

# WP5 – Deliverable 5.4.1 Position Paper

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Deliverable Number D.5.4.1.

<b>Project Acronym</b>	INVESTINFISH
<b>Project ID Number</b>	10042901
<b>Project Title</b>	Boosting INVESTments in INnovation of SMEs along the entire FISHerY and aquaculture value chain
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<b>Specific objective</b>	1.1 – Enhance the framework conditions for innovation in the relevant sectors of the blue economy within the cooperation area
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# POSITION PAPER

## INNOVATION IN THE F&A SECTOR

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## 1 Context Description

INVESTINFISH Project focused on the **Fisheries and Aquaculture (F&A)** sector. The sector is characterized by SMEs/micro-firms generally facing difficulties in accessing to innovation due to their small dimension, combined with high entry costs for R&D, as well as to the peculiarities of the sector.

This constitutes a threat for the sector, as there is a **risk of losing competitiveness**, becoming unable to meet the client / customer evolving desires, or to be outpriced by competitors (both direct and indirect).

To meet challenges, it is necessary that F&A firms exploit their products potential, innovate value & quality of territorial F&A tradition by overcoming the classic “do everything alone” into innovative multi-open partnership approach applied with tailored and innovation and demand-led support.

The challenge is even intensified by impact of persistent financial and economic crisis, and by the impact of Covid-19 pandemic. The latter demonstrated that many actors in the sector rely only on one specific sale channel: when restaurants were closed due to the lockdown, many fishers had to interrupt their work because they did not have any alternative buyers for their products. The innovation needed by the sector is not only technological innovation, but also business model innovation. This example showcases why INVESTINFISH did not focus only on specific technologies, but on innovation on a broader sense.

After having conducted an in-depth analysis of poles of excellence able to trigger innovation in 5 Regions concerned, funding schemes, innovation requirements from SMEs and best advanced solutions, INVESTINFISH implemented pilot actions involving real IT-HR F&A SMEs to provide a roadmap to innovation instruments & services, to boost creation of marketable innovative products and/or processes that will improve the SMEs potential market positioning.

INVESTINFISH confirmed that the greater benefits are generated when the focus replacement of the value chain concept with **value network**, fostering a shift from traditional value chains towards more collaborative value networks.

## 2 INVESTINFISH at a glance



Figure 1 - INVESTINFISH Project Summary

## 3 Approach

For a SME to innovate, three conditions are required. INVESTINFISH addresses all of them to support F&A companies in adopting innovation.

<b>Awareness</b> of possible innovations and motivation to adoption.	<ul style="list-style-type: none"> <li>• <b>Success stories</b> allow F&amp;A SMEs to understand the benefits of possible innovations (what innovations are adopted by similar companies; which innovation answers to a specific business need; etc.)</li> </ul>
Access to <b>technical competences</b> and resources to	<ul style="list-style-type: none"> <li>• <b>Poles of excellence</b> were mapped, allowing to access the skills and competences available in the IT-HR area for the</li> </ul>



implement innovation.	sector.
<b>Financial resources</b> to implement innovation.	<ul style="list-style-type: none"> <li>The <b>MoU</b> and the <b>platform</b> provide a framework agreement and a methodology to route request within the network.</li> <li>Recommendations for a <b>voucher scheme</b> aimed at the F&amp;A sector, based on the INNOVOUCHER scheme previously developed by one of the partners</li> </ul>

Figure 2 - Condition for innovation

### 3.1 The pilot actions as part of the project rationale

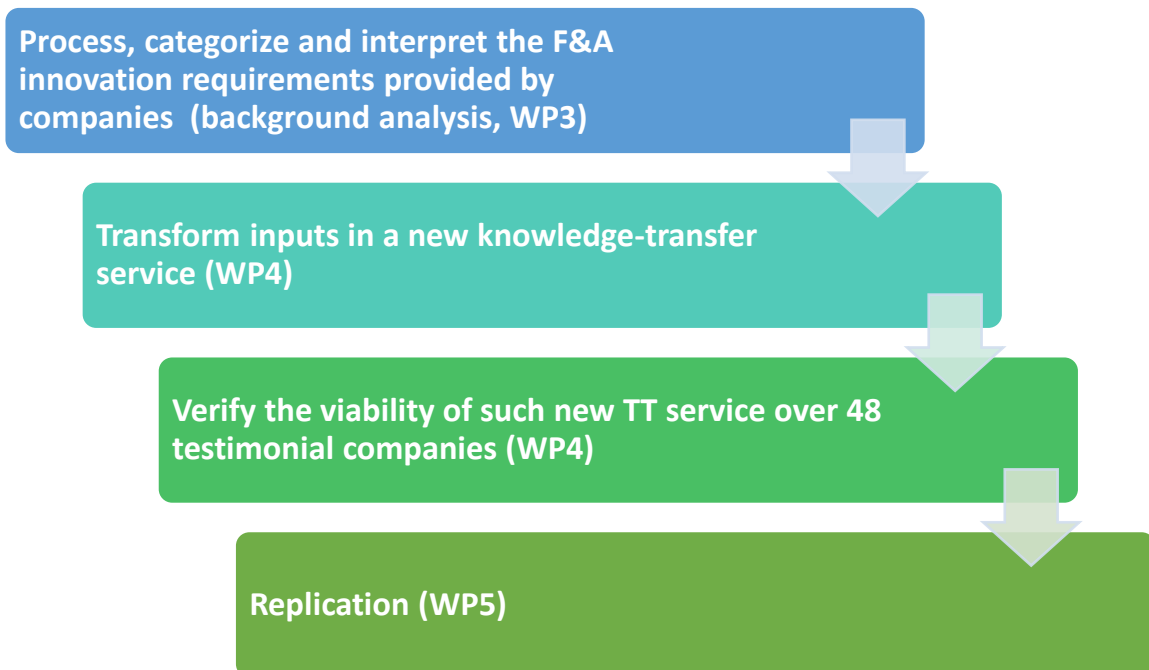


Figure 3 - INVESTINFISH approach

### 3.2 Project steps

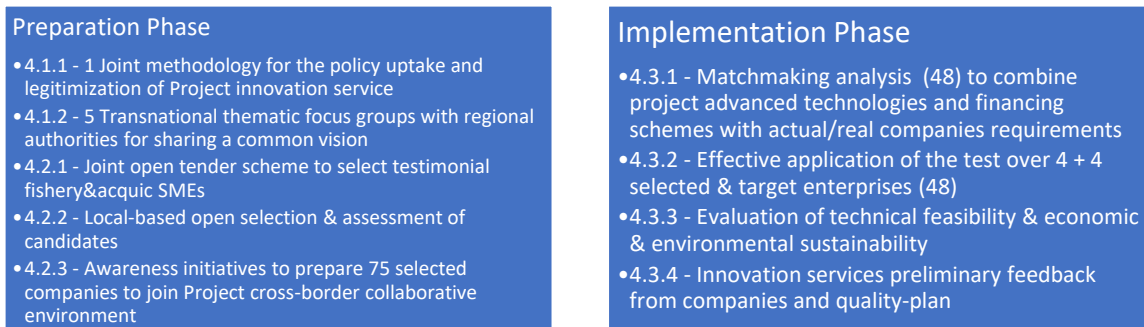


Figure 4 - Project steps

## 4 Poles of excellence

Relevant poles of excellence were mapped during the project, in order to identify actors that can possibly answer the needs of F&A companies. The map will be refined and updated also after the end of the INVESTINFISH project.

The poles of excellence includes several types of organisations, presented in the figure below.



Figure 5 - Types of Poles of Excellence

## 5 Pilot Cases

Pilot cases were the heart of the INVESTINFISH project: 48 companies (8 for each region engaged by the project) were selected to act as a testbed to evaluate the feasibility and the impact of possible innovation.

The innovation to analyse was suggested by each company, ensuring that they fully reflect real-world company needs.

### 5.1 Approach

The following figures summarise the approach to the pilots.

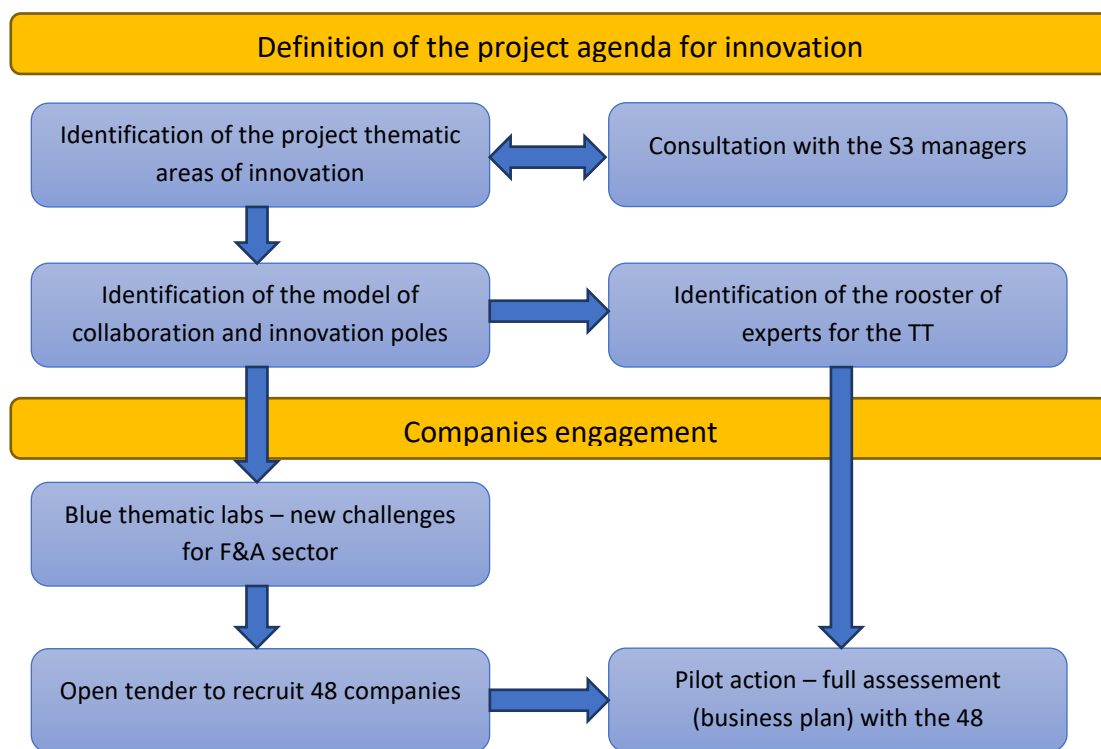


Figure 6 - Approach of pilot cases

### 5.2 Outcome of pilot cases

The pilots gave very interesting feedbacks about needs and requirements in the F&A sector.

In the following, we refer as “innovation projects” as the actions that were hypothesised and analysed in the feasibility/impact/risk analysis that were conducted in each of the 48 pilots.

The areas of the innovation projects address different processes within the F&A supply chain, from fishing/farming (57%) to transformation (27%), logistics (2%), and commercialization (14%).

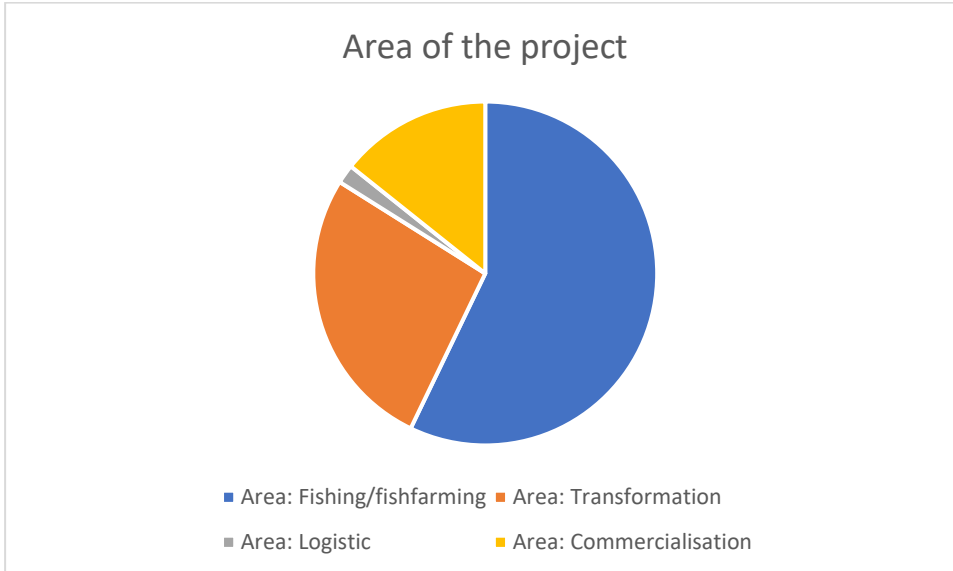


Figure 7 - Area of the innovation projects

The benefits expected by the innovation projects can be organised in four categories: cost reduction (48%), access to new markets (69%), sustainability (69%), increasing added value (38%). Note: more than one benefit could be associated to an innovation project.

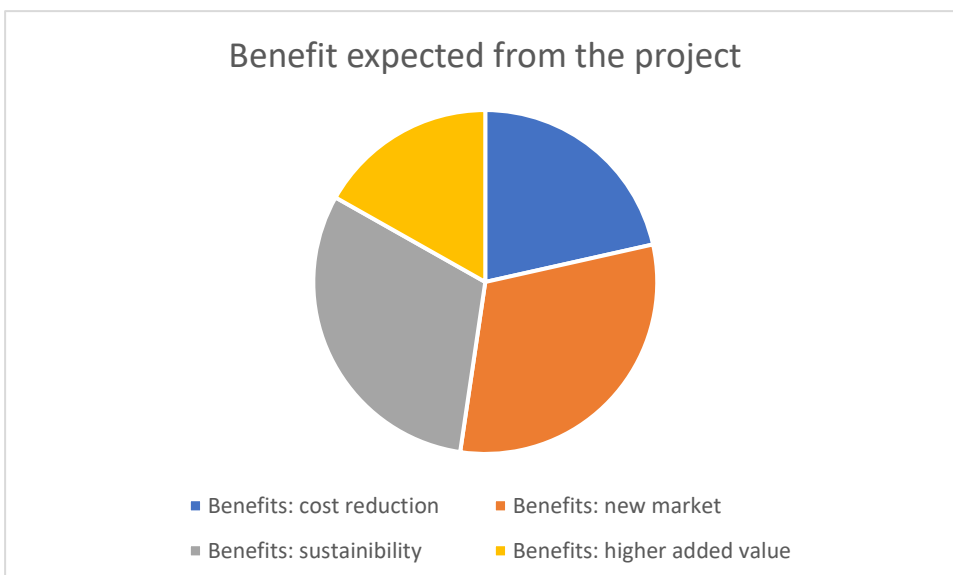


Figure 8 - Benefit expected from the innovation projects

Most innovation projects focused on a high Technology Readiness Level. This aspect will be discussed in detail in the Recommendation section of this document.

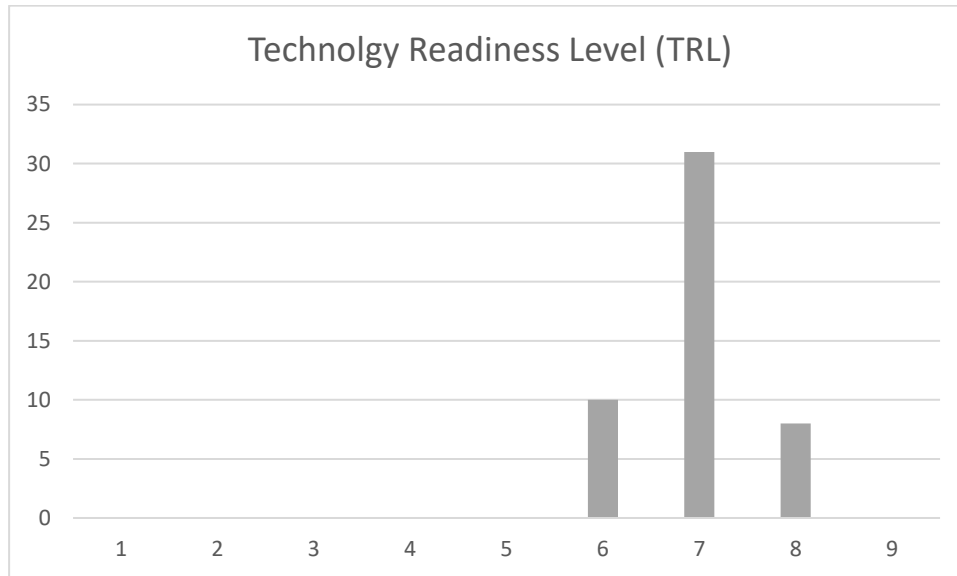


Figure 9 - Technology Readiness level of the innovation projects

### 5.2.1 Comparison Italy-Croatia

While there are differences in the subdivision of the innovation project areas of the pilots and of the benefits expected, there is no contradiction between the results on the Italian and the Croatian side, therefore we can conclude that the general trends are common among all the Italy-Croatia Programme area.

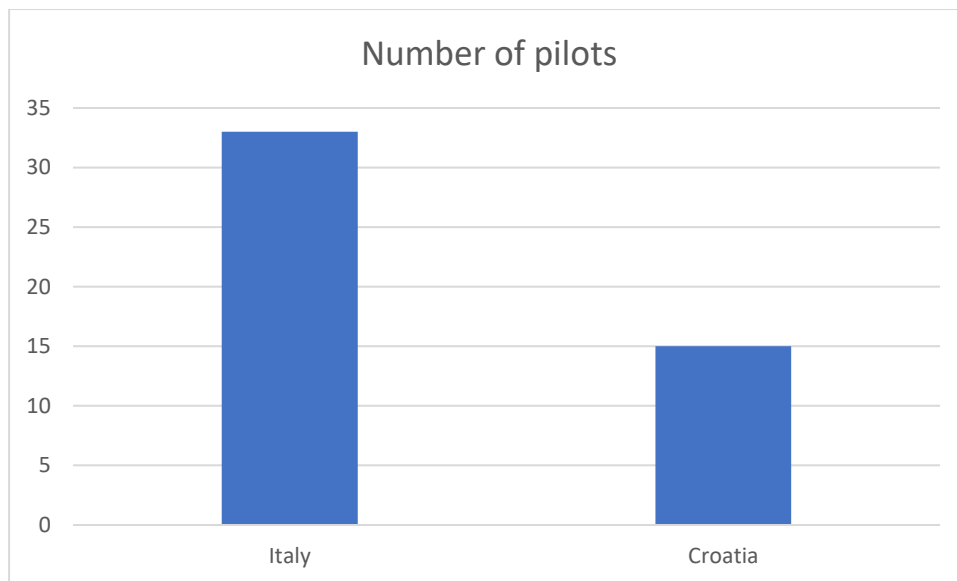
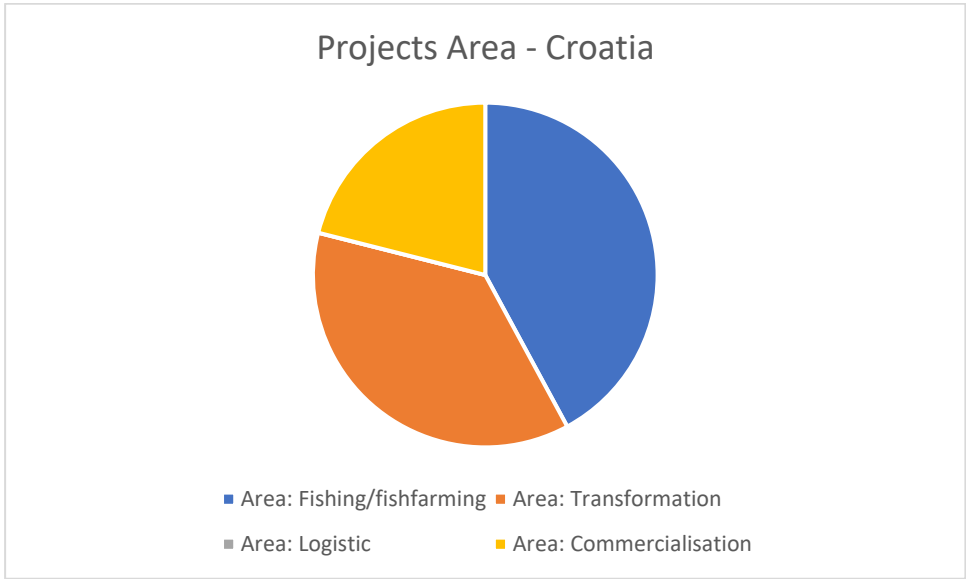
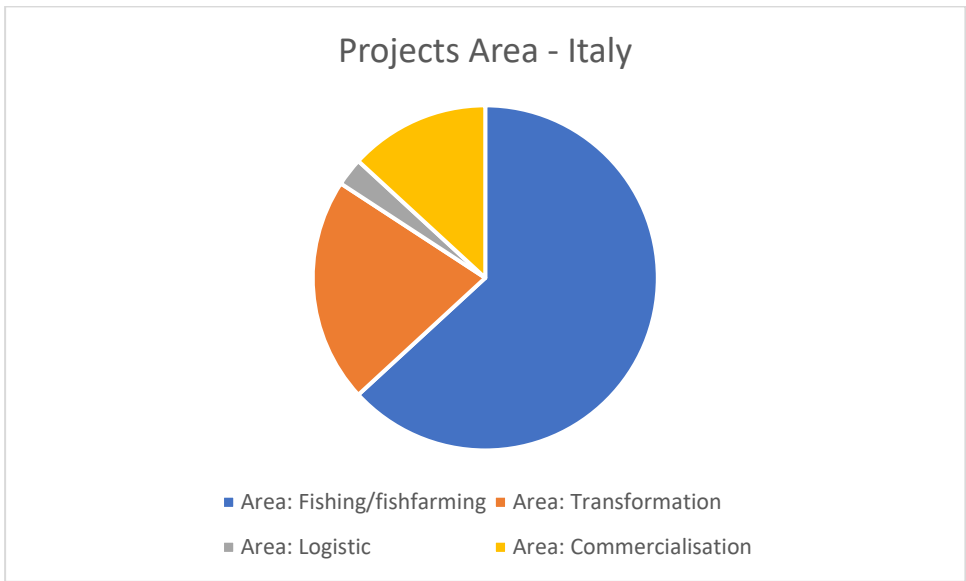


Figure 10 - Number of pilots in Italy and Croatia



*Figure 11 - Area of the innovation projects in Croatia*



*Figure 12 Area of the innovation projects in Italy*

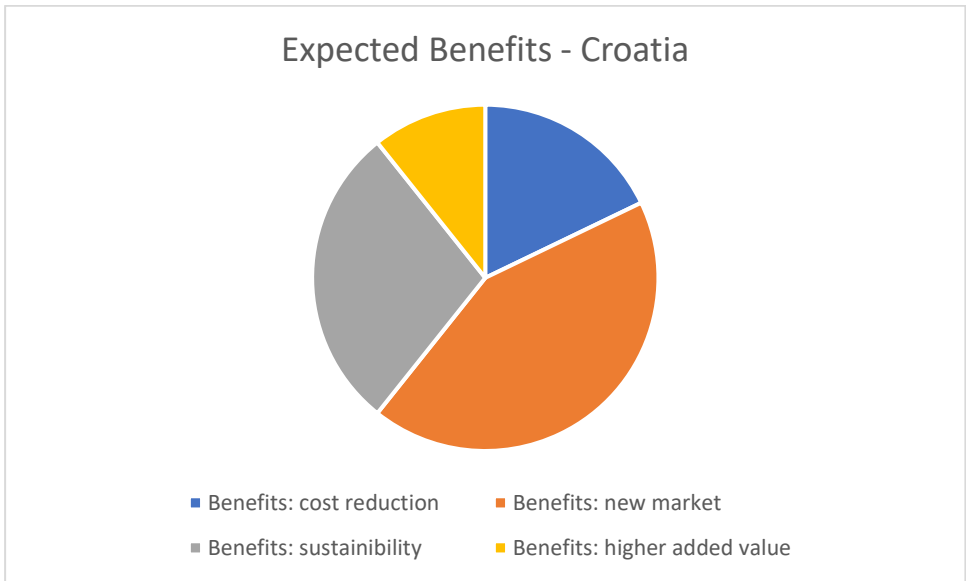


Figure 13 - Expected benefit from the innovation projects in Croatia

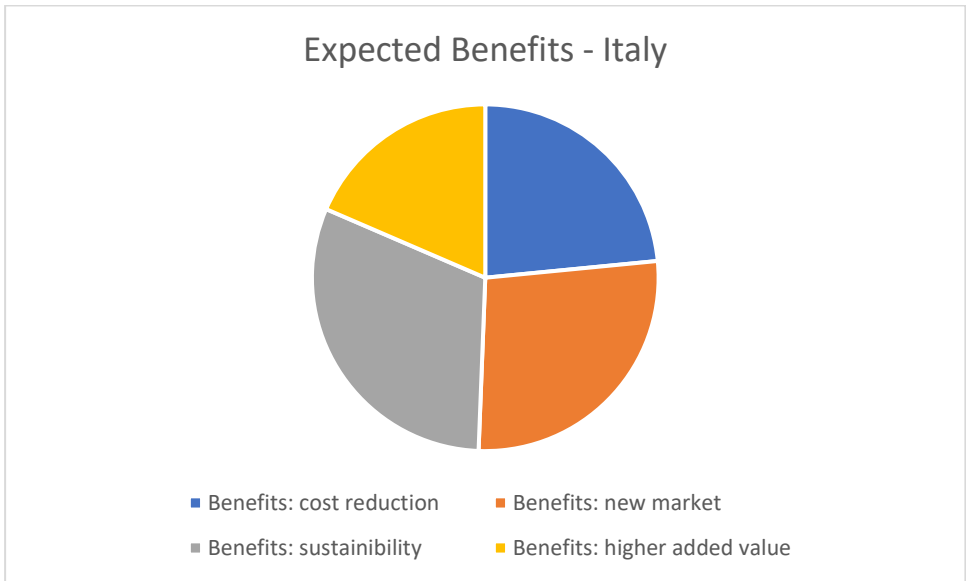


Figure 14 - Expected benefit from the innovation projects in Italy

### 5.2.2 Case analysis by project's area

Analysing the innovation projects by project area provides further interesting elements. While we can expect that a high percentage (47%) of project focused on commercialisation aim at new markets, it is relevant that most innovation projects focused on the transformation phase aim also at entering new markets (38%), secondly at sustainability

(25%) and only 22% on increasing the added value. This shows that most companies are looking at innovation “to do more of the same” rather than to “do something new”.

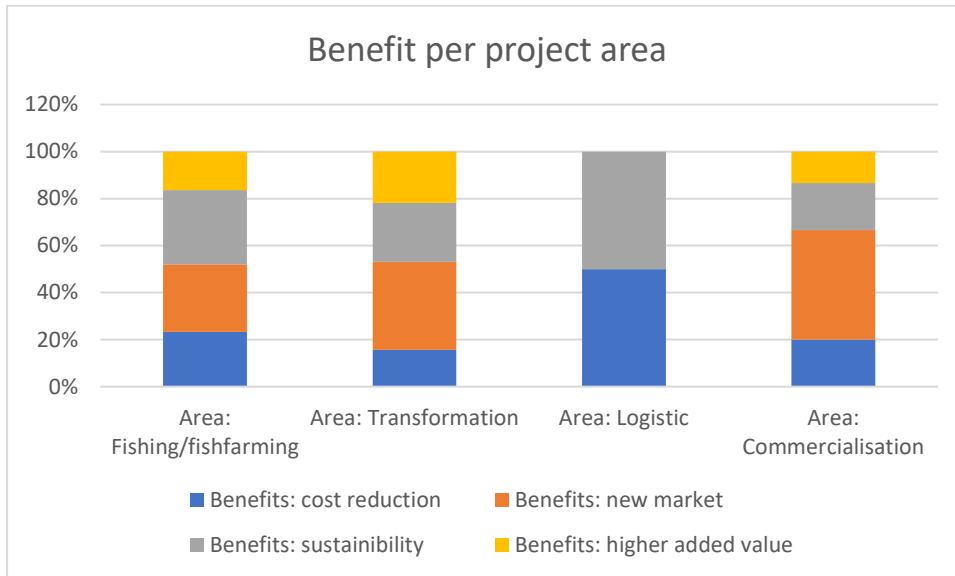


Figure 15 - Benefit expected divided per innovation project area

The breakdown of the TRL per innovation project area provides some insight. In the commercialisation area there is a greater focus on adopting solutions that are new for the company but already existing in the state of the art. This was even more evident in the logistic area, but in this case, we should be aware that the data can be biased as only few cases belonged to it.

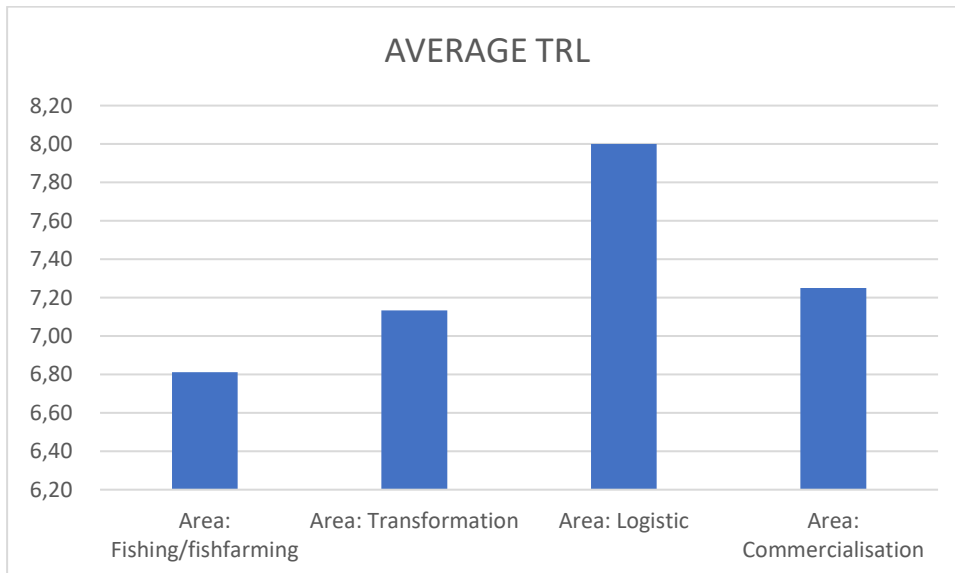


Figure 16 - TRL per innovation project area



The time estimated for implementation varies depending on the area of the innovation projects. There is a strong correlation with the average TRL of the innovation project, as it is reasonable since innovation with low TRL need more time to be implemented. However, it is important to notice that one should not take for granted that companies are aware of this correlation, therefore the fact that the results demonstrate awareness on this topic is an important outcome.

Another factor is that companies that focus on fishing and fish-farming must respect the constraints dictated by seasonality (that can be caused both by fish lifecycle, and by festivities that create a strong demand). Companies need to avoid the risk of being caught halfway in the implementation of innovation. Therefore, they may prefer to postpone implementation to next season to have all the time needed to implement it.

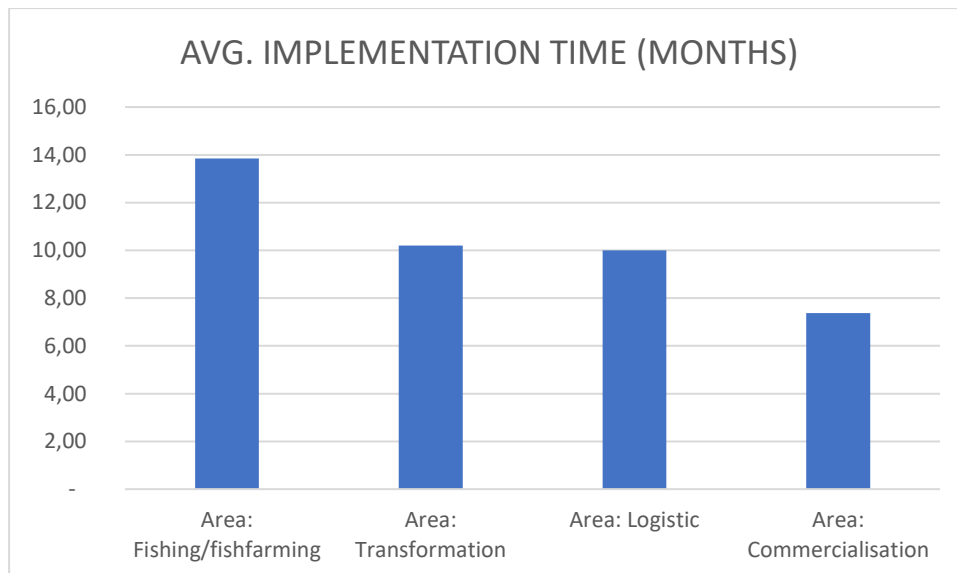


Figure 17 - Average Implementation time per innovation project area

The value of the innovation project varies vastly from one project to another (there were no constraints from INVESTINFISH side on the “size” of the projects to be analysed), ranging from few hundred euros to several millions. The largest projects, on average, are in the fishing and transformation area, while the commercialisation appears to require much smaller investments.

It is worth noticing however that very low projects’ value may be a symptom of an inability of the companies to correctly approach the planning and estimation processes: in particular, they appear to consider only external costs, without taking into account the internal personnel effort. This bias is quite common in smaller companies, as they are often unaware of how much effort they actually dedicate to R&D, and in general they are not used to breakdown how the personnel time is employed.

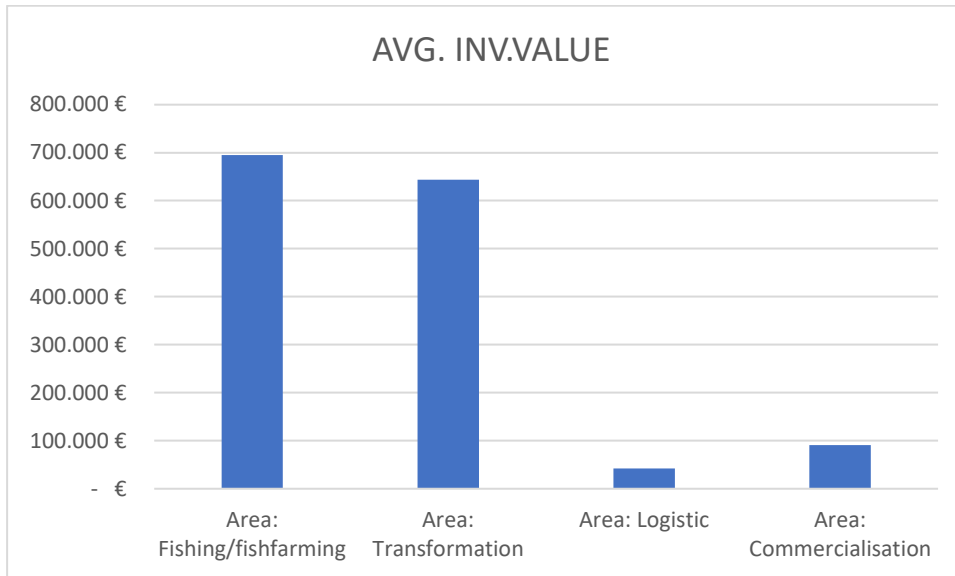


Figure 18 - Average Investment Value per innovation project area

### 5.2.3 Case analysis for benefits expected

We conducted the same analysis grouping the projects based on the benefit expected. It should be noted that more than one benefit could be associated to one project.

Looking at the average TRL, we have the highest when access to new market is expected: in this case, the project usually focuses on existing technologies (or at least existing on different markets), that the company wants to implement to reach the market more efficiently.

Oppositely, the lower average TRL is associated to the search for higher added value. This is quite positive, as it shows that companies look for custom solutions to increase their activity's added value, instead of looking for "easy, standardised solutions" (that likely would not be effective).

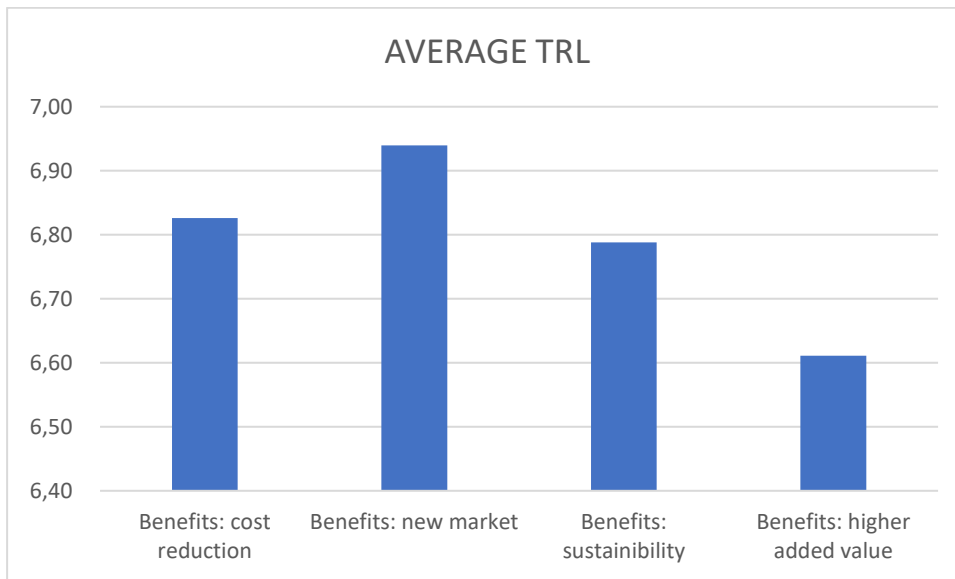


Figure 19 - Average TRL per benefit expected

Innovation projects focused on higher added value have a shorter average implementation time than other categories. This may appear contrary to expectations (given the lower TRL), but the explanation is also that this category of innovation projects focuses on immaterial elements, that can be implemented quicker than actions that impact on material processes.

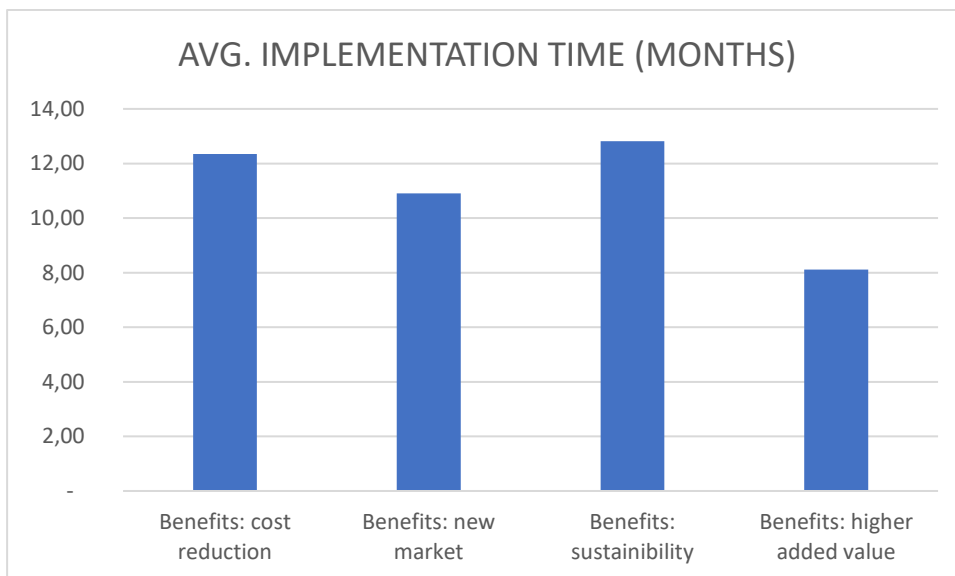


Figure 20 - Average implementation time per benefit expected

The average investment value of the innovation projects is related to the need of material investments, that is lower for accessing new markets (as the focus is usually digital tools) and increasing added value (that usually impacts mainly on business models, but since the TRL is lower, an higher investment is in proportion required).

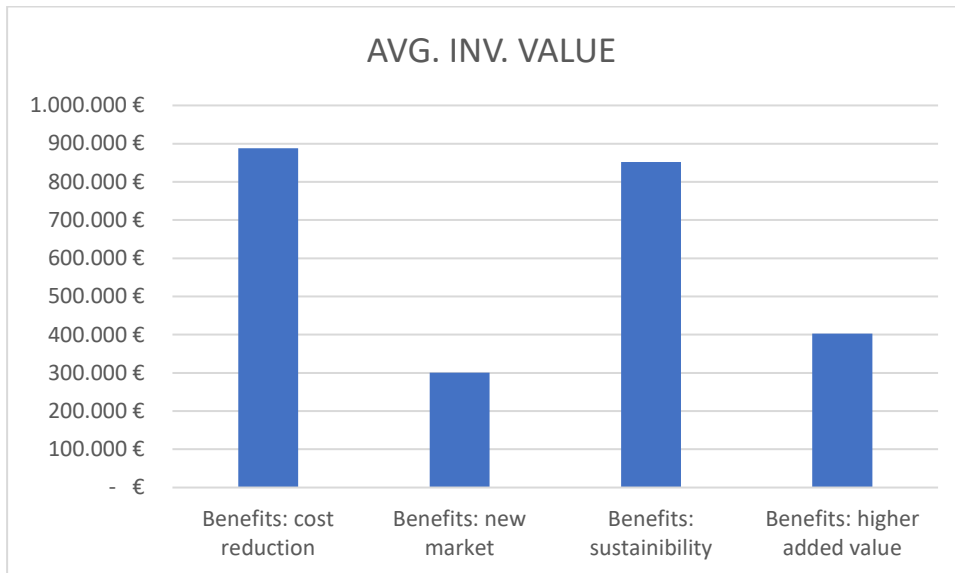


Figure 21 - Average investment value per benefit expected

#### 5.2.4 Strengths



Figure 22 - Innovation projects strengths - keywords

Looking at the strengths of the innovation projects, they can be traced back to specific key elements (that should be considered by policymakers):

- **Increased sustainability:** reduce environmental impact, reduce energy consumption implement circular processes.
- **Develop the product value:** better promote the product, valorise local typicality, improve the product quality, increase the perceived value by the customer.

### 5.2.5 Weaknesses



Figure 23 - Innovation projects weaknesses - keywords

The main innovation projects' weaknesses are related to the **operator's skill and competences**. Adopting new processes and innovative technologies requires different skills by operators, and this may be challenging in the fishing and aquaculture sector.

Further weaknesses are related to environmental factors outside the company's control: projects rely on the implementation of general policies, including support to valorise typicality and support local market demand.

## 5.2.6 Opportunities



Figure 24 - Innovation projects opportunities - keywords

Opportunities are mostly related to the improvement expected in general for technology, environment, and product perception.

### 5.2.7 Threats



Figure 25 - Innovation projects threats - keywords

Threats are related mostly to uncertainty about future of technology, environment (climate change), and difficulties to estimate precisely the actual impact of innovation.

### 5.3 Paths to benefits

The pilot actions allow to create a roadmap that links the desired benefit with the possible actions needed to reach it. Most innovation projects have a (greater or smaller) focus on the re-use of by-products and the reduction of wastes. Indeed, companies currently have to pay to discard wastes, and therefore becoming able to sell it would have huge benefits for the company. This

Benefit	How to Reach it
<b>Cost Reduction</b>	<ul style="list-style-type: none"> <li>➔ Change/update equipment               <ul style="list-style-type: none"> <li>○ Implement digital technologies</li> <li>○ Implement more efficient equipment</li> </ul> </li> <li>➔ Reduce wastes               <ul style="list-style-type: none"> <li>○ Improve environmental conditions (reduces wastes)</li> <li>○ Transform waste in secondary products</li> </ul> </li> <li>➔ Optimise processes               <ul style="list-style-type: none"> <li>○ Analise processes and get rid of inefficiencies</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ Optimise transport</li> </ul>
<b>New Markets</b>	<ul style="list-style-type: none"> <li>➔ Develop new products <ul style="list-style-type: none"> <li>○ Focus on traceability and quality</li> <li>○ Diversify production</li> <li>○ Find uses for waste</li> </ul> </li> <li>➔ Get in touch with new customers <ul style="list-style-type: none"> <li>○ New commercial channels</li> <li>○ Digital technologies (website, social networks)</li> </ul> </li> </ul>
<b>Sustainability</b>	<ul style="list-style-type: none"> <li>➔ Transform waste in secondary products <ul style="list-style-type: none"> <li>○ New uses of current waste</li> <li>○ Better separation of waste to recover valuable parts</li> </ul> </li> <li>➔ Implement a management system to monitor the environmental impact of activities <ul style="list-style-type: none"> <li>○ Certifications</li> <li>○ Traceability</li> </ul> </li> <li>➔ Reduce packaging's impact</li> </ul>
<b>Higher Added Value</b>	<ul style="list-style-type: none"> <li>➔ Increase value of by-products <ul style="list-style-type: none"> <li>○ Better marketing for by-products</li> <li>○ Better processing of by-products</li> </ul> </li> <li>➔ New/improved products <ul style="list-style-type: none"> <li>○ Better match with consumers' desires</li> <li>○ Digital technologies to monitor quality</li> </ul> </li> </ul>

Figure 26 - Main benefits and how they were reached

#### 5.4 Potential bias in pilots

While we expect that the pilots' results are fully representative of the F&A enterprises needs and approaches in the IT-HR area, we are also aware that some external elements could have impacted on the outcome of the pilots.

- The risk-averse attitude may also have been increased by the situation created by the Covid-19 pandemic, which increased uncertainty and reduced the resources available to companies.
- Furthermore, it was found that larger companies showed limited interest in participating in the pilots. There were two explanations for this attitude:
  - Resistance to sharing information with respect to company interests/objectives with external parties.
  - Difficulty in identifying which internal party could act as an interface for the pilot (as competences relating to process, administrative, purchasing, etc. aspects are "scattered" among several parties).



## 5.5 Key Results

F&A companies appear to be interested in innovation projects/paths that have a high Technology Readiness Level (7+, i.e. that have passed the Demonstration phase of a system prototype in the operating environment). None of the companies in the pilot cases showed interest in solutions at a “low” maturity stage (TRL 3-6).

This trend is strongly linked with other factors emerged from the pilots:

- **High risk aversion** of fisheries companies, and in particular smaller ones.
- **Limited economic resources**, which makes it preferring investments at reduced risk and shorter return time.
- **Limited time available**, as many MSMEs are characterised by very intense periods of work that do not allow to focus on anything other than operational activity.
- **Limited forecasting skills**, i.e. many to companies, especially smaller ones, are not used to analytical analysis of investment projects.

### 5.5.1 Risk aversion of the F&A SMEs

F&A companies, and in particular smaller ones, are strongly risk averse. In an investment in innovation, risk relates to factors such as:

- **Actual effectiveness** of the new solution.
- Actual **Total Cost of Ownership** of the implemented solution.
- Actual **revenues** or **lower costs** generated by the solution.
- Effective investment **return time**.
- Possible positive/negative **externalities**.
- Uncertainty between (initially) **estimated values** of the various indicators and actual values.

### 5.5.2 Limited economic resources

Smaller enterprises have fewer resources (financial and otherwise). This pushes towards a preference for investments with:

- reduced risk
- shorter return time

### 5.5.3 Limited time available

In the case of F&A SMEs, time available deserves to be discussed specifically. Many enterprises in this sector are characterised by very intense periods of work that do not allow to focus on anything other than operational activity. Moreover, these periods are dictated by external factors (especially seasonality – both due to the aquaculture lifecycle and

demand), which represent irremovable constraints for the enterprise: any changes to business processes must be completed and debugged before the peak period, failing which there is a risk of serious economic damage.

#### 5.5.4 Limited analytic planning skills

The pilot cases showed that F&A SMEs have limited economic forecasting skills, i.e. most companies (especially smaller ones) are **unfamiliar to the analytical analysis of investment projects**: in many cases, there was some difficulty in estimating possible costs and revenues, and defining success indicators for the project.

Almost no company was able to carry out a scenario analysis, which should be a quite well-known and well-established approach to analysis of investments with elements of uncertainty. This creates an additional barrier towards innovations (and investment in general) that present a risk element.

#### 5.5.5 Supply chain scope

It is clear from the pilot cases that many innovation actions desired by the MSMEs in the fisheries and aquaculture sector require the **involvement of other actors in the supply chain**.

For example, the increased attention to the environment is pushing some companies in the sector to be interested in bioplastic materials for use in packaging. The advantage of this material is that in theory this material is compostable, thus minimising its environmental impact. However, only a small part of the existing composting plants can degrade compostable plastics, and this material therefore ends up in landfill or incineration. The lack of an ecosystem therefore prevents the effectiveness of innovation.

More generally, MSMEs (also because of their size) are often verticalized to a specific stage in the supply chain and carry out only part of the process in which they are involved. The effective adoption of innovation therefore also requires the involvement of other actors upstream or downstream in the supply chain.

#### 5.5.6 State aid

The need to avoid actions that do not constitute State aid has been a partial restriction in project activities. In particular, it was not possible to support companies in the implementation phase, which could have added value to pilot cases. In addition, it has increased the complexity of managing the INVESTINFISH project. These aspects were well known since the project design, but nonetheless it would be advisable to review how the state aid regulation is implemented.

From a practical point of view, this for example limited the possible capitalisation activities of INNOVOUCHER, since this tool, by its nature include a contribution to the enterprise (normally treated in the form of “De Minimis”), therefore they could not be implemented directly in the project.

## 6 Policymakers’ involvement

INVESTINFISH engaged policymakers and stakeholders in all the Regions, in order to have a continuous exchange on the needs of the F&A sector, strategic regional priorities, and so on.

Their involvement was fundamental to support the development of new policies or update existing ones, in order to include best practices and/or services models emerging from the project. For the trustworthiness of the results and the outputs (both quantitative and qualitative analysis) in fact, the match of the research activities with rules, standards and legislation is something crucial. Ensuring uptake and legitimization of project innovation services represent the key factor for a high potential impact of the research. For this reason, it is essential to understand the dynamic trends in economic, social, and environmental developments and to anticipate and prevent emerging challenges by channelling and supporting critical thinking in policy debates.

All PPs are in charge with the consultation with S3 managers and Regional Authorities within their area of competence and this allow them to identify different relevant entities such as: e managers of Fish and Aquaculture regional offices, Regional Innovative Networks, Clusters and Districts, and experts in fields of circular economy, environmental sustainability and, more in general, the innovation experts.

For the involvement of these key figures, focus groups and 5 regional meetings were organized by every project partner. Policymakers, and in general stakeholders, discussed on new national and international market needs and how to face them, considering sustainability, industry 4.0 and the progression of technology, wellness and life quality, social inclusion, and safety. Another important aspect emerged, that is the investment theme. To stimulate innovation, technological and sustainable growth of SMEs and the applicability of innovative solutions, new mechanisms stimulating the access of funds and investments, by the blue enterprises, are necessary. For this reason, it is particularly important to investigate alternative finance instruments to be combined with traditional ESI funds.

The aim of this kind of participatory approaches, in fact, is to develop practices of a democratic type, through the promotion of expression and communication of interested groups, taking into account all their interests and building a collective consensus in order to facilitate the realization of a sustainable change. Moreover, such participation, especially if

viewed in a systemic way as a set of surveys and focus groups, repeated in different phases, aimed at promoting the dialogue of more or less homogeneous groups, in a flexible way and on a small scale, can lead to great results.

## 7 Innovation and funding platform

INVESTINFISH studied the feasibility of a cross-border investment platform through the combined use of ESIF and EFSI funds for the benefit of F&A SMEs. The “platform” is a common approach to support F&A companies towards innovation and access to funding.

The concept of the process flow is presented below. The general process is quite straightforward. In the simplest terms, a SME’s request is analysed by the local partner that then identifies potential “solvers” and funding instruments within the network.

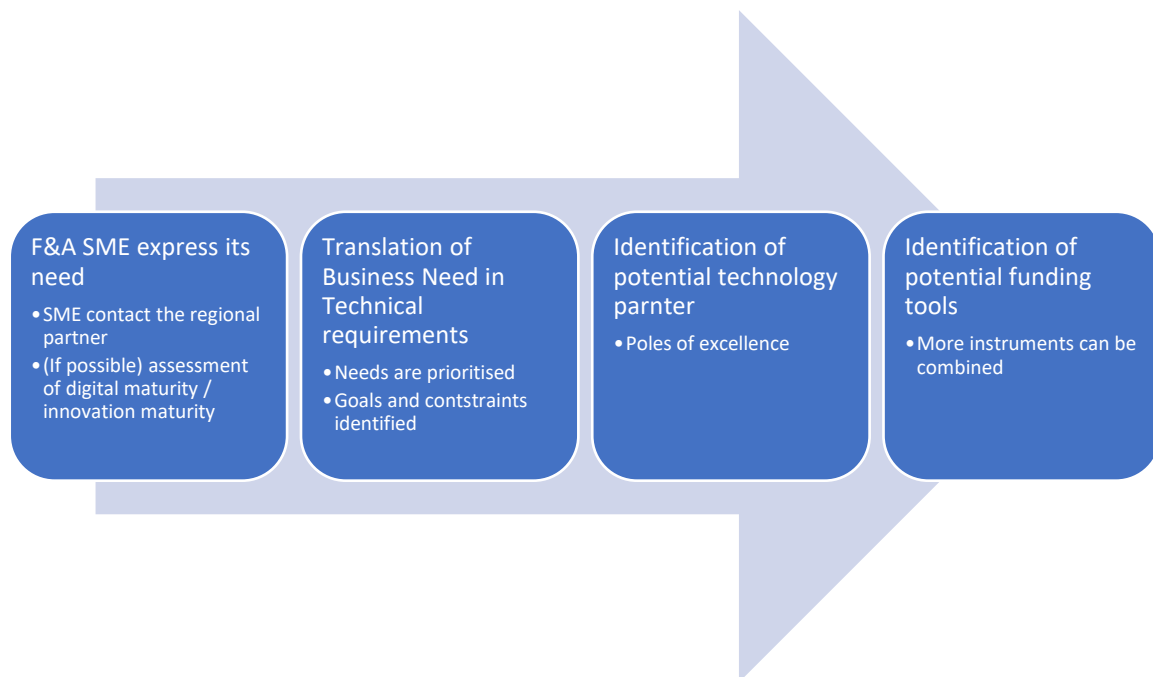


Figure 27 - Platform approach

However, the orientation process is critical. The process can be supported by specific software tools, but it can be also implemented manually. Below the key aspect that the platform takes into account.

1. As a preliminary step, a **formal assessment** of the maturity of the company should be carried out. This allows to have a **benchmark** for company maturity and to identify additional opportunities. The specific assessment tool can be chosen according to the main need/interest of the company: e.g., if the focus appears to be related to digitalisation, tools as ZOOM4.0 or DigiMaturity tool; if the focus is circular economy, CAS2.0 can be adopted.
2. The SME **needs should be prioritised**. This is crucial because usually there is no “perfect solution”, therefore it is important to identify what is most relevant for the SME. It is not enough to identify the needs, but it is important to create an ordered list of the needs, with no need at the same level. Also “needs” and “nice-to-haves” should be clearly separated.
3. The **level of innovation is then analysed**, based on the following classification:
  - New for the undertaking, but common application in the sector
  - New for the company, and little widespread in the sector
  - New for enterprise and industry, but common application in other sectors
  - New for enterprise and industry, and little spread in other sectors
  - New to the enterprise, the sector, and the state of the art in general
4. **Possible technology solutions are discussed** with the SME. INVESTINFISH’s pilot cases can be a reference to see similar companies were able to reach specific benefit (N.B. The solution may not be a technology in a strict sense, but also methodologies and approaches, such as new organisational models, new business models, etc.)
5. Based on the type of competence that appears to be needed, **the SME can be put in contact with one or more Poles of Excellence**. Additional forwarding channels can be the EEN network, or the European DIH network.
6. A rough **estimation of the investment** is prepared. This should include:
  - Rough **value of the investment**
  - **Type of cost** (internal personnel, external subcontracting, equipment, prototypes, etc.)
  - **Timeline** of the investment (when the investment should start, how much time will be needed to implement innovation)
  - A breakdown of the overall **investment in “building blocks”**, that could be developed separately and may have different level of innovation, cost types, risk, etc.

7. Based on the investment characteristics and the innovation type, **possible funding schemes are identified**. Multiple funding sources (both public and private) can be combined to reach the general goal, allowing to use different tools to finance different “building blocks” of the innovation. In general, public funding should be preferred for upstream building blocks where typically risk is higher, and the timing is more compatible with the funding schemes’ one. Downstream building blocks should prefer using private funding or own resources.

## 8 Recommendations

The outcome of the pilot cases makes it possible to identify some elements of recommendation to increase the effectiveness of innovation support actions in the sector.

### 8.1 Support innovation uptake

#### 8.1.1 Increase dissemination of successful cases.

The knowledge of “real stories” of implementation allows not only to better understand their potential, but also to **reduce the uncertainty** in their implementation (and consequently, the risk of the investment).

#### 8.1.2 Support the development of skills on business plans and economic planning.

A significant weakness is related to the lack of economic and financial skills in the F&A companies. According to the OECD/INFE 2020 international survey of adult financial literacy, about half of the EU adult population does not have a good enough understanding of basic financial concepts. This appears to be true also for enterprises if we consider that “basic financial concept” has a different meaning for a person and an enterprise.

The entrepreneur in the F&A sector is typically very involved in hands-on activities, and his/her knowledge is focused on the technical side of the job. However, there is a lack the deficiency of the financial side: skills such as how to read a financial planning, how to make a financial planning, analytical accounting etc., are underdeveloped. This appears to be true non only for sole proprietorships, but also for companies that can have up to 15-20 employees and generate revenues up to 3-5 million euros.

In these companies, Economic planning competences are usually almost entirely delegated to external accountants, but these skills would be necessary to make sound and effective

strategic choices. This is especially important to manage scenarios characterised by uncertainty and risk, aspects that are inherent in innovation.

Therefore, it is necessary to develop actions to support the development of **stronger entrepreneurial skills**, especially to manage scenarios of uncertainty, since there are not only technological changes that increase the level of uncertainty in which companies operate, but also global geopolitical scenarios.

Currently similar actions are aimed at the consumers, or at the aspiring entrepreneurs, but specific actions should be

## 8.2 Voucher schemes

The pilots allowed to collect a set of input useful to refine voucher schemes aimed at promoting innovation in the F&A sector. INVESTINFISH took as a reference the “INNOVOUCHER” scheme, previously developed in a past FP7 Project, with the aim to provide guidelines for the implementation of a collaborative framework for transnational exchange of innovation services in Europe. However, the feedbacks can be used also as a reference to refine other types of voucher schemes.

### 8.2.1 “Research and development” definition

The definition of “research and development” used in calls and incentives for innovation aimed at the F&A sector, in consideration of the high TRL of the “desired solutions”. In fact, the need emerging from the MSMEs in the fisheries and aquaculture sector is to implement innovative solutions rather than invent them.

The level of innovation can be traced back to the following scheme, which presents “increasing” levels of innovation.

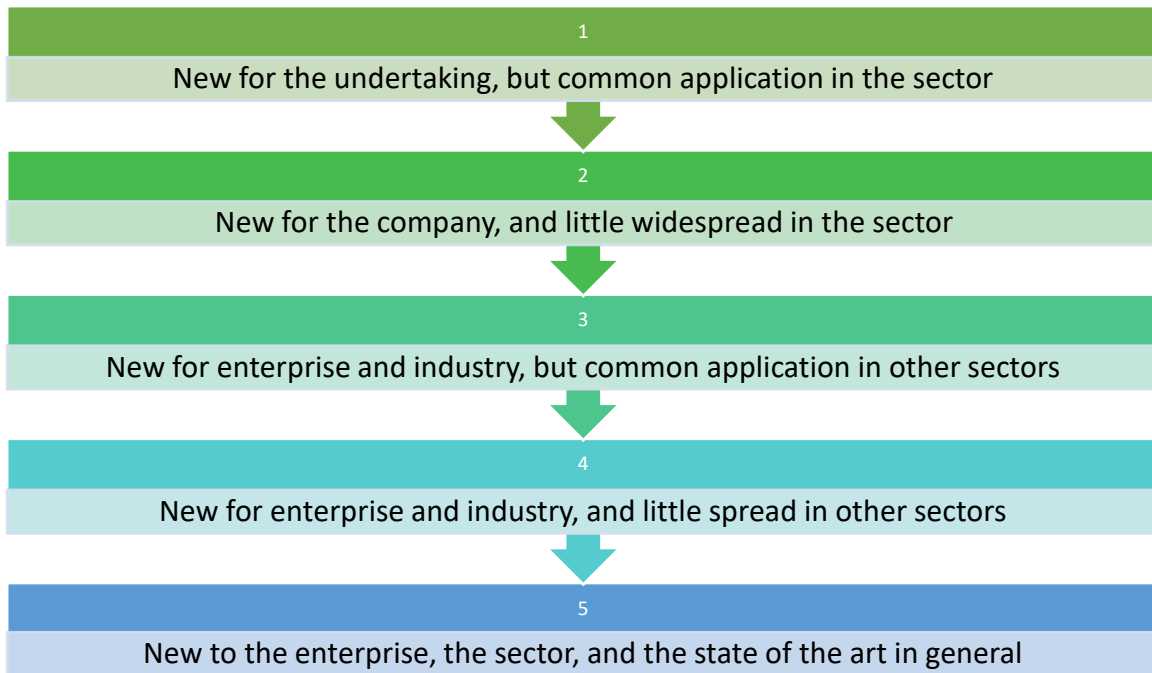


Figure 28 - Degrees of innovation

Currently, most calls contributions and tax credits for research and development refer to the definition in the **Frascati Manual**, which defines research and experimental development (R&S) as “*the creative and systematic work undertaken to increase the stock of knowledge (including knowledge of humanity, culture and society) and to devise new applications of available knowledge*”. Compared to the above scheme, this includes innovation that in the above scheme are at levels 5, 4, and in part 3.

The effectiveness of calls and contributions would be greater if one were to take as a reference instead of the concept of research and development as defined in the Frascati Manual, the Innovation Manual, as defined in the Oslo Manual:

*“an innovation is a new or improved product or process (or combination thereof) that differs significantly from the company’s previous products or processes and has been made available to potential users (product) or put into use by the company (process)”*

A greater focus on this definition would make it possible to better meet the needs of the MSME sector in the fisheries sector, since it include most of the innovation types presented above.

### 8.2.2 Supply chain scope

Vouchers and generally innovation support actions in the sector should seek to ensure that all the actors necessary for innovation to have a real impact are involved. An evaluation of



projects in terms of “Life-Cycle” could be ideal (although not always feasible). Actions should incentivise the involvement of several actors in the supply chain in order to maximise their effectiveness.

### 8.2.3 Incentive effect

The analysis of other business support tools also calls for a high focus on the **incentive effect** of the grant in the form of vouchers. The incentive effect is understood to mean that the contribution/voucher must actually contribute to “change the behaviour” of companies, i.e. to undertake investments (or actions in general) that would not have been carried out without the voucher. The incentive effect is mandatory under the State aid rules: in the absence of the aid, the aid is unlawful (and there is an obligation to recover it). The legislation recognises the possibility of derogating from this principle in the case of de minimis aid, and there are contributions (e.g. Invitation to tender for the grant of aid to MSMEs in support of measures for the digitisation of I4.0 by the Chamber of Commerce of Treviso-Belluno [https://www.tb.camcom.gov.it/CCIAA\\_bandi.asp?cod=2002](https://www.tb.camcom.gov.it/CCIAA_bandi.asp?cod=2002)), which do not even impose the minimum requirement that the beneficiary company has not commenced the implementation of the project before the date of submission of the aid application. Although this is a legitimate choice within the meaning of the reference legislation, it does not represent an optimal use of the available resources, nor it is a scenario that seems to be appreciated by companies in the fisheries and aquaculture sector (at least on the basis of feedback from the group of companies involved in the INVESTINFISH project), but even penalises cases in which incentives would have been effected, since the projects that would have been launched in any event have already been initiated, whereas when vouchers impact on the investment decision, they have not been initiated and are therefore late in relation to the others, exposing themselves to the risk of expiry of time limits or of exhaustion of resources.

### 8.2.4 Window Procedures vs Ranking Procedures

In order to limit this risk, and in general to maximise the probability of supporting projects with the greatest impact, it would be optimal to apply “ranking” procedures, as giving priority to projects that score the highest score goes (in theory) to support the best projects.

This procedure however presents some critical issues:

- **constrained time:** it is necessary to set appropriate dates for the opening and closing of the application period (in order not to affect the right of companies potentially interested to apply), this means that the time between the announcement of the call and the selection of the first projects is often exceedingly long.

- **risk of subjectivity** in the assessment: the elements of subjectivity by evaluators in scoring cannot be overlooked: the identification and involvement of qualified experts who do not present the risk of conflict of interest may not be easy and involve considerable costs of managing and dispensing the vouchers.

For these reasons, a call for applications involving the selection of applications in order of submission may be acceptable: however, it is important that clear and solid criteria are set for assessing applications (as projects still have to earn “sufficiency” to be selected, even when the evaluation takes place based on submission order). These criteria should include:

- **level of innovation** (newness for the enterprise/sector/state of the art);
- **impact** (economic, social, environmental benefits, on the company and/or on third parties)
- **involvement of other actors** in the supply chain.

Additionally, the strictness of criteria should be defined in accordance with the expected number of companies interested in the voucher, in order to avoid “click-day” effects that leave the involved companies un-satisfied.

### 8.3 State aid and *de-minimis* regulation

Article 107(1) of the Treaty on the Functioning of the European Union (TFEU) defines State aid as ‘aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods in so far as it affects trade between Member States’. Therefore, a measure constitutes State aid if all of these conditions are met:

- the beneficiaries, either directly or indirectly, of the same are undertakings;
- the measure is imputable to the State and is financed from State resources
- confers an advantage
- is selective
- it has effects, even potential, on competition and trade between Member States of the European Union.

#### 8.3.1 De minimis regulation

As a general rule, de minimis aid indeed refers to small amounts of State aid to undertakings (companies) that do not have to be notified to the European Commission by the EU Member States. The maximum amount is € 200,000 for each undertaking over a 3-year period. Usually, voucher schemes fall under this regulation.

However, we should consider that the fishing and aquaculture sector has some peculiarities that should be taken into account:

- **Lower amount threshold: € 30.000** instead of € 200.000.
- **Limits to funds use.** Specific uses of the funds received under de-minimis regulation are excluded:
  - (a) the amount of which is fixed on the basis of price or quantity of products purchased and marketed
  - (b) in favour of activities linked to exports to third countries or Member States, i.e. aid directly linked to quantities exported, to the establishment and operation of a distribution network or to other expenditure linked to export activities;
  - (c) contingent upon the use of domestic over imported goods
  - (d) directed towards increasing fishing capacity of fishing vessels or towards equipment to increase fish-finding capacity
  - (e) for the construction of new fishing vessels or importation of fishing vessels
  - (f) temporary or permanent cessation of fishing activities
  - (g) experimental fishing activities
  - (h) transfer of business ownership
  - (i) direct restocking, unless provided for as a conservation measure by an EU act or in case of experimental restocking
  - (j) for the purchase of fishing vessels
  - (k) for replacement or modernisation of main or auxiliary engines of fishing vessels.

While the limits in funding use impact only marginally projects focused on innovation, the lower threshold for de-minimis funding may discourage or prevent participation in voucher schemes for SMEs, as many SMEs can have depleted the available de-minimis, or they may want to keep it available to receive other possible benefits.

To reflect this limitation, an indirect support to the F&A companies could be considered. In particular, two approaches can be effective:

- **Voucher schemes aimed at companies in the F&A supply chain, but not to the F&A companies themselves.** Companies that focus on transformation, logistics, commercialisation, are not subject to the above limit, but follow the general rules. This allows to improve the innovation level, effectiveness, efficiency of the whole supply chain, fostering innovation adoption by F&A companies. In the selection criteria, demonstration of the impact on F&A companies can be added, in order to formalise this aspect.
- **Develop pilot projects aimed at the F&A sector as a whole.** This allows to let F&A companies to assess innovative solutions. It should be ensured that the activity does not consist of routine changes or periodic changes to products, production lines, manufacturing processes, existing services, and other ongoing operations, even if

such changes represent improvements. The obligation to give widespread dissemination of the specific pilot case may avoid the creation of an economic advantage for the company, preventing the activity to be classified as State Aid.

## 9 Key Takeaways

The key results of the pilots, and of the project as a whole, are highlighted in the following table.

A crucial weakness in the innovation processes in the F&A sector is the difficulty to develop **operator's skill and competences**. This requires specific action aimed at training.

F&A SMEs are unfamiliar with **economic forecasting methodologies**, i.e., most companies (especially smaller ones) are unfamiliar to the analytical analysis of investment projects such as scenario analysis. Specific action to fill this gap can help companies to manage scenarios characterized by risk and uncertainty.

The **applicability of vouchers schemes to the F&A sector is limited by the de-minimis specific regulation** (lower threshold). An indirect support may be possible, e.g., voucher targeted at companies in the F&A supply chain, but not F&A companies in a strict sense or activating innovation projects that are targeted to the whole sector (thus removing and reducing the context weaknesses that represent a barrier).

The support actions targeted at the F&A (voucher schemes or others) should aim at including **more than one a single actor in the supply chain**, as there are relevant dependencies, which need to be considered to ensure effective impact of innovation.

Figure 29 - Key takeaways

## 10 Contacts

### **INVESTINFISH PROJECT**

<https://www.italy-croatia.eu/web/investinfish>

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