

INTERIM EVALUATION REPORT

V.1.2

EXECUTIVE SUMMARY

The Interim Evaluation Report produced by ISRI - Istituto di Studi sulle Relazioni Industriali, as part of the "Evaluation service of the Regional Research and Innovation Strategy for Smart Specialization - S3" aims to analyze the state of implementation of the regional S3, focusing in particular on the number, type and nature of the interventions financed by the direct and indirect actions that contribute to the implementation of the Strategy, as well as on the results achieved so far.

More specifically, this Report aims to answer some of the main evaluation questions formulated in the work path agreed with the regional administration (NUVV and the Management Authority of the Programs co-financed by European funds), as summarized below:

- What projects are we financing?
- What trajectories are we following?
- To what extent is the regional system involved?
- Has the innovative capacity of the regional system improved?
- Has the competitiveness of the regional economic system improved both in general and in the areas of specialization of S3?
- Are new sectors developing which can favor a positive transformation of the regional economic system?

The methodology used to answer the evaluation questions is mainly based on the analysis and processing, at the desk level, of qualitative and quantitative data and information from secondary sources.

On the basis of the analyzes carried out, some initial indications can be drawn to answer the main evaluation questions defined in the analysis path.

a) What projects are we financing?

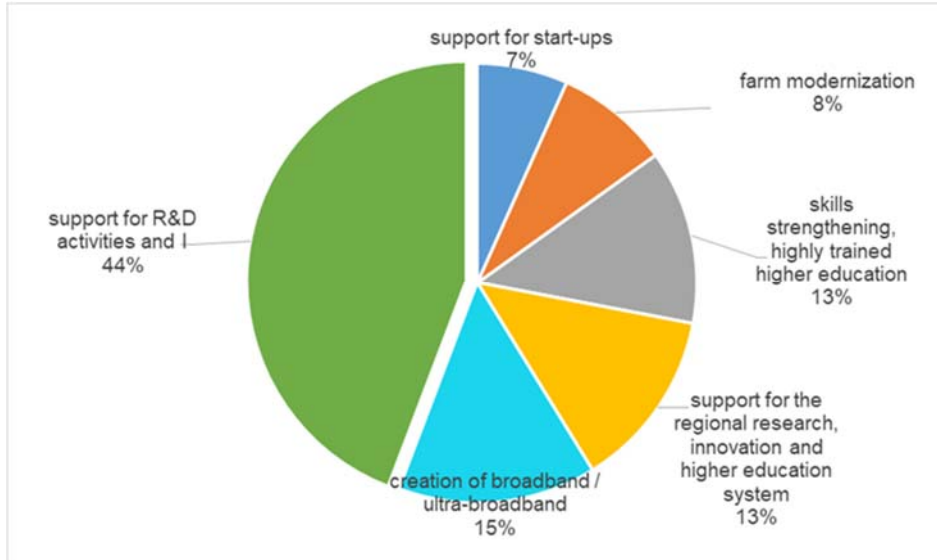
With the overall resources of the regional S3, approximately 1,400 projects were financed, with a clear prevalence of direct actions (approximately four-fifths of the total). As emerged from the analyzes carried out in the Report, it is a very wide and articulated range of interventions that can be traced back to six main areas:

- Projects concerning the implementation of R&D activities or, more generally, aimed at encouraging the introduction of innovations in companies;
- Interventions - in collaboration with the MISE - for the construction of broadband / ultra-broadband infrastructures, in line with the European Digital Agenda.
- Contributions made to numerous structures that make up the regional system of research, innovation and higher education;
- Interventions for raising the skills of workers, for higher education and higher training.
- Funding provided by the RDP to promote, more generally, the modernization and diversification of regional farms.
- Projects that concern, more specifically, the start-up of new businesses.



The following figure shows that about 44% of the resources allocated so far by the regional S3 have been specifically allocated to the financing of projects concerning R&D and / or innovation activities (over 100 million euros), while the weight of all the others strands of intervention are decidedly more reduced.

Fig. 1. The breakdown of resources activated by S3 by macro type of intervention

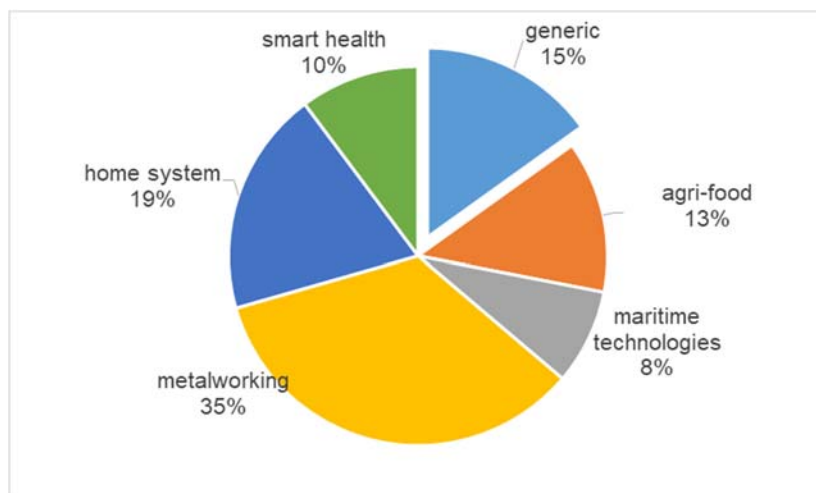


Source: ISRI elaborations on monitoring data

To better understand what kind of projects the regional S3 is financing, it is necessary to consider their distribution among the areas of specialization. As regards direct actions, at the end of 2018 the number of projects financed amounted to 1,166 units, of which 92% referable to a specific area of specialization.

As can be seen from the following graph, the area where the greatest number of projects are concentrated is that of [metalworking](#) (401 projects) followed by the [home system](#) (19%). The other three areas of intervention of the regional S3 take on a much lower weight that oscillates between 8% of [maritime technologies](#) and 13% of [agro-food](#) sector.

Fig. 2. The breakdown by areas of specialization of the projects financed under direct actions



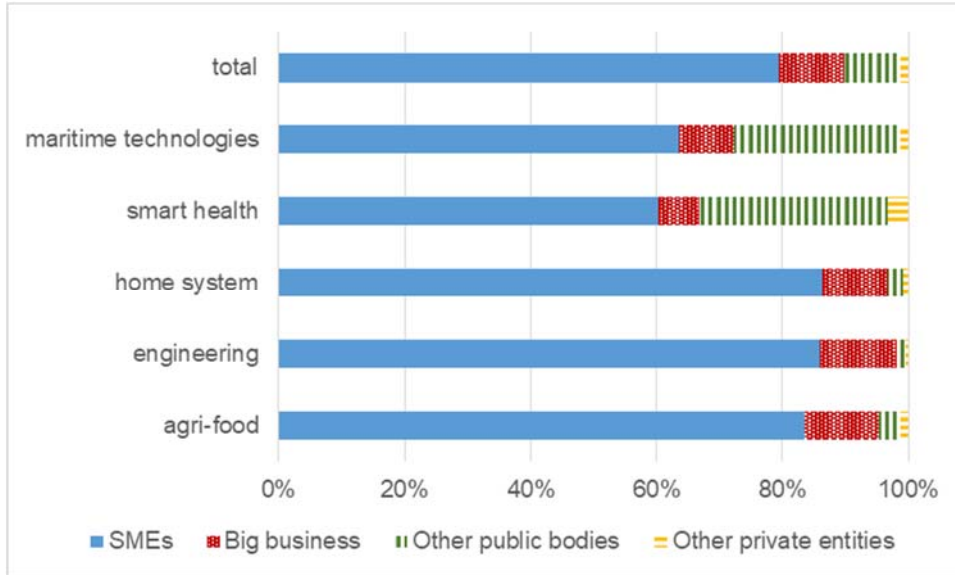
Source: ISRI elaborations on monitoring data

Overall, the beneficiaries of the funded projects amount to approximately 1,300 units

The following figure provides a summary of the different types of beneficiaries, broken down by area of specialization. In the [agro-food](#) sector, in the [metalworking](#) sector and in the [home](#) sector, the

beneficiaries are almost exclusively made up of businesses and especially SMEs. On the contrary, **smart health** and **maritime technologies** clearly differ from the previous three, with a higher incidence of public entities (between a third and a quarter of the total).

Fig. 3. Projects financed by area of specialization broken down according to the type of beneficiary



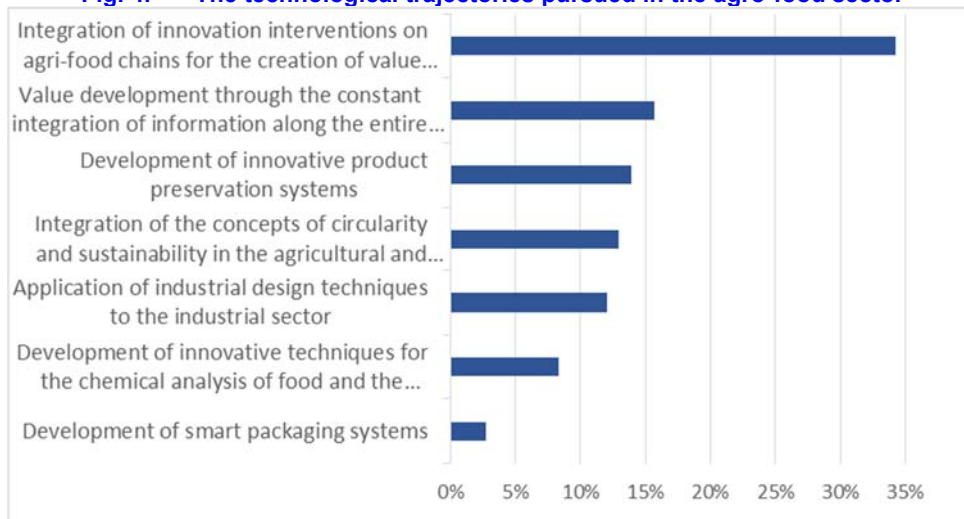
Source: ISRI elaborations on monitoring data

b) What trajectories are we following?

Given that the technological trajectories are known only for projects financed by the ERDF OP, the data contained in the monitoring system allow us to reconstruct a precise picture of the trajectories most pursued in each area of specialization of the S3.

In the case of the **agro-food** sector, the trajectory with the highest number of projects (about one third of the total) is that concerning *the integration of innovation interventions on the agro-food chains for the creation of value for the consumer*, as can be seen from the following figure.

Fig. 4. The technological trajectories pursued in the agro-food sector

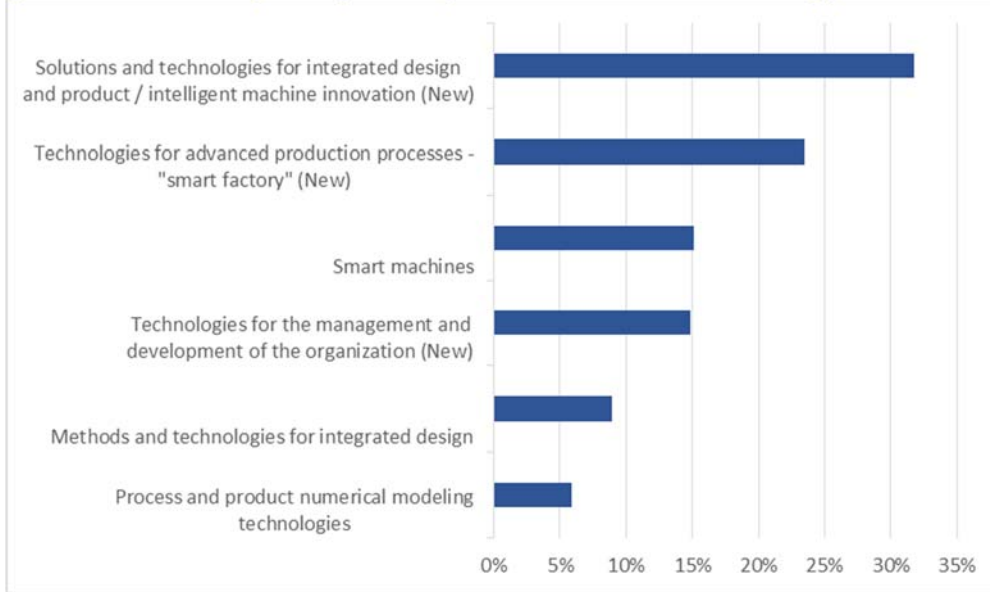


Source: ISRI elaborations on monitoring data

With regard to the **metalworking** production chain, the trajectory most pursued by the projects funded so far concerns *solutions and technologies for integrated design and product / intelligent machine innovation* (almost a third of the overall funded projects). Moreover, even the projects involving the *development of intelligent machines* (another 49 projects, equal to 15% of the total), are substantially attributable to

this trajectory even if they were approved before the intervention technological trajectories were partially revised.

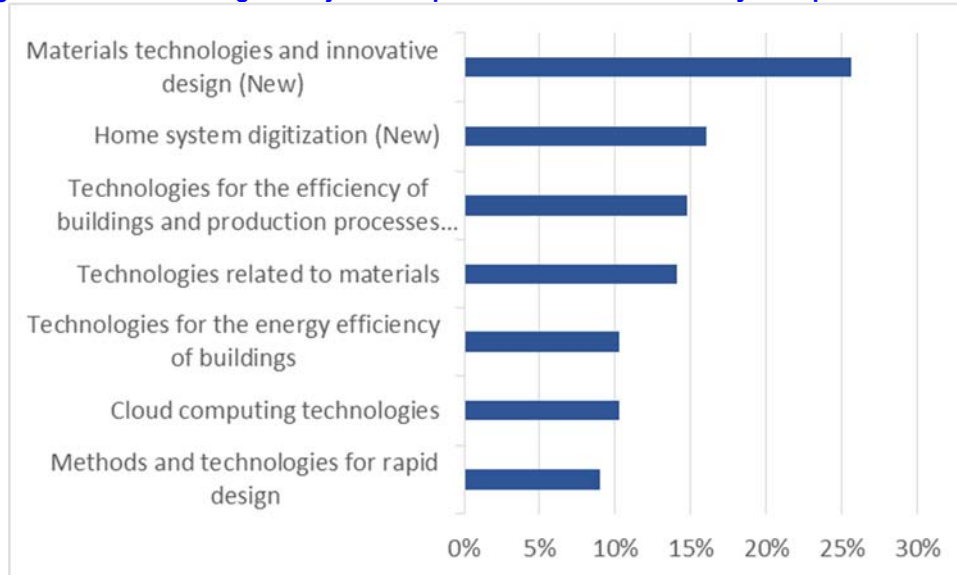
Fig. 5. The technological trajectories pursued within the metalworking production chain



Source: ISRI elaborations on monitoring data

In the case of the **home system** production chain, a clearly dominant trajectory does not emerge, but the one that has so far aroused the greatest interest among regional companies concerns *materials technologies and innovative design*, on which more than a quarter of projects are concentrated.

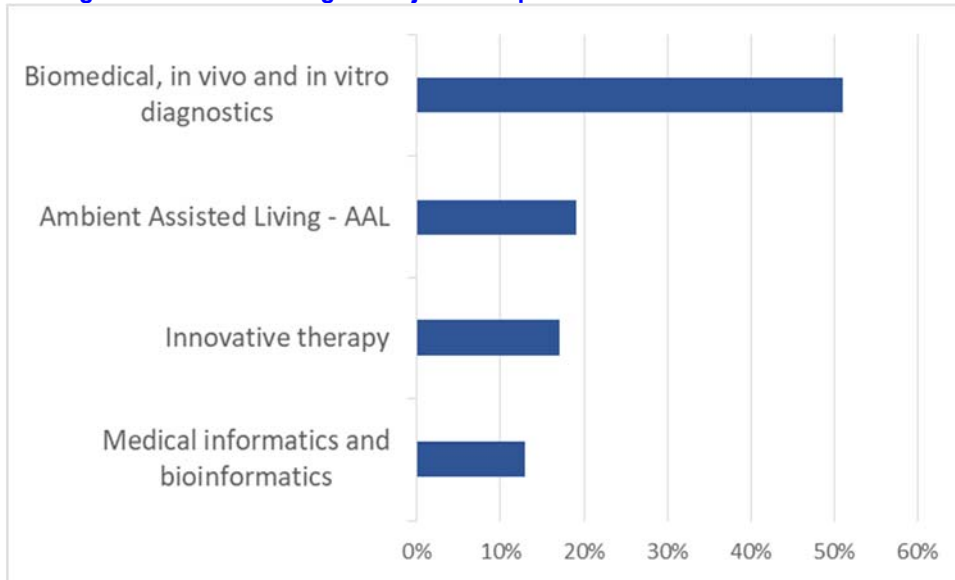
Fig. 6. The technological trajectories pursued within the home system production chain



Source: ISRI elaborations on monitoring data

In the case of **smart health**, the trajectory that was most frequently indicated in the grant applications concerns *biomedical, in vivo and in vitro diagnostics*, with a share equal to 51% of the total.

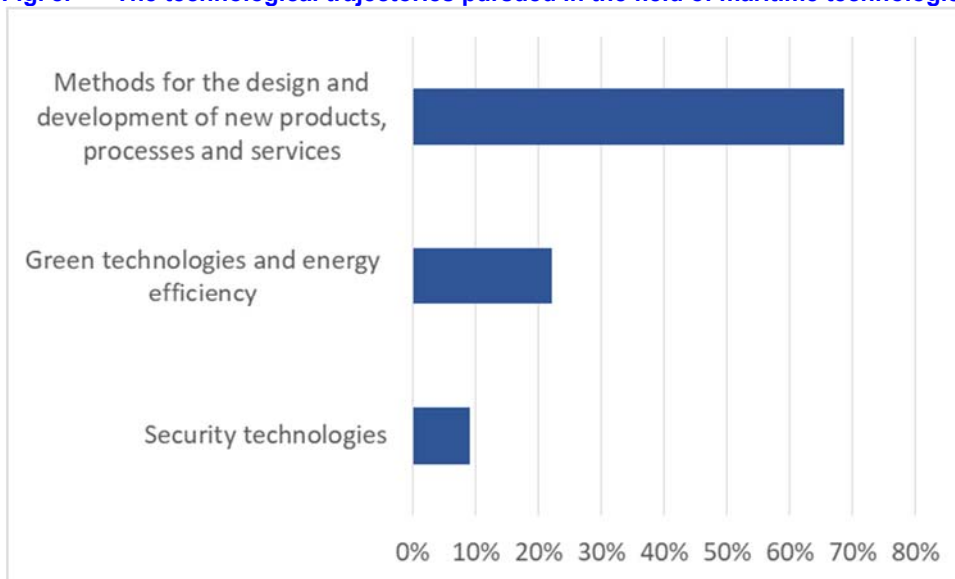
Fig. 7. The technological trajectories pursued in the field of smart health



Source: ISRI elaborations on monitoring data

Finally, as regards **maritime technologies**, it is clear that the interest of the proponents has been almost exclusively concentrated on a single trajectory, which concerns the *design and development methodologies of new projects, processes and services*, to which refer more than two thirds of the projects funded overall by the ERDF OP.

Fig. 8. The technological trajectories pursued in the field of maritime technologies



Source: ISRI elaborations on monitoring data

c) To what extent is the regional system involved?

Based on the monitoring data updated at the end of 2018, the regional S3 funded around 1,400 projects, able to involve, overall, almost 1,700 beneficiaries.

As can be seen from the following two figures, the vast majority of beneficiaries are companies (90% of the total) - especially SMEs - both in the case of direct and indirect actions.

Fig. 9. The framework of the beneficiaries of the direct and indirect actions of the regional S3



Source: ISRI elaborations on monitoring data

Since the regional production system is made up of over 90,000 companies, the incidence of beneficiary companies on the regional total is very small, being less than 2%.

If, on the other hand, reference is made only to companies operating in the areas of specialization of the regional S3, it emerges that the business system has been involved in a rather significant way, considering that, on average, over 10% of companies actually had access to contributions

d) Has the innovative capacity of the regional system improved?

At present it is not yet possible to give a definitive answer to this specific evaluation question, since most of the projects are still under construction and therefore cannot have fully produced their effects. In addition, the fact that the official statistics on topics related to research and innovation have a time lag of a few years and therefore do not allow for an updated picture of the regional context and its most recent evolution.

Nonetheless, it is also true that, already in this phase, some initial considerations based on the evidence that emerged can still be developed.

On the basis of the data from the monitoring systems, it can reasonably be estimated that the incentives granted to the various actions that implement the regional S3 have so far led to an expenditure in R&D which can be quantified as a whole at around 230/240 million euros.

To have a useful term of comparison and understand the relevance of this amount of resources, it can be considered that annual R&D expenses - over the last few years - have hovered in Friuli Venezia Giulia on values between 550-580 million euro, of which just over 50% attributable to the private sector of the economy (private non-profit companies and institutions).

Given that the R&D expenditures made so far by S3 refer to at least three years, it would amount, on average, to almost 80 million euros per year. If we assume that this amount of expenditure can be entirely additional, we must expect a regional increase in the incidence of R&D expenditure on GDP which can be estimated in the order of about 0.18%.

e) Has the competitiveness of the regional economic system improved both in general and in the areas of specialization of S3?

If at present it is still too early to assess the effects determined on the regional innovation system, it is even more premature to analyze whether the interventions promoted may have contributed to improving the competitiveness of the regional productive fabric, in particular in the areas of specialization of the regional S3.

As specified, the projects financed by the S3 - in many cases - are still under construction and therefore cannot have so far produced any tangible change in the propensity to innovate of the regional production system. It follows that it is still too early to empirically verify the existence of the aforementioned relationship, also because, from a logical point of view, a partial time lag should be expected between the increase in the propensity to innovate and the consequent improvement in competitiveness.

Despite this, some initial considerations of a more general nature can be expressed regarding the evolution of the competitive positioning of the regional business system, without wanting, at the moment, to establish any causal link between the changes observable in this regard and the policy in question.

If we consider exports as a proxy of the level of competitiveness of the regional production system, there is no doubt that the dynamics recorded in more recent years - especially in the three-year period 2015-2018 - would indicate a general improvement in the positioning of the regional industry on international markets and they would therefore indicate a clear discontinuity with respect to previous years (2007-2013).

By analyzing more specifically the export trend in the main product sectors related to the areas of specialization of the regional S3, some interesting evidence emerges, summarized below:

- The **food and beverage** industry recorded an overall positive export trend, although in the last three years (2015-2018) the dynamics of regional exports (+ 9%) were slightly lower than that of the North-East (+ 14%) and of Italy as a whole (+ 14%).
- The **metalworking** export of Friuli Venezia Giulia has instead recorded a strong acceleration especially in recent years (+ 18% between 2015 and 2018), highlighting a growth trend higher than that observed in the upper territorial divisions (+ 14% in the North- east and + 11% nationally);
- The **wood and furniture** industry - which represents the most important component of the home system at regional level - in the last three years (2015-2018) also recorded a positive export trend (+ 11%), just higher to that of the other territorial divisions (North-East and Italy);
- The main product categories that refer to **smart health** recorded a truly exceptional growth trend in exports (+ 34% in the 2015-2018 period), which was significantly higher than both Italy as a whole (+ 25%) and the Northeast (+ 9%);
- Even exports referable to the area of **maritime technologies** recorded a particularly positive trend in Friuli Venezia Giulia (+ 110% in the 2015-2018 period) and significantly higher than that of the other territorial divisions (North-East and Italy), even if in this case, the export data refer only to the shipbuilding sector, since no other product sectors can be identified that can be entirely associated with the area of specialization in question..

f) **Are new sectors developing which can favor a positive transformation of the regional economic system?**

One of the two major changes that the regional S3 aims to achieve concerns the transformation of the regional economic system and the development of new productive areas with a higher innovative content, capable of generating new employment and opening new markets.

In principle, it can be assumed that the S3 can impact on this objective both directly, through actions that are more clearly aimed at stimulating the birth of new innovative enterprises, and indirectly, through actions that can contribute to the creation of an economic environment more favorable to the creation of new businesses.

Among the interventions of the S3 that can offer a direct contribution to the transformation of the regional economic system in the desired direction, the most important is undoubtedly the action of the ROP ERDF which supports the creation of innovative start-ups and research spin-offs. As illustrated in the Report, this is an intervention which, however, had a delayed start and which at the end of 2018 had only 15 funded projects. It is clear that these are still too modest numbers to expect results.

On the other hand, as regards the possible indirect effects produced by S3, the assessment is currently impossible due to the lack of sufficiently updated statistical data.