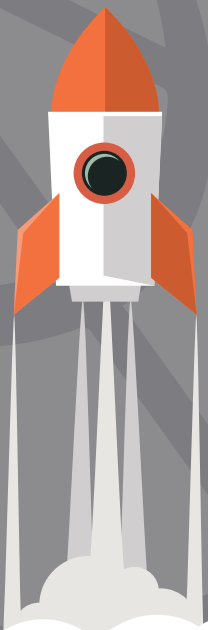# Innovation Radar

Identifying the maturity of innovations
in EU-funded research and innovation projects

Introduction

Digital technologies are having an increasingly transformative impact on our lives. The European Commission (EC) heavily invests to support digital innovators through Framework Programmes (FP) for research and innovation. But which of them are best placed to take their results to the market? It remains a challenge to understand which innovations have the greatest potential to positively impact citizens and society.

[1] https://ec.europa.eu/ info/departments/ communications- networks-content-and- technology_en

Launched as a pilot by DG Connect[1] in 2014, the Innovation Radar was an initiative that sought to address that challenge. It aims to identify high-potential innovations and innovators in EC-funded research projects seeking to guide project consortia on the appropriate steps to reach the market. Its objective is to maximise the outcomes of public money spent on research.

Following the success of its pilot, the use of the Innovation Radar method has been scaled up. It is now becoming a main source of actionable intelligence on innovations emerging from EC-funded research and innovation projects in Information and Communication Technologies (ICT) and also non-ICT themes. It serves as a business intelligence tool for policy makers to design forthcoming EU-funded collaborative research and innovation programmes. Making the results of the Innovation Radar open to the public will help to bridge innovators in FP projects and external stakeholders, such as – but not limited to – citizens, investors, technology scouts and incubators.

Methodology and data

[2] http://publications.jrc. ec.europa.eu/repository/ bitstream/JRC96339/ jrc96339.pdf

The methodology of the Innovation Radar was originally described in a JRC report published in July 2015[2]. Data underpinning the Innovation Radar stem from a survey developed by DG Connect and the Joint Research Centre (JRC) of the European Commission. This survey is conducted during periodic reviews of collaborative FP projects. Two indicators have been built with the Innovation Radar data. The first is the Innovation Potential Indicator which aims to measure FP projects' innovation development towards commercialisation. The second is the Innovator Capacity Indicator which aims to capture the innovative capacity of the innovators behind these innovations.

Innovation Potential Indicator

The Innovation Potential Indicator encompasses three indicators that capture essential steps in the innovation development process.

Innovation readiness: This indicator relates to the technical maturity of evolving innovations. It aims to define the development phase of innovations. It accounts for the steps undertaken to prepare them for commercialisation (e.g. prototyping, demonstration or testing activities or a feasibility study) and to secure their technological resources. Furthermore, this indicator takes into account the time to the potential commercialisation.

Innovation management: This indicator addresses the project consortium and its commitment to bring innovations to the market. It aims to measure the capability of management teams to transform novel technologies or research results into marketable products or services. To this purpose, this indicator includes, among others, clarifying the related ownership and IPR issues, preparing a business plan or market study, securing capital investment from public and private sources, or

engaging potential end-users in the project.

Market potential: This indicator relates to the demand and supply side of innovations. Regarding the demand side, it concerns the prospective market conditions and the chances of successful commercialisation. It aims to assess how products or services satisfy a market sector and serve a potential customer base. With respect to the supply side, it aims to assess whether there are potential barriers (e.g. regulatory frameworks or existing IPR issues) which could weaken the commercial exploitation of innovations.

The Innovation Potential Indicator is created as an arithmetic aggregate of these three indicators as presented in Figure 1.

Innovator Capacity Indicator

The Innovator Capacity Indicator encompasses two indicators that capture the capacity of innovators in conducting and delivering successful innovations.

Innovator's ability: This indicator relates to the ability of organisations in developing innovations within the EC-funded activities. It accounts for the number of times organisations have been identified by the Innovation Radar as key innovators. It includes other factors such as reviewers' opinions about innovators' potential and independence in fulfilling the market potential of innovations.

Innovator's environment: This indicator aims to capture the overall conditions in the project consortium which an innovator faces. It relates to the composition and activity of partner organisations, the performance of the project in terms of innovations, and the commitment of relevant partners to exploiting innovations. Moreover, it also takes into account the presence of organisations that are directly interested in exploiting the innovations. It is assumed that a positive environment will have positive knowledge spill-overs between innovators and their environments.

The Innovator Capacity Indicator is created as an arithmetic aggregate of these two indicators as presented in Figure 2.

Maturity levels of innovations

To capture the different maturity levels of innovations towards commercialisation, four innovation categories have been created based on respective scores of the Innovation Management and Innovation Readiness Indicators. The four categories are represented in Figure 3.

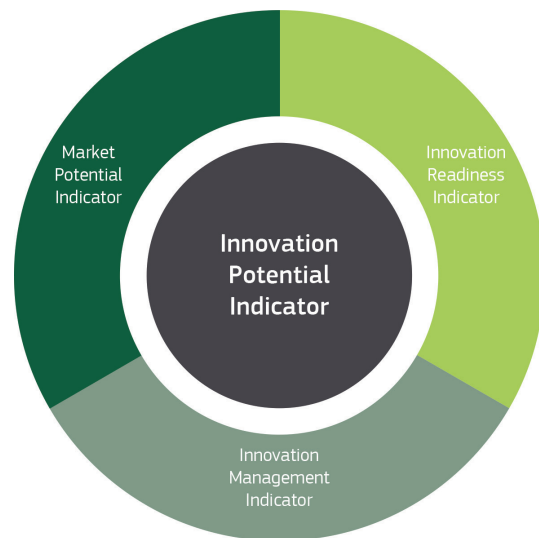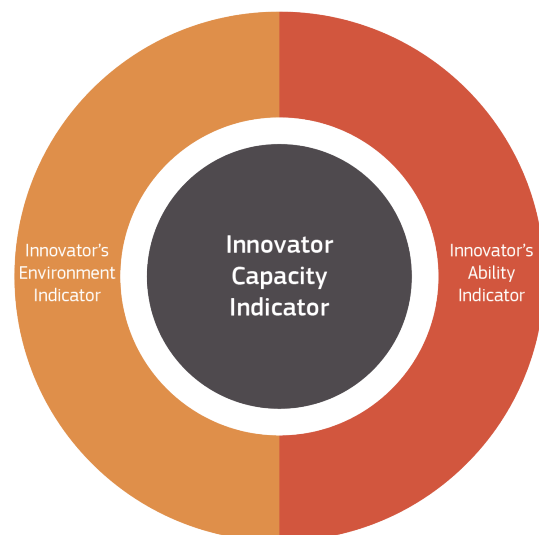Figure 1: Innovation Potential Indicator


Figure 2: Innovator Capacity Indicator

Optimisation: This category includes innovations outperforming in innovation management and innovation readiness. These innovations are technologically mature and show high commitment of the project consortium to bring them to the market. They are considered 'Ready for the market'.

Creation: This category includes innovations progressing on technology development process (e.g. pilots, prototypes, demonstration). They are considered 'Advanced on technology preparation'. In order to capitalise on the potential of these innovations, the management team needs to focus on transforming a novel technology or research results into a marketable product or service and to prepare its commercialisation.

Commitment: This category includes innovations for which concrete market-oriented ideas have been put together (e.g. market studies, business plans, end-user engagement). They are considered 'Advanced on market preparation'. Their commercialisation depends on progressing on technology development.

Exploration: This category includes innovations, which actively explore value creation opportunities. They are considered 'Getting things started'. These innovations are in the early phases of technological readiness, but already show high commitment levels from the organisations developing them. Their commercialisation requires efforts in transforming technology into marketable products. Alternatively,

Figure 3: Maturity levels of innovations identified by the Innovation Radar
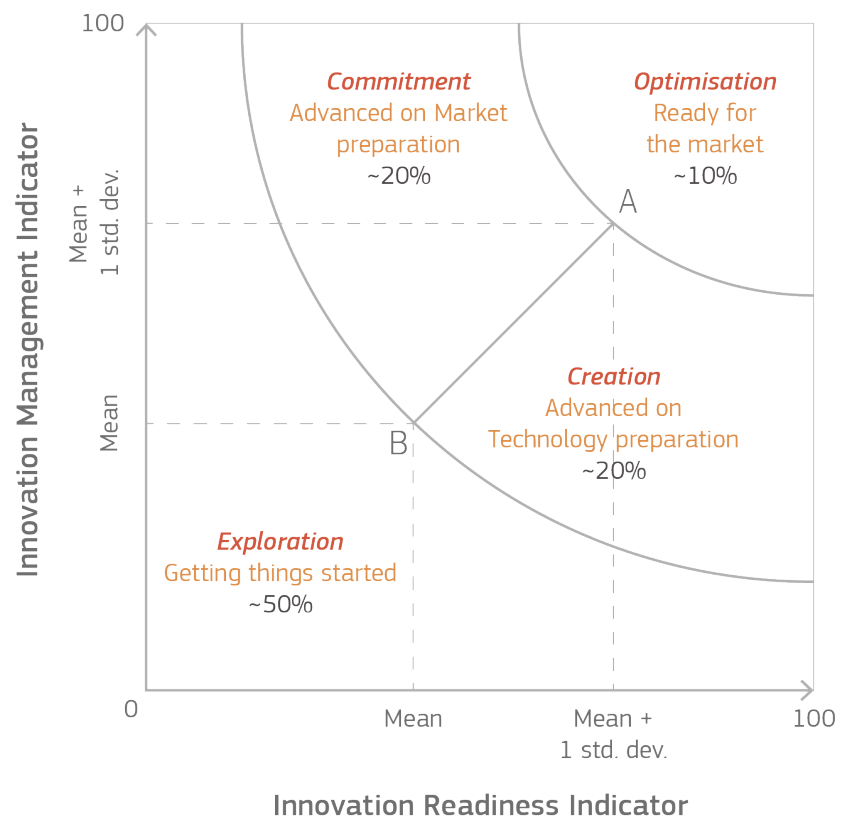
this category includes concrete market-oriented ideas, which depend on further progressing on technology development process.

The Optimisation category comprises all innovations that record a score equal or higher than the average score plus one standard deviation on the Innovation Management and Innovation Readiness Indicators respectively (see Figure 3). The reference point to construct the border of this segment is point A that represents innovations with an average score plus one standard deviation on both indicators. The border is then drawn along a circular segment, where the radius is defined as the radial distance of point A to the optimal situation (a score of 100 on both indicators). Employing a circular border has several advantages. First, all innovations on the border are equidistant to the optimal situation. Second, it allows for partial compensation of a lower score on one of the indices with a higher score on the other under the restriction that the radial distance to the optimal situation equals the one of reference point A.

A similar reasoning is used to delimit the Exploration category, which includes innovations with scores equal or lower than the average on the Innovation Management and Innovation Readiness Indicators respectively. Point B in Figure 3 constitutes the reference point to construct the circular border. Similarly, partial compensation is allowed but only to the extent that the radial distance of each point on the border to the optimal situation equals the one of point B.

The categories of Commitment and Creation are confined within the borders of the Exploration and Optimisation categories. The line connecting point A and B delimits the Commitment and Creation categories from each other. It is constructed in such a way that the score of the Innovation Management Indicator for innovations in the Commitment category is equal or higher than the score on the Innovation Readiness Indicator. In that sense this category aims to capture innovations that made particular progress in putting concrete market-oriented ideas together.

Given the normal distribution of the sample, each category represents approximatively 50 percent (Exploration), 20 percent (Commitment), 20 percent (Creation) and 10 percent (Optimisation) of the innovations.

Contact information