D.T3.15 REGIONAL ACTION PLAN TO TRANSFORM THE REGIONAL INDUSTRIAL SPECIALIZATION IN S3 DRIVING FORCE

CREA, T2i - Veneto Region - Italy

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Introduction – the national guidelines on precision agriculture

Precision Agriculture is currently relieving its third favourable moment since its first appearance in the second half of the 90's. This is possible thanks to the reduction of the costs of the available technologies and thanks to the growing involvement of manufacturers.
The possibility of intervening with the right means, at the right time, in the right place, with the recommended dosage has always fascinated all members of the supply chain, both in low-impact conventional agriculture and in organic farming. However, there are still several aspects that slow down its diffusion and affirmation on a large scale.

In September 2017 the Ministry of Agricultural, Food and Forestry Policies published the guidelines for the development of precision agriculture in Italy. It is a document concerning the methodologies required to face the innovation challenge for companies and stakeholders in the country's agricultural sector. According to the document, the need to strengthen and optimise agricultural production in an ever more sustainable way is a European moral obligation. The synergy between mechanisation and high-tech engineering, the use of computers, satellites, high precision positioning system, intelligent sensors, networks and a wide range of applications are making this possible. Increasing production, optimising resources, reducing costs and promoting the best qualitative and quantitative results, based on the specific characteristics of the company under consideration, has become accessible thanks to the reduction of the available technologies. Precision agriculture is a system that provides the tool to plan an accurate agronomic intervention, thanks to a strategy that uses information technology to integrate data from multiple information layers.

According to the guidelines, Precision Agriculture Technologies can be divided into two broad categories:

A. Technologies related to SEMI-AUTOMATIC ASSISTED DRIVING: these technologies allow the machines to precisely identify the paths to be taken in order to avoid overlapping and guarantee the best efficiency of the operation's lines regardless of the operator. This increases the machines' working capacity, in addition to the reduction of operator physical strain, the drastic reduction of fuel consumption and of the operating machines' costs in general. Furthermore, these technologies lead to a drastic reduction of overlaps and production factors waste (pesticides, fertilisers and seeds) and the relative negative effects. Technologies related to assisted and semi-automatic driving have short application times. They can produce technical and environmental benefits from the very beginning of their application and with limited investments, as they are applied to the tractor and therefore available for the entire fleet of machines.

B. Technologies related to the VARIABLE DOSAGE of production factors: these technologies allow to modulate the input of the production factors according to the crop's needs and soil's characteristics. All this increases the efficiency of the production factors, therefore less waste, less pollution, as well as, the maximisation of the yield in the given conditions. This procedure involves four implementation phases: 1) Data collection (environmental, productive, pedological, mechanical, etc.); 2) Analysis; 3) Decision and action; 4) Control. These four pillars are finalised to the sustainable management of resources (fertilisers and nutrients, seeds, plant protection products,

fuel, water, soil, etc.) by controlling the machines that manage them. For the application of technologies with variable dosage longer times and greater technical and economic investments are required. Therefore, the repercussion occurs over longer periods and the control and the quantification of benefits are more complex.

According to the Guidelines of the Ministry, from the technical-scientific point of view the most relevant technological macro-areas for the development of Precision Agriculture are the following:

- Geolocation Systems
- Interaction between tractor and operator and ISOBUS technology
- Sensor Technology
- Big and Smart Data Management

The national strategy does not foresee specific funds for Precision Agriculture and there is no data collection that allows to trace a significant trend. However, almost all priorities that are implemented through the various funds available at European, national and regional level, have a direct or indirect possibility to increase the involvement in the sector. At regional level, in the context of funding the primary sector's development, the European Agricultural Fund for Rural Development (EAFRD) provides reference points that are partly related to the development of the PA, in four of the six priorities: Priority 1, Priority 2, Priority 4, Priority 5.

The opportunities for Precision Agriculture in the PSR Veneto 2014-2020

The PSR Veneto, the Rural Development Program (RDP) for Veneto Region, is the programming tool for regional development of rural areas. The program has been refinanced until 2022 in response to the COVID-19 emergency. The main PSR goal, along with the European Structural and Investment Funds (ESI), is the realisation of the Europe 2020 Strategy's priorities for a smart, sustainable and inclusive growth.
At European level six rural development priorities had been defined, pursued through the use of specific measures. The six priorities are depicted in Figure 1.

Figure 1: "European six rural development priorities"

Priority 1: to promote knowledge transfer and innovation
Priority 2: to enhance the farm's profitably and the competitiveness of agriculture
Priority 3: to promote the food supply chain's organisation and risk management
Priority 4: to preserve, restore and enhance ecosystem
Priority 5: to encourage the efficient use of resources and the transition to a low-carbon economy
Priority 6: to promote social inclusion, poverty reduction and economic development in rural areas

Each of these priorities is divided into different Focus Areas, which express the specific objective of the PSR. The Veneto PSR has activated a total of 17 Focus Areas, assigning to each one a financial endowment and goals to be achieved.

The PSR Veneto 2014-2020 envisaged 13 measures, which are the set of interventions defined and codified contributing to the realisation of one or more priority.

Table 1 below summarises the impact that each measure had or could have on the topic of Precision Agriculture, both at a general level and with reference to the specific application in Veneto Region.

Table 1: "Framework of the PSR measures that directly or indirectly support the diffusion of AdP" – Please note: this is a re-elaborated version edited by EPC- European Project Consulting srl of data included in the document "National Guidelines for Precision Agriculture, 2017" within Veneto PSR data integration.

Measures	Goals	PF contribution	Veneto Region Implementation						
			Planned interventions	FEASER Priorities	Remarks	Planned Budget	Total granted (% of the planned budget)	Submitted Applications	Funded Applications
1 - Knowledge transfer and information action.	This measure supports funding for professional training and skills acquisition action, demonstration activities and information actions. Vocational training and skills acquisition actions may include training courses, seminars and coaching.	Disseminating knowledge on the AdP's use and advantages. It also supports demonstration activities and practical tests to verify directly the technical and economic validity of the proposed innovation.	1.1.1 Vocational training and skills acquisition actions.	1-2-3-4-5-6	In the context of the programming strategy, the knowledge and information transfer actions represent a horizontal measure, which contributes, directly or indirectly, to the objectives set by all the Focus Areas and the rural	18,7 M€	20,3 M€ (91%)	577	550 (95%)
			1.2.1 Information and demonstration actions.	1-2-3-4-5-6		3,4 M€			

					development priorities.				
2 - Advisory, replacement and assistance services to agricultural enterprises	These funds aim at: (a) helping farmers, young farmers, foresters, land managers and the SME in rural areas to make use of advisory services; (b) promoting the start-up of farm advisory services, and farm management assistance services as well as forestry advisor services; (c) promoting the training of consultants. The measure finances consulting projects that can be related-to technological and Information Technology Innovation, Precision Agriculture and the transfer of knowledge from the research	To develop and to provide consulting services dedicated to the adoption of AdP's technologies. The priority of this measure is aimed at innovation, competitiveness, supply chain integration, respect for the environment, biodiversity, water protection, reduction of emissions and safety at work.	2.1.1 Use of consulting services by companies.	1-2-3-4-5-6	The consultancy services addressed to the agricultural and forestry sector, and to the development of rural areas, have the purpose of stimulating competitiveness, improving sustainable management and company performance, thus contributing to the achievement, directly or indirectly, of the objectives set by the PSR in a horizontal way.	18,2 M€	7,2M€ (45,6%)	367	367 (100%)
			2.3.1 Training for consultants.	1-2-4		1,3 M€			

	field to the primary sector.								
3 - Quality schemes for agricultural and food products	This measure supports the association of farmers who operate on the basis of quality schemes, the implementation of information, promotion actions regarding agricultural and food products that fall under these schemes.	**Not relevant for the specific topic of the PF**							
4 - Investments in tangible fixed assets	This financial support aims to facilitate the realisation of tangible and/or intangible investments that improve the overall performance and sustainability of the farm. Funds are granted to farmers or farmers' associations.	Spreading PF's technologies by supporting the purchase of specific tools and machinery in the agricultural sector.	4.1.1 Investments to improve the overall performance and sustainability of the farm.	2-5	Sub-measure 4.1 consists in supporting structural and endowment funds in farms. Those funds improve the profitability of agricultural enterprises, a necessary	293,8 M€	419,5M€ (103,6%)	9557	5831 (61%)
			4.2.1 Investments for the processing and marketing of agricultural products.	3		97,4 M€			

			4.3.1 Forest-pastoral road infrastructures, land reconstruction and improvement as well as network services.	2	condition to enhance the competitiveness of agriculture. They promote innovation, product differentiation, logistics and new market ways. They also improve the efficiency of irrigation and use of energy, they increase the territorial integration of agricultural enterprises by reducing the negative impacts of agriculture on the environment, and favour the growth of companies, in particular those run by young farmers. The contribution uses the resources of the EURI (EU Recovery Instrument) in	19,9 M€			
			4.4.1 Naturalistic-environmental recovery and landscape redevelopment of abandoned and degraded open mountain and hill spaces. 4.4.2 Introduction of green infrastructures. 4.4.3 Functional structures for the increase and enhancement of naturalistic biodiversity.	4		6,7 M€			

					response to the socio-economic impacts of the COVID-19 crisis and the environmental challenges that overlap it, supporting investments for business modernization by young farmers and for efficiency of use of water resources.				
5 - Restoration of agricultural production potential	This financial support aims to facilitate the recovery of income stability in the agricultural sector after natural disasters, adverse weather conditions and environmental disasters.	**Not relevant for the specific topic of the PF**							
	This measure supports the start-up phase of new businesses	Job placement of young farmers contributes to the	6.1.1 Job placement of young farmers.	2	The generational change is considered as an	80 M€	113,1M€ (92,7%)	3059	2250 (64%)

6 - Farm and business development	managed by young farmers, with the goal of favouring the permanence of young people in rural areas and increasing the number of businesses run by young entrepreneurs.	sector's openness to innovation.	6.4.1 Creation and diversification of agricultural enterprises. 6.4.2 Creation and development of extra-agricultural activities in rural areas.	2-5-6	opportunity in terms of innovation since, as mentioned in PSR, the new generation are more adaptable to the inclusion of technologies in the agricultural sector.	49,6 M€			
7 - Basic services and village renewal in rural areas	This measure is aimed at supporting interventions capable of stimulating socio-economic growth and promoting environmental and rural sustainability, in particular through the development of investments and local infrastructures, including the development of fast and ultra-silvo.	Structural investments in broadband are essential for the proper use of PF's technologies	7.3.1 Broadband accessibility.	6	The main objective of the intervention is to overcome the existing infrastructural and digital divisions between rural and urbanised areas and to develop the competitiveness of the business of the rural system. This measure indirectly affects the Precision Agriculture sector as some technologies could be unusable without an	49,3 M€	51,9M€ (100,3%)	59	
			7.5.1 Infrastructure and information for the development of sustainable tourism in rural areas.	6		1,1 M€			
			7.6.1 Recovery and redevelopment of the architectural heritage of the villages and the rural landscape.	6		1,1 M€			

					efficient IT structure.				
8 - Investments in the forest area's development and profitability	This measure supports interventions to increase the surface of forests, to improve existing forest areas and the forest-wood supply chain. The measure also supports the creation of agroforestry systems on agricultural surfaces in which arboriculture is associated with other crops and zootechnical activities.	Spreading PF technologies by supporting the purchase of specific tools and machinery for the harvesting processes.	8.1.1 Afforestation of agricultural and non-agricultural land.	5	This measure provides opportunities for the purchase of AdP instrumentation across all sub-measures. However, the allocated budget may not be adequate.	9 M€	31,6M€ (78,8%)	456 5	4476 (98%)
			8.2.1 Revitalization of silvo-pastoral systems and planting of arable land.	5		0,2 M€			
			8.4.1 Rehabilitation and restoration of forests damaged by natural disaster, plant disease, parasitic infestations and climatic events.	4		3,9 M€			
			8.5.1 Investments to increase the resilience, environmental value and mitigation potential or forests-	5		12 M€			

			8.6.1 Investments in forest technologies and in the transformation, mobilisation and marketing of forest products.	2-5		15,1 M€			
10 - Agro-climatic environmental payments	The Measure responds to the environmental needs that emerged in the analysis phase and to the agro-climatic and environmental objectives deriving from the “Europe 2020” strategy. The Measure includes interventions that contribute to the EU's priorities achievement in the field of rural development.	The practices supported by these payments (e.g.: integrated agriculture) find effective support in PF technologies	10.1.1 Agronomic techniques with reduced environmental impact. 10.1.2 Environmental optimization of agronomic and irrigation techniques. 10.1.3 Active management of green infrastructures. 10.1.4 Sustainable management of meadows, semi-natural meadows, pastures. 10.1.6 Protection and increase of semi-natural habitats.	4	The measure is aimed at the conservation and promotion of the necessary changes in agricultural practices that contribute favourably to the environment and climate. Its inclusion in rural development programs is compulsory at national and/or regional level. Agro-climate-environmental payments are granted to farmers, farmer’s	193,3 M€	239,8M€ (120,2%)	128 76	12386 (96%)

			10.1.7 Biodiversity-Breeders and custodian farmers.		association, or mixed associations of farmers and other land managers who voluntarily undertake to carry out interventions consisting of one or more agro-climate environmental commitments on agricultural land determined by the Member States. The connection with AdP instruments is very significant, and the amount of funds made available for this measure goes in the right direction, also considering the fact that the planned budget has been well exceeded				
			10.2.1 Intervention for conservation and sustainable use of genetic resources in agriculture.	4		2,2 M€			

11 – Biological agriculture	Support under this measure is granted to farmers or farmers' associations who voluntarily undertake to adopt or maintain organic production methods and practices pursuant to Regulation (EC) No. 834/2007.	The practices of organic farming supported by these payments are effectively supported by PF technologies.	11.1.1 Subsidies for conversion to organic farming practices and methods.	4	The organic farming's budget in the PSR must be reviewed. The use of precision instrumentation could allow farmers to optimise and improve methodologies that are already ontologically low environmental impact.	10,2 M€	39,6M€ (117,1%)	1636	1197 (73%)
			11.2.1 Subsidies for the maintenance of organic farming practices and methods.	4		20,5 M€			
13 - Compensation in favour of restricted areas	The Measure provides a subsidy for carrying out agricultural activities in a disadvantaged area to compensate for loss of income and higher costs compared to a farm located in an area not affected by natural or specific constraints.	**Not relevant for the specific topic of PF**							
	This measure supports different forms of cooperation and beneficiaries and is	Creation of networks with the aim of encouraging the development	16.1.1 Establishment and management of PEI operation groups on agricultural	1-2-3-4-	This measure grants support to encourage all forms of	6,5 M€	25,8M€ (99,5%)	274	168 (61%)

16-Cooperation	aimed at overcoming the economic, environmental and other disadvantages deriving from the fragmentation of innovation processes. It also promotes knowledge transfer in agriculture, forestry and rural areas. The Measure aims to stimulate innovation and cooperation in rural areas, to improve the competitiveness of farms, to pursue environmental agro-climatic objectives and to encourage diversification and the creation and development of small businesses.	and adoption of PF's practices.	productivity and sustainability.	5-6	cooperation for the development of projects whose general objectives are management, process innovation, product innovation, the adoption of new technologies, improvement practices, adaptation of practices and technologies in the agro-food and forestry sector.				
			16.2.1 Implementation of pilot projects and development of new products, practices, processes and technologies.	1-2-3-4-5-6		16 M€			
			16.4.1 Cooperation for short supply chain development.	1-3		1,6 M€			
			16.5.1 Collective environmental projects functional to the priorities of rural developments.	1-4-5		3 M€			
			16.6.1 Support to supply chains for the supply of biomass in the food, energy and industrial processes sectors.	1-5		0,5 M€			
			16.9.1 Creation and development of	1-6		2 M€			

			practices and networks for the dissemination of social agriculture and educational farms.						
19- Support to Community-led local development (LEADER)		**Not relevant for the specific topic of the PF**							

The financial endowment for each development path

The PSR and PAC funds

Four of the six EU priorities for rural development aiming at a smart, sustainable and inclusive growth are, at least in part, related to the development of Precision Agriculture. The Veneto RDP has outlined specific references in order to promote innovation and sustainability through the introduction of tools capable of reducing the environmental impact and the use of inputs. With the aim of stimulating the process of modernising farms from a technological point of view; various measures made available by rural development policies have therefore been implemented.

These objectives are in particular pursued through the intervention provided by sub-measure 4.1 relating to the support for structural companies' investment. In this context, eligible expenses include specific investments for the introduction of equipment aimed at reducing the environmental impact of agriculture through soil conservation, contemplating conservation agriculture and precision agriculture. Although no specific directly attributable data to the PA sector is available, it is interesting to note that the total of measure 4 expenditure granted was even higher than planned, with almost 420 million euros financed (103.61%). Furthermore, the way the allocation for the PSR extension to 2022 has been planned is significant. Many of the ordinary resources, as well as those of the European Union Recovery Instrument (EURI), have been in fact allocated to support investments (M04) for the resource efficiency improvement, including precision and intelligent agriculture, innovation, digitization and modernization of production machinery and equipment.

Measure 1 and Measure 2 have a close correlation with the transfer of knowledge and technological innovation in the field. Measure 2 in particular, allows companies to make use of specialists with priorities to innovation, competitiveness, supply chain integration, respect for the environment, biodiversity, water protection, reduction of emissions, and safety at work. Consulting projects may concern technological and IT innovation, Precision Agriculture and the transfer of knowledge from the research to the primary sector. Less than half of the resources planned for this budget line have been spent (46%). This data could be explained with the traditional conservative attitude of the sector professionals, that is, by the fact that external consultants are not seen as a value. But it could also explain the lack of independent specialist advice; a persistent difficulty that hinders innovation.

Measure 6 is part of this dynamic as it supports generational change, considered as an opportunity in terms of innovation as it is believed the new generations are more adaptable to the inclusion of new technologies in the agricultural sector. The intervention stimulates the emergence of environmentally friendly competitive entrepreneurial activities and the measure can be combined with the interventions of 4.1 measures mentioned above.

Regarding measure 7, measure 8, measure 10 and measure 11, the indirect correlations with Precision Agriculture are evident as they finance the purchase of specific tools and machinery attributable to the PA, and also because the practices supported by these subventions (e.g.: integrated agriculture or organic farming) find effective support in PA technologies.

Measure 16 also, supports the progress in the precision agriculture sector. Ten Operational Groups (G.O.), out of fifty-six financed (for a total of 25.8 million euros), dealt with issues that can be included in the PA, like the more rational use of pesticides, the distribution of digestates, the stable management, or the app development to aid in decision making. The more interested sectors by G.O. are those of wine, livestock and herbaceous crops.

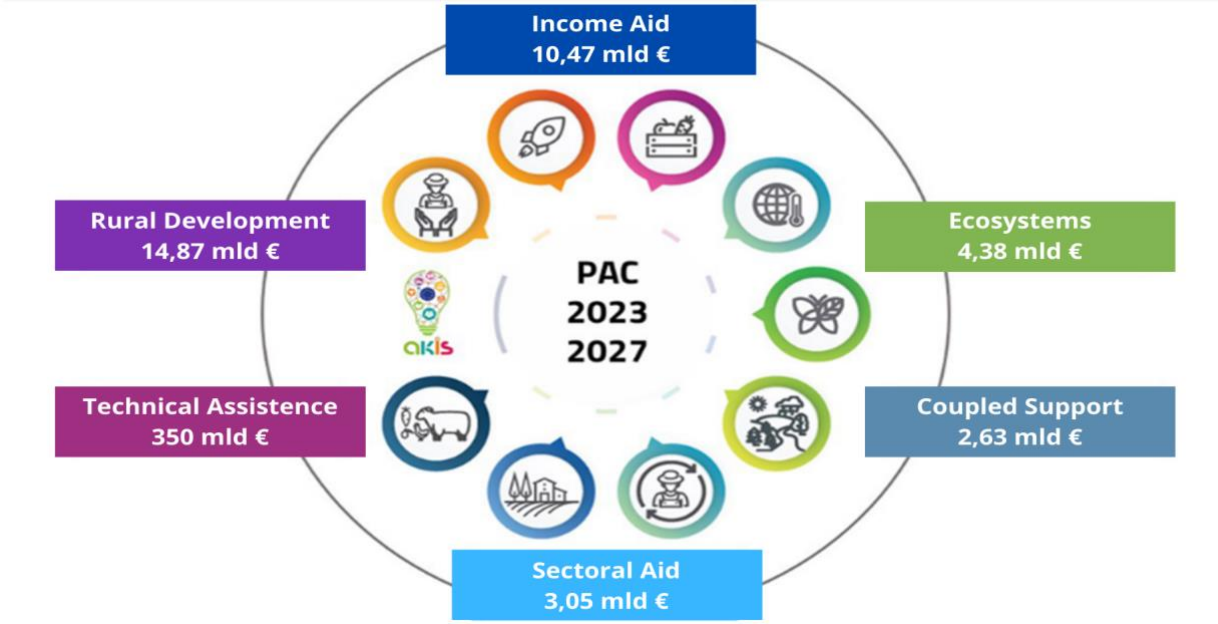
As for the next programming period, in June 2018 the European Commission presented the legislative proposals for the new PAC, outlining a simple, efficient policy that would integrate the sustainability ambitions of the European Green Deal. In fact, the new PAC allows Member States ample flexibility in adopting and combining together the tools they deem most appropriate to better address their specificities. The Strategic Plan will be drawn up by each Member State for the whole national territory, but it may also contain elements defined at the regional level. For Italy, the national strategy substantially includes also the Veneto strategic framework. A more resilient, more sustainable and smarter agriculture is the goal to be achieved.

Following the negotiations between the European Parliament, the Council of the EU and the European Commission, an agreement was reached on the reform of the PAC, formally adopted on 2 December 2021. Implementation is expected from 1 January 2023.

On 31 December 2021 the Ministry of Agricultural, Food and Forestry Policies sent to the European Commission the proposal for the National Strategic Plan (PSN) Italy for the PAC 2023-2027. The Plan sets up a unified strategy for the agricultural, food and forestry sectors, which integrates the specific tools of the PAC with the provisions of additional support tools. The interventions for rural development, divided into 76 "national with regional specifications' ', represent the sum of the different territorial needs and require a work of modification and integration of the various support tools. The objectives of the PSN are to enhance the competitiveness of the system from a sustainable perspective, to strengthen the resilience and vitality of rural areas, to promote quality agricultural and forestry work and safety in the workplace, to support the ability to activate exchanges of knowledge, research and innovations and the optimization of the governance system. The connection between the objectives with the possible use of the typical instrumentation of the PA sector is evident. The decision-making process is still underway and the European Commission asked Italy for a course-correction and a greater effort in triggering the right impetus to the agro-ecological transition. It may be the right time to direct these efforts in a direction that is really helpful in supporting the PAC.

The current proposal provides for an overall budget of about 35 billion euros with a division by macro-themes that provides for 10.47 billion in income aid, 14.84 billion for rural development, 350 million for technical assistance, 4.38 billion for ecosystems, 2.63 billion for coupled support and 3.05 billion for sectoral aid (figure 2).

Figure 2: Italian PAC currently proposed budget



Source: https://psrveneto.it/pac-post-2020/

The opportunities for the Precision Farming proposed in the RIS 3 Veneto - 2014-2020

Smart Specialisation Strategy (RIS3)

The Smart Specialisation Strategy is the tool adopted by the Regions and member countries of the European Union since 2014 to identify objectives, priorities and actions capable of maximising the effects of investments in research and innovation. The aim is to concentrate resources on the specific areas of specialisation of each territory, through a continuous sharing of experience between the territorial actors: businesses, the world of research, public administrations and citizens. The Smart Specialization Strategy identifies new solutions to support the territories in the transformations triggered or influenced by new challenges. One of these challenges regards, for example, the achievement of the sustainable development goals and digitalization in the context of unstable conditions due to the persistence of the COVID-19 pandemic emergency, which obliges to rethink development approaches and models. This requires all the actors in the territory to collaborate to the definition of territorial development objectives, providing concrete answers to the current challenges and in line with the objectives proposed by the 2030 Agenda for sustainable development, by the European Green Deal, by the Plan for the recovery of Europe (Next Generation EU) and 1related national (PNRR) and regional initiatives (Veneto towards 2030, Sustainable Veneto, etc.).

This flexible and dynamic strategy for research and innovation is conceived at regional level and shared at national level. The goal is to implement effective policies by avoiding the fragmentation of the interventions on the territory. The RIS3 Veneto is the ex-ante condition for the POR 2014-2020 actions implementations, specifically the Thematic Objective 1 in the FESR.
The strategy wants to develop the regional innovation systems for the core sector, considering the strategic market position of the territory, and planning in the global economic framework.
This Strategy was elaborated through a phase of analysis, consultation tables with the protagonists of the industrial scene, districts, research centres and universities. The sectors with the greatest potential for growth have been identified in relation to the resources present in the region (human capital, infrastructures, skills, districts, research bodies, etc.) and the challenges to be faced (aging of the population, environmental changes, market changes of work).
The elaboration of the strategy started from the analysis phase, using round tables between the major stakeholders. The method identified the sectors with the higher growth potential in relation with the local resources (…) and the major future challenges (…).
Four main regional specialisation areas have been identified:

- Smart Agrifood
- Smart Manufacturing
- Creative Industries
- Sustainable Living

As result of the consultations, four regional specialisation areas have been identified, resulting from the expression of the productive fabric and scientific and technological excellence, in particular Key enabling technologies (KETs), with innovative potential and access in local and global markets:

Subsequently, the regional development and technological trajectories were identified on the basis of these four areas.

The Implementation Document indicates the process of identifying the development and technological trajectories of the RIS3 is completed with the management of the third phase of the "Fine Tuning" process which provides for "validation" by the Steering Group14. This is the governance body composed by the Observatory and by the Regional Committee for Scientific Research, Technological Development and Innovation. The "approval" of the Document is provided by the Regional Government.
The Management Team carried out activities in order to identify the development and technological trajectories
As expected, the MT submitted these activities to the observatory for examination, in order to share the results received by the same Management following the processing of the information acquired during the implementation of the RIS3.
It was a high-profile technical-scientific meeting in which, through a careful and accurate analysis of the regional economic situation and the broader internal and foreign context, the development trajectories that emerged from the regional system were examined.
It was a high-profile technical-scientific meeting were the development trajectories that emerged from the regional system were examined through a careful and accurate analysis of the regional economic situation and the broader internal and foreign context.
In particular, the Observatory, given its multidisciplinary "technical" function, analysed the trajectories prioritized by the Management Team following the evaluation of the thematic Tables.
Below, a focus on the two strategies: Smart Agri-food and Smart Manufacturing

SMART AGRIFOOD DEVELOPMENT AND TECHNOLOGICAL TRAJECTORIES

1. DEVELOPMENT OF PRECISION AGRICULTURE AND ZOOTECHNY

The trajectory concerns innovation actions for the development of precision agriculture and zootechnics. In this context, actions related to the assessments of the variable rate in fertilisation, irrigation, treatments, hydrogeological risks, etc. considering the employment of precision sensors, multispectral and hyperspectral analysis, LiDAR scan. The creation of decision support systems and management of the agricultural and livestock sector using complex algorithms (e.g. epidemiological, climatic forecasting models, etc., Internet of Things, use of drones, analysis of "Big Data") can be also considered.

2. DEVELOPMENT OF MORE EFFICIENT PRODUCTS, EQUIPMENT AND ENABLING TECHNOLOGIES FOR PRODUCTION IN ORGANIC AGRICULTURE

This trajectory includes all the interventions and enabling and innovative technologies to support the efficiency and quality of organic agricultural production. This includes innovations aimed at the conservation of the organic substance of the soils and the consequent microbial vitality, the enhancement of plant biodiversity for the defence against parasites, the recovery of ancient and traditional high quality agricultural specialties.

3. INNOVATIONS AND RESOURCES FOR THE OPTIMIZATION OF THE NUTRITIONAL STATE AND THE ECO-SUSTAINABLE PLANT HEALTH DEFENCE OF CROPS

This trajectory includes all the innovations and technologies for optimising the phytosanitary and nutritional status of crops, while reducing their environmental impact. These include strategies for reducing phytosanitary treatments and the use of less impacting active ingredients; biotechnologies applied to obtaining high quality products, genetic improvement of the response to environmental stress and defence against plant and animal parasites; the analysis and reproduction of specific ecosystems, functional to the local crops; the optimization of ecological and microbial relationships between plant, soil and environment; technologies capable of detecting the presence of pathogens and parasites to reduce the use of plant protection products and increase their effectiveness; the analysis and use of biodiversity in local agricultural production.

4. DEVELOPMENT OF METHODS AND TECHNOLOGIES IN FAVOUR OF INTEGRATED SYSTEMS BETWEEN AGRI-FOOD, TOURISM AND ECOLOGY

This trajectory is dedicated to innovative interventions consenting the integration between different activity fields, such as agro-food, tourism and environmental protection, and aiming at the socio-economic enhancement of the territory. This context also includes innovations with capacity to enhance prestigious agricultural-forestry productions, giving productive continuity and raising the concerned areas. In support of this trajectory, applications of innovative digital technologies can intervene for the multifunctional enhancement of the territorial and cultural heritage, also compatible with international certification systems.

5. RECOVERY OF BY-PRODUCTS ARISING FROM THE PRODUCTION OR PROCESSING ACTIVITIES OF THE AGRI-FOOD CHAINS

This trajectory includes all the innovative solutions useful for converting agro-food and forestry waste into value-added products with a lower environmental impact (e.g.: new materials, bioplastics for intelligent packaging or those deriving from bioethanol, green chemistry); recovery and transformation of agro-food industry waste for energy production (e.g.: biogas) or fertilisers / food / feed for the primary sector; solutions for the monitoring / management of resources through the use of big data and ICT; development of solutions for the reuse and enhancement of primary transformation waste (e.g.: oil wastewater or recovery of polyphenols from agro-food production).

6. INNOVATIVE AND MORE SUSTAINABLE PACKAGING FOR AGRO-FOOD PRODUCTS
In this trajectory, interventions for the development of innovative and more sustainable packaging for agro-food products are foreseen. The trajectory includes non-invasive solutions for the control of the integrity of packaging and for the detection of contaminants and foreign bodies in food products; the use of materials that do not release contaminants into food; innovative and more performing sensor solutions for improving the shelf-life of agro-food products and for identifying any contamination; the development of innovative natural preservatives (e.g. biofilms, plant extracts, etc.); innovative solutions for monitoring the cold chain.

7. IMPROVE THE HEALTH AND WELL-BEING OF CONSUMERS, THROUGH FOODS ABLE TO PROVIDE USEFUL AND FUNCTIONAL ELEMENTS TO IMPROVE THE STATE OF HEALTH
This trajectory aims to improve the health and well-being of consumers through the intake of healthier or more beneficial foods. This context includes innovations and development processes of new functional ingredients or added substances (e.g.: biopeptides, omega 3 or other), innovations in the nutraceutical field, use of combined raw materials for products attentive to human nutrition (e.g.: counteracting problems intolerance, allergy or cause of disease); use of biomarkers for personalised medicine; development and introduction of innovative methods based on DNA. Also consistent with this trajectory are the innovations that improve the quality of food, such as the development of fertilisers to improve the nutritional properties of the product; farm management through animal health and welfare monitoring systems; control systems of ripening in the field to improve the organoleptic quality of agricultural productions; systems for detecting important analyses in the agro-food sector, including the development of biosensing; solution for the improvement of food sensory analysis processes and techniques.

8. DEVELOPMENT OF INNOVATIVE SYSTEMS FOR FOOD PROCESSING
This trajectory aims at the introduction of new and innovative techniques in the field of food processing, such as with regard to refrigeration, freezing, transport of the food product or its transformation into "ready-to-use" products.

9. DEVELOPMENT OF COMPLETE TRACEABILITY SYSTEMS
Innovations to develop complete traceability systems of the entire supply chain, from raw material to consumer, with geographical indication of the production area and indications of the elements and health and nutritional data fall within this theme. This includes innovations aimed at developing integrated hardware-software systems for the labelling and traceability of agro-food products and for the control of production and harvesting activities, in order to ensure the authenticity of certified products; the application and research of genomic methods, based on DNA, for the identification, traceability and control of microorganisms (bacteria, yeasts and moulds); innovations for the traceability of the agro-food product and the identification of quality parameters through the use of innovative analytical technologies; the design of customised databases for each type of food, or food product, with the aim of scientifically defining the actual origin of the product from the area declared on the label. Also included in the traceability of the sale of products and innovations in the connection between the customer and the supply system for product tracing (introduction of ICT).

10. RECOGNITION AND COMMUNICATION OF THE PRODUCT
This trajectory supports innovative interventions for product recognition and communicability. For example, innovative techniques addressed to the User experience are included; the introduction of sustainability protocols in agro-food production, leading to the all-inclusive certification of the product, company and district, enhancing the Veneto area valorisation, also implementing co-marketing actions with the regional tourism sector.

SMART MANUFACTURING DEVELOPMENT AND TECHNOLOGICAL TRAJECTORIES

1. NEW MODELS OF INDUSTRIALIZATION IN THE PRODUCTION OF EQUIPMENT AND CONSUMER GOODS, ALSO THROUGH DIGITIZATION SYSTEMS AND IOT

The trajectory is aimed at defining technologies and systems for industrialization in the production of equipment, machinery and consumer goods, also through digitization and IoT systems (e.g. 3D scanning systems, 3D printing), both in terms of design and functionality (packaging, assembly of different materials, in-line processing systems). Particular emphasis is placed on customization or personalization processes, processes with a high production rate, the processes of first transformation of the product in short supply chains (e.g. wood), and the development of new approaches aimed at the sale of work-machines.

2. DEVELOPMENT OF METALLIC AND NON-METALLIC COMPONENTS WITH HIGH PERFORMANCE AND HIGH SUSTAINABILITY

The trajectory is aimed at the development and validation of high performance and high sustainability metallic (cast iron, steel, light and non-ferrous alloys) and non-metallic (polymers, composites, ceramics, etc.) components. These components are made with innovative and advanced production solutions and materials, consenting to minimise waste and waste of resources and raw materials. Processing and treatments are optimised also by resorting to process and product control software (data mining, LCA, LCC), and ensuring full traceability along the production chain.

3. INNOVATIVE PROCESSES OF TREATMENT AND / OR REUSE OF INDUSTRIAL WASTE

The trajectory is aimed at the development of innovative processes for the control and treatment of special or hazardous waste (e.g.: containing asbestos), including their reuse in new production cycles or for energy purposes. The trajectory also includes the development of innovative purification systems, extraction from by-products or secondary products and the development of eco-compatible materials.

Innovative solutions are enhanced in the production cycles associated with highly polluting processes / treatments / processes (e.g. PFAS substances), for a lower environmental impact also with reference to the end of the product life cycle.

4. NEW MACHINERY AND PLANTS MADE WITH INNOVATIVE MATERIALS AND COMPONENTS, AND AIMED AT ENERGY SAVING AND AT THE RATIONAL USE OF RESOURCES

The trajectory is focused on the design of new machinery and plants aimed at energy saving and at the rational use of resources. In this context, the development and production of newly conceived materials and components, specifically designed for energy saving and intelligent use of resources, also validated through the use of modern LCA techniques, are rewarding.

5. TOOLS FOR SUSTAINABLE SUPPLY CHAIN AND "GREEN" ENERGY SOLUTIONS FOR MANUFACTURING PROCESSES AND FOR THE RENEWAL OF THE LIFE OF PRODUCTS

The trajectory is aimed at the development of technologies for the innovation of manufacturing processes (from "lean production" to "lean & clean production"), with a perspective to self-sustainability and through the use of new technology transfer solutions. The trajectory also includes the development and validation of new technologies for the renewal of the life of products and the application of eco-design methodologies for the creation of a Sustainable supply chain, through the assessment of environmental impacts throughout the entire product life cycle, using LCA (Life Cycle Assessment) and LCC (Life Cycle Costing) techniques.

6. TOOLS AND MODELS FOR INTEGRATED, INNOVATIVE AND MULTI-SCALE DESIGN OF INNOVATIVE COMPONENTS, PRODUCTS AND EQUIPMENT FOR MANUFACTURING PROCESSES

The trajectory is aimed at the development of tools and models for the integrated, innovative and multi-scale design of components, products and equipment, with reference

to mechanical, mechatronic, thermal, metallurgical and foundry processes in an Industry 4.0 context. The integration of CAD / CAE / CAT virtual systems for the product-process design and the synergistic collaboration between the physical object and its software representation for the advanced design of machinery and equipment based on ICT technologies are foreseen. The aspects relating to the simulation of metallurgical transformation processes and post-process processing are included.

7. SYSTEMS, TECHNOLOGIES, MATERIALS AND EQUIPMENT FOR INNOVATIVE MICROMECHANICS
The trajectory refers to the different systems, technologies, materials and equipment for innovative micromechanics and precision forming. This includes 3D printing processes, precision forming of materials (e.g. production of precision mechanical components or spare parts and finished components for the production of specific equipment), Additive Layer Manufacturing technologies, laser micromechanics subtractive.

8. DEVELOPMENT AND PRODUCTION OF INNOVATIVE MATERIALS
The trajectory is aimed at the development and production of innovative materials intended for the efficiency of processes and product improvement

9. INNOVATIVE SOLUTIONS IN THE CONSTRUCTION OF MACHINERY AND EQUIPMENT, AIMED AT SAFETY, ENVIRONMENTAL PROTECTION, SAVINGS AND ENERGY EFFICIENCY
The trajectory involves the development of innovative solutions, also based on the engineering and use of advanced materials, in the construction of machinery and equipment. The reference area is made up of the sectors in which the aspects of safety, environmental protection, saving and energy efficiency are rewarded.

10. SOLUTIONS FOR ADVANCED MANAGEMENT OF MAINTENANCE, QUALITY AND LOGISTICS AND SUPPORT TO DECISIONS IN COMPLEX ENVIRONMENTS
The trajectory is aimed at the development of solutions for the advanced management of maintenance (in particular in the predictive approach), quality and logistics, in order to improve the efficiency of machines and systems, in the vision of production with high flexibility and low number of defects (zero defect manufacturing). The solutions can include tools for decision support and optimization in complex environments (also for the purpose of product traceability, waste elimination, etc.), and be developed at the hardware level (e.g. sensors, IoT devices, interfaces man-machine also based on virtual / augmented reality techniques, intelligent power systems), infrastructural (e.g., cloud-based IT platforms, integration with ERP information systems), and algorithmic (e.g., data analytics, machine learning , soft sensing).

11. DEVELOPMENT OF DIGITAL INTEGRATED PLATFORMS FOR THE CONFIGURATION OF PRODUCTION SYSTEMS
The trajectory is aimed at the development of digital integrated platforms for the configuration of production systems capable of supporting interoperability between various planning tools (including modular ones), including tools for the integrated simulation and forecasting of production systems and related components (e.g. integrated CAD / CAM / CAE systems).

12. DEVELOPMENT OF INTELLIGENT MACHINES AND ADVANCED ROBOTIC AUTOMATION SYSTEMS
The trajectory is aimed at the development of intelligent machines and advanced automation systems (including robotic systems) to increase the autonomy and performance of production systems in the exploitation phase, through optimization of process parameters and implementation of advanced supervision solutions, monitoring and control (also distributed, at discrete events and remotely). Development can take place both at the single machine and / or processing level (e.g.: metal treatment systems, surface

processing, with both additive and subtractive technologies) and at the production line (e.g.: production lines / automatic assembly / packaging, autonomous handling systems, digitization and line-up of work centres, preventive control of the physical, chemical, mechanical, dimensional and qualitative properties of the materials during the various production phases), also providing for integration with 7. Realisation of integrated production environments based on business management.

13. INNOVATIVE SOLUTIONS FOR INCLUSIVE HUMAN-CENTRIC SPACES AND ORGANISATION OF WORK
The trajectory is aimed at the development of methodologies for the innovation of work organisation also in the dimensions of the person-machine interaction, through active participation and involvement of the various actors involved in the construction of innovative dynamics, also aimed at improving overall quality and safety. workplace (e.g. ergonomic workstations, vibro-acoustic comfort).

The examination of the Committee concludes the RIS3 process. The final body, after a careful and accurate analysis of the path carried out by the participants, of the data collected and processed by the Management team and of the results achieved for the achievement of the set objectives, validated the proposed integration of the "Regional Research Strategy Document and Innovation "in the area of Intelligent Specialisation RIS3 Veneto, as licensed by the Observatory for scientific research, technological development and innovation for approval by the Regional Council. Approval that completes and closes the “Fine Tuning” process.

FURTHER NATIONAL FUNDS THAT INSIST ON THE ARCHITECTURE THEME

Finally, it is useful to mention an interesting series of very recent actions that the state is promoting at national level to incentivize investments in technology for agriculture, going perfectly in the same direction as the S3 policies for promoting development trajectories. In particular:

CONTRIBUTION GRANTS FOR AGRICULTURAL ENTERPRISES PROVIDED BY THE FUND FOR INNOVATIVE INVESTMENTS BY AGRICULTURAL ENTERPRISES.
Inserted in the Official Gazette in October 2021 and made effective by the Directorial Decree of 2 May 2022. The text establishes times and methods to be followed to obtain non-repayable grants of up to 20,000 euros for the purchase of new tangible and intangible assets.
All interested parties have one month to proceed, from 23 May to 23 June, and must send the application form to the Ministry of Economic Development.
The innovative investments subject to the subsidy must meet the following requirements:

- be related to the processing of agricultural products or to the marketing of agricultural products, those relating to primary agricultural production are excluded.
- be started after the submission of the subsidy application;
- be completed within 12 months from the date of the concession provision;
- be maintained, for at least 3 years from the date of disbursement of the balance of the contribution or, if later, from the date of installation of the last subsidised property, in the territory of the region where the registered office or subsidised local unit is located.

You are entitled to non-repayable contributions up to 20,000 euros, equal to 30 percent of eligible expenses, or 40 percent in the case of expenses related to the purchase of capital goods, tangible or intangible, included in Annexes A or B of the law n. 232/2016. (LIST OF TANGIBLE ASSETS REFERRED TO IN ANNEX A OF LAW 232/2016).
In order to apply for access to non-repayable grants, agricultural businesses must meet the following requirements:

- be of micro, small and medium size;
- be duly constituted and registered as active in the Business Register - special section for agricultural businesses - of the territorially competent Chamber of Commerce;
- have the registered office or a local unit on the national territory;
- be in the full and free exercise of their rights, not be in voluntary liquidation and not be subjected to bankruptcy proceedings for liquidation purposes;
- do not appear as companies in difficulty;
- not to be among the companies that have received and, subsequently, not repaid or deposited in a blocked account, the aid identified as illegitimate or incompatible by the European Commission.

You remain excluded from the incentives in the presence of a disqualification sanction referred to in Article 9, paragraph 2, letter d), of Legislative Decree 8 June 2001, no. 231 and sentenced legal representatives or administrators, with a definitive sentence or criminal decree that has become irrevocable or sentence applying the penalty upon request, for crimes that constitute grounds for the exclusion of an economic operator from participating in a procurement or concession procedure.
Those who have the credentials to access non-repayable contributions must use the documentation available on the MISE portal and proceed by the deadline of 23 June 2022.
Once the request for access to incentives has been completed, it must be digitally signed by the legal representative or the owner of the agricultural enterprise.

Each agricultural enterprise can submit only one application for granting the grant. The evaluations follow the chronological order of presentation.
All the details on the presentation of the application to obtain non-repayable grants for agricultural enterprises are contained in the full text of the Directorial Decree of 2 May 2022.

TAX CREDIT
In addition to this initiative, it is necessary to emphasise the possibilities offered by the national transition plan 4.0, with particular reference to the possibility offered by the tax credit.
The 2022 Budget Law extended and reformulated the tax credit measure for investments in new ordinary capital goods and 4.0 technology.
Let's see in detail what the main changes are.

CONTRIBUTION
The new tax credit for 2022 provides for a contribution equal to:

- 40% of the investment and up to 2.5 million euros for agricultural machinery with 4.0 technology
- 6% of the investment and up to a maximum of 2 million euros for all other agricultural machinery

The contribution can be used as a credit for the compensation of tax expenses incurred through F24 such as IVA, IMU, social security contributions, as well as direct taxes (Irpef, Ires, Irap).

TARGET
The objective of the tax credit is to support and incentivize companies that invest in new ordinary capital goods and 4.0 technology.

WHO CAN ACCESS?
All agricultural businesses resident in the national territory can access the tax credit, regardless of their legal form, economic sector, size and tax regime for determining income.
Therefore, both contractors and agricultural businesses, including individual ones, that make use of the flat-rate scheme are included, and the benefit is valid regardless of the company's ability to produce income.

WHICH AGRICULTURAL MACHINES ARE ELIGIBLE?
Here a distinction must be made:
All new agricultural machines, regardless of their technological level, fall under ordinary assets and can enjoy the 6% contribution;
Only agricultural machines equipped with 4.0 technology fall within the 4.0 assets and can enjoy the 40% contribution
As regards tractors and combine harvesters, the necessary equipment to be included in the 4.0 assets are the following:
Telemetry with data transfer function
Automatic driving system - hydraulic or with an electric motor on the steering wheelFor all other agricultural machines, the equipment varies according to the nature of the machine, but the two fundamental constraints of automation and interconnection remain valid.

HOW MUCH DOES IT COST TO UNIFORM A TRACTOR TO 4.0?
The price of course depends on the tractor and the level of precision of the automatic steering system.

New Holland today offers packages called 'Tax Credit 4.0', the prices of which are also available on their website, available both as a factory set-up, therefore already integrated with their machines, and as spare parts kits.
The starting price of these kits is around € 10,000, but to get a detailed quote it is always advisable to contact your dealer.

HOW DOES IT WORK?
In order to access the tax credit for 4.0 assets, the company is required to produce a self-certification in the event of an investment of less than 300,000 euros, or a sworn technical expertise in the event of an investment exceeding 300,000 euros, certifying that the asset possesses technical characteristics such as to include it among the 4.0 assets.
It is possible to take advantage of the credit in 3 years, in shares of the same amount, starting from the year following the one in which the machine came into operation.
Therefore, if a € 100,000 4.0 tractor is purchased and put into operation in 2022, it is possible to recover a total of € 40,000, in shares of € 13,333 per year, starting from 2023.
In addition, for individuals with a volume of revenues or fees of less than 5 million euros, the use of the tax credit for ordinary investments can take place in a single annual fee.
If the subsidised goods are sold to third parties by 31 December of the second year following the one in which the investment is made, the tax credit is correspondingly reduced by excluding the relative cost from the original calculation basis.

DEADLINES
The tax credit can be used for investments aimed at starting from 1 January 2022 and until 31 December 2022 or until 30 June 2023 if an advance of 20% has been paid to the supplier by 31 December 2022.

NEW SABATINI
The new Sabatini was refinanced for the period 2022-2027 and for a total amount of 900 million euros (of which 40 million for 2022), a measure aimed at supporting companies that require bank loans for investments in new assets. instruments, machinery, plants, factory equipment for productive use and digital technologies.

CONTRIBUTION
This is a contribution to partially cover the interest paid on the loan, which is equivalent to savings on the value of the investment equal to:

- 7.7% on ordinary agricultural machinery
- 10% on agricultural machinery 4.0
- 15.4% on agricultural machinery 4.0 for micro and small enterprises located in the South regions.

One of the innovations of Sabatini 2022 introduced by the "2022 Budget Law" concerns the restoration of the disbursement of the contribution in several installations for applications submitted from 1 January 2022, without prejudice to the possibility of proceeding with the disbursement in a single solution, within the limits of available resources, in the case of loans not exceeding € 200,000.

TARGET
The goal of the "Nuova Sabatini" contribution is to support and incentivize companies that invest in new ordinary capital goods and 4.0 technology.

WHO CAN ACCESS?
It is aimed at all micro, small and medium-sized enterprises present on the national territory, regardless of the economic sector in which they operate. All productive sectors are allowed, including agriculture and fishing.

WHICH AGRICULTURAL MACHINES ARE ELIGIBLE?
All investments in agricultural machinery (tractors, harvesting machines and equipment) are included as long as they are NEW investments and not REPLACEMENTS of the existing fleet.
The NEW investment must be finalised with a loan with a maximum duration of 5 years and the asset subject to the contribution cannot be sold before 3 years of use.

HOW DOES IT WORK?
The procedure is simple, especially if you decide to rely on a trusted intermediary.
The company is required to submit to the bank or financial intermediary, together with the request for funding, the application for access to the ministerial contribution, certifying the possession of the requirements and compliance of the investments with the provisions of the law. The procedures for submitting the application for access to the grant are described in the section Capital goods ("Nuova Sabatini") - Submission of applications.
Among the various solutions that the market offers, we point out the New Holland brand which, through the financial company CNHi Capital Europe, a subject authorised to disburse loans with the "Nuova Sabatini" contribution, offers detailed advice and a complete service to its customers.
For more details and the "Application Form", we refer you to the website of the Ministry of Economic Development, where the "Guide to completing the application form" is also available, also available on the CNHI Capital website.

DEADLINES
To benefit from the grant in the year 2022, the applicant company is required to submit the application and receive approval of the loan by the end of December 2022. Subsequently, once the loan has been signed, you have 12 months to complete the investment.
Considering the covid-19 emergency, with a directorial circular of 29 April 2020, MI.SE. recognized the beneficiary companies of the "Nuova Sabatini", a specific extension of 6 months in relation to the deadline for the realisation of the investments and for the transmission to the Ministry of the related documentation.

INAIL 2022 NOTICE
NAIL, the National Institute for Accident Insurance at Work, also for 2022 has published a call for non-repayable loans to companies that decide to invest in new agricultural machinery. The resources made available are approximately 274 million euros. The financial resources allocated by INAIL to the types of projects admitted will then be divided by Regions and Autonomous Provinces, as well as by financing axes. Let's see what the conditions are.

CONTRIBUTION
The INAIL call provides a non-repayable grant equal to 50% of the investment for young farmers and 40% for all other agricultural businesses for amounts ranging from a minimum of € 1,000 up to a maximum of € 60,000.

TARGET
The notice aims to encourage the purchase of new agricultural machinery and equipment, by replacing machines and / or tractors in full ownership of the company as of 31 December 2019, with the aim of:
reduce polluting emissions,
reduce the risk of accidents,
optimise the performance and productivity of the machines.

WHO CAN ACCESS?
All companies, of any legal form, including individuals, registered with the Chamber of Commerce in the Industry, Crafts and Agriculture sectors are admitted to the INAIL call.
Specifically, the recipients of the agricultural fund are micro and small enterprises operating in the sector of primary production of agricultural products.

WHICH AGRICULTURAL MACHINES ARE ELIGIBLE?
The call provides for the possibility of presenting investment projects relating to a maximum of 2 agricultural machineries with these combinations: an agricultural or forestry tractor and an agricultural and forestry machine with or without its own engine, or an agricultural and forestry machine equipped with its own engine and an agricultural and forestry machinery without its own engine, or two agricultural and forestry machinery without its own engine.
The following agricultural machines are eligible for funding:
agricultural tractors, wheeled or tracked, approved in accordance with regulation 167/2013 of the European Parliament and of the Council;
agricultural machinery, whether or not equipped with an internal combustion or electric engine, in compliance with the Machinery Directive 2006/42 / EC, implemented in Italy by Legislative Decree 17/2010;
agricultural tractors with caterpillars not approved in accordance with EU regulation 167/2013;
interchangeable attachments accompanying a tractor or agricultural machine.
The following requirements apply to eligible tractors:
category T1 tractors must be equipped with a ROPS cab already provided for in the approval phase by the tractor manufacturer;
Category T2 tractors:
• in case of selection of Technical Solution 1a ("Purchase of agricultural tractor with simultaneous scrapping of proprietary tractor"), the tractors can be equipped with both a two or four-post ROPS structure and a category 4 ROPS cab already provided for in the approval by the tractor manufacturer;
• In case of selection of Technical Solutions 2a and 2b (“Noise”), the tractors must be equipped with a category 4 ROPS cab already provided for in the approval phase by the tractor manufacturer.
Category C1 and C2 tractors and agricultural machinery:
• selection of Technical Solution 1b, or the simultaneous scrapping of an analogous obsolete agricultural machine, if the proprietary machine to be replaced was placed on the market prior to January 1, 1996 (Community Directive 98/37 / EC ex 89/392 / EEC),
• selection of Technical Solution 2c and 2d, for which category C1 and C2 agricultural or forestry machinery must have a noise level declared by the manufacturer at least 3 dB (A) or 2 dB (A) lower than the value of the same parameter of a similar machine owned by the company, if the machine owned by the company to be replaced has been placed on the market after the specific legislative and regulatory provisions implementing the Community Directive 98/37 / EC and before the specific legislative and regulatory provisions for the transposition of the community directive 2006/42 / EC.
The machines that can be financed are exclusively those that can be used for carrying out activities aimed at the care and / or development of a biological cycle or a phase necessary for the cultivation or breeding of animals.
Expenses related to the acquisition through finance leasing or the purchase of used goods are not permitted.

HOW DOES IT WORK?
The submission of applications for access to the incentives will take place, as for the previous calls, electronically, through a procedure divided into three phases:
Phase 1: filling in the application and assigning the admission code
Phase 2: submission of the application or "click day"

Phase 3: sending the necessary documentation for the acceptance of the application
Loans are non-repayable and are assigned until the financial resources are exhausted, according to the chronological order of receipt of applications.

DEADLINES
The ISI INAIL 2022 call will proceed by steps. In particular:
from February 26, 2022 to March 7, 2022, the online help desk is expected to open for the compilation of the application for the ISI INAIL 2022 call and its closure.
Within 14 days from the opening of the electronic counter, the publication of the provisional chronological lists is expected with consequent upload of the documentation (effective for those admitted to the lists, under penalty of forfeiture of the application).
On the date communicated together with the publication of the provisional chronological lists, finally, there will be the publication of the definitive chronological lists.
Deadline for project implementation: Within one year from the approval of the project.

AGRICULTURAL FINANCIAL LEASING
The investments that are the subject of the concessions planned by the 2022 Budget Law for the agriculture sector can be finalised through agricultural credit or financial leasing operations.
We remind you that the only concessions that require the beneficiary to own the subsidised property from the first day and therefore the use of agricultural credit, are those relating to INAIL and POR / PSR. In all other cases, the finalisation of the investment with financial leasing is envisaged, indeed it is advisable.

THE ADVANTAGES OF FINANCIAL LEASING COMPARED TO AGRICULTURAL CREDIT
Possibility of splitting the entire cost of VAT by spreading it over periodic fees, instead of paying in a single purchase solution as is the case with the Agricultural Credit.
Possibility of designing flexible financial plans with fees aligned with the customer's collection forecasts.
Possibility of including additional services within the fees compared to the simple cost of the asset, such as scheduled maintenance or extended warranties, in order to simplify management.
Lower costs for completing the contract and easier payment.
Automatic management of payments through direct debit without manual management of the promissory note.

FINANCING
Periodically, customers can find financial offers with subsidised or zero interest rates, offers organised by the various building brands with banking institutions with which they work in partnership.
New Holland together with the group financial company CNHI Capital Europe offers customised and flexible financial solutions suitable to satisfy every type of need.
CNHI Capital with CAPFLEX flexible leasing offers the possibility to adjust the financial plan according to seasonality.
Depending on your business needs, you can make up to three requests to change your financial plan while keeping the interest rate unchanged.

Lessons learnt from Transfarm 4.0 and Stakeholders experience and recommendation for policy makers

In quantitative terms, there are still no official statistics that allow us to estimate the degree of diffusion of the PA. However, some considerations can be deduced by observing the data relating to innovation from the recent survey on the structure and production of farms by ISTAT in 2016, and in particular on the share of companies that use digital equipment for the management of activities.

LESSON LEARNT

Overall, almost 32% of Veneto companies use a personal computer for professional activities, almost double if compared with the national figure (19%). Similar values emerge with regard to the use of an internet connection, excluding the use for commercial and/or promotional purposes of products in which the data is in line with the Italian one (5%). In the field of Precision Agriculture, and in particular the use of DSS decision support systems, an interesting data is related to companies with a specific software for management control, where one more time the Veneto companies show an incidence higher than the national average (respectively 9% against 5%). The numbers show that several farmers and entrepreneurs are adopting precision agriculture but due to its fragmentation and the average company size, the primary sector lags far behind other sectors.

Thanks to the Veneto Agriculture agency engaged in research and experimentation, the Region is studying the right way to evaluate and promote the transfer of knowledge and technologies of Precision Agriculture. In fact, starting from the 2014-2020 programming, the Region has foreseen preference and priority mechanisms in the preliminary assessment of financing applications for investments proposed by companies and this priority will also be considered in the next 2023-2027 programming.

During the course of the initiatives promoted by the project, it was possible to interface with various players in the primary sector, in particular agricultural producers, research centres and national and international universities, companies and start-ups active in the digital agriculture sector, manufacturers for agriculture. Thanks to this wide range of collaborations, it has been possible to get a picture of Precision Agriculture' context.

Based on their size, farms have different needs and different paths: large companies have already begun to insert various precision agricultural equipment in different stages of the production cycle and they are able to enhance the technological investment. On the contrary small enterprises struggle to insert new equipment for various reasons, such as the payback times, the lack of skills necessary for the implementation and the use of the technology. A further limiting factor is the adaptability of the technologies to marginal and mountain territories.

Research centres, together with companies and start-ups related to the world of digital agriculture, have proven to play a fundamental role in identifying new technologies and developing new applications for the primary sector. In order to have a market, these new technological applications and inventions must be scientifically validated and prototyped. The project focused in its central part precisely on this: transforming the research results into prototypes tested in the field, reaching a TRL 7 on the scale from 1 to 9 of the Technology Readiness Level. The manufacturing sector, in particular the industries producing agricultural machinery, have shown great interest in these new applications developed by research centres and start-ups. Companies, in fact, add new value to their products by including new services in their catalogue. This collaboration between various players among the supply chain has proven effective in accelerating innovation by bringing technology to an advanced stage. This model of technology transfers in which the specialised skills of a centre/company have been used and taken up for the creation of new development opportunities by a company through collaborations or acquisitions, was also found during the study visit in the Netherlands. University researchers, a business incubator

and companies were brought together on the Wageningen campus with the aim of making technology transfer very fast and product-oriented. We therefore believe that the creation of spaces for sharing and aggregation between stakeholders can be a useful tool for the creation of innovation and value in the primary sector and the companies connected to it.

Alongside the theme of technological innovation, during the project it was possible to identify an important need in the primary sector: the need to build new interdisciplinary skills to bridge the gap between traditional knowledge and the knowledge required by precision agriculture.
This need manifested itself across the board at all levels: the end users of the equipment showed the need for training and technical assistance to create the skills necessary to adopt, implement and make the most of new technologies.
The industries on the other hand have shown interest in specialised profiles with interdisciplinary skills that involve mechanics, electronics, agronomy to design the equipment of the future.
Due to the rapid transformation of the sector, these figures are not readily available on the market and greater attention should be given on the one hand to traditional training courses by inserting training in the sectors required by the market (electronics, information technology, data analysis), on the other by continuing to enhance the post-diploma ITS technical paths (higher technical institutes) which, thanks to the collaboration with companies in the sector and to insertion paths in companies, are able to prepare young people for business needs. For a truly effective dissemination and use of precision agriculture, it is necessary to create figures with skills that traditionally belong to different sectors of knowledge, and therefore also to fields of study, now distant from each other.
The development and correct use of precision machinery and tools, their renewal and continuous improvement, the intuition in proposing and developing solutions, operating methods and/or innovative uses of the technological solutions available today to support the agro-livestock sector it requires the union between agronomic skills and technical skills

RECCOMANDATIONS
In conclusion, considering the main lessons learnt, the recommendations that emerged from the experience of the Transfarm 4.0 project, that might be useful to policy makers, especially in this phase of elaboration of Strategic Plans and definition of the methods and priorities of use for the new funds for 2023-2027 programming and beyond, can be summarised as follows:

1. **Research is a fundamental step for innovation**, from our point of view it is important to support and promote research and technology transfer through projects and initiatives that include the various actors in the supply chain, as is already the case with EIP regional operational groups that work transforming research results into prototypes.

2. The implementation of new practices is not trivial especially in a new sector such as that of precision agriculture, which is why we believe it is important to stimulate the **creation of professional figures** such as consultants and innovation brokers trained in precision agriculture able to support farmers in the development of long-term strategies that lead to the digitization of farms.

3. A further essential factor that emerged during the project is the **collaboration between the various entities** in this perspective. The region, as an impartial entity, has the possibility of supporting the development of spaces and events encouraging interaction between the various players of the supply chain as machinery manufacturers, start-ups, research centres, farmers, training institutions, in order

to foster innovation and technology transfer for the digitization of the primary sector.

4. Cultural change is not immediate and takes time, especially in a conservative sector such as the primary sector. The **effort to transmit new knowledge should be articulated and systemic** in order to train farm managers, technicians and the next generation of workers in the primary sector within the key sectors of mechanics, electronics, information technology and agronomy. Along with the improvement of the skills of the operators in the sector, the conditions for the improvement of the entire sector can be created.