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GLOSSARY

FOR THE RAISE PROJECT

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Disclaimer

Objectives and definition of the present document

Building new projects inevitably generates a host of new terms, concepts, and processes that need to be explained and codified in a way that makes them understandable to the bunch of actors involved.

To prevent misunderstandings, it is of utmost importance to make sure that everyone has a clear comprehension of what specific terminology that might arise means - both in terms of clarity and productivity of the actor himself and for maximizing the interaction among single or different entities. Making it clear, effective, fast, and easily accessible is then a priority.
As gravitating around the many areas of interest that RAISE tackles requires a common language, the present glossary has been identified as the tool to create a baseline to prevent misunderstandings. This glossary indeed explains how general terminology has, for some of the mentioned definitions, specific meaning for the RAISE actors.

Moreover, the present document might be updated over time as proceeding with milestones' advancements. Beyond making it available to all RAISE users, it also might be included among the dis-semination tools to be shared with other stakeholders (e.g., by uploading it on a dedicated section of the website).

DOCUMENT INDEX

AFFILIATE

Within the RAISE project, 25 affiliates have been identified and sub-divided across Spokes. Each affiliate can assume different roles within Spokes and participate in multiple of them. They play a key role in the project development and proactively cooperate to deliver tasks.

ARTIFACT

Artifacts are concrete actions that enable the technology transfer programs to be translated into real opportunities. For example, for the task "technological acceleration", one of its artifacts can be the "acceleration journey". Artifacts refer to the actions needed to reach a specific task.

BREAKTHROUGH INNOVATION

While disruptive innovation refers to a change in the market structure itself, breakthrough innovations (this term is used as a synonym of radical or discontinuous innovation) are radical changes in the technology or in the product range of a company. They start from the inside of an organization. Contrary to disruptive innovations, "a breakthrough innovation is a radical innovation that does not dramatically provoke the displacement of old firms from the market (and it originates in large firms as well or in new small firms entering the market without the power of becoming dominant), allowing new actors to conquering only a small percentage of total industry sales. Breakthrough innovations re-fer only to new technologies, and to the invention of new products, and they do not pertain to new business models" (Rakic, K. (2020) "Breakthrough and disruptive innovation").

CHALLENGES (SS)

They represent the point of contact between mission, activities, technological demand of a single Spoke or of the region. SS are useful tools to clearly state which kind of technological solution related products, services, or innovative processes a Spoke is looking for. The SS are previously decided by Spoke Leaders and their problem – or specific opportunity – has the aim of generating innovative ide-as among a heterogeneous group of organizations or individuals. Moreover, in contrast with Tenders (see below the related description), they do not have a prominent level of definition.

CIVIL SOCIETY

Citizens that share the same interests and activities as a collective group. This term also refers to local communities, local cooperatives, and associations.

CULTURE-BASED PUBLIC

Namely, they are intended as to beliefs, tradition, values, experience, visions regarding a collective group defined by social norms.

DATA

With reference to the definitions of indicators and metrics, the following data types are applied:

- continuous data: data that are expressed on a numeric scale;
- discrete data: data that can take on any value in an interval (synonyms: interval, float, numeric);
- categorical data: data that can take on only integer values, such as counts (synonyms: integer, count);
- binary data: a special case of categorical data with just two categories of values, e.g., 0/1, true/false (synonyms: dichotomous, logical, indicator, boolean);
- ordinal data: categorical data that has an explicit ordering (synonym: ordered factor).

DELIVERABLE

In project management a deliverable is generally defined as the result of an objective-focused work completed within the process of a project. It can be internal or external. While, taking into consideration the RAISE project, a deliverable is the output of a task.

DEMONSTRATION PROJECT

A demonstration project is one that aims to demonstrate the feasibility or validity of an idea or concept. A demonstration project is carried out to test the hypothesis behind a project or solution, and to see if it can be transformed into a viable and successful product or service. A demonstration project can take many forms, depending on the scope and nature of the project. It can be a practical demonstration of how a technology works or how it can be used to solve a specific problem. It can also be a model or prototype of a product or system, made to test its functionality or to gather feedback from potential users. Demonstration projects are often used in the early-stage phases of project development, to assess the feasibility and viability of an idea or solution. If the demonstration project succeeds in proving the validity of the idea, the project can be continued, while if the demonstration project fails to achieve its intended goals, the idea may be revised or abandoned. Demonstration projects implement, test, evaluate, and disseminate actions, methodologies, or approaches that are new or unknown in the specific context of the project, such as the geographic, ecological, socioeconomic context, and that could be applied elsewhere in similar circumstances.

DISRUPTIVE INNOVATION

This term has been coined by the Harvard Business School professor and business consultant, Clayton Christensen, back in 1995. It is defined as an innovation whose power can create a new market or disrupt an existing one, although encountering strong resistances along the path. Usually, it is initially adopted by a niche of people, and with the passing of time it achieves a market share that surpasses the previous one. E.g.: Spotify, Uber, Netflix, or – to take into consideration three more classic examples, the wheel, or the lightbulb can be considered as disruptive innovations. As mentioned in Rakic, K. (2020) "Breakthrough and disruptive innovation" : "A disruptive innovation disrupts the market and creates new market niches. It is an innovation that not only involves the product or the process, but it can also affect the firm's business model and the processes of entry and firms' shakeout. Considering its characteristics, it is a competence destroying innovation. Disruptive innovations in product life cycles reflect the poorer product performance (or the excessive price of the previous used technology). Existing customers do not yet consider the new product, but novel customers are attracted. This radical innovation affects competition in the market, creating new

products that satisfy new needs. In new market niches, innovative firms can grow and, and at the end of the market evolution, they can displace the incumbents. When new technologies are introduced without changing the firms' rankings in the market, then these innovations might just be considered technological breakthroughs".

DISSEMINATION

Dissemination refers to the act of spreading; in the case of Spoke5, its communication focuses on the process of making results useful and available for the key stakeholders of the project. Thus, it aims at describing and making available for uptake the RAISE results, so that they can be used in their own work by a target audience specifically segmented, and in line with the proper protection of IPR. The dissemination package executes "the public disclosure of the results by any appropriate means, including by scientific publications in any medium", pursuing: 1) transfer of knowledge and results to the ones that can best make use of it; 2) maximization of the impact of research, enabling the value of results to be potentially wider than the original focus.

EXPLOITATION

The exploitation phase refers to making concrete use of the results of a given project, extending to the civil society these data to enable them to benefit from these results. These results can be commercially exploited (e.g., for products or services), and lay the foundation for further research, work for policy making or innovation, (...) (e.g., novel knowledge, insights, technologies, methods, data, and more).

EXTERNAL KTO (EKTO)

As a university/research center begins to explore its institutional role as part of a territorial knowledge system, so it begins to appreciate the relevance of linking and binding relationships with other territorial institutions involved in economic development, either politically or economically, a KTO is created. While the internal KTO specializes in supporting the researchers and defending their interests, the external KTO specializes in supporting external organization's innovation requirements and linking with the University and Research Center. One of the key roles of the external KT structure is promoting and consolidating collaborative research partnerships. As the KT system evolves, this fosters co-creative working environments in which both multidisciplinary researchers and companies can work together to produce new knowledge and technological innovation. Typical actions that focus on External KTO offices refer to: licensing, research contractor - negotiating strategic partnerships, sup-porting spin-offs in the market, carrying out entrepreneurial training, providing facilities (e.g., business incubator).

FLAGSHIP PROJECTS

Flagship projects are R&D, capacity building, and communication-based projects that have been decided and approved by Spoke5 together with the cooperation of the main partners, IIT, CNR and Uni-Ge. They involve internal and external activities either online or offline, with specific goals, timings, and targets.

GRANT

A Grant is a competitive call launched by IIT, CNR, and UniGe and issued by Spokes that with research objectives related to the RAISE project. Indeed, it is a procedure considered for the allowance of external subjects to the innovation ecosystem whenever there is the need of financing new re-search activities (which

need to be coherent with the already existing activities expected within the program). Grants involve the delivery of contributions, aimed at realizing the following: a) industrial research and experimental development projects; b) innovation projects; c) innovation of processes and organization.

HUB

The hub is an implementation body composed of 9 actors that responds to specific objectives of the PNRR M4 and covers specific S3 priority themes. These nine actors include: advisory board and scientific committee, which work on strategic guidance and scientific guidance, quality and control, respectively; a PMO office, which deals with administrative and financial management, with a board of directors at the center that deals with monitoring, evaluating, and decision-making; and finally, a research manager, handling in turn the different spokes.

INDICATOR

It is a way of showing or representing something, often throughout the use of symbols or figures. Indicators are always used to measure the state or quality of something and can be based on one or more metrics. For instance, the unemployment rate is an indicator that measures the percentage of people in the labor force who do not currently have a job. An indicator of economic health might be the Gross Domestic Product (GDP), which measures the total value of goods and services produced by a country. Indicators can be used to monitor progress toward a goal or to evaluate the performance of a particular activity. They can also be used to make comparisons or to identify trends or patterns. Indicators may be numerical or visual, and may be presented in the form of graphs, tables or other forms of representation. (Please see the reference used for data in the related definition).

INJECTION

Within RAISE, injection is considered as an input of technological solutions within the process of generating innovation to make them available in the Ligurian region.

KNOWLEDGE TRANSFER

“Knowledge Transfer (KT) aims to maximize the two–way flow of technology, IP and ideas. In turn this enables companies (existing and new) or other non–academic organizations and the public sector, to drive innovation leading to economic
and social benefit and enables publicly funded research organizations (PROs) to advance research and teaching. KT is now a recognized activity in which PROs are expected to engage and has been adopted as a part of the “third mission” alongside teaching and research by many, but by no means all, PROs and universities across Europe. For many, KT is seen as an essential source of innovation and a mechanism for the dissemination of research results.” (As per “Knowledge Transfer Metrics”, Campbell, 2020)

MEDIA-BASED PUBLIC

The term refers to the “capital of information”, namely news, communication, social networks, etc.

METRIC

A metric is a standard of measurement, that is, a quantitative measure of a particular attribute or characteristic of something. For example, weight is a metric used to measure the mass of an object, while time is a metric used to measure the duration of an event. Metrics can be used to measure a variety of things, such as output, performance, quality, quantity, value, speed, and many other aspects. They can also be used to assess progress toward a goal or to compare the results of different activities. (Please see the reference used for data in the related definition).

MILESTONE

Usually refers to a significant point in the development of a specific task. Within the context of the RAISE project, each milestone refers to an objective that needs to be completed within a range of time.

MVP

This acronym refers to “Minimum viable product”, a product that has enough features to be accepted by early-adopter users. The definition given by Eric Ries, who introduced this concept as part of his Lean Startup methodology, is the following: “(MVP) is the version of a new product that allows a team to collect the maximum amount of validated learning about customers with the least amount of ef-fort”. Usually, MVP comes after PoC (whose definition can be found below).

OPEN INNOVATION

Open innovation is a term that refers to the process of seeking out and incorporating ideas and technologies from a wide range of external sources, including customers, suppliers, research institutions, and other companies, into the innovation process of an organization. It is a way of fostering collaboration and creativity by encouraging the exchange of ideas and knowledge between different organizations and individuals, both inside and outside of the company. Open innovation can take many forms, including partnerships, licensing agreements, acquisitions, and crowdsourcing. It can be used to identify and pursue new business opportunities, solve complex problems, and accelerate the development of new products or services. By embracing open innovation, organizations can tap into a wide range of expertise and resources that may not be available internally and can improve their ability to respond to changing market conditions and customer needs.

OUTCOME

An outcome is a result or effect that is obtained from an activity or project. An outcome can be positive or negative, depending on the result obtained. For example, if a project aims to increase the per-centage of students passing an exam, the positive outcome might be an increase in the percentage of students passing the exam, while the negative outcome might be a decrease in the percentage of students passing the exam. Outcomes can be measured quantitatively or qualitatively, depending on the characteristics of the activity or project in question. For example, if a project aims to increase customer satisfaction, the outcome could be measured through a satisfaction survey, which will provide a quantitative measure of customer satisfaction. If the project aims to increase students’ understanding of a particular topic, the outcome could be measured through a qualitative assessment, such as through a group discussion or presentation. Outcomes are often used to evaluate the success or failure of an activity or project, and to determine whether they achieved their intended objectives.

OUTPUT

An output is a result or product obtained from an activity or process. Outputs can be tangible or in-tangible, depending on the type of activity or process involved. For example, the output of a machine shop might be a repaired vehicle, while the output of a math class might be the understanding gained by students on a particular topic. Outputs can be measured quantitatively or qualitatively, depending on the characteristics of the activity or process in question. For example, the number of vehicles re-paired in a machine shop can be a quantitative measure of outputs, while the quality of repair can be assessed qualitatively. Outputs are often used to evaluate the performance or productivity of an activity or process, and to determine whether they are achieving their intended goals. Outputs can also be used to make comparisons or to identify trends or patterns.

PILOT PROJECT

A pilot project is a project that is carried out to test or demonstrate the operation of an idea or concept in a controlled context. A pilot project is often used to evaluate the effectiveness or feasibility of a new technology, solution, or process before its use is extended to a larger scale. A pilot project can take many forms, depending on the scope and nature of the project. It can be a practical demonstration of how a technology works or how it can be used to solve a specific problem. It can also be a model or prototype of a product or system, made to test its functionality or to gather feedback from potential users. Pilot projects are often used to test the effectiveness or feasibility of an idea or solution in a real-world context, before investing significant resources in its implementation on a larger scale. They can also be used to gather data and information on the use or performance of a technology or solution, that can be used to refine it or extend its use in other contexts. Pilot projects apply a technique or method that has not been applied or tested before, or elsewhere, that offers potential environmental or climate benefits over current best practices and that can later be applied on a larger scale to similar situations.

PROJECT

(Intermediate) Within the RAISE terminology, an intermediate project is a specific R&D project developed by work packages, realized together with the research activities (tasks) of other Work Packages. (Integrated) Integrated projects of R&D gather the intermediate projects developed by WP. They fore-seen cross-collaboration activities.

PROOF OF CONCEPT (POC)

Is a project or experiment that aims to prove the feasibility or validity of an idea or concept. It is carried out to test the hypothesis behind a project or solution, and to see if it can be transformed into a viable and successful product or service. A POC can take many forms, depending on the scope and nature of the project. It can be a practical demonstration of how a technology works or how it can be used to solve a specific problem. It can also be a model or prototype of a product or system, made to test its functionality or to gather feedback from potential users. Usually, on the TRL scale, PoCs have a relatively low level (between 2 and 4). At this stage, the technology has been demonstrated in a laboratory or a small-scale environment. As PoCs still need a certain grade of implementation to be demonstrated as commercially attractive and ready to be scaled up, if the POC succeeds in demonstrating the viability of the idea, the project can be continued and

lead to a prototype or MVP, while if the POC fails to achieve the intended goals, the idea may be revised or abandoned.

PROTOTYPE

A prototype is a preliminary version of a product or system, made to test or demonstrate how an idea or concept works. Prototypes are often used to verify the feasibility of a design or to test innovative technologies, or solutions. They can also be used to gather feedback from potential users or to establish specifications for a product or system. Prototypes can be made in different ways, depending on the needs of the project. They can be physical - made from real materials and components, or virtual - created using design or simulation software. They can also be mixed, that is, consisting of physical and virtual elements. Prototypes can take different forms and levels of completeness, depending on their purpose. They can be simple cardboard or plastic models, or complete, working versions of a product or system.

RESILIENCE

In the logic of the RAISE project, this adjective refers to a solution designed to adapt and operate effectively under changing conditions or during outages. This could include the integration of redundancy and fail-safe mechanisms, design for scalability and flexibility, and the ability to operate in a wide range of environments.

SPOKE

Spokes are implementing entities of the main hub, as can be read in the Project organization chart. Spokes serve as implementing bodies that connect the economic vocation and territorial needs of the Liguria region with high-potential applications in specialized areas such as robotics, machine learning, artificial intelligence, etc.

TARGET TECHNOLOGIES

A gathering of methods, tools, and procedures that aim at solving problems or enhancing the quality of life within the AI and Robotics fields for products, services, or innovative processes that have a high-level of sustainability, inclusivity, and resilience. They represent part of the output that will solve the SS (specific challenge). These technologies can become part of the heritage of the Spoke. Contrary to SS, their level of definition is clear.

TASK (OR RESEARCH ACTIVITY)

Tasks are activities that result in the creation of new or existing knowledge, able to generate new concepts, methodologies, and understandings. With reference to RAISE, starting from a specific WP of Spoke 5 such as acceleration, one of its tasks might be the cascading calls systems.

TECHNOLOGY

With this term, we generally refer to a gathering of methods, tools, and procedures used to solve problems or bettering the quality of life of individuals. With reference to the RAISE project, please al-so refer to Target Technologies used in the cascade funding system.

TECHNOLOGY READINESS LEVEL (TRL)

TRL refers to a specific method to estimate the maturity of technologies during the acquisition phase of a program, to be commercialized or implemented according to their level of technological readiness on a defined scale. Indeed, TRLs are measured on a scale from 1 to 9, with 1 being the least and 9 being the most mature level of technology. A given technology reaches the ninth grade of TRL when its efficacy is demonstrated within the future environment where it will be used, and when it has been implemented for the intended use.

TECHNOLOGY TRANSFER

Technology transfer is generally defined as a process for applying known technologies to new and novel applications (Lane Joseph, 1999, Understanding Technology Transfer, Assistive Technology). This process conveys results coming from scientific and technological-based research, transferring them to the market and society. Considering RAISE, it is defined as a technology transfer project as it is focused on shifting on the market what spokes bring to life in terms of innovations – essentially transferring these findings "from research to enterprises". Usually – as well as it happens within the process of RAISE - these findings are brought to the market either by establishing licenses or by creating startups.

TENDER

In the context of Spoke 5, it stands for a competitive procedure issued for the purchase of supplies, goods, and services necessary for the implementation of the RAISE program. It is a tender for a service contract issued by Spoke 5 to make other Spokes benefit from its output. Possible services include: project and development of technological solutions that are inclusive, sustainable, and resilient, supporting the innovation of specific products, services, or processes within AI & Robotics; b) implementation of technological solutions proposed within the configuration of one or more Spokes; c) on-field deployment support, installation, and validation of technological solution(s); d) other kind of support related to the management of the project.