



Giuseppina Olivieri

PhD Student in Sustainable Agricultural and Forestry Systems and Food security

Research project: Innovation ecosystem in agrifood systems

Supervisor: Prof.ssa Teresa Del Giudice



Research activities and organization of experiments to analyze consumer preferences for agrifood products



Working group member for the drafting of the context analysis on: Interventions for a knowledge and innovation system in agriculture (AKIS)



Working group member for the drafting of the context analysis related to: Local development strategies LAGs of Campania, RDP 2014-2020. Analysis and data processing Measure 2- Advisory services

Training period in Directorate General for Agricultural, Food and Forestry Policies of Campania region.

- LEADER territorialisation programming period 2023-2027.
- Calls for action: SRG06-LEADER - implementation of local development strategies; SRG07- Cooperation for rural, local, and smart villages development; SRG09-Cooperation for innovation support actions and services for the agricultural, forestry and agri-food sectors.

Agenda

28 th february 2024

- Advisory services to support sustainable transition in rural areas of Campania: a double perspective of evaluation
- The Agricultural Knowledge and Innovation System (AKIS) in the fishery and aquaculture sector: a case study in Campania
- Questions





Advisory services to support sustainable transition in rural areas of Campania: a double perspective of evaluation

Olivieri Giuseppina, De Rosa Marcello, Menna Concetta, Cigliano Imma, Gandolfi Ferdinando, Passari Maria, Del Giudice Teresa



Why this study?

AKIS plays a central role in the future economic growth after severe global crisis

→ Provision of intangible assets such as knowledge capital, human resources and innovative skills

(Gadrey, 2000).

Agricultural advisory services: detecting farm needs and creating link among production, research, consumption, and public institutions
→ to achieve the objectives posed by CAP

Providing an evaluation methodology for agricultural advisory services is not easy → diversity of individual and collective actors, organizational forms, methods and institutional structures

(Cristopolos, 2010).

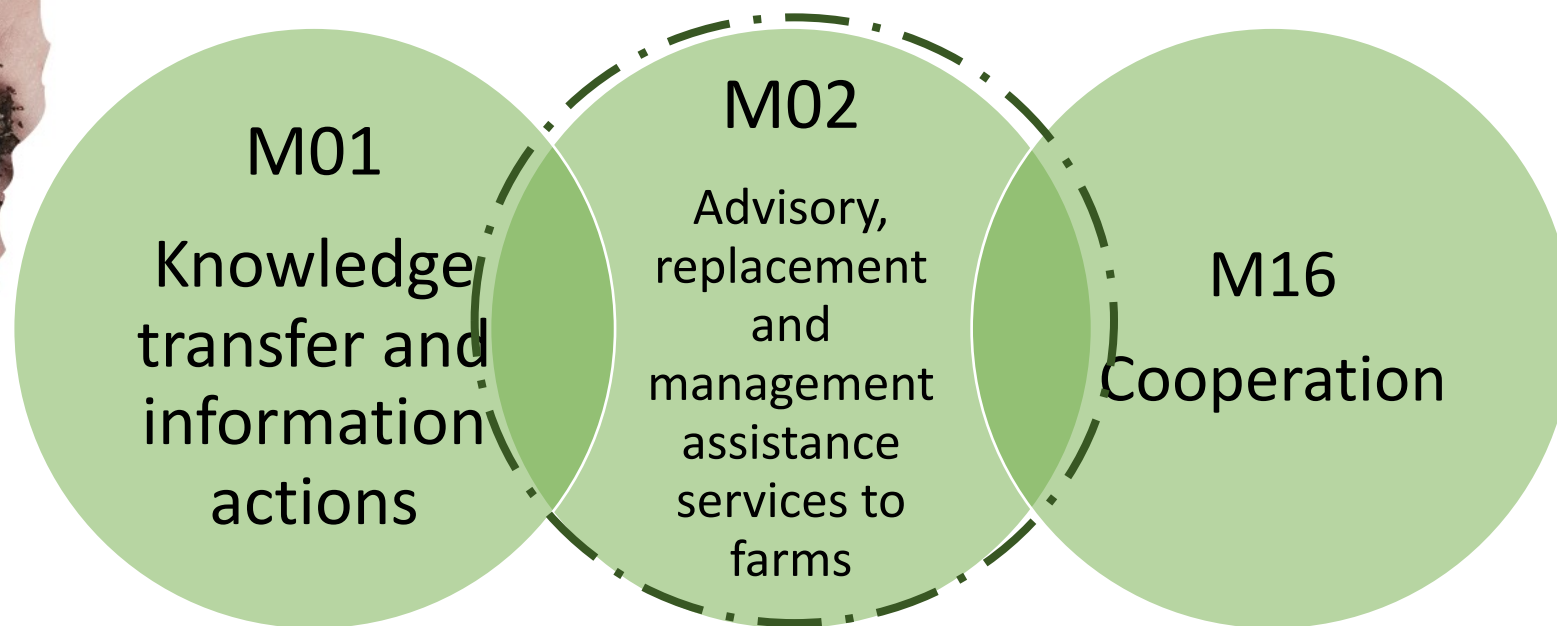
The subjects that transfer agricultural development services are much more diversified and are often entities "outside" the traditional circuits of agricultural development services

(Sutherland & Labarthe, 2022).



Context

AKIS in RDP 2014-2022 (Campania)



- **Measures 1 and 2** through training and advisory that are characterized by having been shared with stakeholders by a great richness of content
- **Measure 16** through the interaction of operational groups members with each other, facilitates the achievement of the common goal related to the dissemination of innovations.

Are agricultural advisory services able to meet needs of farmers in Campania region?

RDP 2014-2022:

M02 “Advisory, replacement and management assistance services to farms”

Advisory activities: 83 macro modules:

- Eco-friendly agriculture
- Environment and energy
- Livestock activities
- Forestry activities
- Management control and farm enterprise development
- Diversification
- Multifunctionality
- Agricultural production
- Quality systems/certification

A double perspective...

Study 1: Agricultural advisors

Aim: evaluation of advisors’ orientation to the possibility of providing adequate FAS

Study 2: Farmers

Aim: evaluation of degree of overall satisfaction with the advisory service

Study 1: Agricultural advisors

Methods

- Questionnaire (2020)
 - Socio-economic characteristics of the advisors
 - Advisory methods
 - Needs for farmers and advisors
 - Self-assessment of knowledge and skills on environmental issues, use of digital tools and new skills
 - Access to services by territorial area / farms structure / multifunctional production profile
 - Innovations
 - Analysis of measure 2
 - Privatization of FAS
- Multivariate analysis: factor & cluster analysis → advisor's profiles

Sample: 89 advisors engaged in FAS financed by M02 of RDP 2014-2022



sì no raramente

14. Quale percentuale di agricoltori accede ad internet?

<10% 10-30% 40-50% >50% >75%

15. Gli agricoltori hanno accesso ai servizi tramite telefono?

sì no raramente

III parte - Analisi dei fabbisogni

Degli agricoltori

16. La capacità di utilizzo del servizio da parte dell'imprenditore agricolo può dipendere dall'età e dal livello d'istruzione

| 1 | 2 | 3 | 4 | 5 |
|------------------------|---------------|----------|-----------|-------------------------|
| In completo disaccordo | In disaccordo | Indeciso | D'accordo | Completamente d'accordo |

sì no

17. Di conseguenza, sarebbe possibile articolare l'offerta dei servizi sulla base di variabili socio-demografiche?

| 1 | 2 | 3 | 4 | 5 |
|------------------------|---------------|----------|-----------|-------------------------|
| In completo disaccordo | In disaccordo | Indeciso | D'accordo | Completamente d'accordo |

sì no

18. La capacità di utilizzo del servizio da parte dell'imprenditore agricolo può dipendere da variabili socioeconomiche dell'azienda (dimensione, zona altimetrica, mercato di sbocco)

| 1 | 2 | 3 | 4 | 5 |
|------------------------|---------------|----------|-----------|-------------------------|
| In completo disaccordo | In disaccordo | Indeciso | D'accordo | Completamente d'accordo |

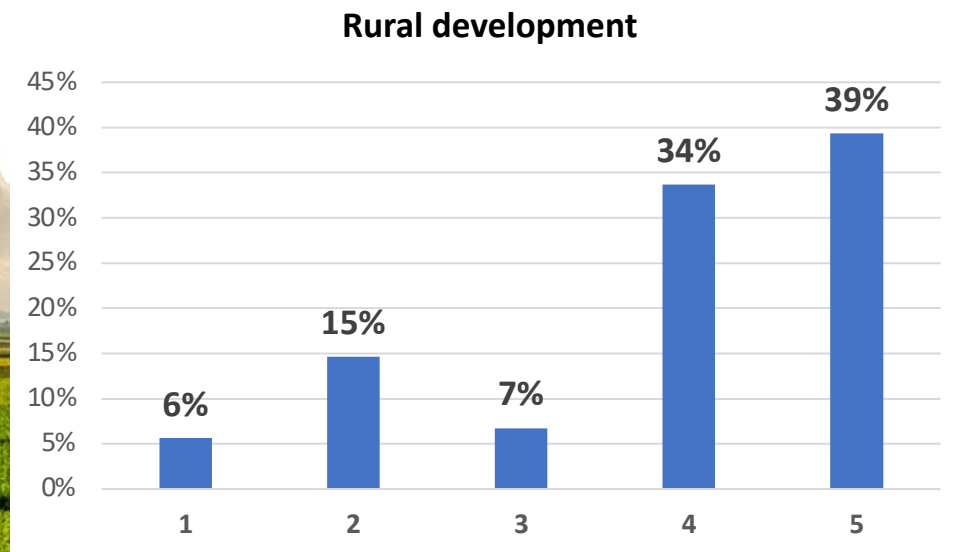
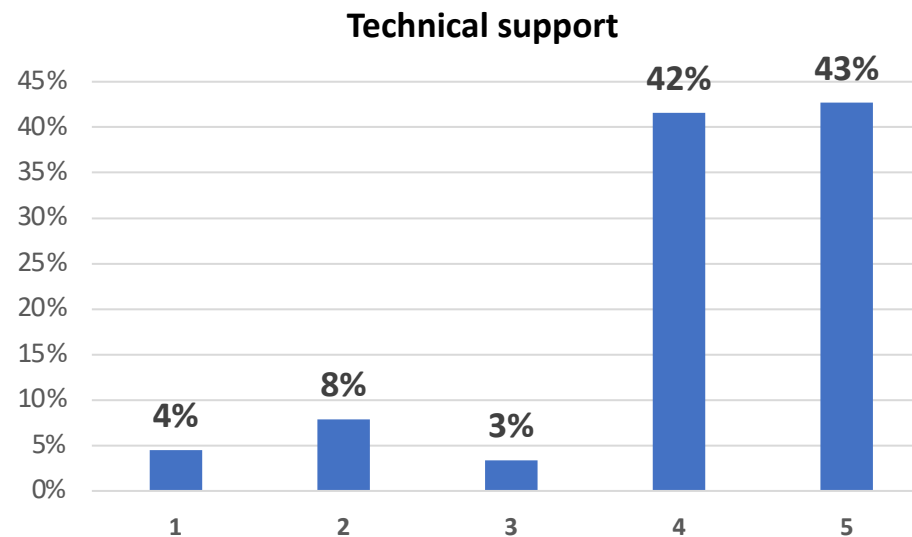
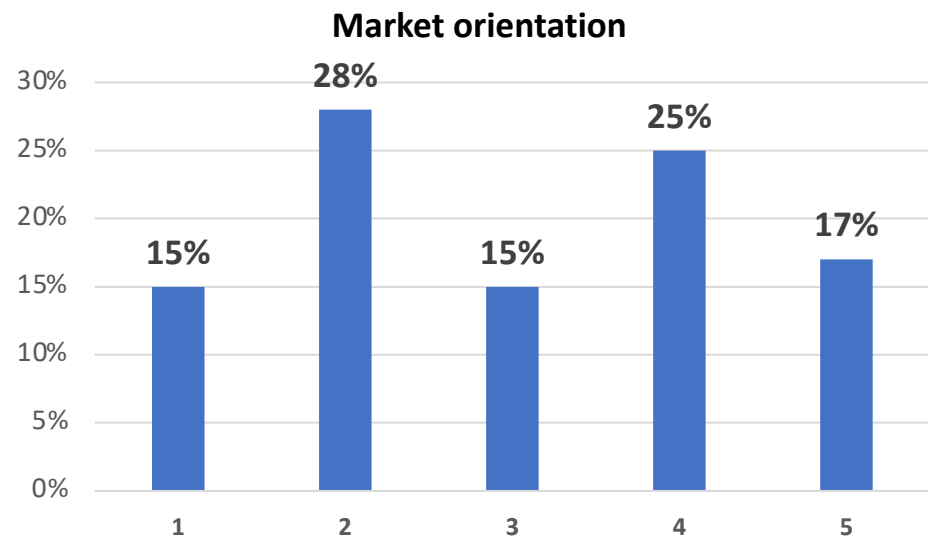
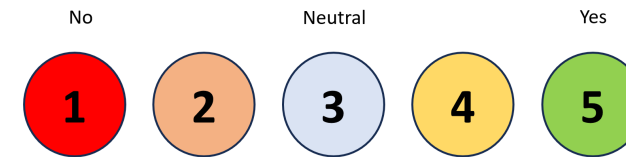
sì no

19. Di conseguenza, sarebbe possibile articolare l'offerta dei servizi sulla base di variabili socio-economiche?

| 1 | 2 | 3 | 4 | 5 |
|------------------------|---------------|----------|-----------|-------------------------|
| In completo disaccordo | In disaccordo | Indeciso | D'accordo | Completamente d'accordo |

Study 1: Agricultural advisors

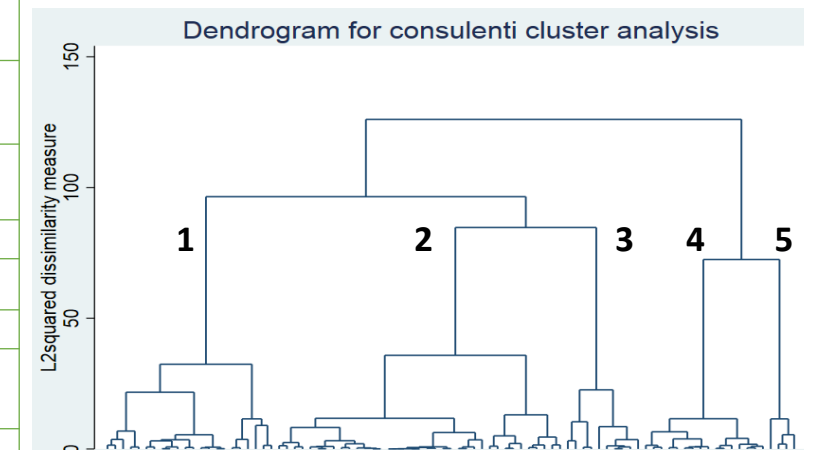
Results: advisor activity



Study 1: Agricultural advisors

Results: factor analysis

| Variable | Skills | Tailored advisory services | Perception of overall professional skills | Ability to produce real change in farms management |
|---|--------|----------------------------|---|--|
| Influence of age and level of education on the ability to use the service | | 0.776 | | |
| Specific offer based on socio-demographic variables | | 0.785 | | |
| Influence of socioeconomic variables on the ability to use the service | | 0.823 | | |
| Specific offer based on socio-economic variables | | 0.758 | | |
| Self-assessment of skills | | | | 0.901 |
| Ability to provide alternatives to problems | 0.639 | | | 0.461 |
| Ability to stimulate cooperation | 0.653 | | | |
| Level of concern in interacting with conventional farmers | | | 0.795 | |
| Level of concern in interacting with sustainable farmers | | | 0.854 | |
| Networking capacities skills | 0.843 | | | |
| Marketing skills | 0.846 | | | |
| Problem solving skills | 0.842 | | | |
| Sustainable agriculture skills | 0.798 | | | |
| Communicative skills | 0.829 | | | |
| Interdisciplinary skills | 0.816 | | | |



Study 1: Agricultural advisors

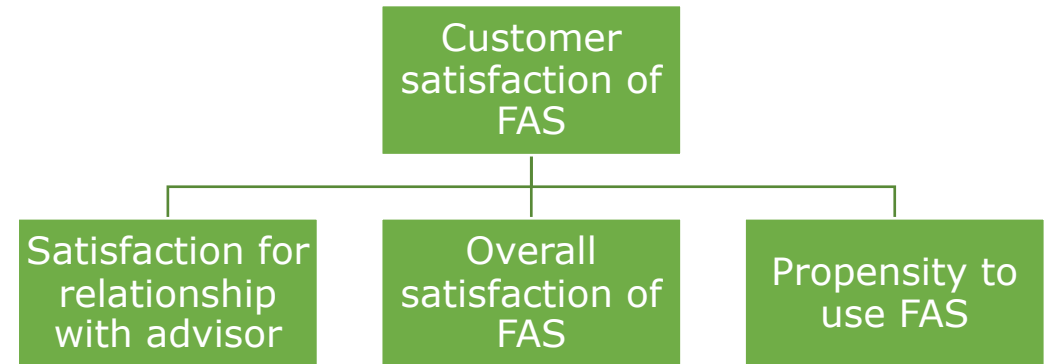
Results: cluster analysis

| Group | Skills | Tailored advisory services | Perception of overall professional skills | Ability to produce real change in farms management | Main characteristics |
|---|--------------------------------|--------------------------------|---|--|--|
| Mean (SD) | | | | | |
| Advisor in transition (25%) | -0.228 (0.897) | 0.077 (0.858) | 1.245 (0.613) | -0.139 (0.811) | Not in line with the new challenges posed by the agricultural sector and provision of a service only tailored to farms and farmer |
| Holistic advisors (42%) | 0.449 (0.562) | 0.112 (0.697) | -0.245 (0.734) | 0.655 (0.444) | Modern skills and holistic vision in the provision of the service |
| Traditional advisors (11%) | -1.775 (0.993) | 0.490 (0.793) | -0.768 (0.890) | 0.548 (0.648) | Specific answer but weak modern skills |
| Poorly contextualized advisors (22%) | 0.306 (0.679) | -0.539 (1.460) | -0.532 (0.543) | -1.332 (0.667) | Diversified skills and provision of a service poorly tailored to the context |

Study 2: Farmers

Methods

- Face to face interviews (2022)
- Modules of activity
- Outcome of advisory services
- Degree of customer satisfaction



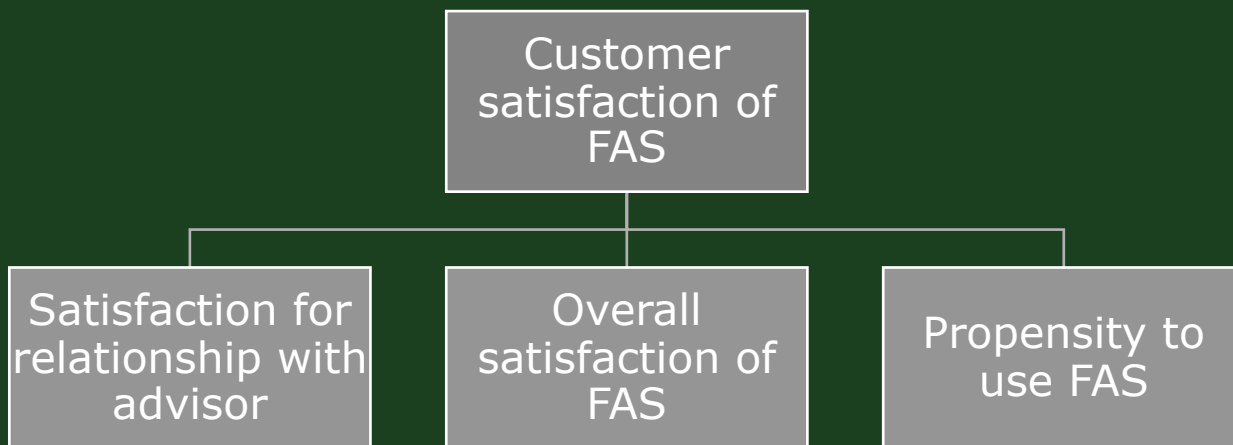
Analysis

- Customer satisfaction measurement technique
- Content analysis

Sample: 150 farmers who benefits from FAS financed by Measure 2 of RDP 2014-2022

Questionnaire

- Socioeconomic characteristics of farms
- Advisory body
- Customer satisfaction
- Declaration of farm disclaimer
- Privacy policy



Sezione 3: Soddisfazione e percezione

In generale, quanto è stato soddisfatto della consulenza che le è stata fornita?

| 1 | 2 | 3 | 4 | 5 |
|------------------------------|-------------------------|------------------------------------|-----------------------|----------------------------|
| <i>Del tutto improbabile</i> | <i>Poco improbabile</i> | <i>Né probabile né improbabile</i> | <i>Poco probabile</i> | <i>Del tutto probabile</i> |

| | | | | | |
|--|---|---|---|-------------------------------------|-------------------------------------|
| 1. La consulenza è stata basata sulle sue reali necessità | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |
| 2. La consegna di quanto richiesto è avvenuta nei tempi concordati | 1 | 2 | 3 | <input checked="" type="checkbox"/> | 5 |
| 3. Quanto proposto dal consulente era compatibile con la sua organizzazione aziendale | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |
| 4. Quanto proposto dal consulente è stato chiaro e facilmente comprensibile | 1 | 2 | 3 | <input checked="" type="checkbox"/> | 5 |
| 5. Quanto proposto si è caratterizzato per una elevata applicabilità nella sua azienda | 1 | 2 | 3 | <input checked="" type="checkbox"/> | 5 |
| 6. Quanto proposto dal consulente è molto moderno ed avanzato | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |
| 7. Il consulente è stato capace di trasferirle il risultato del lavoro svolto | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |
| 8. Quanto proposto dal consulente ha tenuto conto delle tendenze attuali: risparmio energetico, rispetto dell'ambiente, qualità e sicurezza alimentare | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |
| 9. La comunicazione del consulente è molto efficiente | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |

Sezione 2: Rapporto consulente – imprenditore

| 1 | 2 | 3 | 4 | 5 |
|-------------------------------|-------------------------|-------------------------------|-------------------------------|-------------------------------|
| <i>Per niente soddisfatto</i> | <i>Poco soddisfatto</i> | <i>Mediamente soddisfatto</i> | <i>Abbastanza soddisfatto</i> | <i>Pienamente soddisfatto</i> |

| | | | | | |
|--|---|---|---|-------------------------------------|-------------------------------------|
| 1. Ha incontrato il consulente durante il periodo dell'intervento | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |
| 2. Il numero di incontri è stato esaustivo per espletare la consulenza | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |
| 3. E' stato sempre lo stesso professionista a contattarla? | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |
| 4. Il consulente è stato professionale e affabile | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |
| 5. Il consulente ha cercato di organizzare gli appuntamenti tenendo conto del suo lavoro aziendale | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |
| 6. Ha usato mezzi moderni (skype, messenger, whatsapp) per rimanere maggiormente in contatto | 1 | 2 | 3 | <input checked="" type="checkbox"/> | 5 |
| 7. Il consulente ha cercato di fornirle una consulenza specifica per la sua realtà? | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |
| 8. Le soluzioni fornite dal consulente sono derivate da uno scambio reciproco di opinioni e necessità? | 1 | 2 | 3 | 4 | <input checked="" type="checkbox"/> |

Results



a) Modules of activity



b) Outcome of advisory services



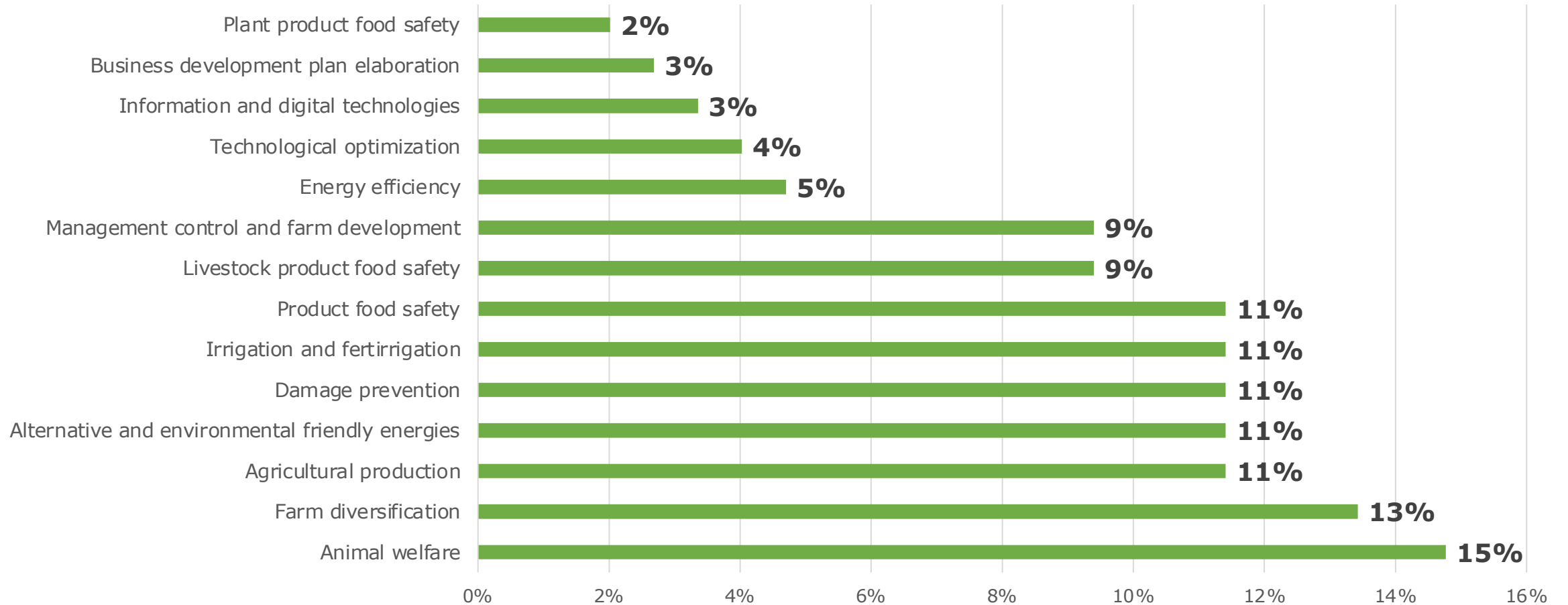
c) Additional private advisory services



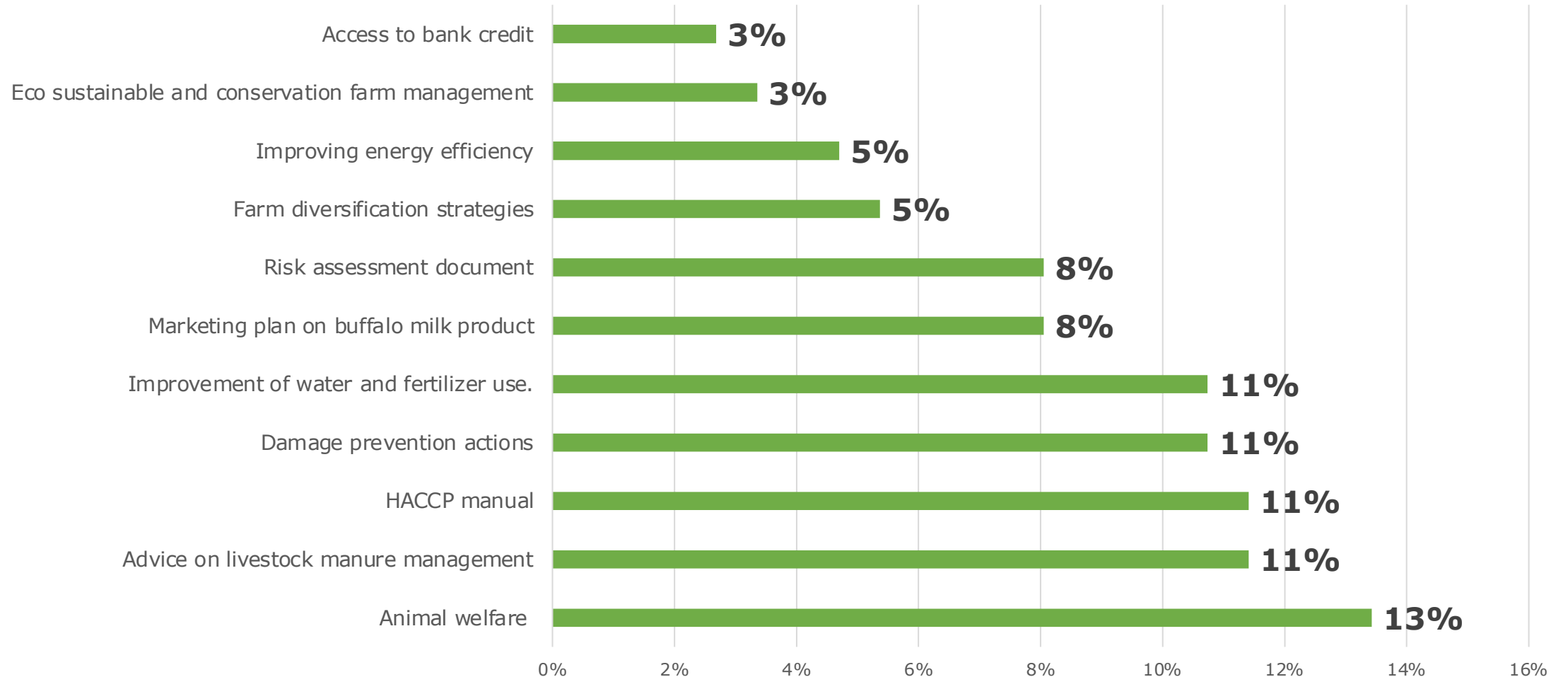
d) Degree of customer satisfaction



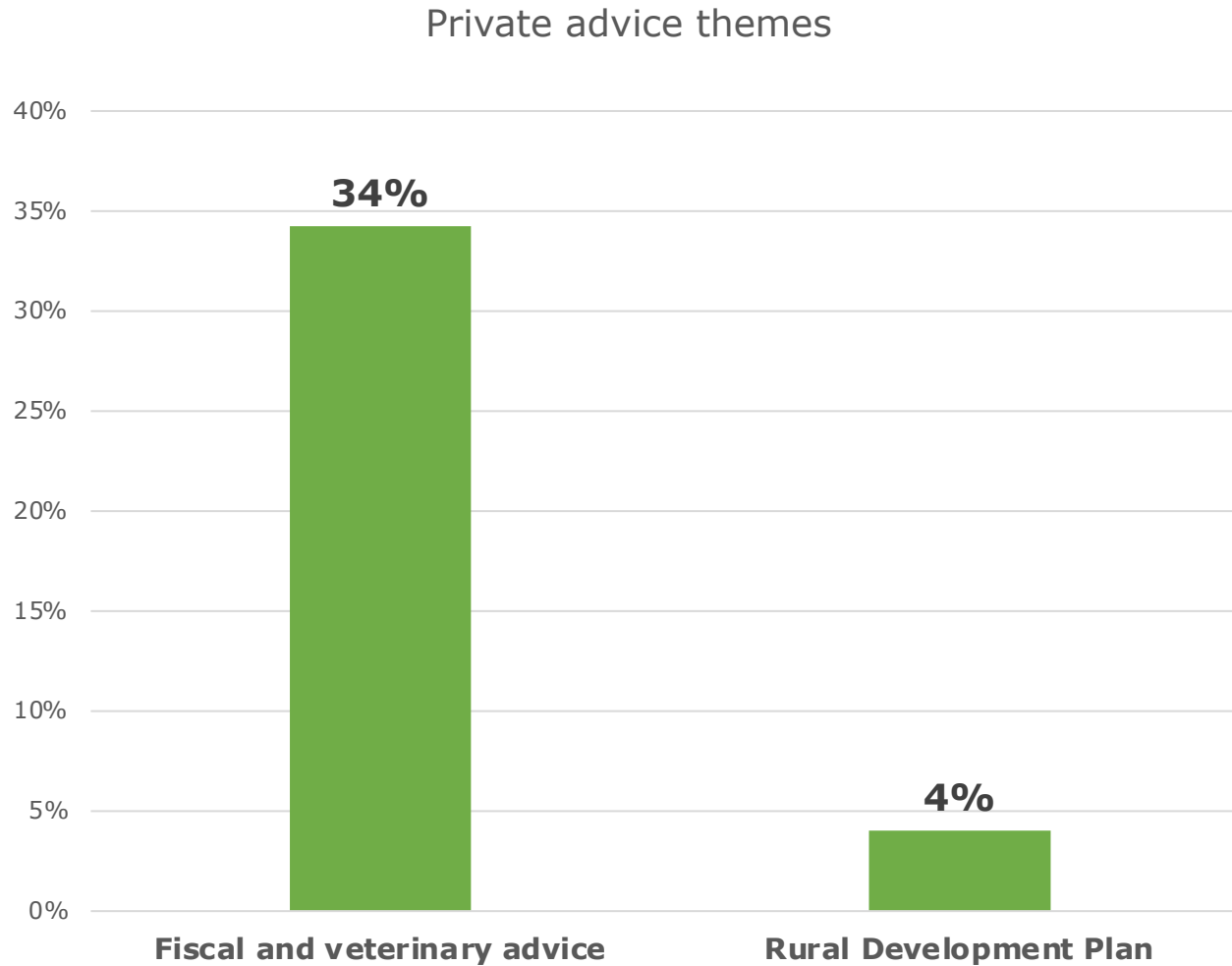
a) Modules



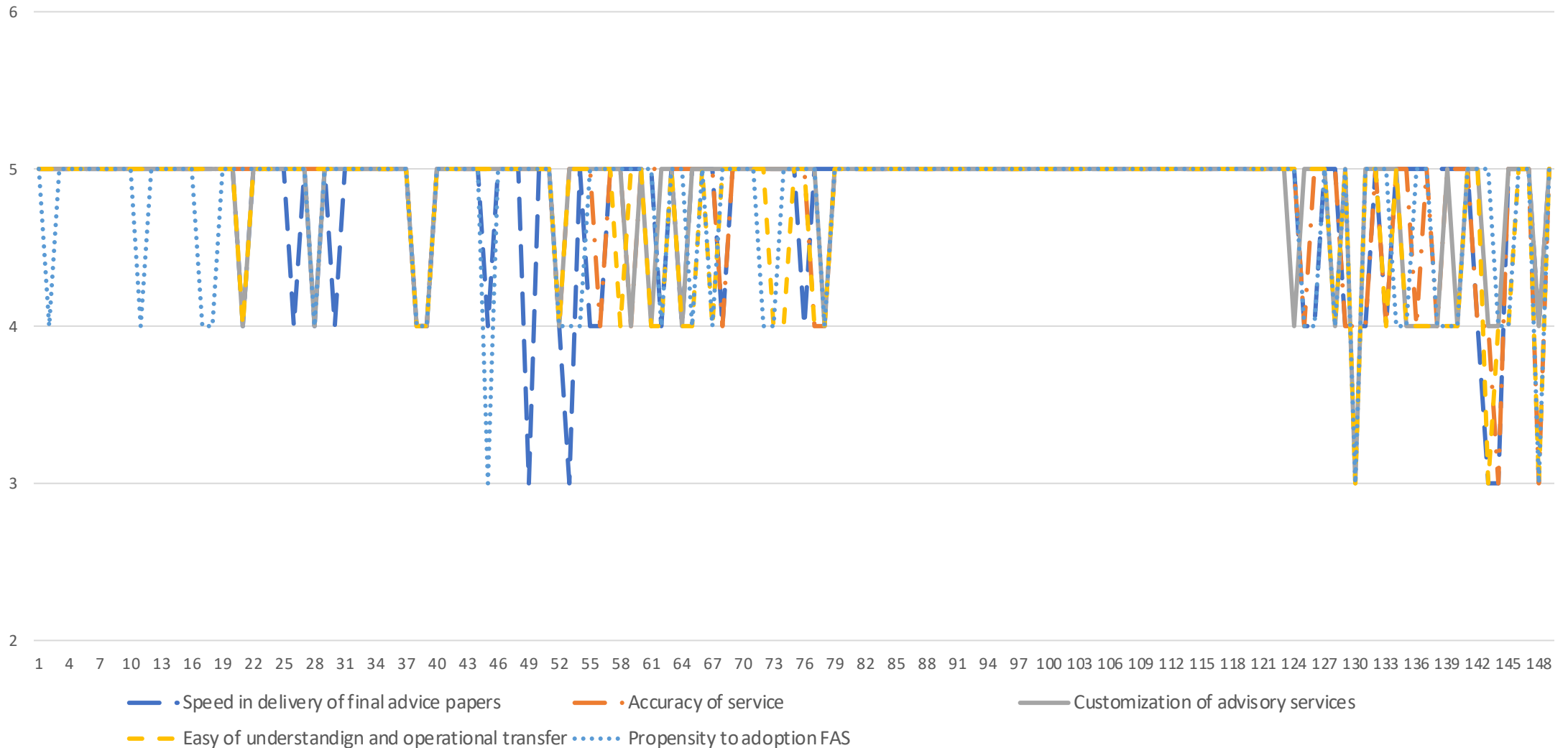
b) Outcome of advisory services



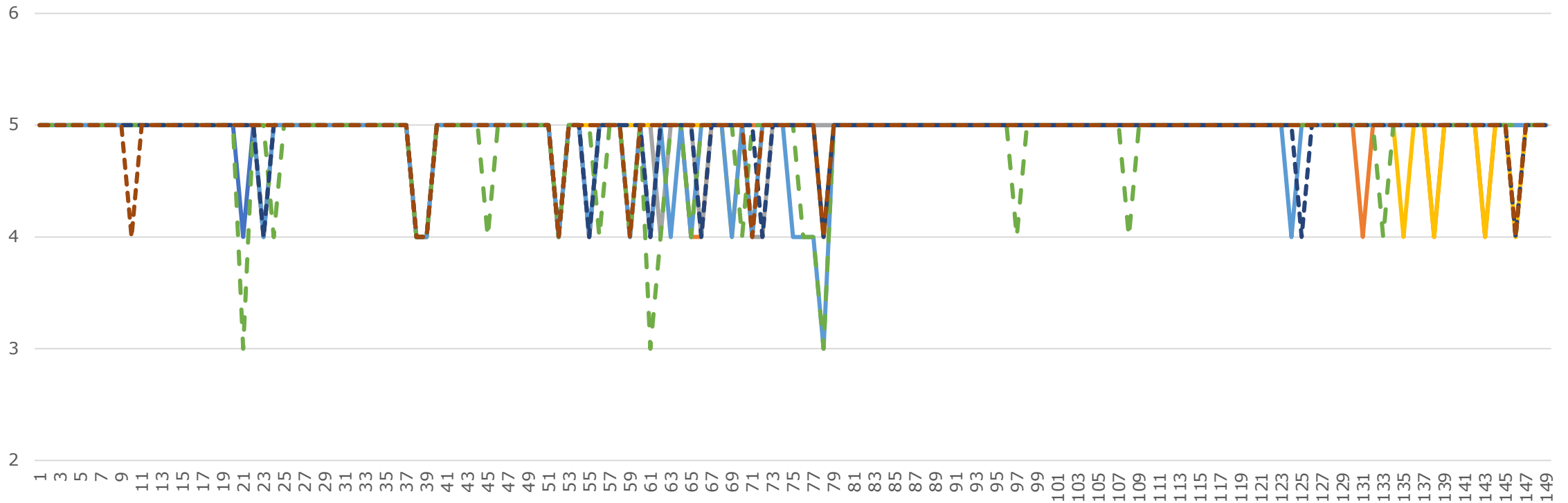
c) Additional use of private advisory services



d) Customer satisfaction

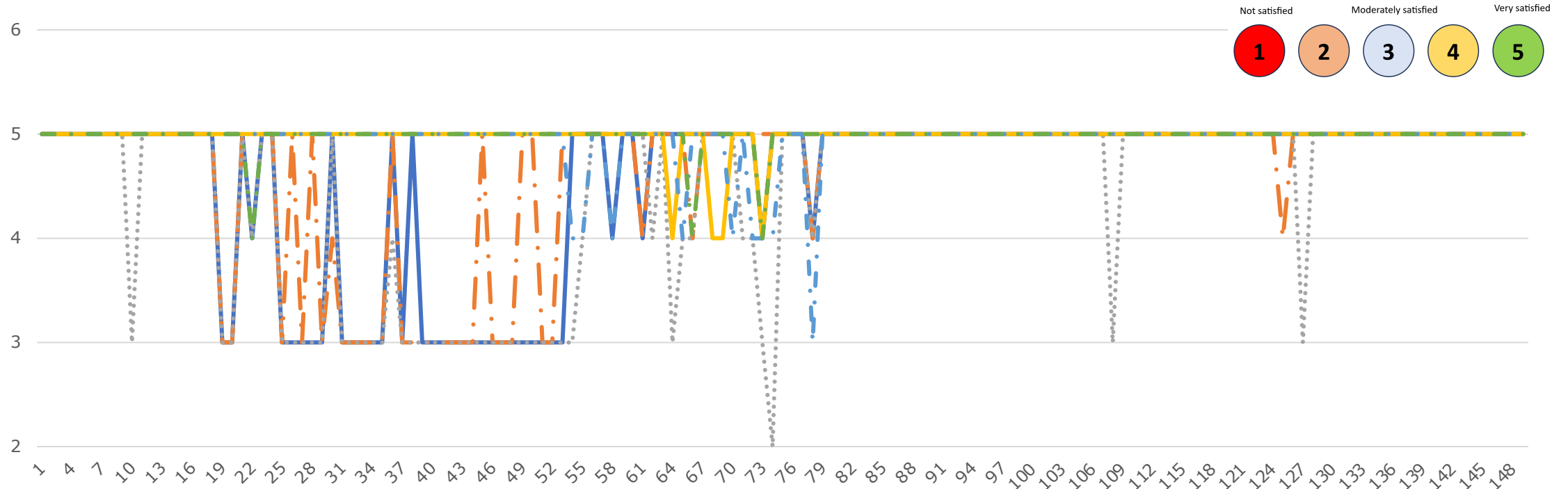


Relationship with advisor



- Met with advisor during the intervention period
- Was it always the same professional who contacted you?
- Advisor's availability
- - - Provision of tailored advice
- Appropriateness number of meetings
- Advisor professionalism and reliability
- - - Use of modern means (skype, messenger, whatsapp)
- - - Mutual exchange of opinions and needs

Propensity to advisory services



— Only by having an efficient advisory system can I grow as a business

— • Good advisory activity is a strategic element for the competitiveness of the agricultural sector

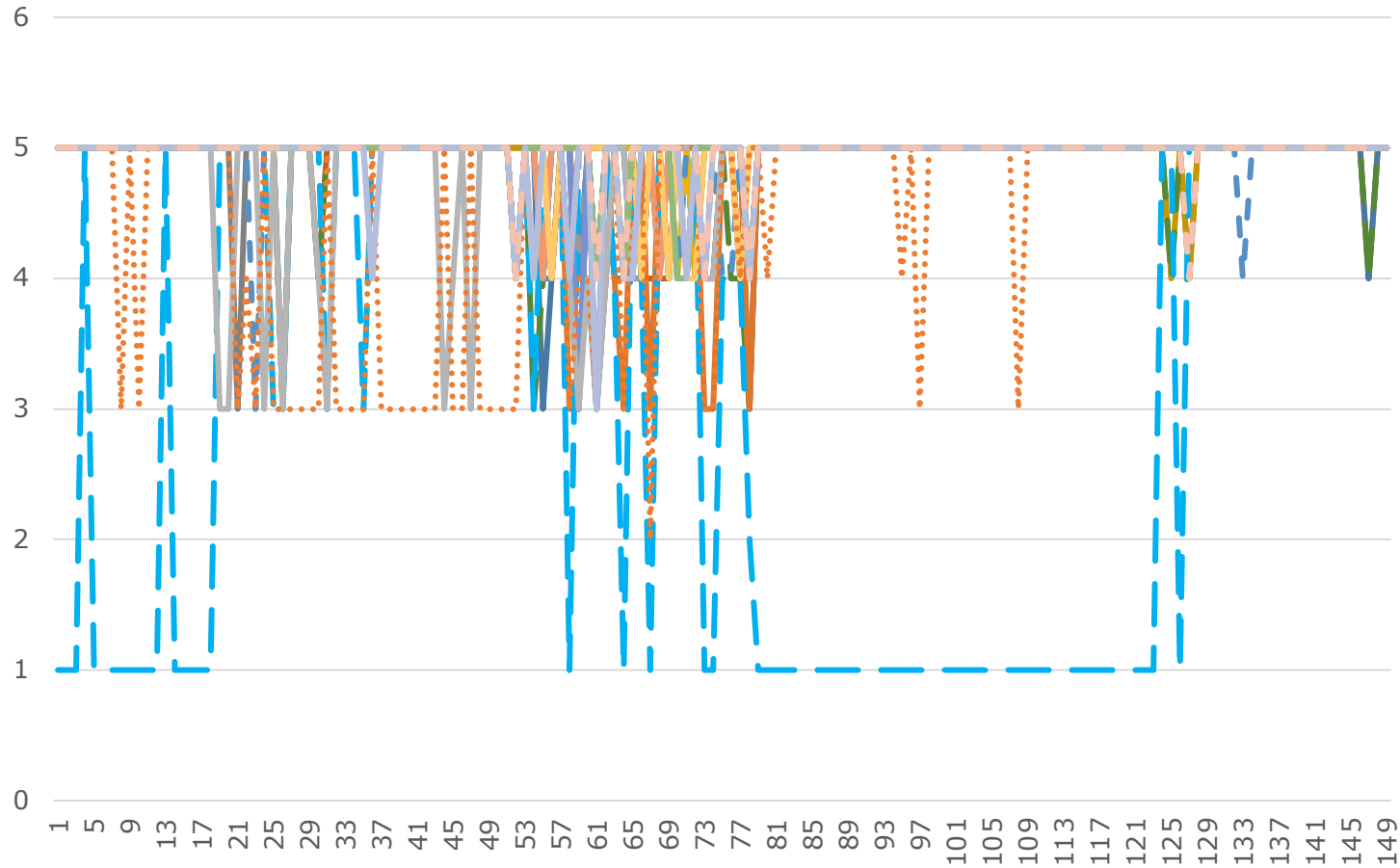
••••• Farmers should devote more resources to advisory services

— I was pleased to participate in this advisory program

— • I would like to be informed about other public programs dedicated to advice

— • I would like to participate in other programs dedicated to counseling similar to this one in the future

Overall satisfaction



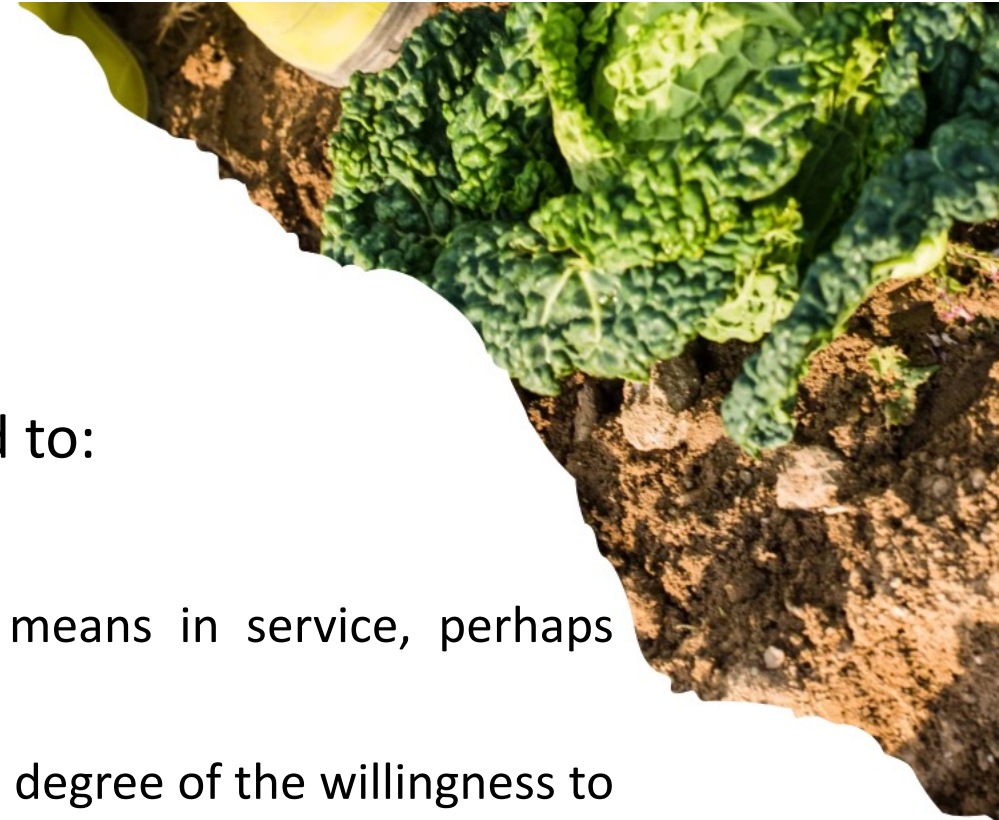
- Advisory service based on farm actual needs
- Adherence to delivery time
- Service adhering to the farm needs
- Advisor's clarity and ease of understanding
- Service applicability in the farm
- Modernity of the service
- Transfer of results
- Service developed on current trends: saving energy saving, environmental friendliness, food quality and safety
- Effectiveness of advisor communication
- Quality of the provided documentation
- Knowledge about new issues through advisory service
- Advice limited to provision of information
- Appropriateness of responses
- The counseling showed how to use the new information produced
- Supporting farm problem solving
- Regularity of advisor's visits
- Validity of advisory services in improving farm profitability
- Motivation of the advisor
- Advice support for farm decisions
- Information on advice benefits in improve business management

Results

Customer satisfaction results show high scores related to:

- satisfaction in the relationship with advisor
- some lower scores are reported for the use of modern means in service, perhaps however due to farmers' digital skills
- propensity for the utilization of advisory services with a good degree of the willingness to use the services
- overall satisfaction shows high scores showing that the service goes beyond information transfer.

An important aspect is the relationship established with the agricultural advisor and his or her ability to provide effective answers to problems



Reflections



Number of types & variety and expertise of professional figures → can interact with farmers to solve complex problems. Farmers are increasingly interested in issues concerning environmental, natural resource protection and animal welfare.



Advisory service has been effective in helping farmers with their needs and providing effective responses to accompany rural and agricultural transition. High level of satisfaction for all dimensions of customer satisfaction.



Relationship with advisor, customer satisfaction and propensity to use FAS scores demonstrate that advisory services are effective in bringing about change on the farm.

- Transformations resulting from geopolitical tensions and the slow digital and ecological transition emphasizes the need for a broader range of services which require a continuous updating of advisors' knowledge to be spread out in diversified territorial contexts
- Original contribution to:
 - modeling the advisors' profile, training policies and new skills in the background of the agroecological transition
 - evaluation of the advisory service considering farmer's perception and satisfaction
- In the future, customer satisfaction assessment procedure could be improved by implementing a digitized procedure to minimize the bias

References

Cristopolos, I.,(2010). Mobilizing the Potential of Extension. FAO, Rome (2010)

Knierim, A., Boenning, K., Caggiano, M., Cristóvão, A., Dirimanova, V., Koehnen, T., ... & Prager, K. (2015). The AKIS concept and its relevance in selected EU member states. *Outlook on AGRICULTURE*, 44(1), 29-36.

Gadrey, J. (2000). The characterization of goods and services: an alternative approach. *Review of income and wealth*, 46(3), 369-387.

Cicia, G., Cembalo, L., Giudice, T.D., 2010. Consumer preferences and customer satisfaction analysis: a new method proposal. *J. Food Prod. Mark.* 17, 79-90.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of advanced nursing*, 62(1), 107-115.

Gadrey, J. (2000). The characterization of goods and services: an alternative approach. *Review of income and wealth*, 46(3), 369-387.

Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse education today*, 24(2), 105-112.

Grigoroudis, E., Siskos, Y., 2002. Preference disaggregation for measuring and analysing customer satisfaction: the MUSA method. *Eur. J. Operational Res.* 143 (1), 148-170.

Prager, K., Labarthe, P., Caggiano, M., & Lorenzo-Arribas, A. (2016). How does commercialisation impact on the provision of farm advisory services? Evidence from Belgium, Italy, Ireland and the UK. *Land Use Policy*, 52, 329-344.

Siskos, Y., Grigoroudis, E., 2002. Measuring customer satisfaction for various services using multicriteria analysis. In: *Aiding Decisions with Multiple Criteria*. Springer, US, pp. 457-482.

Sutherland, L. A., & Labarthe, P. (2022). Introducing 'microAKIS': a farmer-centric approach to understanding the contribution of advice to agricultural innovation. *The Journal of Agricultural Education and Extension*, 28(5), 525-547.



The Agricultural Knowledge and Innovation System (AKIS) for the fishery and aquaculture sector: a case study in Campania Region

Introduction

- Aquaculture activity in Campania is in its entrepreneurial "first generation" phase, although it has been stable in the last decades
- To give an answer to problems of this sector an experimental model of Agricultural Knowledge and Innovation Systems (AKIS) has been implemented.
- This model shows and helps how to identify new opportunities in term of dimension and competitiveness



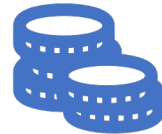
Sector's weaknesses



Insufficient and deficient organization of the supply chain, due to the excessive pulverization



High initial investment



Operating costs and competition from foreign products



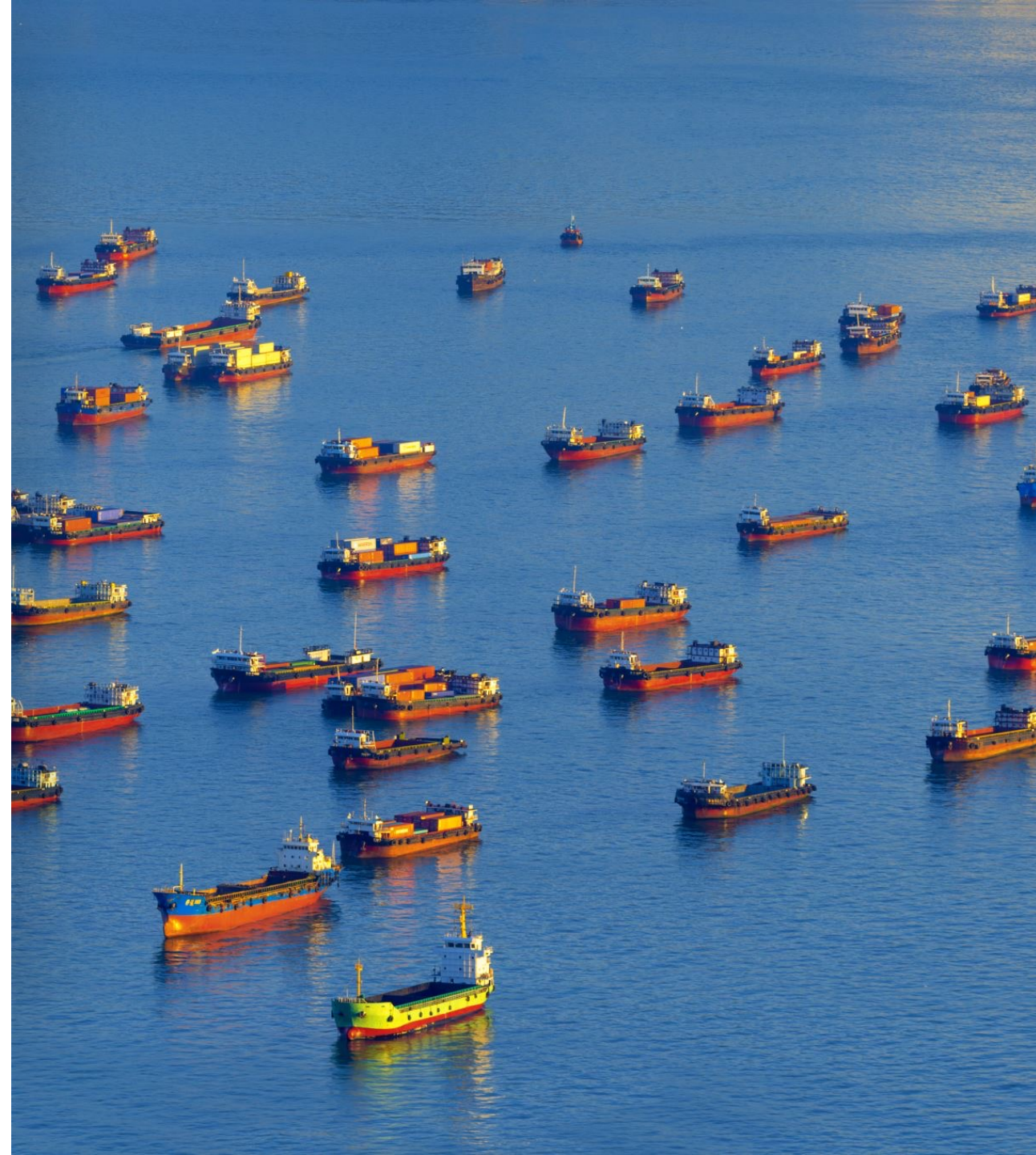
Internal conflicts due to the few cultivation areas



Poor structural and infrastructural endowment

The project

- The AKIS fishery and aquaculture project aims to support small fishing, through the structuring of knowledge networks to develop shared knowledge between the actors and initiate Innovation broker activities through the dissemination of innovations



Localization of businesses in Campania, 2021



Methodology

- This study is the result of seven semi-structured interviews with the stakeholders considered strategic in the various AKIS groups
- Mapping of stakeholders to identify the actors involved in the dissemination of knowledge and innovations for a first attempt to create an AKIS in Campania region.

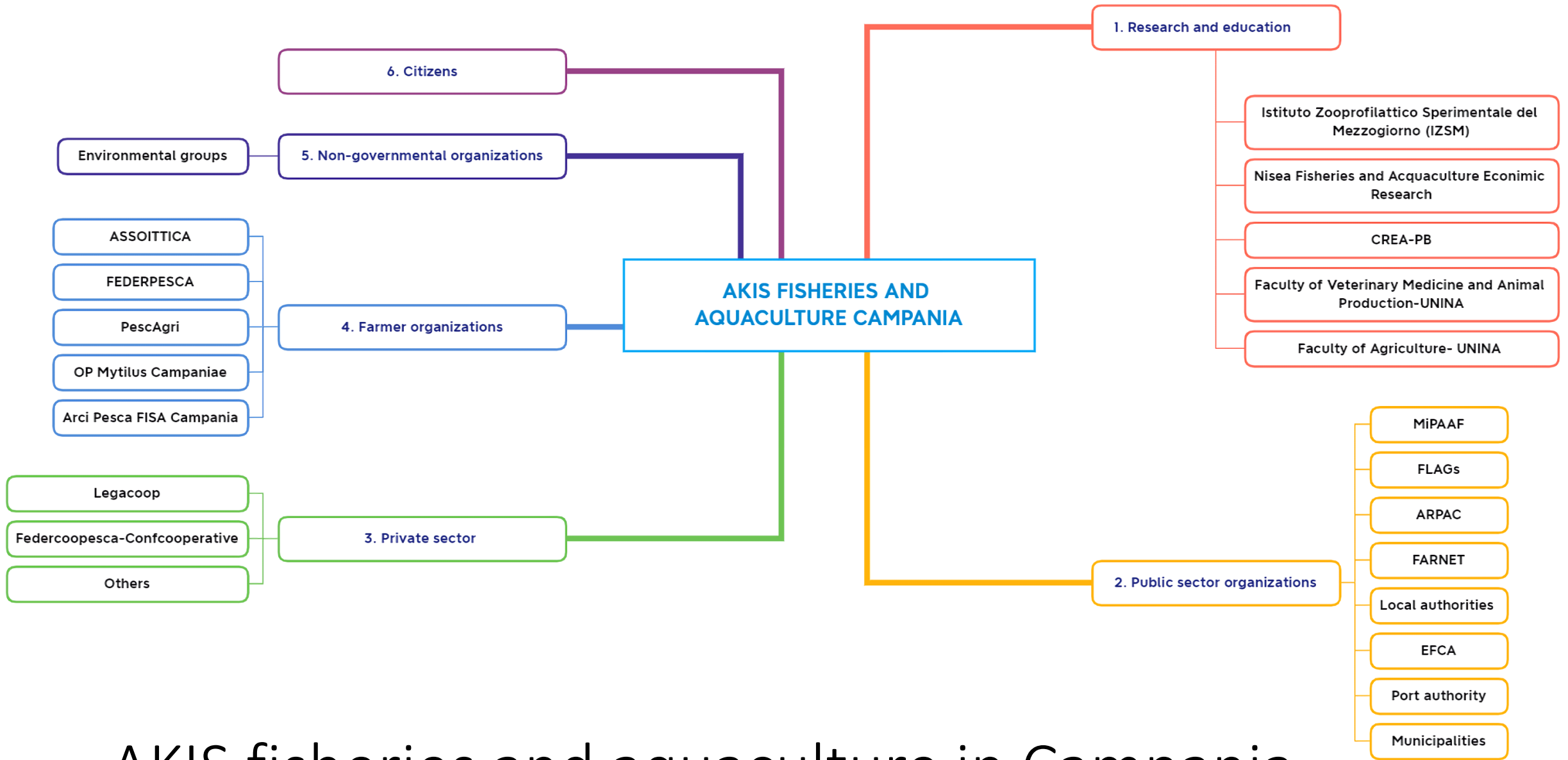




Interviews

Interview procedure based on 5 steps:

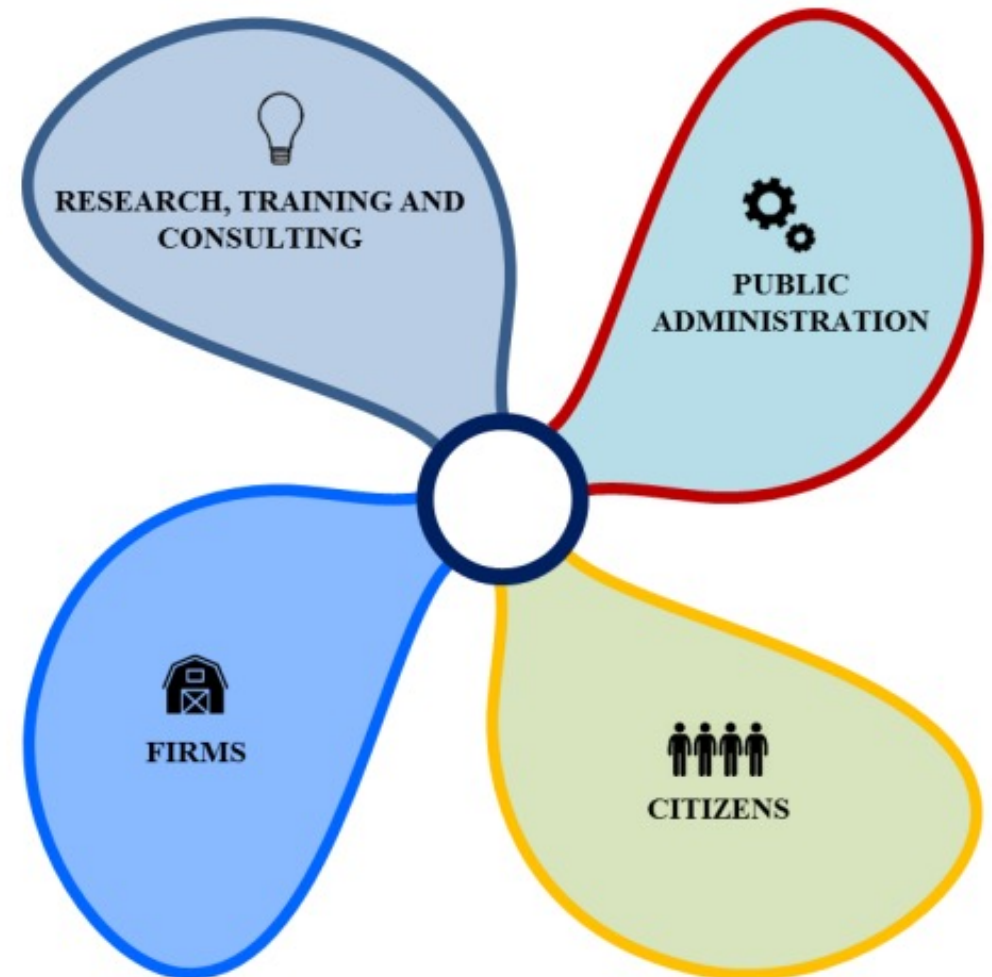
- introduction and presentation of the research topic
- question on the role of knowledge and innovation
- questions on the existing relationships between stakeholders of the Akis
- Focus on the relationships and how they could be improved



AKIS fisheries and aquaculture in Campania

Quadruple Helix model for AKIS Fisheries and Aquaculture Campania

The helix represents the perspective of a complex knowledge system where technological, social and institutional innovations do not develop in isolation but through a process of interconnection and co-evolution



Results

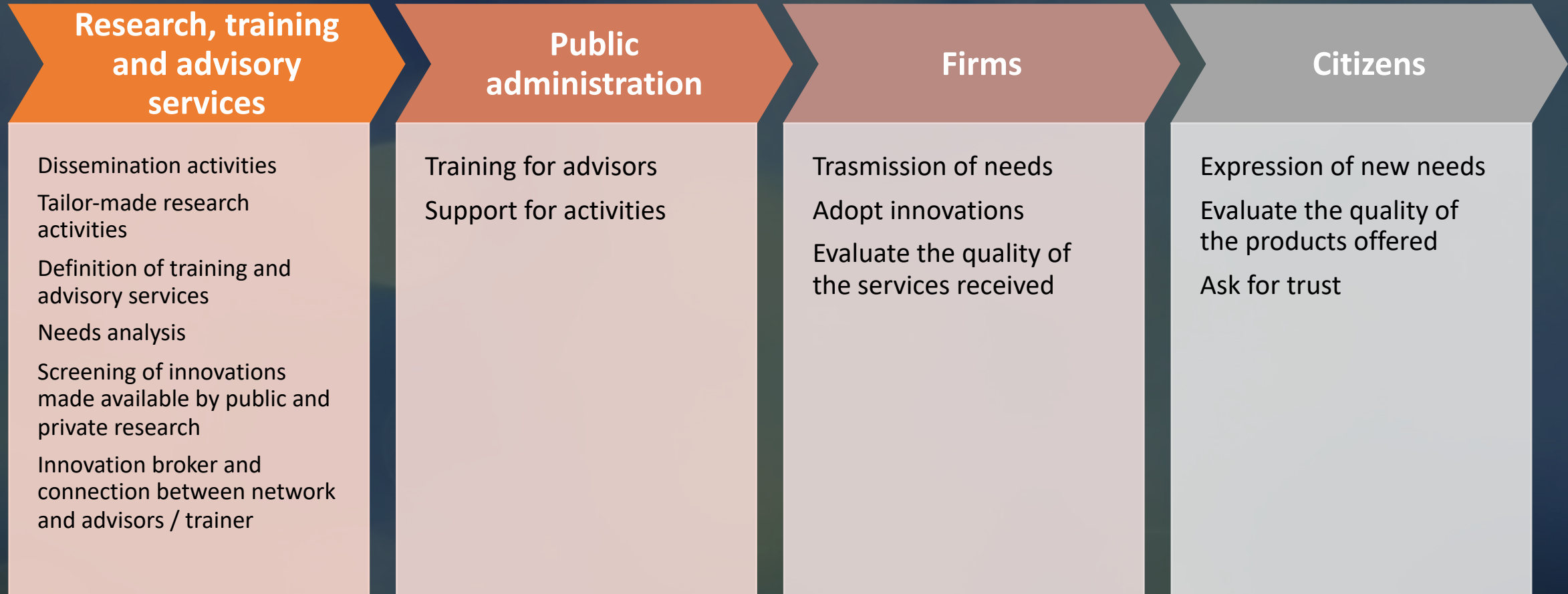
- Preliminary research results show that the stakeholders network identified by this AKIS model appears fragmented and subject to a dynamic process of changing
- The educational system seems to have some strong links with all actors even though with different intensity
- Great interactions among traditional functions. Farmers and company-owners manifest their needs to be supported in their activities by fishery/aquaculture advisors.
- Advisors bring those needs to the attention to other stakeholders, particularly public institutions and research entities in the private and public space.

Results

Following EU definition of AKIS as a combination of organizational flows and knowledge among people, organizations and institutions that use and produce knowledge in the agricultural and related sectors, with this research has been identified:

- the actors involved in the dissemination of knowledge and innovation in the fisheries and aquaculture sector;
- a regional fisheries and aquaculture stakeholder map;
- how each actor contributes to the dissemination of Knowledge and innovation;
- Knowledge flows among Campanian AKIS actors.

AKIS actors and activity



Conclusion

- The results of this study emphasize the need to stimulate the comparison and collaboration between basic and applied research, (among universities, scientific and technical bodies and stakeholder) with a Multi Actor Approach (MAA) in which the main role is played by innovation needs that arise from the assessment of needs
- The need to convert research results into real available innovation.
- Moreover, this AKIS model could be adapted at other European area contributing to the development of new European policy

The background features a collage of envelopes in various colors (white, green, pink, blue) against a blue and orange backdrop. A white, torn paper edge separates this top section from the white text area below.

Any questions?



giuseppina.olivieri@unina.it

References

- Brunori, G., D. Barjolle, A.-C. Dockes, S. Helmle, J. Ingram, L. Klerkx, H. Moschitz, G. Nemes, and T. Tisenkopfs. 2013. "CAP Reform and Innovation: The Role of Learning and Innovation Networks." *EuroChoices* 12 (2): 27–33. doi:10.1111/1746-692X.12025.
- Kilelu C.W., Klerkx L., Leeuwis C., 2013, Unravelling the role of innovation platforms in supporting co-evolution of innovation: Contributions and tensions in a smallholder dairy development programme, *Agricultural Systems* 118, 65-77
- Klerkx, L., & Matera, V. C. (2015). Co-creazione di innovazione per un'agricoltura sostenibile: recenti esperienze e implicazioni per le politiche europee. *AgriRegioniEuropa*, 11(42), 27-30.
- Klerkx L., Aarts N., Leeuwis C., 2010, Adaptive management in agricultural innovation systems: The interactions between innovation networks and their environment, *Agricultural Systems* 103, 390- 400
- Knierim A. et al., "The AKIS concept and its relevance in selected EU member states," *Outlook Agric.*, vol. 44, no. 1, pp. 29–36, 2015, doi: 10.5367/oa.2015.0194.
- Kolehmainen, J., Irvine, J., Stewart, L., Karacsonyi, Z., Szabó, T., Alarinta, J., & Norberg, A. (2016). Quadruple helix, innovation and the knowledge-based development: Lessons from remote, rural and less-favoured regions. *Journal of the Knowledge Economy*, 7(1), 23-42
- Moschitz, H., Roep, D., Brunori, G., & Tisenkopfs, T. (2015). Learning and innovation networks for sustainable agriculture: processes of co-evolution, joint reflection and facilitation, 1-11.
- Mirra, L., Caputo, N., Gandolfi, F., & Menna, C. (2020). The Agricultural Knowledge and Innovation System (AKIS) in Campania Region: the challenges facing the first implementation of experimental model. *Journal of Agricultural Policy*, 3(2), 35–44. <https://doi.org/10.47941/jap.446>
- Regolamento (UE) 2021/2115 del Parlamento europeo e del Consiglio: norme sul sostegno ai piani strategici che gli Stati membri devono redigere nell'ambito della politica agricola comune (piani strategici della PAC) e finanziati dal Fondo europeo agricolo di garanzia (FEAGA) e dal Fondo europeo agricolo