4. European added value and impact

Europe counts many (trans)national, regional and local partnerships/initiatives that foster a sustainable and productive agricultural value chains. The critical mass is there in principle, both in ideas and actors. However, the individual actors tend operate in their own silos and therefore rarely any focus on open innovation opportunities within the agricultural value network that are beyond their regular R&D or business perimeter.

What is lacking is a sector-driven **European framework as proposed here, to facilitate the network, to thrive and achieve higher impact innovation and to maximize the value creation within the entire agricultural value network.** The leverages in the various focal areas that are listed in chapter 3 will impact on food and nutritional security issues that are identified on a European and global scale.

The envisaged activities across the agricultural value network will yield benefits in the bio-economy – which **will add value and create jobs in the rural regions where they are needed**. The growing and dynamic network shall provide an ideal opportunity to **attract highly skilled workers and investment towards urban- and rural areas**, foster **economic growth** and become a driver for competitiveness and development. The proposed initiative is the tool to set all this in motion.

The future success of the European bio-economy depends on secure, high quality, tailor-made food, feed, smart molecule and biomass supply in a sustainable and competitive way. Cross-overs with other fields are essential. Research breakthroughs are most needed on the pre-commercial (pre-competitive) side, the insights that constitute the basis for meaningful innovation may originate from multiple directions from in and outside the value chain. It is however the role of the value chain holder to translate innovation to marketable products reaching he broadest basis of customers possible. This inclusive approach requires a deviation from the past way of working, and would benefit from a “platform” to promote and facilitate the new way of working. The proposed ICP partnership, as a focal point for all major public and private stakeholders, will become the **crucial enabler for a competitive and integrated European crop production for food, feed and non-food applications and will demonstrate the high potential of the bio-economy.**

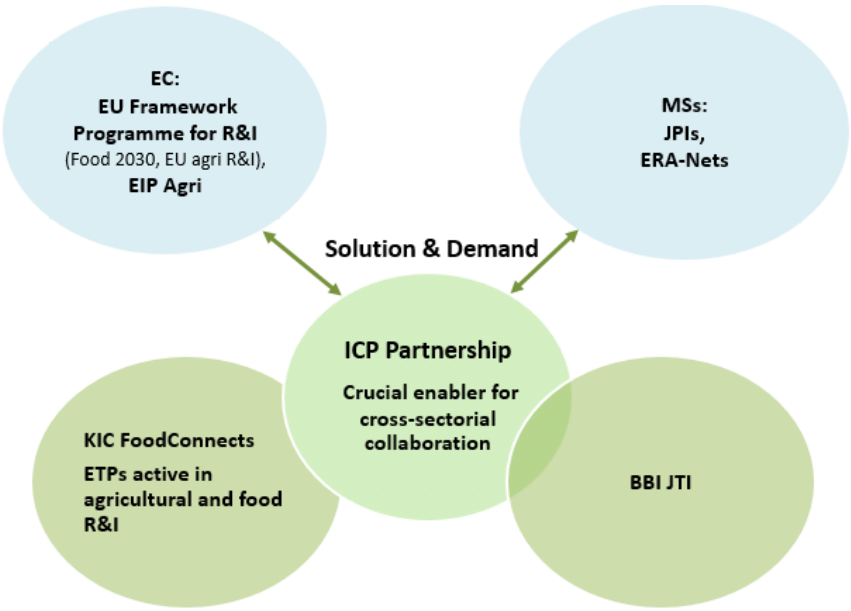

Figure 1: ***European added value of the Integrated Crop Production Platform within the EU Bio-economy landscape****. The ICP platform will close the gap between the European and Member States'(MSs) strategies and programmes, the regional RIS3 strategies and bottom-up public-private initiatives and will make the bio-economy value network operational.*

The proposed ICP partnership offers a next generation implementation instrument for the top-down initiatives of the European Commission (e.g. the EU Framework Programme for Research and Innovation and the CAP) and the Member States (ERA-Nets, JPIs) and bottom-up activities (BioBased Industries Joint Technology Initiative-PPP, KIC Food Connects, ETPs active in agricultural R&I) by enabling public-private partnerships that will co-create new knowledge across the European agri-food network and spin-off new business-models based on this knowledge.

4.1. Metrics and monitoring performance

To monitor the socio-economic and environmental performance of the integrated agricultural value network one needs to identify the critical steps in the innovation process from the lab to the market. The development and uptake of innovative solutions in the agricultural value network will depend strongly on

novel research findings, efficient knowledge and technology creation, greater investment in innovation by venture capital and appropriate regulation.

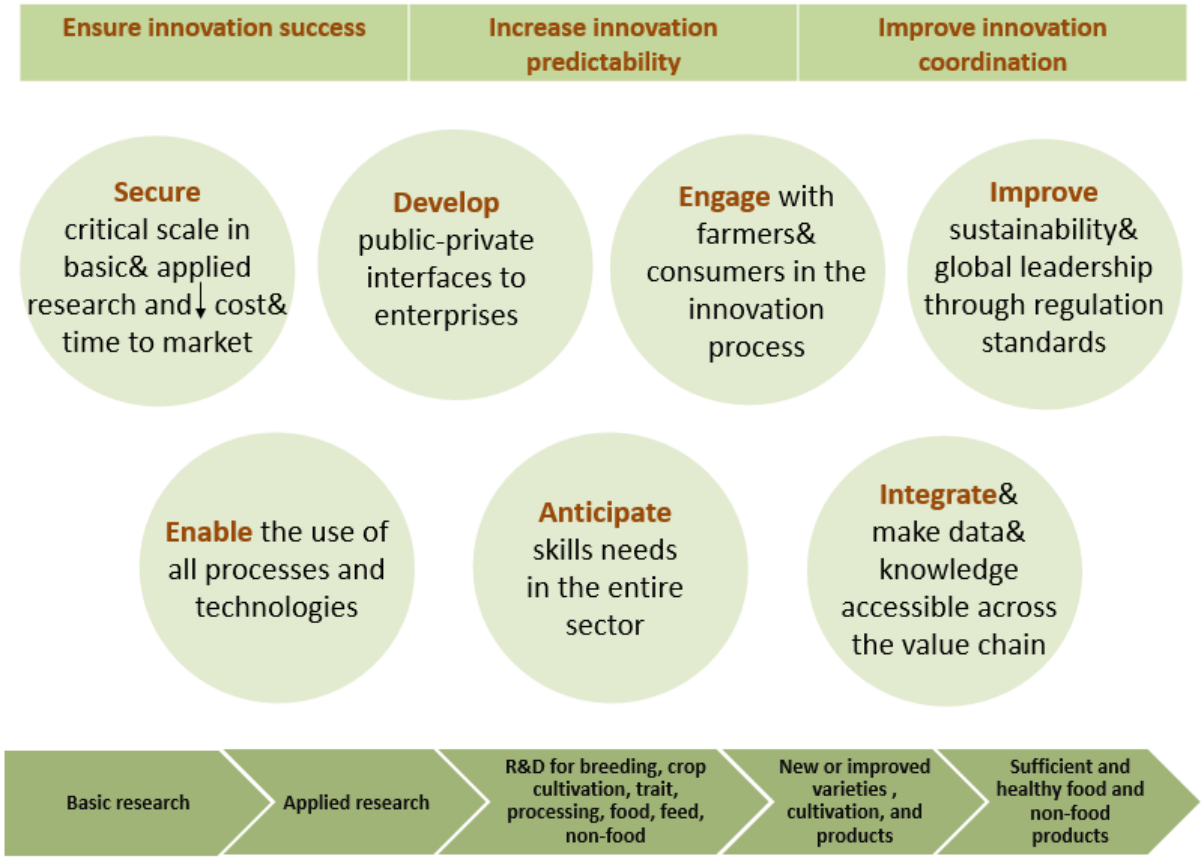

***Figure 2:* Flow-chart of actions from lab to market, to stimulate plant-based innovations**. *Actions are clustered according to their impact on innovation success, predictability and coordination. Derived from "Building Sustainable Innovation Leadership in European Agriculture"; Based on an Innovation Action Plan to 2020" ETP Plants for the Future, Brussels.*

On the one hand, whilst knowledge creation and exchange is the basis for progress, research goals need to be firmly oriented towards the real needs of farmers and end-users, extending beyond knowledge generation per se. At the same time, the regulatory environment must encourage innovation, by stimulating new products to enter the market and lowering barriers to market access. A systematic approach is required, in which regulatory processes and research outputs are well connected in order to overcome obstacles to market access and capture the full value of research and investment.

The *Figure 6* above shows the basic flowchart of the process that should lead to plant-based innovations. It shows potential bottle-necks that may delay the market introduction of the innovation and therefore require key actions that drive the process. The smart integrative combination of data, knowledge and human capital across the chain will offer opportunities to speed up the time to market and boost innovation in crop production. The following performance indicators are derived from the key actions and will allow the monitoring of progress and to identify white spots that need more focus.

Key action	Impact milestones	Performance indicator
Secure critical scale in basic and applied research	Leverage effect on EU spending; Research multiplier of results and knowledge delivering an additional volume in research activity for the stakeholders	Number of unlocked funding schemes, private investment and funded integrative cross-sector research projects
Reduce cost and time to market for innovative agricultural product improvement, production or development	Increase in productivity, resilience, resource-use efficiency and environmental performance	Number of EU initiatives that reduce cost and time to market for stakeholders
Develop a transparent approach to access data and resources	Yield a competitive advantage for EU industry due to improved agro-technology and regulations	Transparent approach to access resources
Develop public-private interfaces tailor made for SMEs and large enterprises	Create a Knowledge and Innovation System (KIS) with new Public-Private Partnerships (bilateral and also multilateral)	Number of created interfaces
Improve sustainability and global leadership through regulation, standards and procurement	Yield a competitive advantage for EU industry due to improved agro-technology and regulations and implement the Circular Economy and the Energy Union strategies – e.g. by shifting industry towards renewable resources, developing solutions towards nutrient cycles and health cycles	Number of created jobs in existing and start-up companies and number of supportive integrated projects and infrastructure
Anticipate skill needs in the entire sector	Secure a skilled workforce by state-of-the-art education and training	Number of established education and training programmes that provide the required skills and a well-trained workforce
Integrate farmers in the innovation process	Provide higher quality food and non-food products and increase in productivity, resilience, resource-use efficiency and environmental performance	Number of demonstration farms to check ethical, socio economic and technical feasibility of innovation and to communicate about the innovation
Engage with consumers in the innovation process	Provide higher quality food and non-food products	Number of consumer interfaces to check ethical, socio economic and technical feasibility of innovation and to communicate about the innovation
Integrate and make data and knowledge accessible across the entire value network	Yield a competitive advantage for EU industry to improved agro-technology and regulations	Number of supportive integrated projects and infrastructure

***Table 1:** Performance indicators for progress monitoring*