0,08	4	0,31
S7	Empowerment of farmers to increase farmers' s critical thinking skill to be able to analyse situation and determine their main demands	3,02	1,1	0,04	4	0,15
S8	Strengthen participatory spirit of farmers	3,08	1	0,05	4	0,22
S9	Improvement in responsibility of providers to farmers	2,99	1,1	0,07	3	0,21
S10	Making empathic sense with the farmers by advisory providers (farmers feel their concerns and needs are heard)	2,84	0,98	0,05	3	0,16
S11	Providers are educated with new methods to be updated	3,2	0,99	0,05	4	0,19
S12	Proportionality of advisory services with farmers' s demands	3,22	0,81	0,04	4	0,17
	<b>Total of Strengths</b>			<b>0,69</b>		<b>2,41</b>
	<b>Weaknesses</b>					
W1	Ignorance of poor and marginal farmers	3,07	1,03	0,05	1	0,05
W2	Inadequate significant organizational capacity (knowledge and resources to achieve goals)	2,74	0,97	0,05	2	0,09
W3	Inadequate control and evaluation system by regional authorities	3,03	0,97	0,02	1	0,02
W4	High costs of advisory services for farmers to pay	3,04	1,07	0,04	1	0,04
W5	Lack of focus in dealing with diverse demands that come from different farmers as clients	2,78	1,03	0,01	2	0,03
W6	Lack of sufficient taking risk by farmers	2,77	1,17	0,03	2	0,05
W7	Lack of enough development of social capital between farmers	2,99	1,14	0,05	2	0,1
W8	Insufficient variety in programs, services and methods of delivery of services	3,24	0,97	0,03	1	0,03
W9	Lack of enough use of new information and communication technologies	3,07	1,03	0,05	1	0,05
	<b>Total of weaknesses</b>			<b>0,31</b>		<b>0,44</b>
	<b>Total</b>			<b>1,00</b>		<b>2,85</b>

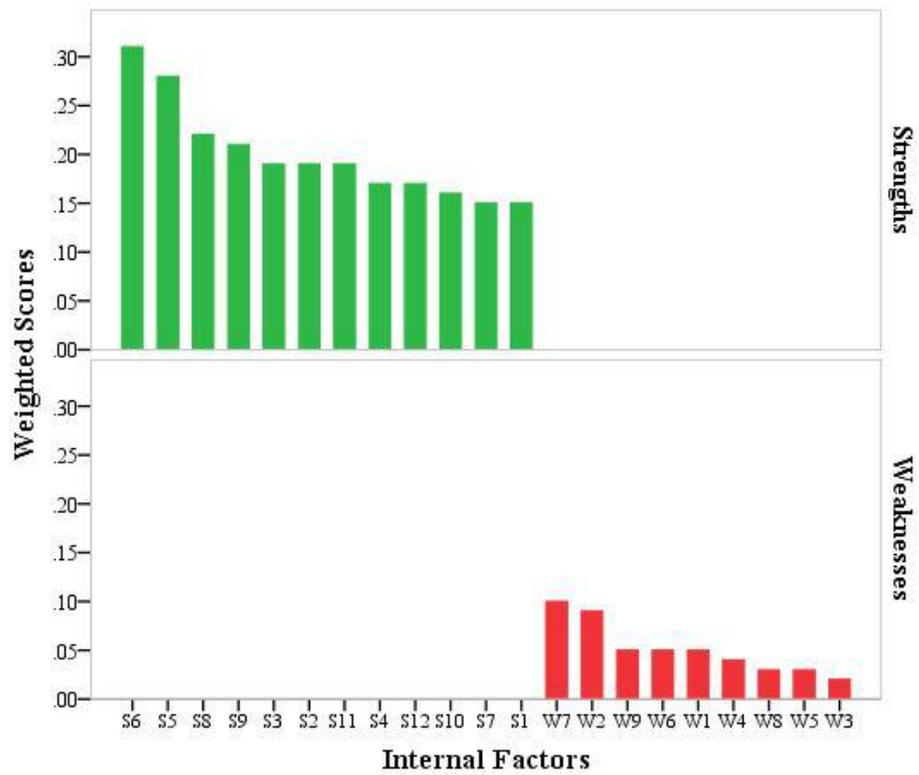


Fig 3. The Bar-chart of Internal Factor Scores (descending order of score).

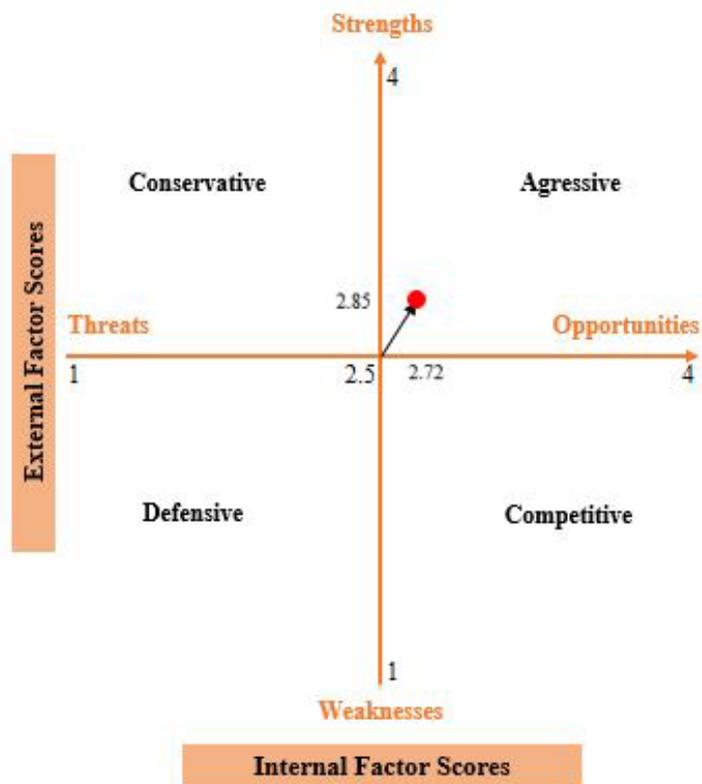


Fig 4. Strategic Position and Action Evaluation (SPACE) Matrix.

### 5.3 Dominance of strengths and opportunities and “best” resulting strategies for the implementation of advisory services

The final objective is to define the best strategy to support a more effective implementation of advisory services in the future, taking as a starting point the diagnosis from internal and external factors. Based on the Internal Evaluation Matrix, the result shows the clear dominance of strengths over weaknesses (2.41 and 0.44 of the weighted scores respectively, with an overall result of 2.85), while that from the External Evaluation Matrix shows the dominance of opportunities over threats (2.18 and 0.54 of the weighted scores respectively, with an overall result of 2.72). Therefore, based on these results, the first step from the methodological point of view is to define the Strategic Position and Action Evaluation Matrix (SPACE), which make it possible to identify the type of strategy. The results show that the type of strategy fits the so-called aggressive strategies, in which the use of strengths also makes it possible to take advantage of opportunities (Figure 4).

The second step is the definition of specific strategies for the development and implementation of advisory services, within the framework of the aforementioned type of aggressive strategies, which would be the best considering external and internal analysis. Therefore, the result is a series of four big "best" strategies that combine the main strengths with the main opportunities. They can be defined as follows:

- S1. Organisational development. Strengthening of the agricultural market through the organisational development of both farmers and agricultural advisors. It should be oriented towards the promotion and support of aspects such as short local market chains by improving links between farmers and consumers, or more precise information and advice on changes in markets (new demands, new productions, etc.). This requires continuous updating of agricultural advisors, who must be able to raise farmers' own awareness of the usefulness of advisory services.
- S2. Coordination within the advisory system. Improvement and expansion of diverse, pluralistic and more comprehensive policies through a greater emphasis on better coordination within the advisory system (including both agricultural advisors linked to formal organisations and informal advisory networks, which have a strong influence among farmers). It is especially important that all this facilitates more and stronger synergies at the local level.
- S3. Farmers' capacity building. Create a productive environment to focus more on developing farmers' capacity through training, educational and workshop programmes, so that they are more empowered and are able to seek and take advantage of opportunities. Environmental potential is one that can offer the most opportunities and to which capacity building processes must pay special attention.
- S4. Farmers' professionalisation. Reducing the knowledge gap by promoting the professionalisation of farmers and improving information mechanisms. This implies to the facilitation and enhancement of the effective and continuous knowledge generation and exchange, which have to reduce the gap between the different actors, mainly farmers. It can enable farmers and entrepreneurs to access valid and relevant information and -different types of knowledge- they require.

These four strategies do not have the same weight or the same priority. Prioritising strategies is essential when public policies must be designed and implemented and for which resources are limited. It is therefore essential that decision-makers not only have a list of strategies, but also an order of priority among them.

Therefore, a third step for analysis is to carry out the prioritisation in a consistent manner, using the Quantitative Strategic Planning Matrix (QSPM), whose objective is to objectively select the best strategies for FA services (Table 6). The left column lists the factors obtained directly from the EFE and IFE matrices. The four alternative strategies derived from the SWOT analysis and the SPACE matrix formed the last columns. The weights assigned to the factors are also included. Attractiveness scores (AS) on the QSPM indicate how each factor is important or attractive for each alternative strategy. The range of attractiveness scores is 1 = unattractive, 2 =

somewhat attractive, 3 = reasonably attractive and 4 = very attractive. It is clear that the key aspect in this case is these attractiveness scores. To be sufficiently consistent, in this case they were drawn from the opinions of the expert group. Therefore, the Total Attractiveness Scores (TAS) indicates the relative attractiveness of each key factor in the individual related strategy. The sum of TAS is calculated by adding the total attractiveness scores in each strategy column of the QSPM.

Tab 6. Quantitative Strategic Planning Matrix (QSPM).

ID	Weights	S1		S2		S3		S4	
		AS	TAS	AS	TAS	AS	TAS	AS	TAS
O1	0.11	3	0.33	2	0.22	1	0.11	4	0.44
O2	0.07	2	0.14	3	0.21	1	0.07	4	0.28
O3	0.07	3	0.21	2	0.14	1	0.07	4	0.28
O4	0.12	4	0.48	2	0.24	1	0.12	3	0.36
O5	0.08	2	0.16	4	0.32	1	0.08	3	0.24
O6	0.09	2	0.18	4	0.36	1	0.09	3	0.27
O7	0.05	1	0.05	3	0.15	2	0.1	3	0.15
T1	0.09	4	0.36	1	0.09	2	0.18	3	0.27
T2	0.12	3	0.36	2	0.24	1	0.12	4	0.48
T3	0.11	2	0.22	3	0.33	1	0.11	3	0.33
T4	0.04	3	0.12	2	0.08	1	0.04	2	0.08
T5	0.05	1	0.05	1	0.05	2	0.1	3	0.15
<b>Sum</b>	<b>1.00</b>		<b>2.66</b>		<b>2.43</b>		<b>1.19</b>		<b>3.33</b>
S1	0.05	4	0.2	2	0.1	1	0.05	3	0.15
S2	0.06	4	0.24	1	0.06	2	0.12	3	0.18
S3	0.06	4	0.24	1	0.06	2	0.12	3	0.18
S4	0.06	2	0.12	3	0.18	1	0.06	2	0.12
S5	0.07	2	0.14	4	0.28	1	0.07	3	0.21
S6	0.08	3	0.24	1	0.08	2	0.16	4	0.32
S7	0.04	0	0	0	0	0	0	0	0
S8	0.05	3	0.15	1	0.05	2	0.1	4	0.2
S9	0.07	3	0.21	1	0.07	2	0.14	4	0.28
S10	0.05	2	0.1	4	0.2	1	0.05	3	0.15
S11	0.05	1	0.05	3	0.15	2	0.1	4	0.2
S12	0.04	2	0.08	4	0.16	1	0.04	3	0.12
W1	0.05	1	0.05	1	0.05	2	0.1	3	0.15
W2	0.05	1	0.05	3	0.15	2	0.1	4	0.2
W3	0.02	1	0.02	3	0.06	3	0.06	2	0.04
W4	0.04	3	0.12	4	0.16	1	0.04	2	0.08
W5	0.01	2	0.02	4	0.04	1	0.01	3	0.03
W6	0.03	4	0.12	1	0.03	2	0.06	3	0.09
W7	0.05	2	0.1	1	0.05	4	0.2	3	0.15
W8	0.03	1	0.03	4	0.12	2	0.06	3	0.09
W9	0.05	4	0.2	1	0.05	2	0.1	3	0.15
<b>Sum</b>	<b>1.00</b>		<b>2.48</b>		<b>2.1</b>		<b>1.74</b>		<b>3.09</b>
<b>Sum</b>			<b>5.14</b>		<b>4.53</b>		<b>2.93</b>		<b>6.42</b>

AS: Attractiveness Score is: 1 = not attractive, 2 = somewhat attractive, 3 = reasonably attractive, and 4 = highly attractive.

TAS: Total Attractiveness Scores equal to AS multiply by factor weight.

The sum of the QSPM's total attractiveness scores reveals which strategy is the most attractive. The higher scores point to a more attractive strategy, considering all relevant external and internal critical factors that could affect the strategic decision. Results show that TAS are 5.14 (S1), 4.53 (S2), 2.93 (S3) and 6.42 (S4). Thus, of the four strategies, S4 proved to be the most attractive. The magnitude of the difference between the sum of the TAS gives an indication of the relative attractiveness of one strategy over another. This information can be vital for decision-makers, mainly in the public sector, when designing, developing or implementing their actions related to FA services and deciding between strategies.

## **6. Discussion: Towards a comprehensive strengthening of Farm Advisory Services**

There are no isolated but closely related key issues or strategies that form a holistic vision of how best to articulate the FA services so that they can be more effective in meeting farmers' needs. In fact, different aspects are relevant to several of the generated strategies. It is also important to note that most of them are also highlighted by many experts when analysing the future of advisory services in Europe (Kania et al., 2014; PROAKIS Project, 2015; SCAR, 2017).

### **6.1 Improvement of farmers' professionalisation and competitiveness by reducing knowledge divide and informational mechanisms**

The need to improve the professionalisation and competitiveness of farmers is one of the key aspects that emerged from this strategy (S4), guiding it to provide the necessary information to face the new challenges. Different types of innovations are one of the fields in which adequate information must be given to the agricultural system (Cristóvão et al., 2012; Herrera, 2015; Madureira et al., 2015), since it makes it possible to support sustainable development (and farmers' income level) within the framework of the 2020 Strategy. In general terms, knowledge generation and exchange play a fundamental role in a typical Agricultural Knowledge and Innovation System (AKIS), reducing the gap between actors and helping to produce relevant knowledge for users (Addom, 2015; Juhász, 2017). This gap would be bridged through linkages between different actors through knowledge exchange, creating a better atmosphere of cooperation and new relationships (Hemsley-Brown and Oplatka, 2005) and reframing the advisory process as a dialogical exchange (Beech et al., 2010).

In this context, one model refers to the voluntary participation of organisations that focus on advancing social innovation through new forms of cooperation (Koutsoursis, 2012). In this process, networking facilitates learning and cooperation between multiple actors and helps to reduce the gap between theory and practice (Klerkx and Leeuwis, 2009). Therefore, the interaction between farmers, scientific employees and advisors is a major factor contributing to the advancement of innovations (Moreddu and Poppe, 2013; Herrera, 2015). It allows, for example, the dissemination of knowledge through inter-personal communication (Becheikh et al., 2009), including lectures, conferences, seminars, workshops, trainings, discussions, meetings, study visits and different social actions. In this regard, some research has shown how Bavarian farmers exchange new knowledge through conferences and workshops (Brechmann et al., 2015). Furthermore, the use of information and communication technologies (ICTs), especially those based on farmers' needs, enables them to become better decision-makers regarding their farming activities and the marketing of their agricultural products, which can reduce the knowledge and information gap and accelerate agricultural growth (Juhász, 2017; SCAR, 2017).

Other research focused on bridging farmers' information needs and actual research practices to support farmers' demand for timely and reliable knowledge (Brechmann et al., 2015). But this process sometimes leads to the emergence of multiple intermediaries within most national (or regional) AKIS. Intermediaries with expertise, qualities, resources and skills for demand articulation would have to focus their activities on demand articulation (farmers). Since demand articulation is a set of activities to make a good fit between the existing knowledge of users, their desired knowledge and the services delivered by providers, it is necessary that they have a strong vertical relationship with knowledge generators/users, as well as a strong horizontal network with

other intermediaries, especially those involved in networking (Oreszczyn et al., 2010; Addom, 2015).

## **6.2 Strengthening of the agricultural market through the organisational development of both farmers and agricultural advisors (Strategy 1)**

Farmers are increasingly involved in competitive market mechanisms. In this context, adequate provision of advisory services depends on their organisational development, which can be vital for making successful decisions (Strategy 1). In addition, advisory service providers need to be properly updated and well organised in order to be effective. This is all the more important given that, as set out in the CAP Regulations (Council Regulation (EU) No 1305/2013 and No 1306/2013), service providers must not focus exclusively on mandatory requirements, but must maintain their connections with markets and their customers, and be able to respond to a wide range of specific questions. It includes mandatory cross-compliance standards and related requirements, but also those relating to agricultural practices beneficial to the climate and the environment; maintenance of agricultural area; measures for farm modernisation; promotion of competitiveness; sectoral integration; introduction or adaptation of innovations; market orientation and the promotion of entrepreneurship; diversification of farms economic activity; information on climate change mitigation and adaptation; and finally a range of services on risk management and appropriate preventive measures to deal with natural disasters or catastrophic events (EU No 1306/2013).

Therefore, in order to be able to provide (directly or indirectly) a wide range of farm services, the advisors must be sufficiently knowledgeable and have a range of highly specialised and up-to-date staff, or be well connected to external specialists so that they can effectively provide the necessary expertise at any given time.

However, for organisations providing advisory services, it will be necessary to develop other aspects, such as increased support for and participation in research and innovation projects, in order to be able to bring farmers' needs into research and adapt research results to them. Organisational factors must also be addressed in relation to local service provision itself. In this sense, for some authors, the main factor that allows advisors to carry out their work with high quality is the existence of organisational support systems that they call "back-office" (Juhász, 2017). This is the case of local institutions capable of providing support services to farmers, such as access to information, training and mentoring in a range of skills (Christoplos, 2008; Schrijver et al., 2016; SCAR, 2017). They make adviser's "front-office", capable of delivering general or on-farm specialised advice, directly to farmers, allocating the right person (expertise) to the right problem or need.

However, due to the growing complexity, it is not always possible to give answers at the local level. In these situations, it is essential to have an efficient networking to facilitate information flows, in order to locate the best expertise for each farmer's need. To be effective, networking and cooperation between providers is so important that it can largely determine the final outcome of the provided assistance (Addom, 2015; SCAR, 2017). In this sense, as the Valencian case study shows, large professional organisations are very well positioned to compete successfully in the market for advisory services, as they constitute large networks of relationships, with a generally important territorial presence and at different levels.

## **6.3 Enhancing diversity and pluralistic and more comprehensive policies through a greater emphasis on better coordination within FAS (Strategy 2)**

Strengthening complementarities and coordination within FAS is a strategic issue, as it contributes to comprehensive responses to farmers' needs (SCAR, 2017). In addition, some major studies have pointed to a pluralistic advisory system as the inherent diversity of farmers and farming systems that, through different services and approaches of multiple and different organisations (including the public and private sectors, as well as non-profit groups), better to address the challenges of rural development (Birner et al. 2009; Klerkx and Jansen, 2010; Heemskerk and Davis, 2012; Schmidt and Fischler, 2012; Klerkx and Proctor, 2013; Labarthe and Laurent, 2013; Phillipson et al., 2016; Nettle et al., 2017). Other authors point out that

the strengthening of FAS can also occur through agreements between providers, as often not all of them can provide the full range of services (beyond those that are mandatory in CAP regulations), looking at the strengths and core expertise of each provider, as well as synergies between them (Heemskerk and Davis, 2012). In this way, it would be possible to provide the right advisor for each of the problems or farmers' needs (Leeuwis and Aarts, 2011; Koutsouris, 2014; Nettle et al., 2017). However, these complementarities, even formalised through agreements, should not eliminate the potential competition between service providers, which is another aspect deriving from EU regulations. Competition between advisors is a strategy for raising finance. However, it appears from the survey and other results that most of them are willing to improve coordination, especially at local level, which should help them create or strengthen networks of specialists, also at regional or national level (Nitsch and Osterburg, 2007).

Advisors' skills, knowledge and abilities are critical to the success of pluralistic systems (Nettle et al., 2018), especially given the emergence of issues that farmers need to be increasingly aware of, such as climate change or others related to organisational (e.g., participatory or collaborative skills) or innovation processes. For this reason, EU regulations include as a requirement a higher level of education (university degree) for the staff of the service provider organisations. In addition, based on these regulations, the CAP promotes continuous updating through courses, seminars, workshops or other instruments. In addition to public funding (external facilitation), advisory service providers should consider their capacity building as an important area of investment, as it involves an internal learning process aimed at strengthening their own competitiveness (Heemseek and David, 2012).

Improved coordination must also be taken into consideration, so that the various synergies can be used much more and better in this pluralist approach. Coordination is important from two points of view. Firstly, in relation to the nature of advisory services, whether formal (which should be maintained and reinforced within the formal system itself) or informal (between formal advisory services and the different informal cooperation networks, which can play an important role in the provision of advice or at least in facilitating information flows, as in the case of the region of Valencia). Secondly, multi-level coordination, either vertical (within the service provider organisations themselves, from the local level to the top level, maintaining information flows in both directions) or horizontal (mainly at the local level, between the different advisory providers, and at the regional level, where cooperation and fluid communication between management leaders and the public responsible for the implementation of RDPs is critical).

On a global level, some of these results contrast, in the case of Valencia, with the decision of the regional Department of Agriculture to remove the advisory measure in the current RDP 2014–2020. It can be interpreted that the Department of Agriculture relies on the effective functioning of professional farmers' organisations and cooperatives, which are the ones that mainly carry out these advisory tasks, although no longer within the framework of this specific measure of the RDP.

#### **6.4 Creating a productive environment more focused on developing farmers' capacity to be capable of finding and taking advantage of opportunities (Strategy 3)**

EU Regulations for CAP 2014–2020 established two fields in which training of farmers and capacity building should be promoted. The first relates to the new and specific area of climate change mitigation and adaptation, biodiversity and water protection, where EU agricultural policies have a relatively limited tradition. The second relates to the broad field of rural development, where vocational training and capacity building of rural actors is one of the priorities (Council Regulation (EU) No 1305/2013). Indeed, the development of capacities is considered as a prerequisite for a successful and effective knowledge flow in the innovation system, to which European farmers as well as actors involved in FAS are increasingly compelled to be involved (García Álvarez-Coque et al., 2013; Madureira et al., 2015; Schrijver et al., 2016; SCAR, 2017). In fact, this capacity building is essential to enable them to better address most of the EU's rural development priorities, such as promoting knowledge transfer and innovation in agriculture, forestry and rural areas (Cristiano et al., 2015); improving the viability and competitiveness of different agricultural productions; introducing innovative agricultural technologies as well as sustainable management systems; promoting the organisation of the food chain and short

marketing chains; introducing and meeting an increased number of requirements related to animal welfare and environmentally friendly farming practices; adopting risk management procedures; restoring, conserving and improving agricultural ecosystems; and those related to promoting a climate-resilient economy in the agriculture, food and forestry sectors (Council Regulation (EU) No 1305/2013).

There are many examples of capacity building across Europe, not always related to farmers but to different rural actors (Kania et al., 2014). In Spain, the generation and transfer of capacity building is structured on three main levels (Esparcia et al., 2014). At the top level are national or regional research centres, generally financed with public funds. Their functions include generating or adapting knowledge and innovations, which are transferred to the second level, FA Services, through publications, workshops and specific training, as main instruments. Training initiatives involving service providers are part of their updating processes, which could also be seen as a first phase in capacity building.

However, the key to success in true capacity building is the transfer from this second level to the third, composed of rural actors, especially farmers. This transfer process must take place practically at the local level. Therefore, in the region of Valencia, one of the main strengths is that there are important professional agricultural organisations, widely established, which play the role of capacity builders among farmers.

A final aspect to highlight is the fact that this generation of training among farmers is, above all, an increasingly collective process (Bran et al., 2017), although to do so, it is necessary to overcome traditional individualism. This orientation is being especially promoted within the framework of the CAP (obviously without neglecting the attention to the provision of individual services). Capacity building is fundamental for the decision-making of individual farmers, but also for cooperation schemes, such as those that are often enhanced at the local level. In addition, some new issues require broad and diverse capacities of farmers (or their advisors), such as managing the impacts of climate change on agriculture (Bran et al., 2017).

## **7. Conclusions and new prospects**

It is clear from the literature that advisory services are necessary to more efficiently deal with the changes taking place in European agriculture. CAP regulations are right in pointing out the importance of these services and their fundamental role in the modernisation of agriculture and adapting it to new environmental and quality requirements.

Advisory services will also be necessary to ensure the viability of complex production systems, as in the case of agriculture in Valencia (Spain). Although Valencian agriculture is famous for being traditionally competitive some important structural problems persist (smallholder farming, part-time agriculture, insufficient adoption of innovations, etc.), as highlighted by several authors (Arnalte et al., 2008; Baptista and Arnalte, 2008; Arnalte and Ortiz, 2013; García Alvarez-Coque et al., 2013; Ortiz et al., 2013). Therefore, effective advisory services are much more important and take on a strategic role.

The literature as well CAP regulations highlight the great importance of FA Services. However, this seems to be in contradiction with the recent evolution of the measures relating to the official farm advisory system in Valencia. It could be said that it has been a complete failure, given the changes in the 2007–2013 and 2014–2020 RDP (with the constant reduction of the budget, the very low levels of implementation during the 2007–2013 period, and the recent removal of the measure in RDP 2014–2020). However, it can also be said that, according to the results of this research, the mechanisms for advising farmers are sound, and are indeed playing a strategic role in Valencian agriculture.

Therefore, this contradiction does not exist, as it is necessary to differentiate between two dimensions of advisory services, the informal and the formal. On the one hand, in Valencia there has traditionally been an informal advisory system, which began to develop after the disappearance of agricultural extension services (a centralised model until approximately the 1990s) and which is the result of the strengthening and consolidation of professional agricultural organisations (AVA-ASAJA and UNIO, to which more recently agricultural

cooperatives have been incorporated). They created and maintained an extensive network of offices and representatives where agricultural and livestock activities are relevant, and are the fundamental reference for farmers in aspects ranging from the adoption of innovations, information on markets or new products, to tasks of information and management for compliance with the requirements of EU regulations. On the other hand, there is the formal FA Service, derived from EU regulations. In Valencia, these professional agricultural organisations were the first to become official advisory service providers, taking advantage of their experience and their network of offices or (more recently) cooperatives.

The elimination of the FA Services measure in RDP 2014–2020 might not be particularly serious considering that, although it implies a reduction in the available budget to help farmers cover the cost of services, a fundamental element in the system is maintained, namely the structure of service provider organisations. These are strong organisations that will continue to be supported (by means other than the abolished measure) so that they can continue to offer traditional advisory services, albeit in alternative ways. The partial or total elimination of measures relating to the advisory system has not occurred only in Valencia. Other regions did not include them from the outset, and others have eliminated them in successive modifications of their respective RDPs. Apart from the fact that the measure has been removed, or the reasons why it has been carried out, the fact is that the mechanisms for advising farmers remain not only important for the future, but absolutely necessary, as is recognised on a large scale by both the surveyed and the experts consulted.

A number of priorities emerge from the research which, although not entirely new aspects, must be taken very seriously by the regional authorities if Valencian agriculture is to maintain acceptable levels of competitiveness and modernisation. The first one in order of priority (S4) focuses on the professionalisation of farmers, through the improvement of training and flows of different types of information needed to deepen this professionalisation. The fourth strategy in terms of prioritisation level (S3), related to capacity building of farmers, is complementary to this. This means that an integrated strategy for the professionalisation of farmers and capacity building would be necessary, focusing on improving training programmes and providing really useful information for farmers (better meeting their real needs).

The second priority strategy (S1) focuses on the contribution of advisory services to improving the organisational development of both farmers and farm advisers themselves, strengthening agricultural markets (e.g. through specific training and information on how to improve connections between producers and consumers, on new demands and new productions, etc.). To this end, advisory services require, on the one hand, highly qualified and constantly updated staff. On the other hand, it is necessary to make farmers aware of the usefulness of high-quality advisory services and, consequently, to request them more frequently. Finally, the third strategy regarding the level of prioritisation (S2) concerns the strengthening of coordination within the advisory system. This includes both the formal system and the informal advisory networks. The synergies derived from this cooperation and coordination must be implemented, especially at the local level.

The final aim of this research has been to define strategies based on scientifically sound and rigorous procedures, referring to a case study, the region of Valencia (Spain). Despite possible limitations, the research may be useful in the field of design and implementation of public policies related to advisory services. Thus, in fact the four strategies (considering the complementarities between the higher-S4- and lower-priority -S3) have been evaluated and prioritised very positively by the group of experts, emphasising that their approach is in the right direction, also in accordance with what international experts pointed out (SCAR, 2017). The analysis presented a starting point and useful guidance both for decision-makers in the public administration and for the advisors themselves, with a view to the possible definition of specific actions in the near future.

Looking ahead, this research should be complemented in at least three directions. The first refers to the need to incorporate the vision of farmers as recipients of advisory services, differentiating aspects as varied as the types of agriculture or production (from a territorial perspective) as well the characteristics of farmers (level of professionalisation, education, size and type of farm, orientation to local-national-international markets, etc.) since the role of FA Services is probably different in relation to these or other attributive variables. Its detailed analysis would make it

possible to evaluate the impact that advisory services are having, even differentiating the advisory role of formal organisations from that of informal networks. The second direction in which this research could be completed would be to analyse other case studies, in other geographical or socio-economic environments, which would make it possible to define to what extent the diagnosis and, consequently, the potential strategies differ from those defined for our case study. Finally, the third one relates to the effects that the elimination of specific measures in different RDPs is having on the effectiveness of regional advisory systems.

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