SISCODE CO-DESIGN FOR SOCIETY IN INNOVATION AND SCIENCE

D3.5

ASSESSMENT REPORT

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LIST OF ABBREVIATIONS

ABBREVIATIONS	EXPLANATION
WP	Work package
RRI	Responsible Research and Innovation
STI	Science and Technology Innovation
MoRRI	Monitoring the evolution and benefits of Responsible Research and Innovation (EU project)
SUPERMoRRI	Scientific Understanding and Provision of an Enhanced and Robust Monitoring system for RRI (EU project)
CHERRIES	Constructing Healthcare Environments through RRI & Entrepreneurship Strategies
TetRRIs	Territorial Responsible Research and Innovation and Smart Specialization
TeRRItoria	Territorial Responsible Research and Innovation Through the involvement of local R&I Actors

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1. Executive Summary

Pilot projects and experimentations, especially when conducted in restricted contexts, require assessment activities in order to determine not only their success or failure, but also to identify potential for replication, best practices and obstacles to be tackled in the future. In addition to this, monitoring and assessment have been a pressing issue both in the landscapes of co-creation and RRI, the two main fields that SISCODE operates within. Especially in the field of RRI this issue can be traced back to a gap between the theoretical concepts underlying RRI and their effective transition into practice (Zwart et al., 2014; Emery et al., 2014). An issue that has been addressed specifically through the pilot experimentation conducted in SISCODE.

The scope of this document is reporting on the development process of an assessment framework for gauging the pilot experimentation in the context of co-creation. In the process, all aspects of the experimentation were considered in order to effectively derive considerations from theory to practice and vice versa.

In the following, the assessment framework is explained starting from its theoretical background, and takes into account the underlying tools and methodologies. Moreover, specific attention is paid on the possibility of scaling this framework up on a project level, and out, going beyond the specific project.

The first section of this document analyses the activities regarding monitoring and assessing from a theoretical point of view posing particular attention on the two main fields of operation of SISCODE – co-creation and Responsible Research and Innovation (RRI). This is followed by a brief outline of how the monitoring and assessment as a task has evolved throughout the project together with its relation to other tasks and WPs. The development process of the assessment framework is described in detail starting from the definition of a set of indicators to the development of specific tools to carry out the single monitoring and assessment activities, up to the development of the framework itself, posing specific attention to a definition of an integrated methodology for data collection and evaluation. In the last section, the results of this evaluation are presented from which to build on for considerations and reflections on the future use and development of the SISCODE assessment tools. The final sections also report on the numerous relations and constant exchanges with other projects in the field of co-creation and RRI, which accompanied the phases of development and conduction of the assessment framework.

2. Theoretical background – Monitoring and assessing

Co-creation and RRI are the two main fields of operation of SISCODE. In both of them, monitoring and assessment of impact are a present challenge not only to measure effectiveness and prove impact, but also to identify successful application strategies and best practices, and their dependency on the context of application.

This common issue of both fields appears to lie in the difficulty to adopt monitoring and assessment in practice, and it seems to be partly related to a missing evidence of benefits and impact. This known condition and deadlock is the main gap that SISCODE aims to address with its empirical research. Both fields have different histories of past experimentations, and existing assessment tools and researches that are to be illustrated in the subsequent paragraphs, since they serve as a theoretical base for understanding the fundamentals of the assessment framework of the SISCODE project, its development and implementation, and the results gathered, as described in this report.

2.1. Monitoring and (impact) assessment in co-creation

Like many other participatory activities, co-creation involves a great variety of different actors and stakeholders following a non-linear process (Rizzo et al., 2018). A process that may not have one final result, but rather a variety of less specific, broader directions and future indications as a main outcome (Kurath, 2009). This feature turns its measurement, comparison and assessment into a highly complex procedure, where a variety of elements requires to be taken into account.

Co-creation has been widely discussed as an approach that provides access to new and to date unused resources to co-create value for business as well as for society (Frow et al., 2015; Saarijärvi et al., 2013).

Nevertheless, a lack of directions has been identified regarding the set up of a specific strategy to embed co-creation; analogously, there are missing indications on how to effectively apply co-creation for business purposes (Frow et al., 2015; Saarijärvi et al., 2013). This lack can be partly traced back to the not well-defined characteristics, techniques and methodologies that shape the specific value of co-creation (Zhang & Chen, 2008; Frow et al., 2015).

The need to situate co-creation in a specific scheme and frame in order to be able to assess its success later on (Zhang & Chen, 2008) has been addressed in SISCODE by conducting real-life experimentations (see Deliverable 3.4) which were informed according to a specific

definition and framework for co-creation while furthermore addressing the aforementioned common issue: trying to close the gap between theory and practice (Zwart et al, 2014).

Moreover, the entire reasoning on the assessment of co-creation goes beyond its use for proving efficacy and evaluating the overall activity. It has also suggested that the activities of assessment and evaluation contribute in building awareness and knowledge. The importance to integrate them into the activities of co-design and co-production derives from this assumption, since they can eventually lead to an improvement of the created solutions, increase motivation among the participants and lead to perceived additional value (Foglieni et al, 2019).

The additional dimension of the creation of long-term value in the shape of organizational capabilities and new strategies (Frow et al., 2015) that may be triggered by the introduction of co-creation exploring a broader level of impact is to be addressed specifically in this report.

2.2. Development and issues of assessment in RRI initiatives

RRI has been identified as an opportunity to tackle global societal challenges by 'anticipating and assessing potential implications and societal expectations with regard to research and innovation, with the aim to foster the design of inclusive and sustainable research and innovation'[1]. Even though it has been widely discussed in theory, there is still a lack of translation into practice, especially regarding evidence of impact in empirical settings (Hansen & Allansdottir, 2011; Kurath & Gisler, 2009; Loeber, Griessler, & Versteeg, 2011; Smallman, 2016). This lack of application in real settings could be traced back to missing proof of impact and benefits leading to hesitation in adopting the novel approach despite its promising prospect (Hansen & Allansdottir, 2011; Kurath & Gisler, 2009; Smallman, 2016).

Especially the MoRRI (Monitoring the evolution and benefits of Responsible Research and Innovation in Europe) project (2015-2018, morri-project.eu) addressed the issue of monitoring the development and evaluate the benefits starting from the five dimensions of RRI (Gender equality, Public engagement, Science literacy and science education, Open access, Ethics, and as overarching dimension Governance) to develop, following an

[1] https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation

extensive research, a set of core indicators as well as a number of key insights on which needs to be considered and addressed when assessing RRI initiatives (Peter et al., 2018).

Some of these key insights to be considered to succeed in the task of monitoring and assessing RRI are not only crucial for defining synthetic indicators. These are also relevant dimensions at stake in shaping different and all-embracing ways of collecting data and defining benefits and KPI's inclusive of the perspectives of the stakeholders involved. This implies considering indeed the different stakeholders' points of view as well as the relatively long time needed to be able to evaluate real change, being aware that the latter requires a certain amount of time reaching beyond the timeframe of most projects (Peter et al., 2018).

Dealing specifically with the investigation of the potential of co-creation in RRI, one of the main aims of SISCODE is to identify a model of co-creation ecosystems that includes the monitoring, evaluation and prediction of impacts. The inclusion of stakeholders and actors external to the organisation leads to a broader perspective on factors to be considered throughout the process forming an entire ecosystem around the initiative.

2.3. The role of assessment in the SISCODE project

For what concerns the SISCODE project, the assessment task has been included in the pilot experimentation as part of WP3, where data from the labs' co-creation journeys were collected and evaluated. The main goal has been the restitution of feedback on the prototyping activities conducted by the single labs on different levels:

1. On an internal, project-specific level to assess the pure functionality of the prototype itself;
2. On an organizational level to measure eventual changes that the experimentation might trigger;
3. and lastly, investigating the regulatory and policy context to capture transformations and trace them back to actions, activities and strategies put in place throughout the project.

Recognizing its importance, the task has been integrated on a broader level since the early phase of the project. Its embedment, extension and the reasoning behind it are detailed in the consecutive chapter 3.

3. Initial task and development throughout the project

3.1. Initial aims and elements of the task

The initial task was aimed at collecting and interpreting data and material produced during the co-creation journeys carried out in WP3. The main goal was the evaluation of the single pilots and their prototypes in relation to both the organizational and institutional internal context, as well as the external context interdependent with the ecosystem and the overall policy environment in which they take place. Therefore, the task was entirely focused on evaluating the single prototypes and their success taking their surrounding into account. However, it was initially not considering their mutual relation, the greater context of their idea, or its broader correlation to the general issue of impact assessment in RRI initiatives.

3.2. From scaling up to scaling out

The importance of the relations among the single pilots and their role within the general elements addressed in SISCODE came to light relatively early in the experimentation. In particular, it emerged fundamental to include some additional points that were missing in the initially planned task and with the potential to provide precious insights on both the overall impact of the co-creation process (within the organization, the ecosystem and policy context in which the organization operates, and the project), and future possibilities.

Furthermore, some other aspects to be taken in consideration emerged.

Firstly, the need and opportunity to use this assessment to evaluate the broader impact of the entire initiative, and not only the single pilots, provided an additional layer of insights, connections and possible overall contribution to the project (Fig 1).

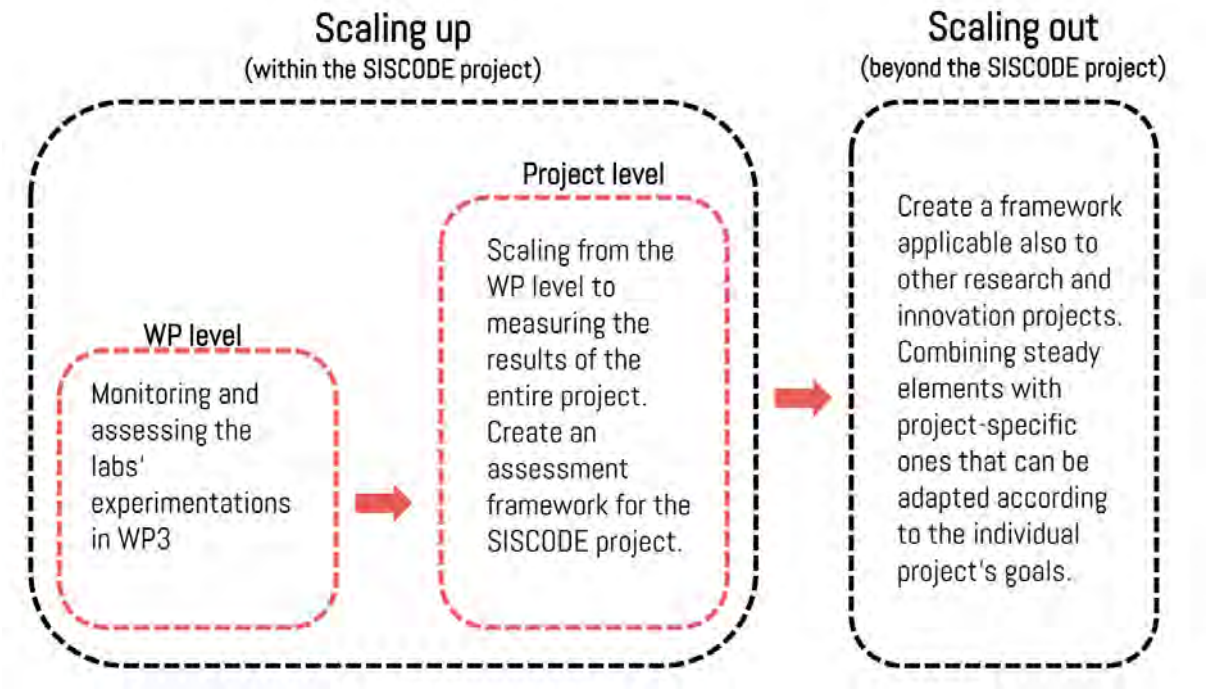

FIG 1 - FROM SCALING UP TO SCALING OUT

Secondly, the general lack of evaluation and impact assessment tools in RRI initiatives was detected. It was noted that a number of other projects were tackling the challenge of impact assessment in (RRI) projects developing and testing indicators, processes and tools. The 'Monitoring the evolution and benefits of Responsible Research and Innovation' (MoRRI)[2] project already made a first step towards developing indicators to assess the impact of RRI, but concentrating on a broader, national level. Concluding MoRRI, the need to improve and scale its indicators has been found leading to the follow-up project SUPERMoRRI[3] (Scientific Understanding and Provision of an Enhanced and Robust Monitoring system for RRI). Departing from MoRRI, SUPER MoRRI aims to create the first large-scale monitoring and evaluation system for RRI on a project-level. It is producing a series of indicators that will provide a more complete understanding of the complex and diverse relationships between RRI policies and practices, and their benefits at a societal, democratic, economic and scientific level.

The MoRRI project itself, its follow-up SUPERMoRRI, and a network of other projects dealing with monitoring and assessing shed light on the relevance of an issue affecting the entire field of RRI and even beyond. Acknowledging this, SISCODE started to participate in regular ecosystem meetings led by the team of SUPERMoRRI with actors involved in SwafS (Science with and for Society) projects within Horizon 2020. Taking place twice a month in an online environment to exchange opinions, experiences and obstacles identified, the encounters stressed the recurrence of this common issue.

These findings and the resulting shared need significantly impacted on the development of SISCODE assessment framework, as well as on the consideration to scale it out, going beyond the project-level as it was planned originally. In the light of this, in the following the development of the SISCODE assessment framework, its rationale and underlying concepts are detailed.

3.3. Relation to other WPs and tasks

Being a part of WP3 'Experimentation in co-creation labs', the assessment task is based on the findings from WP1 'RRI approaches and methodologies', which defined the theoretical base for the entire research conducted in SISCODE. A knowledge base to be fed with the empirical evidence collected during the aforementioned pilot experimentation conducted in 10 co-creation labs across Europe being the main subject of this assessment report.

[2] http://morri-project.eu
[3] https://super-morri.eu

Furthermore, it is strongly connected to the activities and investigations conducted in WP5. Synthesizing the main results from WP3, and together with the deliverable D3.4 'Labs as case studies', the assessment report creates the ground for the reasoning done in WP5, which further elaborates and triangulates the results and findings from WP2, 3 and 4, reconnecting them to the current landscape of research in co-creation and RRI (Fig 2). Specifically, while WP2 provides an overview of the research conducted on the overall landscape analysing existing cases, the experimentation conducted in WP3 provides additional empirical insights on cases conducted and monitored within a specific framework built on the previous findings. The specific insights on context dependency and influence on policy making are directly interconnected with the playground for policy making being developed in WP4.

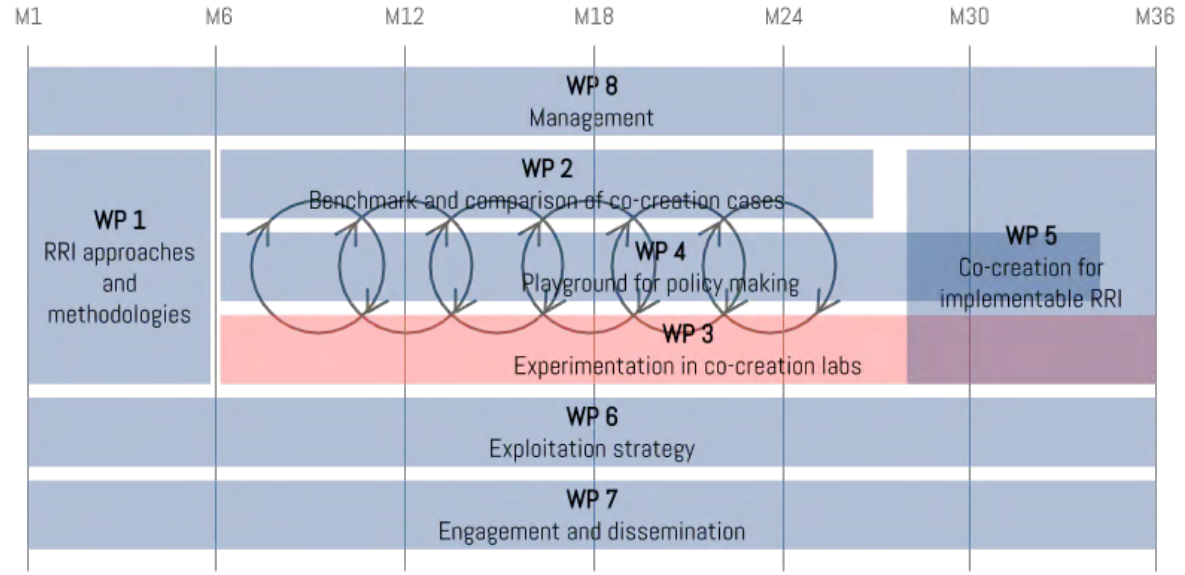

FIG 2 - OVERVIEW OF ALL WPS AND THEIR PLACEMENT IN THE TIMELINE OF THE PROJECT

The assessment report reconnects empirical insights obtained on the field to theory and to the general framework, to be conducted in WP5. Therefore, it works as a bridge transferring knowledge from the experimentation within the project to a broader, also theoretical reflection on co-creation in RRI.

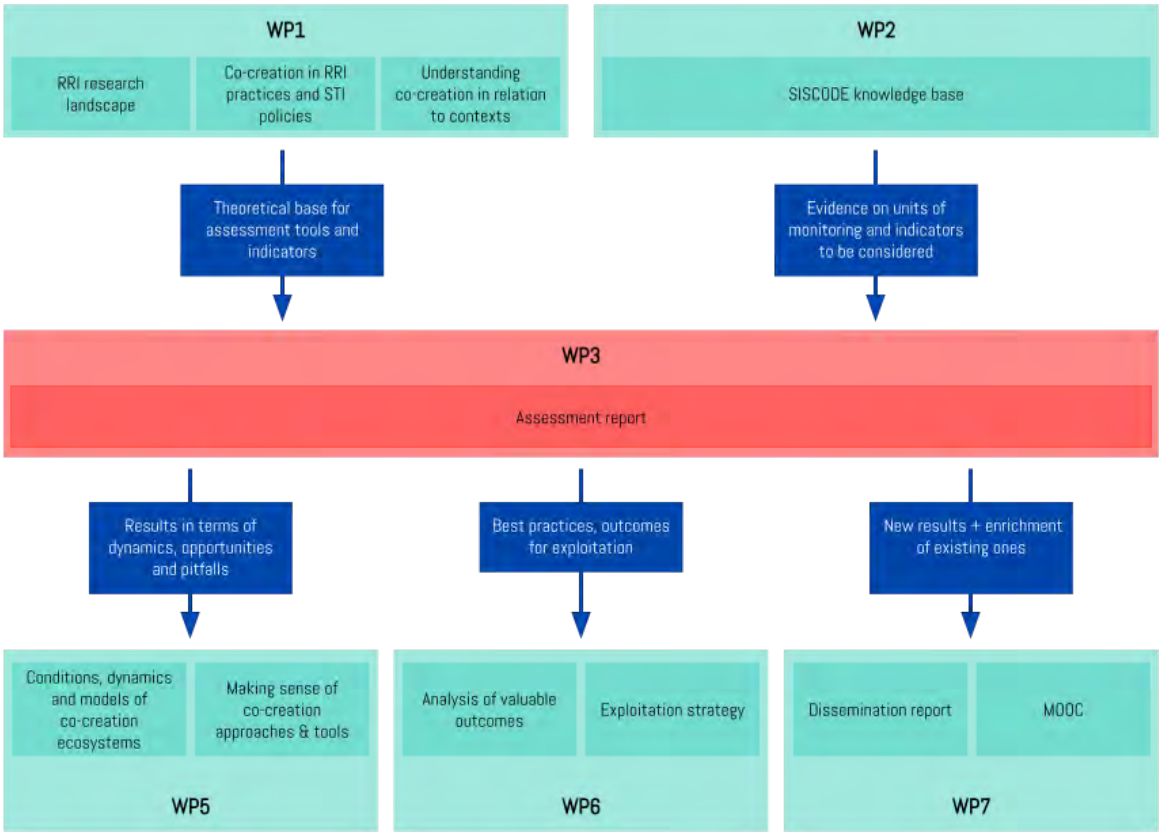

FIG 3 - DIRECT RELATION WITH OTHER TASKS AND WP'S

In light of this reasoning, it is worth pointing out the particular relevance of the assessment framework in relation to the activities of WP5, 'Co-creation for implementable RRI'. This WP aims at understanding and investigating the ecosystem(s) that lie at the basis of co-creation in RRI contexts as well as their dynamics and transformative processes. The SISCODE theoretical model developed in WP 1 has means of verification in WP3, where insights gathered during the real-life experimentation are extracted through the monitoring and assessment of the pilots.

These insights and results will directly contribute to the model of co-creation ecosystems developed for D5.1, bringing fundamental knowledge in terms of opportunities, barriers and contextual factors that occur when co-creation takes place. In particular, crucial is the observation and analysis of the organizational, institutional, and cultural changes necessary to put effective co-creation ecosystems in place, with effects on organizations, administrations, human resources and procedures. This particular understanding, together with the identification of the influencing factors of co-creation at different levels of the ecosystem, will be done by triangulating results from the case studies developed and analysed in WP2 with the results of WP3 investigated in this report.

Furthermore, the developments and practices observed and documented will provide first-hand material directly feeding into the interactive guidebook developed as D5.2 to match this model of co-creation ecosystems in practice with concrete tools and approaches. The insights obtained from the application and testing of the tools and methodologies in the pilot experimentation will influence the development of the guidebook. In particular, it will take up the analysis and comparison of how strategies were applied, their context dependency and adaptation, their outcomes and relation to the phases of the co-creation process together with their mechanical adoption.

In light of these relations within the project, the following chapter illustrates the development process of SISCODE assessment framework, especially unpacking the reasoning behind its elements and indicators.

4. Parameters of assessment – Developing a set of indicators for SISCODE

As anticipated, the assessment framework was originally planned to be limited to the pilot experimentation conducted in WP3. However, the relevance of the topic of assessment within the RRI and STI community that are experimenting with co-creation led to its extension to a broader level, going beyond the project scale (see chap 2). The development of an assessment framework considering the different elements and fields that RRI and co-creation imply, and their combination have been essential in order to be able to assess the full dimension of the project's goals.

Co-creation and RRI are the two main pillars that shaped the framework and its tools, together with additional, project-specific indicators derived from studies aimed at providing directions and means for monitoring its impact in different fields among co-creation, RRI, social innovation and design (Fig 4).

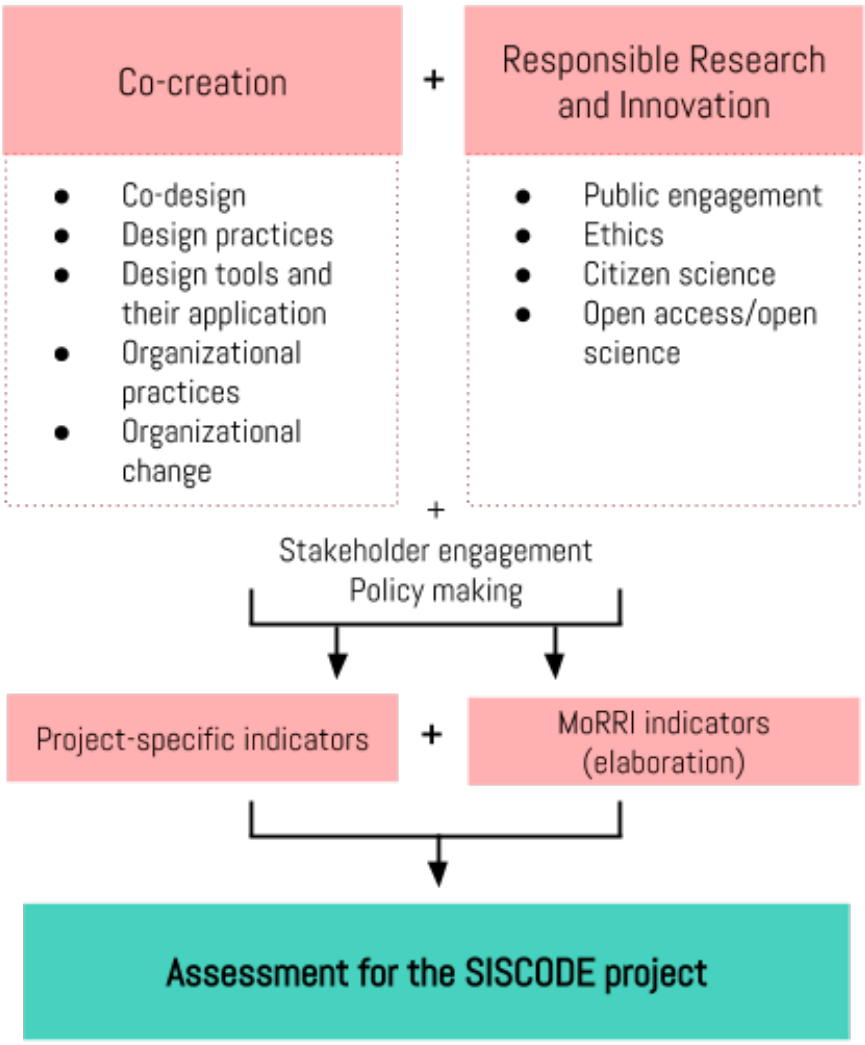

FIG 4 - THEMES TO BE ADDRESSED IN THE FRAMEWORK

The definition of those indicators as a set of issues and themes to be gauged throughout the experimentation has been the starting point for the development of the assessment framework to then move forward to the definition of specific tools for measuring and evaluating the defined indicators.

The identification and definition of indicators has been reconnected with relevant scientific literature, thus bridging theory and practice to create an adequate foundation to define how the single indicators could be measured by means of tools and methodologies that have been successfully applied in the past. This allowed evaluating their efficacy for SISCODE, in relation to potential tools to be adapted and combined in order to shape a coherent and holistic framework for data collection and evaluation (Fig 5). Based on this reasoning, a set of tools and an assessment framework have been developed to be activated and applied throughout the project. The scope was to document, measure and evaluate data for a

broader reflection on both the pilot experimentation and the SISCODE project itself in the European context.

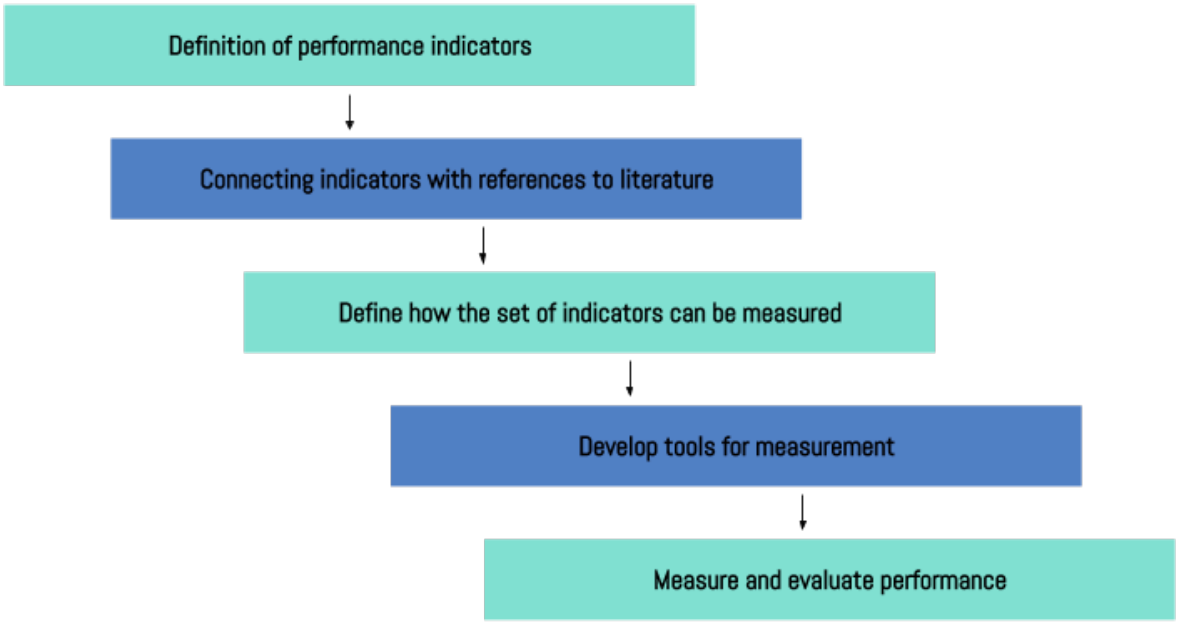

FIG 5 - DEVELOPMENT PROCESS OF THE ASSESSMENT FRAMEWORK

The process of the identification and selection of the indicators relevant in the current European landscape of RRI and specifically for SISCODE is described in the following.

4.1. Process of identification and definition of a set of indicators

A first exploration analysed the existing assessment tools and indicators in the RRI field. The research was intended to build a robust foundation to define a rationale of the general framework based on indicators fundamental for RRI.

The investigation led to one of the few specific assessment researches in the field conducted within the MoRRI project and resulting in a series of indicators to assess RRI initiatives. Because of their rationale and scope, the indicators developed for MoRRI represent one of the two main elements behind the assessment framework of SISCODE. However, operating on a national level, numerous indicators needed to be adapted or downscaled to fit the needs of SISCODE. For example, among the MoRRI indicators, some refer to data from large statistical European datasets, as the Eurobarometer, and a series of complementary studies not applicable to small-scale initiatives. On the topic, deriving from MoRRI, the SUPER MoRRI project has taken on the task of developing a framework for monitoring the evolution and impact of RRI on a project level. However, the project is still

ongoing and its results were not yet available at the time when the SISCODE assessment framework was developed.

Also, the MoRRI indicators focus on the field of RRI, while the field of investigation of SISCODE includes other areas, like co-creation. The extension to other areas implied to enlarge the set of indicators so as to be able to appropriately measure the observed phenomenon. That said, the rationale behind the definition of a set of indicators started from the existing set of MoRRI indicators, which have been selected, reviewed, and when possible adapted and scaled, to be combined in a new series of project-specific indicators developed individually for SISCODE.

4.1.1. Indicators from the field of RRI – Relation to the MoRRI indicators

The MoRRI indicators consist in an extensive set of 36 indicators through 6 different dimensions, corresponding to the 6 keys behind RRI, namely:

a) Gender (GE)
b) Science literacy and science education (SLSE)
c) Public engagement (PE)
d) Open access (OA)
e) Ethics (E)
f) Governance (GOV)

As it has been stated in the MoRRI final report, due to the unceasing changes in the RRI landscape, some indicators related are currently objects of an undergoing evolution (e.g. open access). In consequence, some of the MoRRI indicators could quickly result as outdated, and be in need of regular updates (MoRRI consortium, 2018).

As anticipated, one of the main implications when investigating the indicators developed in MoRRI has been the necessity to review and, when possible and appropriate, to downscale the assessment from the country scale for which it has been elaborated. Considering that SISCODE is operating on a projectual and institutional level, addressing a considerably different dimension (Fig 6), some of the aspects could not be addressed in their original shape.

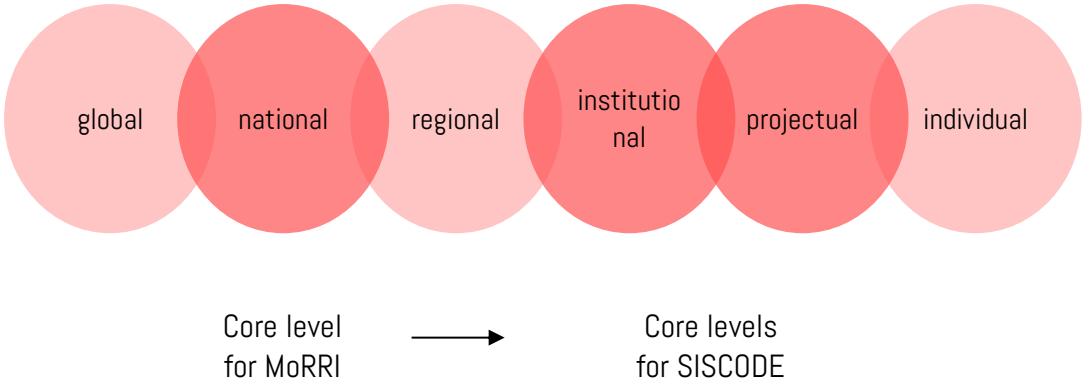

FIG 6 - SCALING DOWN THE MORRI INDICATORS

The investigation and evaluation of the single MoRRI indicators and their relation for SISCODE assessment framework are illustrated in Table 1, below. A number of indicators that were evaluated as 'not applicable' to the assessment framework because of their scale, were however considered and addressed in the project whatsoever, but could not be evaluated through the specific assessment framework concerning the pilot experimentation. This is because they would address different project members than the ones concerned with the direct data collection from the pilot experimentation, the reference of how they have been addressed instead is pointed out in the column 'Relevance for SISCODE' of the following table.

RRI dimension	Indicator title	Indicator Code	Relevance for SISCODE
Gender	Share of research-performing organisations with gender equality plans	GE 1	N/A
	Share of female researchers by sector	GE 2	Considered for the composition of the project research team. Described the characteristics of the partner teams in the technical report.
	Share of research-funding organisations promoting gender content in research	GE 3	Suggested to the labs and monitored during the activities of the co-creation journey.
	Dissimilarity index	GE 4	N/A
	Share of research-performing organisations with policies to promote gender in research content	GE 5	N/A
	Glass ceiling index	GE6	N/A

	Gender wage gap	GE 7	N/A
	Share of female heads of research-performing organisations	GE 8	Considered when describing the characteristics of the partner teams in the technical report.
	Share of gender-balanced recruitment committees at research-performing organisations	GE 9	N/A
	Share of female inventors and authors	GE 10	Considered when describing the dissemination results in the technical report.
Science literacy and science education	Importance of societal aspects of science in science curricula for 15 to 18-year-old students	SLSE 1	N/A
	RRI-related training at higher education institutes	SLSE 2	N/A, partly investigated in the self-assessment questionnaire.
	Science communication culture	SLSE 3	Within the engagement and dissemination WP there were defined dissemination plans. One for the project (Europe) and one for each of the co-creation labs (local). The dissemination will be monitored, and the results will be described in the reports.
	Citizen science activities in research-performing organisations	SLSE 4	Investigated in the self-assessment questionnaire.
Public engagement	Models of public involvement in science and technology decision-making	PE 1	This dimension is the basis of the co-creation journeys. Previous experience of each lab is considered in the lab's self-assessment questionnaire and then monitored in the Lab's journey spreadsheet.
	Policy-oriented engagement with science	PE 2	Investigated in the self-assessment on a project scale.
	Citizen preferences for active participation in science and technology decision-making	PE 3	N/A, not explicitly investigated, but considered in the self-assessment questionnaire.
	Active information search about controversial technologies	PE 4	N/A
	Public engagement performance mechanisms at the level of research-performing organisations	PE 5	Monitored for the labs within their co-creation journeys: data achieved from the lab's journey spreadsheet. Other WP mechanisms will be described in the reports.

	Dedicated resources for public engagement	PE 6	N/A, not explicitly investigated, but considered in the self-assessment questionnaire.
	Embedment of public engagement activities in the funding structure of key public research-funding agencies	PE 7	N/A
	Public engagement elements as evaluative criteria in research proposal evaluations	PE 8	N/A, not explicitly investigated, but considered in the self-assessment questionnaire.
	Research and innovation democratisation index	PE 9	N/A
	National infrastructure for involvement of citizens and societal actors in research and innovation	PE 10	N/A
Open access	Open access literature	OA 1	Considered when describing dissemination results as open access reports.
	Data publications and citations	OA 2	N/A
	Social media outreach/take up of open access literature	OA 3	Dissemination plan stating the use of social media for sharing readable and accessible information from the labs
	Public perception of open access	OA 4	N/A
	Funder mandates	OA 5	N/A
	Research-performing organisations' support structures for researchers as regards incentives and barriers for data sharing	OA 6	Data management plan/Practices for OA data sharing described in the Dissemination report.
Ethics	Ethics at the level of research-performing organisations	E 1	Ethical guidelines were prepared and shared with the partners. During the bi-weekly meetings with the labs there were also presented key issues to be considered during the experimentation.
	National ethics committees index	E 2	N/A
	Research fundings organisations index	E 3	N/A
Governance	Use of science in policy making	GOV 1	N/A

	RRI-related governance mechanisms within research-funding and performing organisations	GOV 2	An ethical and scientific committees are part of the SISCODE governance structure.
	RRI-related governance mechanisms within research-funding and performing organisations – composite index	GOV 3	N/A

TABLE 1 - EVALUATION OF THE MORRI INDICATORS ACCORDING TO THEIR RELEVANCE FOR SISCODE

The results led to a more in-depth investigation of the country-scale and large statistics-related indicators for downscaling them to a level where it could be used by the labs of the pilot experimentation.

At the same time, a set of project-specific indicators have been defined to focus on the RRI dimensions most relevant for SISCODE and assess also the specific dimensions of the project. In particular, this activity paid attention to measure dimensions and assess practices that are part of the co-creation activities, although not directly related to RRI.

4.1.2. Project-specific indicators

The assessment-task takes place in WP3 'Experimentation in co-creation labs'. As such it is directly related to the pilot experimentation and in consequence, the project-specific indicators identified for assessing the experimentation, both as a whole and the single pilots, are directly connected to the objectives of WP3 and the overall objectives of SISCODE. Tab 2 describes the indicators starting from the overall objective of the project and reaching out to the objective of the experimentation; each specific objective is then associated with a data source for the evaluation and finally to indicator(s).

SISCODE overall objectives	Specific objectives of the pilot experimentation	Sources of data for evaluation	Indicators to be introduced (if assessment tool is involved)
Describe effective dynamics and outcomes for the implementable integration of society in science and innovation	Enhance and embed strategies and practices for actor involvement	- Assessment tools needed	- New and existing strategies for actors involvement present in the organization - Practices of actor engagement and involvement
	Investigate the different cultural, organisational, institutional and regulatory	- D3.4 - Labs as case studies	N/A

	conditions		
	Diversities among actors and stakeholders (gender, culture, education and backgrounds)	- Assessment tool needed - D3.4 - Labs as case studies	Different stakeholder groups involved and their level of involvement
	Typologies of challenges and the citizens they affect (including vulnerable groups, women, children, migrants etc.)	- D3.4 - Labs as case studies - Assessment tool needed	- Different strategies and practices of engagement for different stakeholder groups - Handling and mediation among different stakeholders
	Characteristics of the co-produced solutions	- D3.4 - Labs as case studies	N/A
Experiment with design as a new system of competences on which to build capacity for implementable co-creation in RRI and STI policy making	Design capacities acquired during the project	- Assessment tool needed	- Design capacities present in the organization
	Spread of design capacities throughout the organization	- Assessment tool needed	- Investigation of level of design capacities at different points throughout the project
	Effectiveness of design in RRI and STI policy making	- Assessment tool needed - D3.4 - Labs as case studies	- Application of design tools - Efficacy of design tools - Evaluation and adaptation of design tools
Understand the cultural, organisational and procedural transformations needed to embed co-creation as a design-driven approach in RRI processes and STI policy making, overcoming barriers and resistance to change	Comparison of effectiveness of the same framework applied throughout different contexts in Europe	- D3.4 - Labs as case studies	N/A
	Context dependency	- D3.4 - Labs as case studies	N/A
	Barriers and resistance to change and possibilities to overcome them	- D3.4 - Labs as case studies	N/A

TABLE 2 - OVERALL OBJECTIVES OF SISCODE IN RELATION TO THE SINGLE DIMENSIONS AND INDICATORS OF INVESTIGATION

4.2. SISCODE's indicators and areas of interest

Beyond the definition of indicators, the conducted analysis supported the preliminary choice and definition of potential instruments to be concretely developed and applied for the monitoring and assessment activities.

On one hand it led to the choice to display the labs' co-creation journeys in D3.4 as individual case studies, emphasizing their differences and varieties while keeping a common structure. The latter ensured the possibility to compare the cases and draw conclusions from qualitative data extracted. On the other hand, it appeared necessary to introduce an additional tool to measure the specific indicators and the step-by-step development of results throughout the project. The need was that of a tool that could be applied multiple times before, throughout and after the experimentation to identify and eventually quantify changes that have been triggered by it.

The development of the assessment framework and the definition of the data to gather through it took into account both theoretical and practical concerns, requiring to consider the gap of measurable data which can be obtained just through collection of primary data. Therefore, the assessment framework has been shaped targeting specific areas of interest.

Areas of interest

Three main areas of interest have been identified for SISCODE, namely:

- **Stakeholder engagement**

This first area of interest addresses all matters related to the engagement of stakeholders on different levels. From the documentation of the types of stakeholders involved in the single project to general, organizational strategies for the identification and involvement of stakeholders. It is aimed to examine the quantity and variety of stakeholders involved as well as organizational practices and organizational change in relation to involvement practices.

- **Co-creation, its tools and methodologies**

Co-creation as a field of investigation relates directly to methodologies and tools used in SISCODE. Co-creation is to be investigated from a variety of different angles taking it into consideration as a practice itself when applied in the specific project with a structured methodology and specific tools. Furthermore, it is to be investigated from a broader perspective taking into account the transformation its application may trigger at a project

level, an organizational level and in the entire ecosystem. It is therefore examined both as a practice focussing on its elements, methodologies and tools, as well as a practice that may evolve according to the context of application and the changes it can trigger in this context.

- **Dissemination**

The dissemination of results is to be considered on one hand in direct relation to RRI, exploring the practices of provision of open access to results, and on the other hand as the capacities and practices of effectively communicating results to single stakeholders, communities and policy makers investigating the potential of future developments and impacts, exploiting a variety of channels and tools.

Transversal topics

There are specific topics which can be considered as high-level categories, and therefore relevant for the overall project. Their nature associates them with multiple indicators. They underline the transversal aspects and the interconnection among the areas of interest, indicators and their means of analysis. In consequence, it is important to note that the same data can feed more than one indicator, since it can be re-aggregated according to the relation to the topic observed. Hence, the analysis of transversal topics entails to consider more indicators. The main topics addressed in the investigation are:

- **(Influence on) Policy making**
  The topic addresses a fundamental dimension of SISCODE. Considering the small scale of the experimentation that has been conducted, it is investigated to what extent and with which areas these bottom-up initiatives establish a dialogue with, and are able to have an influence on policy making

- **Ecosystem transformation**
  Especially when related to multi-stakeholder involvement and the introduction of co-creation practices, it is to be investigated to which extent the entire ecosystem surrounding the pilot is influenced

- **Organizational capacities**
  The organizational capacities of the single labs are to be investigated starting from (1) the capabilities and knowledge present in the beginning of the project, (2) the ones that have been acquired throughout, the (3) transformative processes that

might have been triggered during the project, and (4) the ones that are ongoing beyond its conclusion.

Tab 3 lists all the specific indicators that have been defined as means of measurement according to the three areas of interest to be assessed throughout the experimentation.

Area of interest	Specific indicator	Notes on examination	Transversal topics	Kind of data collected
Stakeholder engagement	Strategies for stakeholder engagement	- Existing strategies - Change throughout the project of organizational practices related to strategies for stakeholder engagement - Acquisition of new capacities	Organizational capacities Policy making	☒ qualitative ☒ quantitative
	Identification of relevant actors	- Comparison of final result of engagement to the initial plan	Organizational capacities Policy making	☒ qualitative ☒ quantitative
	Number of stakeholders involved throughout SISCODE	- Documentation of stakeholders involved in the single activities carried out - Subdivision of numbers according to the typology of stakeholders divided in: - Policy makers - Scientific and research communities - Industry / innovation communities - NGOs - End users - General public	Organizational capacities	☒ qualitative ☒ quantitative
	Variety of involved stakeholders	Share of the selected stakeholder/user groups involved that have been identified as relevant: - Policy makers - Scientific and research communities - Industry / innovation communities - NGOs - End users - General public	Policy making	☒ qualitative ☒ quantitative
	Level of stakeholders involved	- Strategies and involvement of defined relevant dimensions: - Supranational - National - Regional - Local	Policy making	☒ qualitative ☒ quantitative
	Level of involvement	Measurement according to three possible levels of involvemen:t	Ecosystem transformation	☒ qualitative ☒ quantitative

		- One-way communication (Information) - Two-way communication (Involvement, but without decisive power) - Full involvement (decisive power)	Policy making	
	Phases of involvement	Involvement throughout the entire project or in single phases, definition of main phases: - Priority setting - Conduction - Assessment	Ecosystem transformation	☒ qualitative ☒ quantitative
	Frequency of involvement	Self-positioning according to frequency of involvement: - Very rarely - Rarely - Occasionally - Often - Very frequently	Policy making Ecosystem transformation	☒ qualitative ☒ quantitative
	Gender dimension of stakeholders involved	Division of participants in activities per gender		☒ qualitative ☒ quantitative
Co-creation, its tools and methdologies	Frequency of application of co-creation methodologies and tools	Self-positioning according to frequency of application: - Very rarely - Rarely - Occasionally - Often - Very frequently	Organizational capacities	☒ qualitative ☒ quantitative
	Typologies of co-creation tools applied	- Association of specific tools to specific activities in the spreadsheet - Notes on functionality and efficacy	Organizational capacities	☒ qualitative ☒ quantitative
	Processes and strategies for the application of co-creation	Self-positioning according to organizational processes for the application of co-creation - no structure - very loose structure - semi-structured processes - quite structured processes - structured processes and procedures	Organizational capacities Ecosystem transformation	☒ qualitative ☒ quantitative
	Evaluation of outcomes of co-creation activities	- Qualitative data on procedures and practices - Self-positioning according to frequency of evaluation: - Very rarely - Rarely - Occasionally	Organizational capacities	☒ qualitative ☒ quantitative

		- Often - Very frequently		
	Actor satisfaction in co-creation activities	- Qualitative data on procedures and practices - Self-positioning according to frequency of evaluation: - Very rarely - Rarely - Occasionally - Often - Very frequently	Organizational capacities Ecosystem transformation	☒ qualitative ☒ quantitative
	Evaluation of co-creation methodologies and tools	- Qualitative data on procedures and practices - Self-positioning according to frequency of evaluation: - Very rarely - Rarely - Occasionally - Often - Very frequently	Organizational capacities Ecosystem transformation	☒ qualitative ☒ quantitative
	Application of prototyping methodologies and tools	- Qualitative data on procedures and practices - Self-positioning according to frequency of application: - Very rarely - Rarely - Occasionally - Often - Very frequently	Organizational capacities Ecosystem transformation	☒ qualitative ☒ quantitative
	Testing and evaluation of prototypes	- Qualitative data on procedures and practices - Self-positioning according to frequency of application: - Very rarely - Rarely - Occasionally - Often - Very frequently	Organizational capacities Ecosystem transformation	☒ qualitative ☒ quantitative
	Considerations on potential for scaling and replication	- Qualitative data on procedures and practices - Self-positioning according to frequency of structured considerations for replication: - Very rarely - Rarely - Occasionally - Often - Very frequently	Ecosystem transformation Policy making Organizational capacities	☒ qualitative ☒ quantitative
	Influence on	- Production of knowledge with the potential	Ecosystem	☒ qualitative

	policy making	to influence policy making and how this knowledge is used - Self-positioning according to frequency of production of material with potential to influence policy making: - Very rarely - Rarely - Occasionally - Often - Very frequently	transformation Policy making Organizational capacities	☒ quantitative
	Dimension of organizational transformation	- Insights on transformations observed since the beginning of the project - Potential for future developments - Triggers and obstacles identified	Organizational capacities	☒ qualitative ☒ quantitative
Dissemination	Dissemination of results across media	Target(s) of dissemination and means of dissemination for the single target groups: - Policy makers - Scientific and research community - Industry and innovation communities - NGOs, end users and general public Self-positioning according to the completeness of target groups, that the results are regularly shared with among the list of groups mentioned above: - None or one - Two - Three - All of them - All of them + others	Ecosystem transformation Policy making	☒ qualitative ☒ quantitative
	Provision of open access	- Qualitative data on kinds of results that are provided as open access - Self-positioning according to frequency of provision of open access: - Very rarely - Rarely - Occasionally - Often - Very frequently - Self-positioning according to completeness of open access: - Very few results - Some results - About half of all results - Most results - All results	Ecosystem transformation Policy making	☒ qualitative ☒ quantitative

TABLE 3 - SISCODE INDICATORS OF ASSESSMENT

5. Rationale and levels of the SISCODE assessment framework

The reasoning behind the assessment framework consists in the division of the various results in four different categories: inputs, outputs, outcomes, and impacts (Fig. 7).

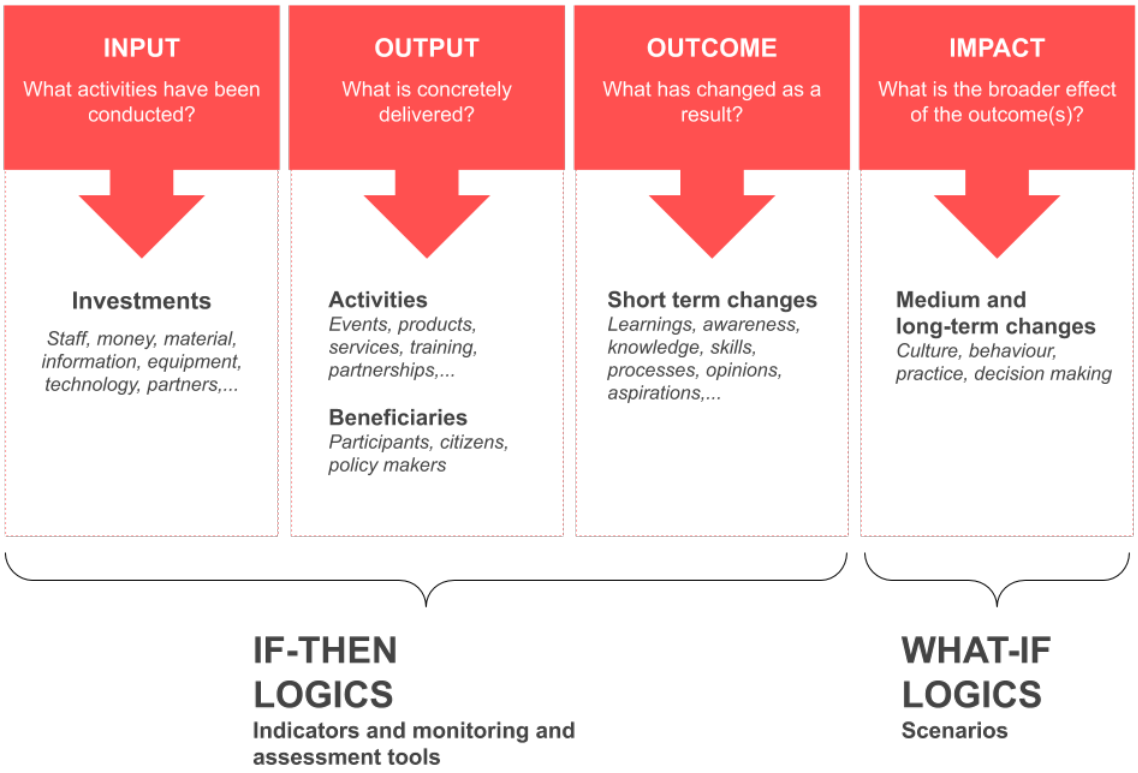

FIG 7 - THE RATIONALE OF SISCODE ASSESSMENT FRAMEWORK

a) Inputs

The first type defining the inputs includes all the assets invested during the pilot experimentation. These assets can be either monetary related to financial investments, material in terms of equipment, or intangible when talking about information flows or relations. All these kinds of input compose the elements and activities in which the pilot experimentation consisted in detail.

b) Outputs

Outputs define the immediate results of the investments. Tangible results can be events, products or material prototypes, while intangible outputs can take the shape of new relations, partnerships, or services. They are all characterized by their immediate availability and visibility.

c) Outcomes

Being closely related to the direct outputs, outcomes are often a direct result of them. They are defining changes that manifest in a rather restricted time frame after the delivery, and are usually intangible, being new knowledge, opinions, goals, or orientations.

d) Impacts

Impacts are based on outcomes that then trigger a longer-term impact in the organization and the ecosystem in which the experimentation has been conducted. Their measurement can be considered challenging due to their occurrence in times that often exceed the ending of the project, and therefore the time frame of its assessment activities.

All four dimensions can be put in a sequential order starting from inputs up to long-term impacts. While the first three elements can be monitored and assessed according to an if-then logic meaning that facts and observations are connected and conclusions are drawn in a process of deductive reasoning, on the other hand, impacts need to be anticipated considering potential future developments following a what-if logic (Fig 7).

Considering the difference among the multiplicity of elements and factors that each dimension includes, it turned out necessary to develop more than just one instrument of monitoring and assessment in order to grasp the pertinent factors for each step and dimension to be assessed. As stated previously, the dimension of impacts requires special attention as its assessment cannot undergo within the time frame of the project. Yet it is aimed at anticipating impacts creating potential future scenarios based on the outcomes of the experimentation.

The logic of the assessment framework created the base for the development of a series of tools to measure and assess the aforementioned dimensions of (i) stakeholder engagement, (ii) co-creation, its tools and methodologies, and (iii) dissemination. These tools which are detailed in chap 6, are: a spreadsheet documenting the labs' journey, a self-assessment questionnaire, and future scenarios.

5.1. Levels of analysis

The assessment activities planned, developed and conducted throughout SISCODE can be divided in four levels of evaluation, which are to be detailed in the following (Fig 8).

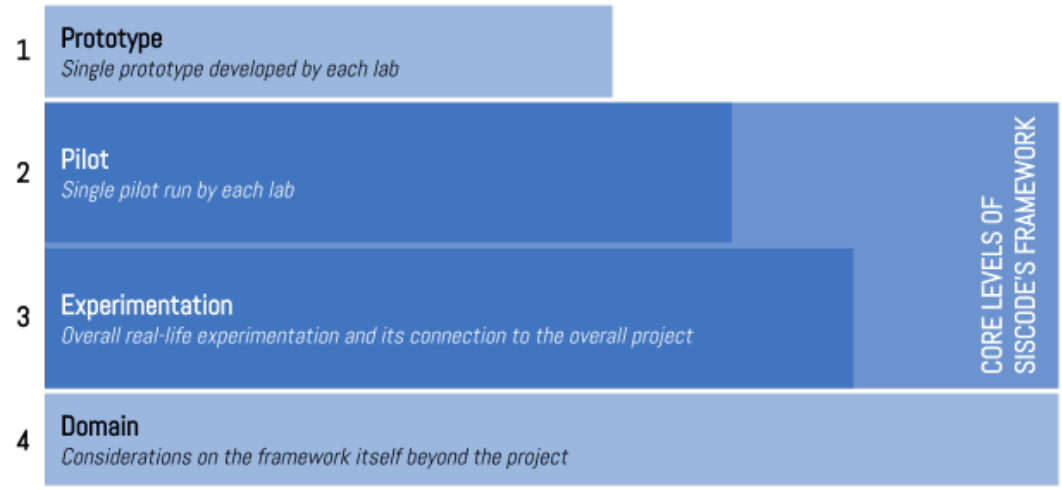

FIG 8 - REPRESENTATION OF THE LEVELS OF ASSESSMENT ADDRESSED

Prototype scale. At the first level, the assessment within the process of the single co-creation journeys is to be addressed, assessing the prototypes. This activity is considered a part of the assessment activity, with a focus more on the process and tools of the assessment rather than its results. For this assessment, the labs have been provided with a set of tools and instructions for application to monitor, evaluate and improve the single prototypes without requesting documentation or quantitative data. The knowledge and eventual capacities acquired in this process are then assessed as part of the levels 2 and 3.

Pilot and experimentation scale. The second and the third levels of analysis are the ones directly connected to the list of indicators. The second level focuses on the achievements of the single pilots. Considering the diversity in size of organizations, available resources, and field of work, the individual accomplishments have been analyzed from a qualitative point of view. Pilots achievements have been assessed in relation to the prototype, organizational learnings and new knowledge and finally, transformations triggered in the ecosystem in which the lab is operating. The third level of investigation is taking a broader view on the entire experimentation evaluating insights, opportunities, pitfalls, best practices, and learnings in relation to the set of indicators of SISCODE.

Domain scale. Lastly, the extensive research conducted in the development phase of the assessment framework together with the constant exchange with other projects related to the monitoring and assessment of RRI initiatives allowed a broader reflection on assessment and monitoring. Moreover, it shed light on the assessment framework potential to be scaled out beyond SISCODE, also leading to an extensive reflection on how settled parameters can be combined with project-specific ones in order to develop a flexible framework able to adapt to a variety of projects tailored to the specific needs and purpose of a project.

6. SISCODE assessment tools

As anticipated, the research on the ground of the framework and its levels of analysis led to the definition and development of different tools concurring to the assessment. The tools are: the labs' journey spreadsheet, the self-assessment questionnaire, and future scenarios envisioning the long-term impacts of the solutions co-created. Because of their nature and scope, such tools are to be considered as partly transversal to the different dimensions of (i) stakeholder engagement, (ii) co-creation, its tools and methodologies, and (iii) dissemination, and they are meant to gather and evaluate as much data as possible.

The **labs' journey spreadsheet** consists of an online shared excel file documenting objectively inputs and outputs and anticipating few outcomes that can be expected to be reached as a result of the concluded activity.

The **self-assessment questionnaire** focuses on the reflection on the outcomes and mid-term results of the experimentation. They can for instance manifest in new strategies or practices within the organization, going beyond the single activities and the pilot itself. It aims to trigger also an initial reflection on longer-term impacts that will then be elaborated further in the scenarios. When dealing with complex and unstructured problems, the process itself can lead organisations to re-define, re-learn and unlearn previous knowledge triggered by questioning and reflecting on current practices (Romme & Van Witteloostuijn, 1999). In this context, the questionnaire aims to trigger such reflections, and both investigate and nurture organisational learning (Stacey, 2007).

The **scenarios** are exclusively considering potential impacts on a long-term. Going beyond the time frame of the project, they envision future possibilities (future scenarios), offering an outlook on potential outcomes not yet achieved, but plausible. Such scenarios can have

different shapes, from narratives, to moodboards and videos. Among them, we opted for videos, considering this format an engaging way to expose possibilities, opportunities and new connections. As such, they serve both to trigger further reflections and considerations on the concluded experimentation, as well as to disseminate the pilots' results with a future vision, illustrating what the prototype could become in the future.

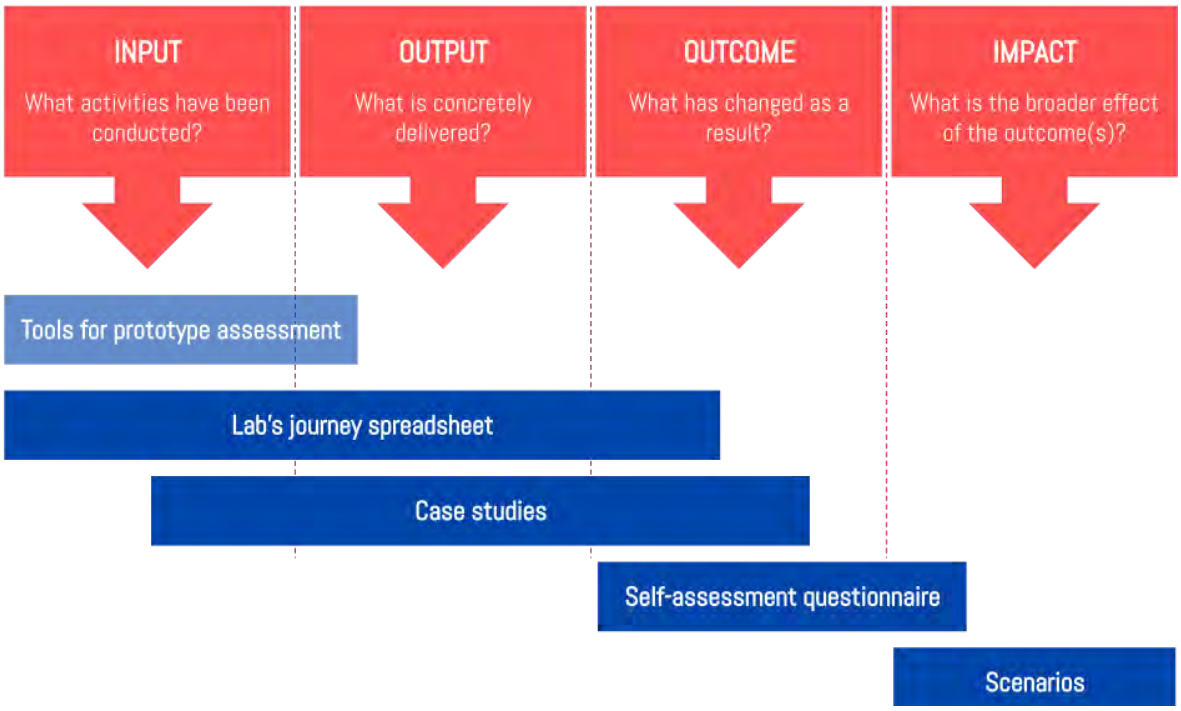

FIG 9 - SISCODE ASSESSMENT TOOLS IN RELATION TO THE RATIONALE OF THE FRAMEWORK

The single tools are explained in detail in the following chapters. Particular attention will be posed on stating their very specific aim, the kind of data that each one of them collects, how the tools have been developed, and how the gathered data has then been evaluated.

6.1. Tools for the assessment of prototypes

During their co-creation journey, all labs conducted at least two loops of prototyping, assessing and evaluating the first prototype to then refine and improve it, running a second cycle of prototyping and assessment (Fig 10). The prototypes in themselves have not been evaluated from an objective point of view by other partners than the labs themselves. It has been decided to leave this task open and solely provide a set of tools and indications in order to support the internal self-assessment. The assessment is meant to provide support in evaluating the prototype at the specific point in time when it is run, encouraging understanding useful for improving the prototype.

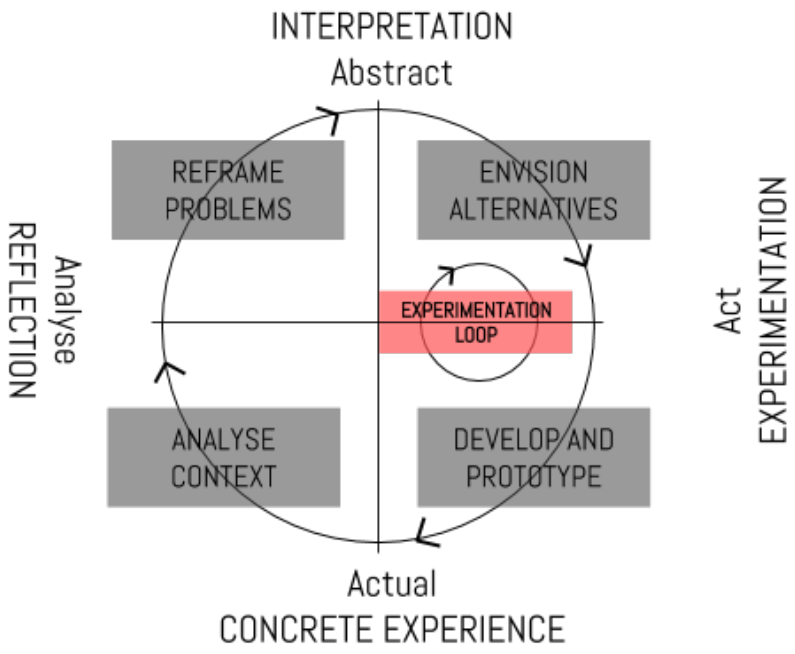

FIG 10 - THE EXPERIMENTATION LOOP IN THE PROCESS OF THE PILOT EXPERIMENTATION

To support the prototype evaluation, a set of tools (see list in Tab 4) to gather information on how stakeholders and end-users were perceiving the solution prototyped was shared, and guidance has been provided for conducting the evaluation activity. In conjunction, a common document has been created suggesting and explaining the use of specific tools for prototype evaluation to the single labs (Annex 1).

Depending on their specific need, each lab could choose from a set of tools for prototype evaluation. An average of 2 to 3 tools were selected by each pilot for assessing their experimentation, according to the type of prototyping activities and the competencies and resources available within the lab team.

The tools suggested are rooted in the fields of sociology, service design, interaction design, and applied statistics. As anticipated, most of them focus on the gathering of qualitative data, since the prototyping activities did not meet the criteria for a purely quantitative analysis due to their small scale and restricted number of users involved in the testing activities.

Tool	Kind of data collected	Procedure / conduction	Data gathered by	Field of origin
Diary studies	qualitative	punctual + change over time	Users	Psychology Anthropology
Focus group	qualitative	punctual	Users	Sociology
Field observation	qualitative	punctual, if applied repeatedly can display change over time	Researchers	Anthropology
Survey/feedback form	qualitative + quantitative	punctual, if applied repeatedly can display change over time	Users	Applied statistics
Semi-structured interviews	qualitative	punctual	Researchers + Users	Applied statistics
Interviews with card sorting activity	qualitative	punctual	Researchers + Users	Service Design
Usability test	qualitative + quantitative	punctual	Researchers	Interaction Design
Feedback wall	qualitative	punctual	Users	Service Design Sociology

TABLE 4 - OVERVIEW OF EVALUATION TOOLS SUGGESTED FOR PROTOTYPE EVALUATION

For supporting the prototype evaluation, each lab was provided with a 1-page overview containing a synthesis of the tool selected for the activity, its description, and potential application for the specific prototype). Each overview contains:

- Detailed description of the tool
- Tips and best practices
- Practical examples / How to's / Links

6.2. Lab's journey spreadsheet

6.2.1. Aim and kind of data collected

All labs from the pilot experimentation have been asked to fill this document in order to support them in assessing their own prototype throughout the process, placing activities and on record. The focus of this additional activity was less an objective assessment or an evaluation to be reported, but a spur for providing backing in the self-evaluation and improvement throughout the prototyping process.

The spreadsheet served mainly as a collector and means to document all the activities conducted. Filled by each lab, this synthetic document provides a clear picture of the activity conducted, when and how, with who (persons engaged), and keeps record of the dissemination activities conducted.

The spreadsheet documents each activity in terms of linking it to the specific phase of the co-creation journey, and reports on the specific tools and methods applied. In terms of engagement, it quantifies the number and summarizes the information of participants that have been involved in the activities (target group of belonging, backgrounds, and so on). The results of the activities were essentially stated from an objective point of view documenting direct outputs and few additional outcomes and reflections on the evaluation of the single activity and barriers encountered when conducting the specific activity.

In particular, the spreadsheet is divided in two main tabs, one dedicated to the intertwined themes of co-creation and the related stakeholder engagement, the other examining dissemination activities and actions undertaken.

Stakeholder engagement & Co-creation

- Phase
- Activity (ref to co-creation journey)
- Time frame
- Tools applied
- Description
- Total of persons involved
    - Subdivision in internal staff, policy makers, citizens, scientific and research community, industry and innovation communities, NGOs, end users, general public, media, others
- Description of participants
- Gender dimension
- Results of activity (outputs)
- Comments on the activity
- Long-term sustainability

Dissemination

- Type of action
- Name of the event

- Channel
- Time frame
- Short description
- Results and comments
- Total of persons involved
    - Subdivided in internal staff, target groups (policy makers, citizens, scientific and research community, industry and innovation communities, NGOs, end users, general public), media, other H2020 projects, other co-labs
- Means of verification of attendants

Fig 11 shows the example of the overview filled by IAAC|Fab Lab Barcelona, first tab. In the following the list of the information contained in each tab.

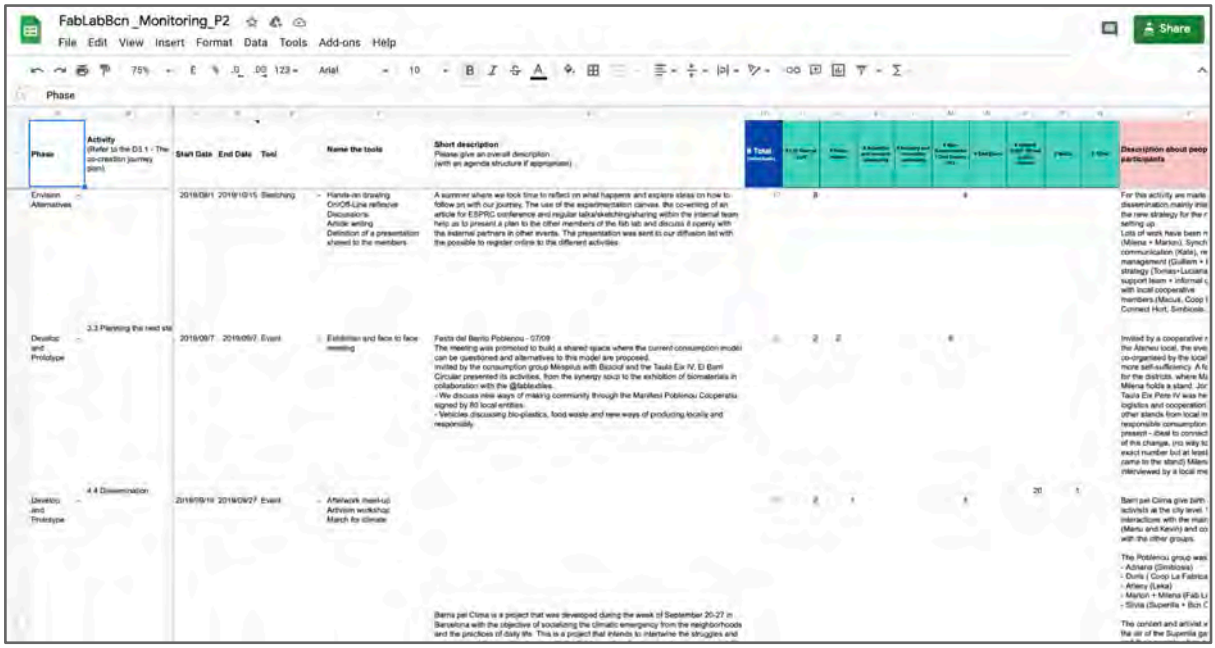

FIG 11 - THE SPREADSHEET

6.2.2. Data evaluation

The data from the spreadsheet has been used for conducting the assessment presented in this report, but also by ECSITE, the partner responsible for Engagement and Dissemination (WP7). Collecting primarily quantitative data on stakeholders and users involved, information and numbers about the activities conducted, the spreadsheet by itself did provide few valuable insights on the quality and the efficacy of the single activities. On the other hand, it provided a precious view on SISCODE's performance indicators: it shed light in terms of numbers of involvement, and allowed insights on how many activities have

been conducted for each of the pilots. Moreover, it associated the activities with information about the stakeholders involved (number, target groups, and so on) allowing some connections and conclusions on relations between qualitative and quantitative data.

6.3. Case studies written for D3.4

The second source of data for the qualitative analysis related to specific issues and the indicators defined in chap. 4.1 is the labs' co-creation journey in the shape of case studies, as delivered in D3.4. Their role as a source for the assessment activities has been considered when developing the template (see Annex 2) for supporting the writing of the case studies. The template integrates specific elements aimed at collecting valuable information for the assessment, facilitating the extraction of insights in relation to the single dimensions and indicators stated in chapter 4.2.

Starting from a synthetical description, an introduction to the context and the challenge, each case study is structured as a detailed description of the entire co-creation journey divided in its phases, and it provides a picture of the status of the solution at the conclusion of the experimentation within SISCODE. Additional sections were added to stimulate reflection specifically on the involvement of policy makers and the sustainability and scalability of the solution. The final sections are then dedicated to the description of the transformations triggered by and throughout the process, short- and long-term outcomes, as well as some conclusive reflections on future possibilities, learnings, and general considerations on the journey.

The information collected in the case studies has been extracted as qualitative insights and data to be interconnected with the results from the other assessment tools.

6.4. Self-assessment questionnaire

6.4.1. Aim and kind of data collection

The third source of data is a questionnaire developed to collect both quantitative and qualitative data. It has been structured with the main goal of investigating the qualitative aspects of very specific competencies and indicators.

It is divided into 16 sets of questions allocated in the three main sections, investigating the three areas of competence specified in chap 4.2 as:

1. stakeholder engagement (8 questions),
2. co-creation (6 questions), and

3. dissemination (2 questions).

The imbalance of numbers especially in the field of dissemination is because of the excellent coverage of the area through other assessment tools like the spreadsheet. On the opposite, the area of stakeholder engagement which has received less attention there, is specifically addressed through specific questions in the questionnaire.

FIG 12 - THE SELF-ASSESSMENT QUESTIONNAIRE

Each of the 16 questions constitutes a **section** that initiates with a binary subquestion (representing a binary outcome: Yes/No Answers) investigating the general presence of a practice in the organization. Each session is then articulated in 2 parts composed of subquestions.

A positive answer to the first binary question of each session leads to:

- Part 1: further subquestions going in detail on the specific practice. They are open sub questions with the scope to collect specific feedback and insight on the organizational practices, as well as information about their level of embedment into the organization.
- Part 2: The current level of the practice is investigated requesting the self-positioning on a Likert-scale from 1-5 providing examples for the positions 1, 3 and 5 to facilitate the understanding of the different positions.

In case of a negative answer to the binary subquestion at the beginning of the session, the respondent skips the detailed part related to the practice investigated and goes to the next section and its binary question.

In synthesis, as shown in Fig 13, each question is a section with an entry binary subquestion, followed by the two parts collecting more in-depth information. Parts that are skipped in case of a negative answer to the binary question.

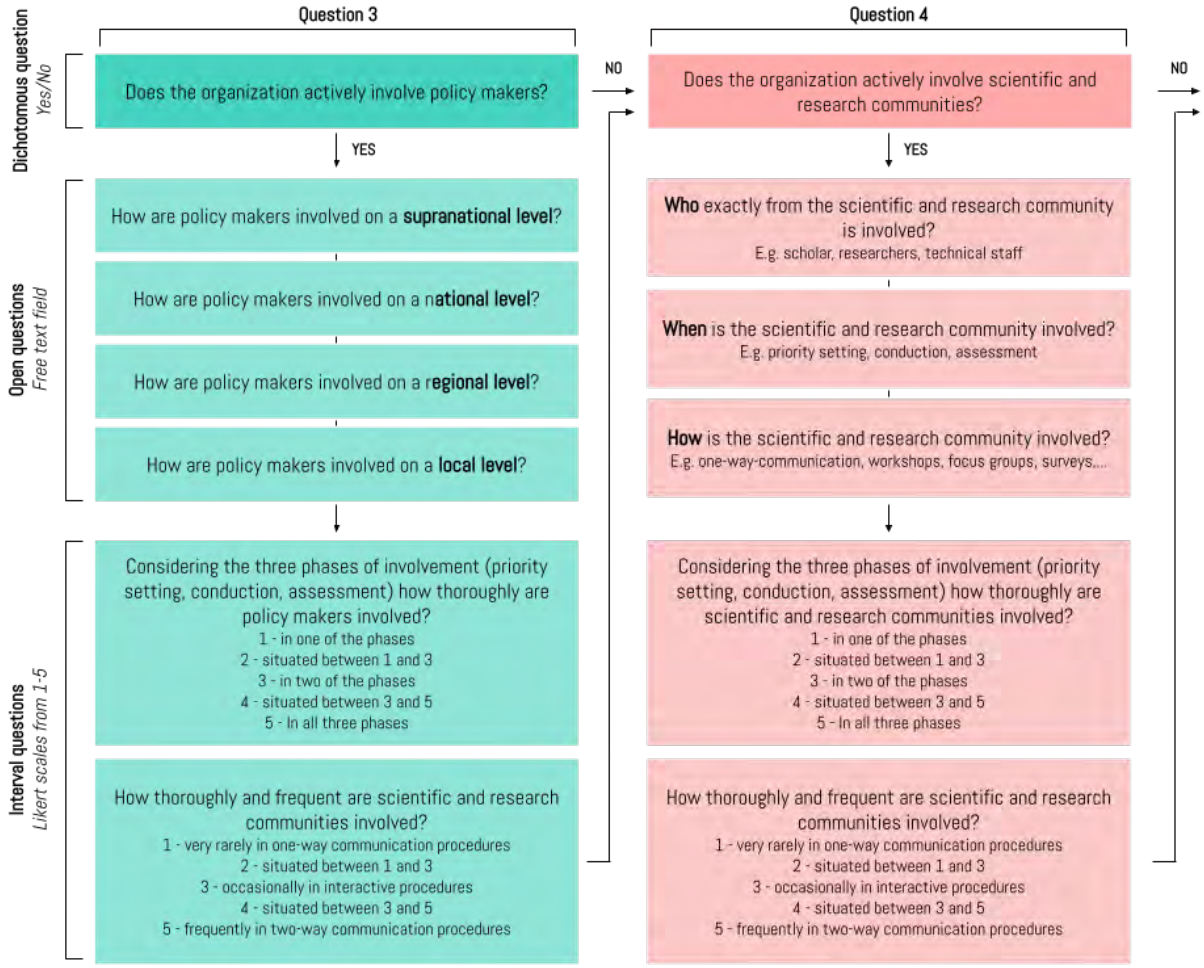

FIG 13 - THE STRUCTURE OF THE SELF-ASSESSMENT QUESTIONNAIRE

6.4.2. Data evaluation

Each lab filled three self-assessment questionnaires, in different stages of their co-creation journey (Fig 14).

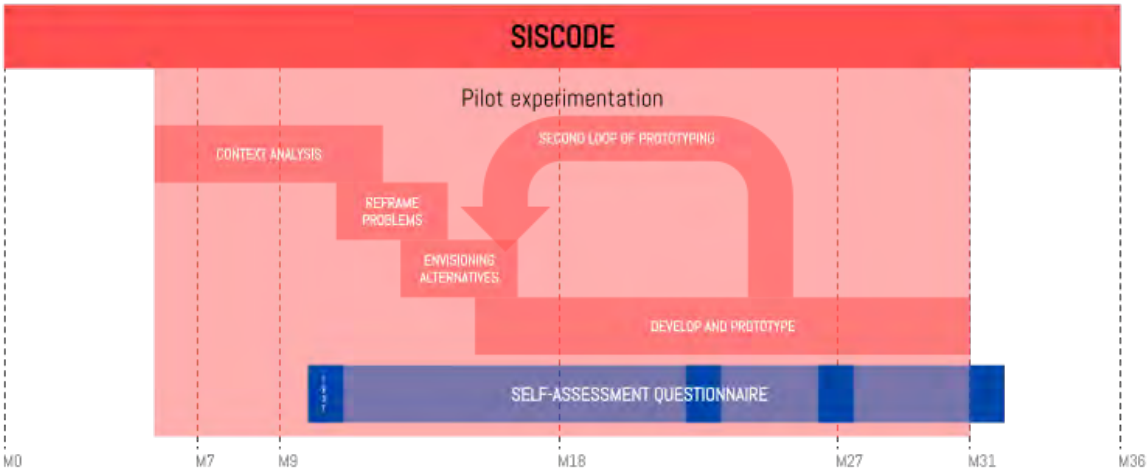

FIG 14 - THE APPLICATION OF THE SELF-ASSESSMENT QUESTIONNAIRE THROUGHOUT THE EXPERIMENTATION

The data collected with the self-assessment questionnaire has been analysed in two ways. By looking at each of the three self-assessments as a unique set of data, they provide a vertical perspective with qualitative insights and reflections on the specific experimentation conducted within a lab, over time. Each of the three self-assessments shows indeed the state of the art at the moment of the compilation. On the other hand, by looking at the three self assessments as a whole, they show the progress through the co-creation journey. By embracing this horizontal perspective, the data sets from the three submissions also allow a comparison of the obtained data, providing material for drawing some conclusion on the evolution, the organizational transformation and the adoption of new practices that occurred. In doing so, it is possible to make a precise analysis on what has been transferred during SISCODE, and eventually on what has been integrated and embedded into the organization.

The data collected through the Likert scales is then evaluated as qualitative data, and used to assess changes in terms of self-perception, tracing them back and connecting them to observations of organizational developments throughout the pilot experimentation. The learning process within the single labs is being investigated identifying the acquisition of organisational capabilities that have been found to be directly related to an organizations' capacity to innovate (Liao et al., 2008).

It is also worth mentioning, that the very open and extensive nature of the questionnaire aimed not only at pure data collection, but at triggering self-reflection and further self-analysis within the labs as the examined subjects reconnecting the theoretical base of the project in an uncommon manner with the empirical elements. This self-reflection may capture novel organisational capabilities embedded while triggering the process of acquisition of those capabilities at the same time (Romme & Van Witteloostuijn, 1999).

6.5. Scenarios

Finally, the scenarios as a way to illustrate possible future events and pathways are a hybrid instrument used to reflect on potential future developments and impacts of the pilots. They are shaped as videos consisting of two main parts. At first, the experimentation carried out and the final prototype are displayed in the shape of an interview (part I) to then move into the second part of the video where a possible future is narrated supported by animations (part II).

6.5.1. Aim and kind of data collected

The aim of the scenarios is manyfold: On one hand they are meant to function as an instrument of dissemination. They are at disposal of the labs for reporting on the results and outcomes of their pilots, and as such they can be distributed to their networks. Apart from being dissemination means, they can serve a variety of purposes, including the raising of fundings or activities to scale and/or replicate the prototype. Then, they also function as a synthetic presentation of the entire experimentation activity for project purposes, being valuable resources to be used for presentations to other projects or internal meetings with committees, just to name a few possible uses.

From the point of view of the assessment, they are mainly a funnel for the various reflections among the involved partners on the potential futures of the pilots, going beyond SISCODE. The data collected is exclusively qualitative and speculative not involving any kind of quantitative measurement.

6.5.2. Development of scenarios

The scenarios which envision the possible future of the prototypes are being developed as a part of a video to be produced for each of the pilots. Since the early stage of their development it has been taken into consideration to realize them as videos in order to make them a dynamic and engaging outlook on future possibilities and potential developments. The idea is the result of the manyfold results and reflections being produced during WP3,

as well as of the discussions in the consortium on how to display and disseminate them. Then, the scope of the scenario as a way to envision future possibilities also led to interconnect it with the assessment framework. As such, each scenario is part of the communication and dissemination of results, as well as a synthesis of the reflections and envisioning activities advanced on the solution developed as a prototype.

Following this direction, the decision was to produce one video for each pilot consisting in the narration of the conducted experimentation, to then move into the investigation of its future potential. For this purpose, the scripts and elements were jointly developed to align the style of the single videos while maintaining the accentuation of their individuality and diversity.

With the support of the studio taking care of the post-production, each lab directly scripted the interviews and filmed the footage. The same goes for the second part of the video, dedicated to the scenario: the writing of the scripts and choice of visuals for the elements of the scenario were made by each lab with the support of the studio in charge of the post-production.

The single videos are to be finalized for the conclusion of the project working as a means of dissemination, narration of the pilot experimentation and future outlook on the prototypes.

6.6. Tools allocated to the different levels of assessment

Most of the aforementioned tools are part of the core assessment activities and constitute the framework for the analysis of levels 2 and 3 (Fig 15). While the tools for the prototype assessment can be seen as an additional set of tools to be applied throughout the experimentation the final part of the assessment activities consisting in consideration on the scalability and transferability of the framework will take the core tools both as single tools as well as a framework to be analyzed in their function and application.

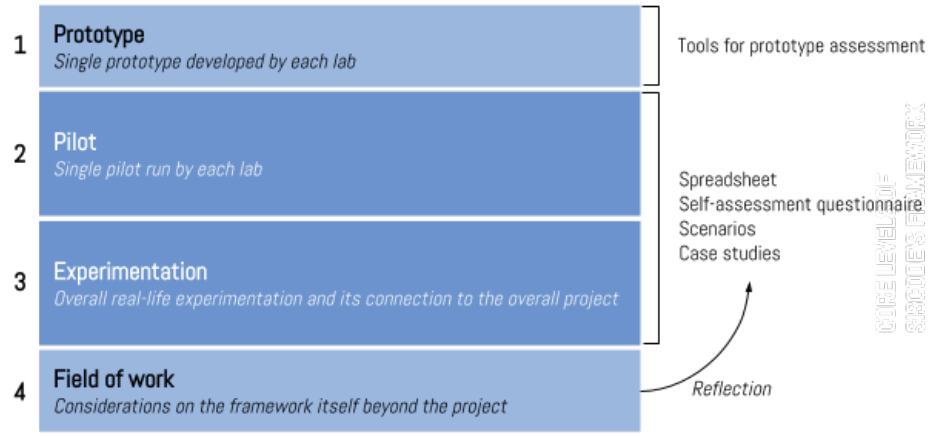

FIG 15 - TOOLS ALLOCATED TO THE LEVELS OF ASSESSMENT

6.7. Allocation of tools in relation to SISCODE indicators

All tools described above have been allocated to SISCODE indicators (Tab 4). This allocation is based on the nature and typology of data collected through the single tools. Tab 5 shows for each area of interest, the specific indicator, its means of analysis, and the typology of data collected (qualitative or quantitative data).

Area of interest	Specific indicator	Means of analysis (qualitative/quantitative)	Kind of data collected
Stakeholder engagement	Strategies for stakeholder engagement	⬚ Spreadsheet ☒ Questionnaire ⬚ Scenarios ⬚ Case study	☒ qualitative ☒ quantitative
	Identification of relevant actors	⬚ Spreadsheet ☒ Questionnaire ⬚ Scenarios ☒ Case study	☒ qualitative ☒ quantitative
	Number of stakeholders involved throughout SISCODE	☒ Spreadsheet ⬚ Questionnaire ⬚ Scenarios ☒ Case study	☒ qualitative ☒ quantitative
	Variety of involved stakeholders	☒ Spreadsheet ☒ Questionnaire ⬚ Scenarios ☒ Case study	☒ qualitative ☒ quantitative

	Level/Positioning of stakeholders involved	⬚ Spreadsheet ☒ Questionnaire ⬚ Scenarios ☒ Case study	☒ qualitative ☒ quantitative
	Level of involvement	☒ Spreadsheet ☒ Questionnaire ⬚ Scenarios ☒ Case study	☒ qualitative ☒ quantitative
	Phases of involvement	☒ Spreadsheet ☒ Questionnaire ☒ Scenarios ☒ Case study	☒ qualitative ☒ quantitative
	Frequency of involvement	☒ Spreadsheet ☒ Questionnaire ⬚ Scenarios ⬚ Case study	☒ qualitative ☒ quantitative
	Gender dimension of stakeholders involved	☒ Spreadsheet ⬚ Questionnaire ⬚ Scenarios ⬚ Case study	☒ qualitative ☒ quantitative
Co-creation	Frequency of application of co-creation methodologies and tools	☒ Spreadsheet ☒ Questionnaire ⬚ Scenarios ⬚ Case study	☒ qualitative ☒ quantitative
	Typologies of co-creation tools applied	☒ Spreadsheet ☒ Questionnaire ⬚ Scenarios ⬚ Case study	☒ qualitative ☒ quantitative
	Processes and strategies for the application of co-creation	⬚ Spreadsheet ☒ Questionnaire ⬚ Scenarios ⬚ Case study	☒ qualitative ☒ quantitative
	Evaluation of outcomes of co-creation activities	☒ Spreadsheet ☒ Questionnaire ⬚ Scenarios ⬚ Case study	☒ qualitative ☒ quantitative

	Actor satisfaction in co-creation activities	⬚ Spreadsheet ☒ Questionnaire ⬚ Scenarios ⬚ Case study	☒ qualitative ☒ quantitative
	Evaluation of co-creation methodologies and tools	⬚ Spreadsheet ☒ Questionnaire ⬚ Scenarios ⬚ Case study	☒ qualitative ☒ quantitative
	Application of prototyping methodologies and tools	☒ Spreadsheet ☒ Questionnaire ⬚ Scenarios ⬚ Case study	☒ qualitative ☒ quantitative
	Testing and evaluation of prototypes	☒ Spreadsheet ☒ Questionnaire ☒ Scenarios ☒ Case study	☒ qualitative ☒ quantitative
	Considerations on potential for scaling and replication	⬚ Spreadsheet ☒ Questionnaire ☒ Scenarios ☒ Case study	☒ qualitative ☒ quantitative
	Influence on policy making	⬚ Spreadsheet ☒ Questionnaire ☒ Scenarios ☒ Case study	☒ qualitative ☒ quantitative
	Dimension of organizational transformation	☒ Spreadsheet ☒ Questionnaire ☒ Scenarios ☒ Case study	☒ qualitative ⬚ quantitative
Dissemination	Dissemination of results across media	☒ Spreadsheet ☒ Questionnaire ⬚ Scenarios ☒ Case study	☒ qualitative ☒ quantitative
	Provision of open access	☒ Spreadsheet ☒ Questionnaire ⬚ Scenarios ⬚ Case study	☒ qualitative ☒ quantitative

TABLE 5 - SISCODE INDICATORS AND ALLOCATED TOOLS OF ASSESSMENT

The results of the assessment are considered on different levels:

- Starting from the assessment of the single prototypes to evaluate their efficacy and improve them throughout the process to the assessment of the single pilot,
- the pilot experimentation as a whole considering all 10 journeys, and
- finally, the level beyond the pilot experimentation expanding to other parts of the project.

7. Application of the framework, process of data collection and evaluation

The spreadsheet was launched in M9 in the early phases of the pilot experimentation and accompanied the labs from the initial stages of the co-creation journey being updated regularly as a constant documentation of the single activities allowing to keep track of the quantity of activities carried out and their outreach.

The questionnaire required an iterative process to be developed, tested and evaluated. It was submitted for the first time in M21 to be then repeated in M27 and M31 to capture the state of the art at three different points to allow a comparison of different points along the process as well as indications on ongoing changes that could have been triggered by the experimentation.

The tools for the assessment of the prototypes were provided in the beginning of the first loop of prototyping in M21 in order to be applied throughout the entire phase of prototyping.

Even though considerations arose all throughout the experimentation, the scenarios and their specific way of development were ideated after the conclusion of the experimentation itself, so to trigger the envisioning of future solutions just once the experimentation was concluded. Then, their production took place in the final months of the project.

Fig 16 visualises the various assessment tools and the span in which they have been applied.

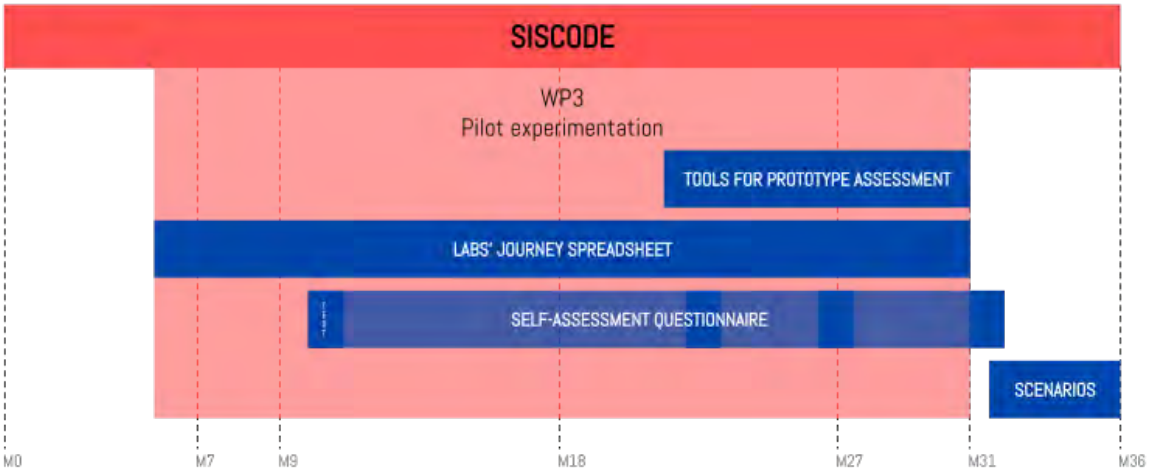

FIG 16 - TIMELINE OF THE TOOLS' APPLICATION WITHIN WP3

7.1. Process of data evaluation

The labs' journeys, the prototypes developed, the experience analysed through the self-assessment, and the material developed for the scenarios envisioning future opportunities were analysed considering their mutual interconnection. Data collected through different tools and in different moments of the experimentation contributed to building knowledge about the overall process, pointing out that multi-level interdependencies concur in the assessment. The analysis conducted relies on a qualitative approach. In the following a brief description of its steps.

Qualitative data analysis

Qualitative insights have been extracted from the respective assessment tools and transferred to single post-its on a Mural board. Here they have been processed in two different ways (Fig 17). At first, the entire volume of notes has been clustered to identify recurring themes and obtain a first structure and rough overview. Then, the single elements and clusters have been transferred to an analysis grids divided in the components and indicators of analysis.

FIG 17 - THE MURAL CANVAS CONTAINING THE DIFFERENT QUALITATIVE ANALYSIS GRIDS AND TEMPLATES

In the self-assessment questionnaire, additional data has been collected through the use of Likert scales. As anticipated, this data is not to be considered quantitatively, since Likert scales were employed for associating pilots to descriptors which outline possible contexts and situations (Fig 18).

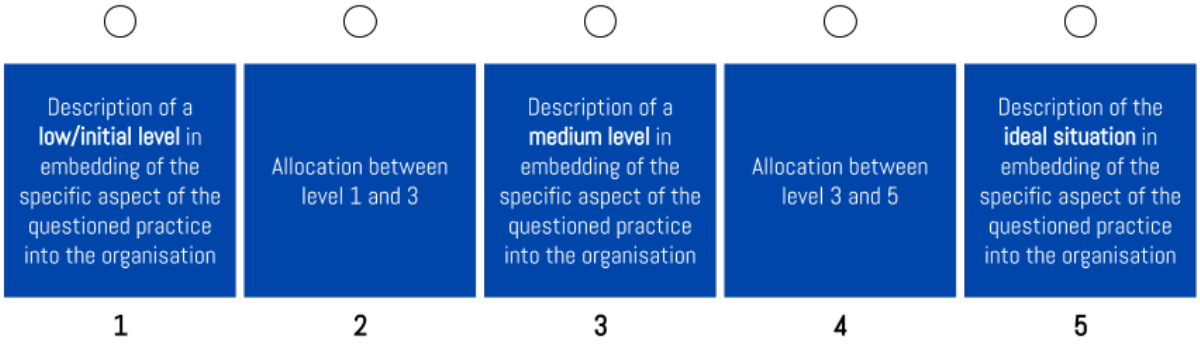

FIG 18 - BASIC SCHEME ADOPTED FOR THE LIKERT SCALES IN THE QUESTIONNAIRE

Such descriptions refer to abstract concepts like organizational practices. The elaboration informed a series of hypotheses and assumptions in relation to the analysed dimensions. Moreover, it provided an idea of its evolution through time, since the self-assessment was conducted three times. This information, triangulated with the other data led to qualitative insights and conclusions and contributed in building the overall evaluation of the experimentations and their multi-level impacts, as well as future considerations on such assessment significantly.

7.1.1. Assessment of prototypes

The assessment of the prototypes has been evaluated exclusively from a qualitative point of view considering the answers provided in the self assessment questionnaire in relation to the questions no.12 'Application of co-creation methodologies and tools' and 'Co-creation and organizational transformation' as well as the information on the prototyping activities conducted described in D3.4. All qualitative data and insights have been collected and clustered in order to obtain an overview on the assessment of prototypes, its results and eventual further outcomes beyond the sheer evaluation of the concepts developed.

7.1.2. Assessment of the pilots

The assessment of the pilots has been mainly focussed on their transformation throughout the project, taking into account the diversity among the labs in terms of size, resources available (financial, material, and human), existing outreach and network. The attention in

the assessment is on the development each lab has been undergoing throughout and beyond the experimentation on three different levels.

- On the **level of the prototype developed** itself, to what extent has the prototype been developed and which were the main achievements in relation to it;
- On an **organisational level**, which changes have been happening and are still ongoing and what are the specific triggers related to them;
- On an **ecosystem level**, have there been any transformations, novel connections and dynamics in relation to the pilot experimentation in SISCODE.

This analysis is related to the prototype and to what extent it has been realized, including considerations on its future perspective. Then, from this dimension, the observation reaches out to changes at a higher scale: that of the organization in which the experimentation took place, and that of the ecosystem, as the broader context in which the lab is situated.

The data for elaborating information on these three fundamental levels has been collected mainly from the self-assessment questionnaire and the deliverable D3.4, where labs provided a descriptive overview with critical reasonings and reflections. The observed developments, achievements, dynamics and considerations have been allocated in a grid according to the three aforementioned levels (see Annex 6). In the following, it is further elaborated how the assessment built knowledge on these three levels, paying particular attention on the impacts.

7.1.3. Assessment of the experimentation

This level of evaluation is taking a focus on the overall experimentation. Rather than considering the single, specific achievements, the analysis looks at the entire experimentation and its impact within the lab where it took place. In particular, the elaboration concentrates on the association of recurring themes and elements within the grid of indicators developed for SISCODE (see chap 4.2). This analysis can be considered the most complex part since it triangulates data by interconnecting all indicators with the insights extracted from the spreadsheet, the self-assessment questionnaire as well as the case studies.

While the extensive analysis considering all the single indicators is attached to this document (Annex 6), the chapter reports the results of the assessment activities embracing a broader perspective, transversal and inclusive of the dimensions observed. Especially the

enquiry of the causes and effects beyond the objective changes reported leads to point out a series of findings and hypotheses to be further investigated.

8. Results of the assessment activities

The next paragraphs present the results of the assessment activities, structuring them according to the three levels introduced above: prototype, organisational, and relation to the ecosystem.

8.1. Evaluation results of the prototypes

The assessment of the prototypes developed as working solutions is not addressed in this report. Although each lab tested the efficacy of their prototype undergoing two iterative cycles of design, specific data regarding this evaluation is not included in the reasoning here presented. On the other hand, the reflection on the outcomes derived from this activity is included in the self-assessment and in D3.4.

The assessment of the prototypes as a co-creation practice has been considered as data in the indicators (chap 4.1.1), and as such they provided valuable insights for their potentialities in terms of improvement, scaling and replication. This particular aspect is analysed in the two levels of analysis presented later on, in this report. In particular, considering the diversity of the solutions reached and the variety of topics addressed, it has been decided not to provide an absolute evaluation of the prototypes and the specific outcomes. Thus, at the prototype level, the focus of the assessment in assessing prototypes has been rather on the previous and developing capacities related to prototyping and its assessment, and its impact within the labs.

The most important ones are detailed in the following.

- **Validation of the concept**

  The main scope of the prototyping activities planned from the beginning was the validation of the concept developed in a context where multiple stakeholders and policy makers participated in validating those solutions. The data collected showed that the co-creation activity nurtured deep understanding of needs and encouraged further discussions with all the stakeholders involved and/or impacted by the solution. Also, the importance of including policy makers as part of this validation has been stressed: their broader-scale perspective on the complex ecosystem in

which the solution is situated often provided a realistic and holistic view on the concept and on what its insertion in a real-life context may lead to.

- **Testing of specific aspects of the prototype**
  Especially when considering the testing of complex prototypes and concepts, the testing of their essential aspects in a separate way has been proven effective. Key elements could be tested and verified without having to simulate the entire concept. For instance, in the case of FabLab Barcelona that developed an entire system to fight food waste, it has been crucial to be able to test the single aspects separately since the set-up and testing of the entire ecosystem would have been on one hand not feasible and on the other hand being planned as a set of elements to be composed to build a system it provided precious insights on the single elements and how they could be implemented apart from the others as well.

- **Reflections on future developments**
  Particularly relevant has been the opening of a constant dialogue with the participants on the current state of the prototype that eventually transformed into a broader reflection both on future developments of the prototype, and the activities of the lab within its ecosystem. Engaging different stakeholders and actors from within the organisation in the process provided support in the development of a sustainability strategy inclusive and conscious of external voices, opinions and considerations.

  One unexpected element is then the theoretical reflection on the background of the pilot, which has been traced back to its origins in theory. Thanks to the close collaboration with researchers who participated in the discussion of the prototype and its underlying concepts, the reflection extended to a different, theoretical level, bringing another valuable point of view in a receptive moment of the development. This condition led to bridge the gap between theory and practice, creating a fertile space of constructive discussion.

- **Experimentation of new tools**
  As described in chap 6, for the monitoring, data collection and assessment of the prototypes, new methods and tools as semi-structured interviews, observation techniques and user tests have been introduced, adapted and applied. This not only produced results for the assessment itself, but also triggered new fields of application for co-creation, going beyond context analysis, ideation and prototyping

by fully integrating it into the repetition of prototyping loops. Analogously, the multidisciplinary tools introduced for gathering of qualitative data encouraged an objective documentation of inputs and outputs and a reflection on their functionality and application

- **Considerations on scaling/replication**
  Being held open to collect spontaneous and personal feedback from the participants, some users and stakeholders did not only evaluate the prototype but directly made considerations on possibilities to scale the concept or replicate it in different contexts. Taking another point of view and enriching considerations already elaborated in the labs with external voices emerged as an additional opportunity to identify hidden potential of the prototypes and reflect collectively with stakeholders and actors on this potential.

- **Novel relations and amplification of network**
  Involving a wide variety of users and stakeholders actively in the aforementioned procedures, new connections and contacts in the ecosystem opened further possibilities for future collaborations or further development of the prototype. This awareness resulted clearly from the results of the assessment, since the labs reported on the collaborations and exchanges activated with the stakeholders involved in the co-creation and testing of their solutions.

- **Capacity building for feedback collection**
  By providing and suggesting specific tools together with instructions for their application, a learning-by-doing process has been unleashed leading to new capacities built in relation to planning, adaptation and application of tools for assessment.

In conclusion it can be said that the assessment of the prototypes as an activity did not only contribute to the improvement of the concepts themselves, but opened up a variety of benefits and reflections beyond the sheer assessment of the developed concepts. The analysis of the data gathered showed that benefits range from the building and distribution of new capacities to the strengthening of connections with existing and novel stakeholders and eventually shedding light on undiscovered future opportunities.

8.2. Elaborating results from the labs

The data collected showed that the co-creation process brought several results at various levels. Fig 19 presents an overview of the main transformations that each lab experienced during SISCODE, the insights at its base have been extracted from the spreadsheet, the self-assessment questionnaire and the case studies. The different main achievements are grouped, and they are associated with those labs who experienced them, with a focus on the main dimensions of policy making, stakeholder engagement and co-creation.

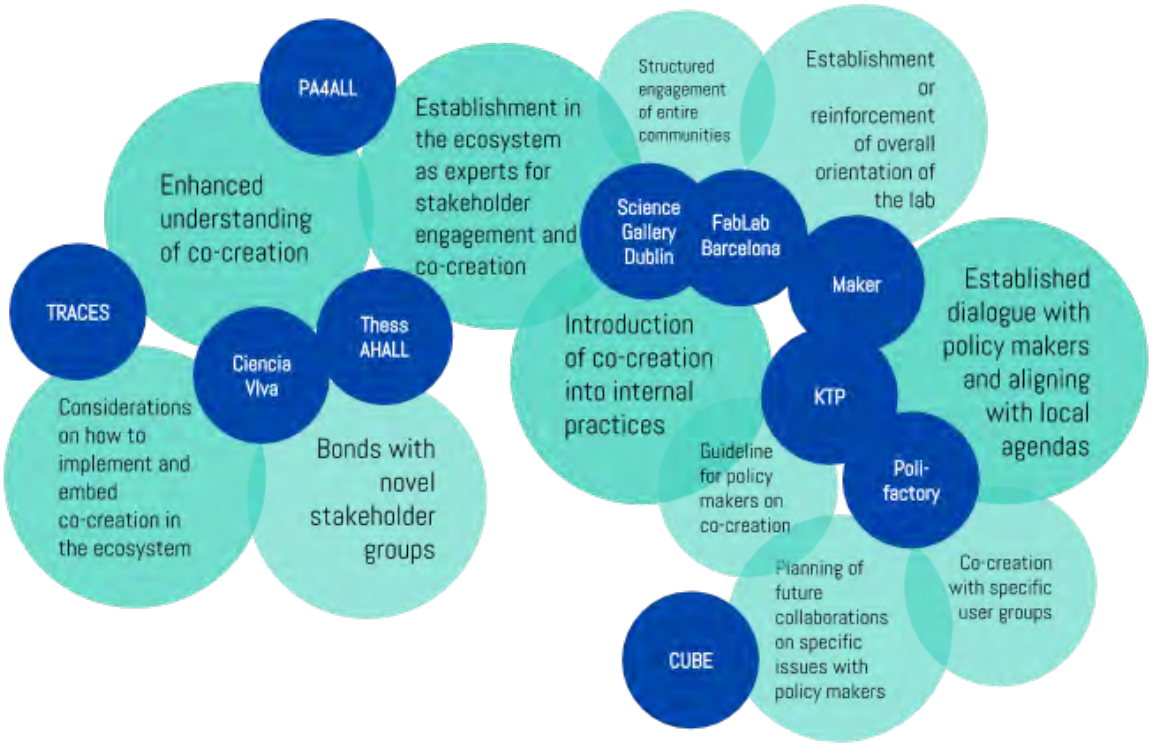

FIG 19 - OVERVIEW AND SYNTHETIC REPRESENTATION OF ACHIEVEMENTS AND TRANSFORMATIONS

Tab 6 provides a detailed account of all the achievements and changes experienced and reported as directly related to the prototype dimension, in terms of knowledge transfer and organizational change, as well as transformation at an ecosystem level.

Lab	Main achievements directly related to the prototype	Developments within the organisation	Changes within the ecosystem
KTP	- Development of two prototypes, both to be implemented and with planned long-term implementation - Empowerment of interactive bonds with academia - Air Protection Programme	- Introducing co-creation to non-obvious areas of social intervention and other projects - Use of co-creation methodology in internal organisational work - Introduction of an internal team responsible for co-creation	- Strengthening the position of living lab, recognition of the co-creation as a good cooperation practice among different stakeholders - The power of citizens perspective, know how &

	officialized and released as a document - Platform currently under testing/development for final release	established in the organization	experience - Exploitation of synergies & horizontal approach - Increase of trust of the regional policy makers in the effectiveness of co-creation and readiness to be adopted in other areas of regional development
PA4ALL	- Development and real-life testing of a new module for the curriculum for agricultural schools in Serbia - Considerations on future integration in the official curriculum - Raised awareness on the necessity to improve the current curriculum among policy makers	- Enhanced understanding of co-creation	
ThessAHALL	- Pilot programme for a new learning methodology - Novel and stronger bonds with stakeholders	- New and structured strategies on policy making and stakeholders' engagement - New approaches of running co-creation in a more systematic way and assess its impact in the different steps of the process	- Spread the value of "co-creation & citizens' science" in the City & the University - Stronger bonds and trust with and among different types of stakeholders
FabLab BCN	- Creation of a system to fight food waste locally to be replicated and scaled - Overall attraction/direction of the lab towards biomaterial, bio-economy and circular economy - Reinforcement of the Fab City/ Distributed design model	- Increased autonomy and integration among members of the organization, recognition of the importance to address barriers in terms of financing, spaces and access with coordinative activities - Redefinition of the role as interface between local and global - Improvement of skills and diversity of figures working with co-creation - Structuring of the approach for community- and multi stakeholder engagement	- Improved interactions with and within the ecosystems - Better perception of the context and its complexity - Recognition of the diversity of stakeholders and development of different approaches for the various actors
Maker	- Strengthening of orientation of the lab towards circular economy - Set-up of a new network of stakeholders - Activation of an actor network - Set of supporting tools for	- Acquisition of new capacities within the lab - New strategies for future projects and initiatives	- Establishment of a solid network for scaling and replication - Strengthening of partnerships and the entire network created - Facilitator among actors in the ecosystem

	these networks		
Polifactory	- Improvement of skills in co-designing with vulnerable users - Skills acquired in co-creation with children	- Improved multidisciplinarity - Acquisition of capacities in co-creating with children - Development of approaches for co-designing with vulnerable users	- Improved multidisciplinarity within in the network - Formed and strengthened new bond with and among actors
CUBE	- Interest from participating co-design expert to further use and develop the canvas in future projects and challenges	- Considerations on how co-creation can and will be integrated in the new organization after a forced restructuring	- Request from involved actors/policy makers to carry out workshops for capacity building - Hesitation to really implement different ways of working triggered by the pilot
Ciencia Viva	- Novel bonds with local policy makers and schools - Distribution of material for replication	- Using generic principles and tools of co-creation for internal processes - Raised awareness of the potential of co-creation - Recognition of the need for training	- Generative power of prototyping: new bonds between partners beyond the lab
TRACES	- Trigger to a paradigm shift - Protocol to obtain a new point of view and eventually change perception	- Acquisition of new internal practices - Spread of the application of co-creation practices to other projects - Opened up diverse way of thinking	- Opportunity to feed with new content links with policy makers. - Issue of ownership within the ecosystem slows down transformations
Science Gallery Dublin	- Restructuring/reorganising programme to involve young people and co-create programming - Novel relationships with schools in the community - Bonds with research groups, and new experience in working with university partners to evaluate impact of project	- Integration of co-creation practices /SISCODE toolkit also in other projects - Spread of practices beyond the project	- Raised interest of international public and research community - Trigger for considerations on scaling and replication

TABLE 6 - ACHIEVEMENTS OF THE PILOTS

Further elaborations depicting patterns of transformations are to be analyzed in the subsequent chapter dedicated to the evaluation of the pilot experimentation in the context of the whole project.

8.3. Evaluation results for the entire pilot experimentation

The pilot experimentation as a whole has been assessed mainly in qualitative terms according to the indicators. The entire analysis and an extensive table addressing the indicators can be found in Annex 5.

The main results found during the assessment will be detailed in this chapter according to the different main topics covered by the indicators. The results are first reported as a synthetic map of the insights (Fig 20) obtained to be then described, grouped, and displayed within the previously defined main dimensions and topics (see chap 4.2) acknowledging and pointing out their interconnection and interdependence.

FIG 20 - GRAPHICAL REPRESENTATION OF OVERALL RESULTS AND INSIGHTS

Stakeholder engagement

A crucial point in the engagement of stakeholders for the experimentation has been the transition from a less structured approach towards the embedding of strategies for stakeholder engagement into the organization. This included also setting up initial strategies for individual initiatives that are assessed and adapted throughout the process depending on its development and unforeseen changes.

Furthermore, the variety and individuality of stakeholders have been pointed out several times relating to the need of employing different approaches of involvement within the same initiative, as well as of conducting encounters favouring exchanges and fruitful debate. Especially in relation to the perception among stakeholders, this benefitted from including a facilitator and mediator able to break schemes and allow encounters of individuals instead of established groups, involuntarily entering the discussion of biases.

It has been found necessary to keep stakeholders involved throughout the entire process to obtain the best possible solution requiring a consistency in motivation that can be achieved by transparency, creating and fostering shared values, setting common goals, and lining out balanced benefits and efforts while aligning expectation from an early stage. Not only motivation and theoretical availability, but also active involvement and efforts have to be managed shedding light on the crucial point of being transparent on efforts expected and potential benefits obtained to manage expectations and avoid misunderstandings and discrepancies.

However, it has been identified that this level and consistency in engagement can only be planned to some extent previously, but partly needs to be co-created, aligning availability and requests, and planning specific commitments without imposing involvement or contributions. In this regard, a potential supporting factor in both engagement and active involvement of stakeholders is the collaboration with similar initiatives, as well as the connection to local and regional agendas to team up to pursue common goals.

Policy making

The connection to local challenges and their stakeholders is closely related to the influence and impact on policy making. A key finding from the experimentation is the necessity to align towards common goals and activities with local policy agendas aimed at similar achievements. This can be done by tackling specific challenges addressed by local or regional agendas and/or by specifically choosing policy makers involved according to their orientation. This strategy favours the creation not only of shared objectives but of values and ideas.

Another way to increase impact on policy making, especially in cases of smaller organizations and initiatives has been identified in exchanging practices, contacts with other organizations and initiatives. Cooperation and collaboration emerged as fundamental to increase potential impact by multiplying resources and maximise the advantages drawn from events and gatherings.

Dissemination

The topic of dissemination is interconnected and complementary to the one of policy making. The definition of strategies should not only aim at disseminating results in general, but it should point at developing tailored approaches to disseminate findings and results to the different target groups identifying and exploiting their associated channels. Then, apart from the integration of practices to provide open access to results, a variety of broader reflections on the use and results of dissemination activities have emerged.

Dissemination can turn into a means of keeping stakeholders, and specifically policy makers, up to date and aligned. Dissemination itself can be strategically designed and applied as a different way of involving them, defined as 'active dissemination' by one of the pilots.

Also, the dissemination across a variety of channels has been identified in the possibility to share not only the process and results of an initiative, but also considerations on replicability together with instructions and material that enables others to replicate and experiment the developed solution in other contexts. This has been recognized as a different way of sharing knowledge and spreading the heritage of co-creation initiatives. It can furthermore serve as a bridging element for encouraging dialogue and exchange with similar realities. The dissemination of the co-creation practices and tools, showing their application and impact can stimulate adoption and adaptation of co-creation practices by other realities. Moreover, keeping an open and fruitful exchange encourages reflection on best practices, also favouring reflection on context dependency in the light of cultural, institutional and thematic backgrounds.

Organisational capacities

The learning and exchange on co-creation practices refer mainly to the dimension of organisational capacities and their development and the deriving transformation of an organization. In SISCODE it has been investigated especially in relation to co-creation and stakeholder engagement throughout the co-creation journey. The findings gathered are mainly associated with acknowledging that real change takes an amount of time that goes

beyond the time frame of a project. However, there is first evidence on the embedding of novel organisational capacities and resulting ongoing transformations.
The major insights from this observation are that concrete projects constitute the ideal space where to initiate a learning-by-doing process that gives a tangible shape and results within the boundaries of an abstract concept as co-creation. In doing so, it facilitates the understanding and uptake of practices. This often leads to a conflict with existing practices requiring a transitioning process including a shift of mindset in order to be integrated. This has been found to be facilitated when the new practices to be adopted are also shared, discussed, familiarized with, and to a certain extent appropriated in internal meetings creating a safe space for capacity building, experimentation and discussion. Furthermore, it may lead to a more structured application of already present methodologies including them in planning and strategic activities. A series of capacities related to digital and remote working have been built due to the Covid-19 pandemic SISCODE techniques and tools were revised and adapted for being used online, and became facilitators and triggers to support the learning process and the acquisition of those capacities. The conduction of workshops online as well as the application of the revised tools and methods for online use have led to further minor adaptations intended for better meeting the needs of different user groups.

Co-creation

One of the main insights related to co-creation during the experimentation is its interconnection with all the other dimensions, especially the one of stakeholder engagement. This has to be considered within the frame of the context where it is applied, and the individuals involved. Hence, not only in terms of the overall concept, but as a very individual factor, that can entirely change its application depending on the context and the people involved.

The flexibility of co-creation has not only been pointed out as a positive aspect, but also as an attention point to be taken into consideration in terms of having to deal with the uncertainties of an open-end process within the organisation. In this regard, another point is related to how to manage expectations of stakeholders giving concreteness to an open and transforming process. The co-design-tools applied in SISCODE, deriving mainly from the fields of design and social innovation (see SISCODE deliverable D3.1 'Co-creation journeys'), have been found essential to contribute to this concreteness as well as to build better human interactions both while setting co-creation activities, and during their unfolding. This aspect has been pointed out in relation to a set of necessary soft skills, such as empathy, that appears fundamental in relation to the effective application of co-creation,

and that can entirely change the outcomes. This aspect highlights the importance of the human factor, and the necessity to build specific capacities for co-creation beyond the application of tools and methodologies. This learning process has been fostered significantly in cases where co-creation was experimented also internally in the organisation leading to capacity building, like stated in the previous paragraph. These more transversal topics and findings are to be discussed in the consecutive chapter 9, where they are reconnected to the broader theoretical base of SISCODE.

9. Relations to SISCODE's theoretical base and findings to be further investigated

The findings detailed in this chapter consider the overall assessment conducted within SISCODE, reflecting on bottom-up experimentations that apply co-creation practices in Responsible Research and Innovation. A series of key insights obtained during the evaluation in relation to co-creation in RRI for policy making are to be detailed in the following.

Extended role of stakeholders

Stakeholders and actors appear to shift their role not only by taking an active part in co-creation activities, but starting being involved even before the beginning of the initiative, as a part of the entire set-up. However, their active involvement as well as their contribution need to be planned and assessed apart, in order to increase consistency and alignment. This means eventually requiring a preliminary involvement for aligning expectations and commitments. These aspects have often not been considered from the beginning, but they emerged during the co-creation process underlining the importance of the role that stakeholders play beyond their direct contribution to the ideation and development of the prototype.

Variability and fluctuation of stakeholders' roles in bottom-up initiatives

Due to the nature of the co-creation activities as being entirely open-ended, the roles and therefore levels of engagement and involvement of stakeholders may change throughout the process. This demands for a regular check and evaluation of the initial mapping of stakeholders and their roles within the process. As part of the self-assessment, labs have been asked to upload their current stakeholder map in the beginning and the end of their journey. The request served the twofold function of providing valuable material for drawing some conclusions in terms of evolution of the stakeholder engagement through

time, and also served to lab themselves as a means of reflection. Mapping the stakeholders in two different moments of the process allowed them to observe changes, transformations, and even shifts of roles. The two figures below present the two stakeholder maps from FabLab Barcelona as one example, clearly illustrating this development (Figg 21 and 22).

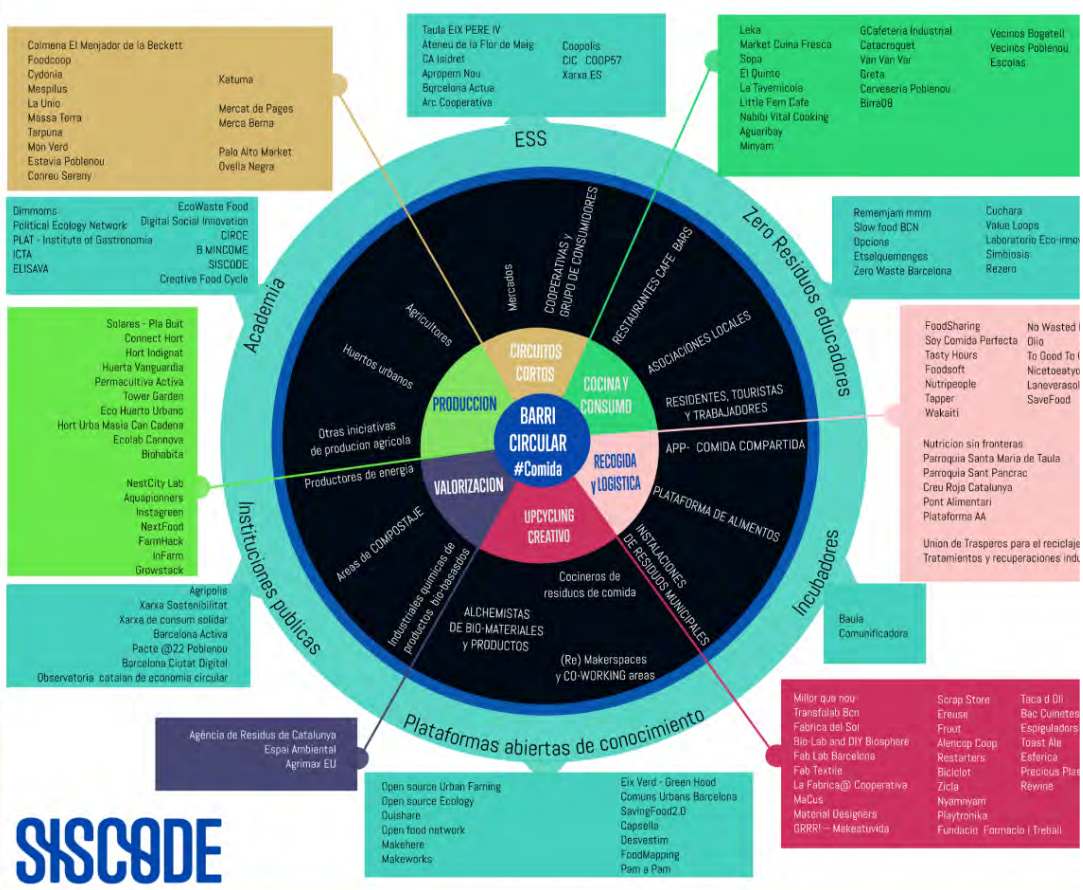

FIG 21 - STAKEHOLDER MAP OF FABLAB BARCELONA IN THE BEGINNING OF THE CO-CREATION JOURNEY

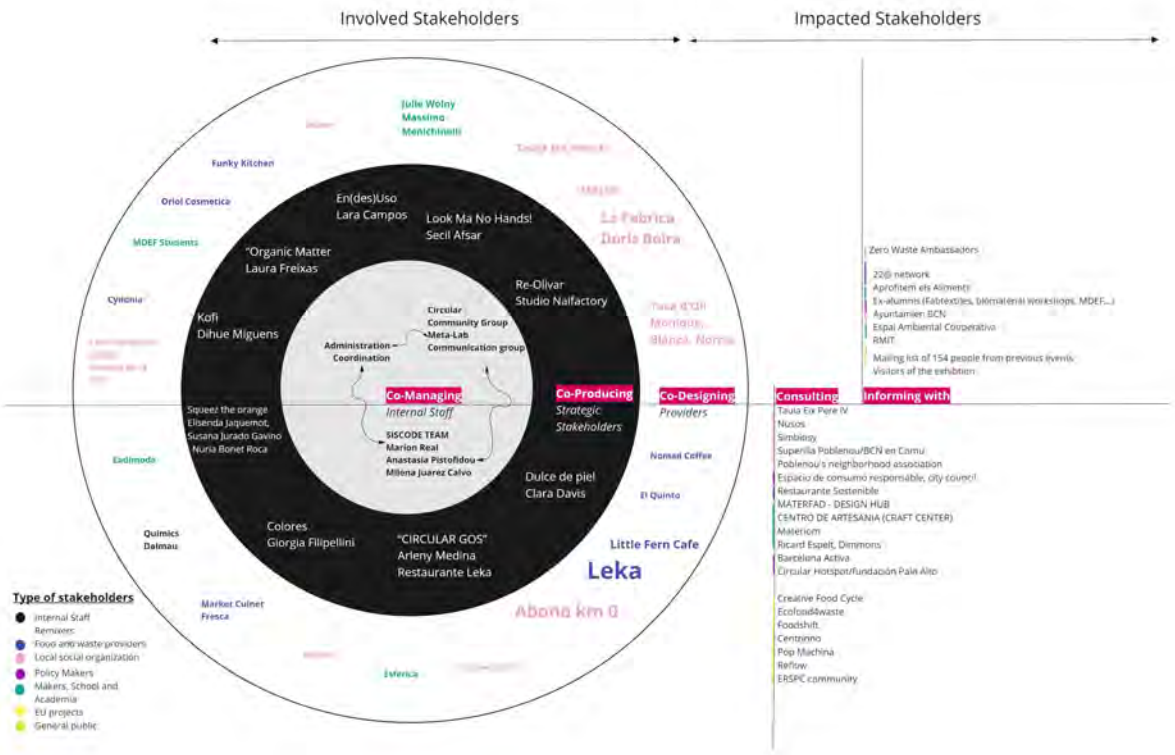

FIG 22 - STAKEHOLDER MAP OF FABLAB BARCELONA AFTER THE CONCLUSION OF THE CO-CREATION JOURNEY

Integration of novel organisational practices in relation and through co-creation

The building of new capacities and capabilities in relation to co-creation within the field of RRI through the experimentation conducted in SISCODE was part of the initial goals and dimensions of investigation.

Fig 23 shows the assessment of relevant practices present in the organization, traced throughout the experimentation and after its end, and displayed in form of averages. The graph represents only the sheer presence of the practice in the organisation, not taking its level or frequency of application in consideration. That said, it is noticeable the presence of a difference particularly in terms of capacities related to co-creation: a slight overall increase and alignment of capabilities has been observed, particularly in the field of co-creation closing the initially identified gap between theory and practice (see chapter 2.1). This can be traced back both to the learning-by-doing effect triggered from the application of co-creation, as well as the peer-to-peer learning activities carried out during the project. By looking at Fig 23 it is possible to observe that it occurred an acquisition of new practices and capacities where an initial lack has been identified. Then, the diminishing of the value identifying the "involvement of general public" may be associated to the discourse on how the labs changed their perspective on stakeholder engagement in consequence of the application of the strategy and tools proposed in the co-creation process.

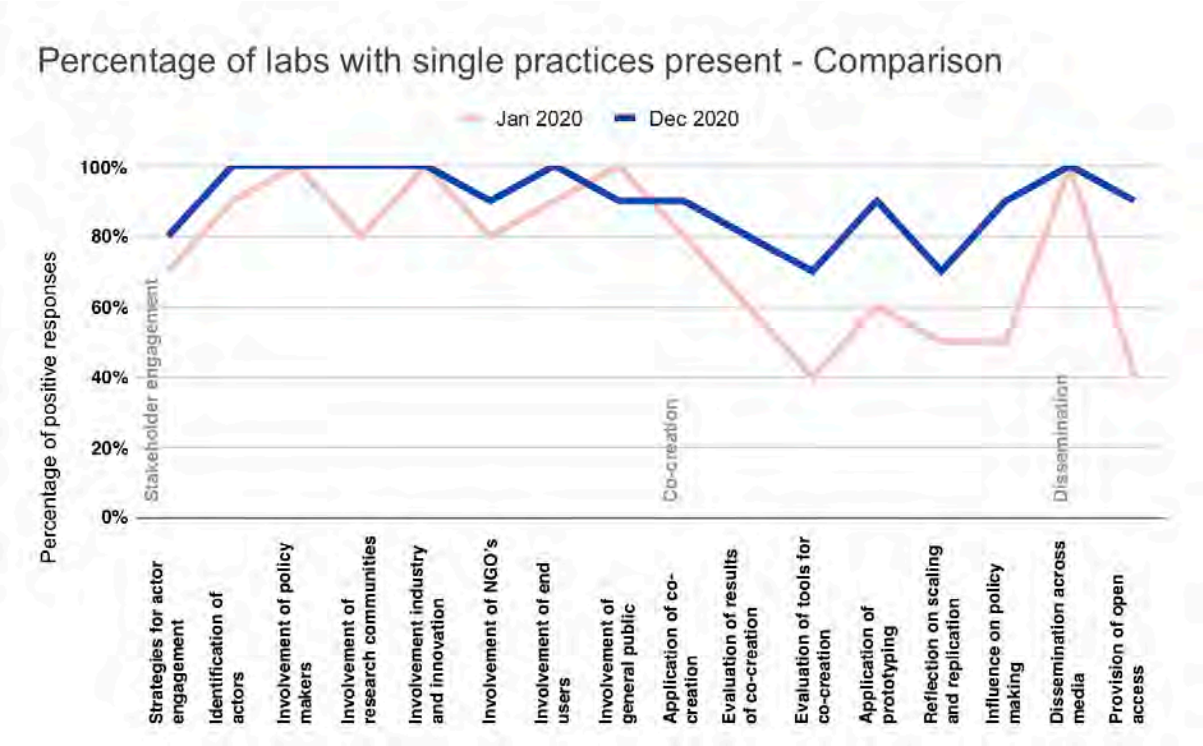

FIG 23 - PERCENTAGE OF LABS WITH RELEVANT PRACTICES PRESENT IN THE ORGANISATION

Transformative nature of co-creation

Considering and assessing the capacity to trigger organizational change, some of the pilots have made broader reflections on the transformative capacities of co-creation taking place both within the single organization as well as within the entire surrounding ecosystem. This not only included the potential of implementing new practices but also revising the ways in which people within the organization and stakeholders relate to each other. This could be traced back on one hand to the aspect of co-creation to revoke current power relations valuing different kinds of knowledge and capacities. One the other hand, co-creation itself requires stakeholders, actors and users to confront each other and collaborate, opening up novel opportunities for exchange, discussion and learning (peer and beyond), eventually transforming the established relationships or forming new ones.

A safe space for capacity building

The complexity of capacity building in co-creation has been pointed out several times, especially in relation to the choice, adaptation, and application of its tools and methodologies. These appear to require a certain guidance or knowledge in order to be applied correctly. Moreover, if a learning-by-doing process is combined with other novel practices like novel techniques or environments for stakeholder engagement it bears the

risk of being too overwhelming for the acquisition of new capacities. One potential solution for a step-by-step learning process has been identified in the creation of a safe space during internal meetings and activities: an opportunity for experimenting and discussing practices before running into their application, where to explore possibilities and possible issues ahead of time, and without the necessity to deal with the complexity of stakeholders and the development of solutions at the same time.

Tools for capacity building vs. capacities needed to apply tools

In close relation to the previous point lies the risk of not effectively applying tools and methodologies due to the still ongoing process of familiarizing with them, or even learning how to use them correctly. A risk that can cause complications in the process and eventually even hinder the building of new capacities. This could potentially trigger a vicious circle that can lead to frustration and slow down the uptake while increasing resistance to the introduction of co-creation. Acknowledging this, previous training for the use of tools has been identified as one possible solution for this building a knowledge base through specific training or application of tools inside the organisation to then expand and embed this knowledge through further application. This initial training has proven to be fundamental during the SISCODE project.

However, it is to be investigated further how this initial risk of failure and frustration can be minimized when introducing co-creation is not introduced into an organisation as part of a project providing this introductory training. This issue is to be addressed in the Task 5.4 'Making sense of co-creation approaches and tools' and the resulting deliverable D5.2, an interactive guidebook aimed at supporting these initial phases of learning and the set up of co-creation processes as well as the application of single tools.

Complexity of self-assessment in relation to abstract dimensions

Self-assessment has led, on one hand, to a series of reflections and insights that did not only enrich the evaluation but also did trigger some additional consideration within the pilot experimentations. On the other hand, the complexity of self-assessment has to be acknowledged. Its subjectivity and dependency on a variety of factors has been noticed especially in the self-assessment questionnaire showing inconsistencies in the patterns of self-positioning on the Likert scales. While the self-positioning in the beginning and the end of the experimentation has been relatively high, it experienced a drop in the intermediate evaluation (Fig 23; see Annex 4). The hypothesis made by the researchers in relation to this fluctuation is an initial high positioning due to the sheer presence of a

practice in an organisation that is then re-considered, resulting in a lower self-positioning, after acknowledging the full dimension and complexity of the topic. Once the overall picture and its complexity is then understood and embedded, it leads to a reinvigoration of the investigated practices.

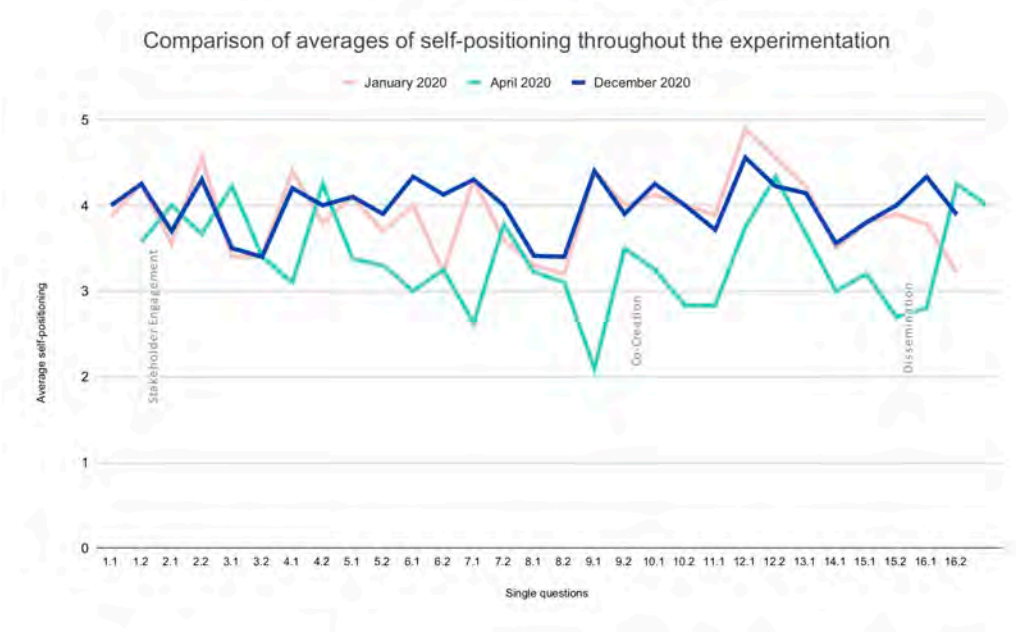

FIG 24 - COMPARISON OF AVERAGES OF SELF-POSITIONING THROUGHOUT THE EXPERIMENTATION

Awareness of knowledge and capacities

While the acquisition and transfer of novel knowledge has been mentioned several times being one of the central issues in the self-assessment questionnaire, it shed light on the related issue of awareness of existing knowledge and capacities. The introduction of novel practices did not only question the validity of current ones but also triggered reflections on how established practices are somewhat similar to the new ones, and how they could eventually integrate and complement each other. Especially some specific capacities related to co-creation like the mapping the user journeys or stakeholders are already practiced in different forms and their integration is facilitated by the recognition of those similarities.

9.1. Directions for future investigations

Based on the findings and reflections contained in this report, especially the relation of the introduction of co-creation practices into organizations for RRI and the process of building new organizational capacities in this specific context. The drivers and barriers for such

learning processes are to be investigated further especially in T5.2 and T5.3 exploring the dynamics and models of co-creation ecosystems.

The assessment framework itself is currently undergoing a process of analysis to explore its potential of being replicated and transferred to be applied to other projects mainly in the fields of RRI and co-creation. The activities related to these considerations are detailed in the subsequent chapter.

10. Consideration for future development – scaling out beyond SISCODE

The assessment framework in this report is characterized for considering various aspects of the co-creation process, reaching out to three scales of observations, and enabling reflections that emerge triangulating data from different sources. This nature and scope make the designed assessment framework inherently prone to get scaled out and replicated in other projects. In particular, although born in the specific frame of co-creation, the specific objectives, areas of interests and the indicators identified can be applied to the general context of RRI, requiring minor review and adaptation.

This is possible because the process of downscaling, reviewing and adjusting was already included in the development of the SISCODE framework assessment. As described in chapter 4, the indicators used for assessing the real-life experimentations started from the MoRRI indicators, which were developed for monitoring and assessing the impacts of RRI initiatives, and for evaluating their performance at a national scale.

The process of translating MoRRI indicators from the national scale to that of a RRI-related project produced a set of means of verification and measurement already oriented for being replicated outside of SISCODE. From the very beginning, considerations on an out-scaling of the assessment framework have been indeed made to re-connect the specific framework to the field of RRI. Tab 1 reported on the theoretical connection of SISCODE indicators against that of MoRRI, explaining the process and rationale behind the scaling down from a national to a project-level.

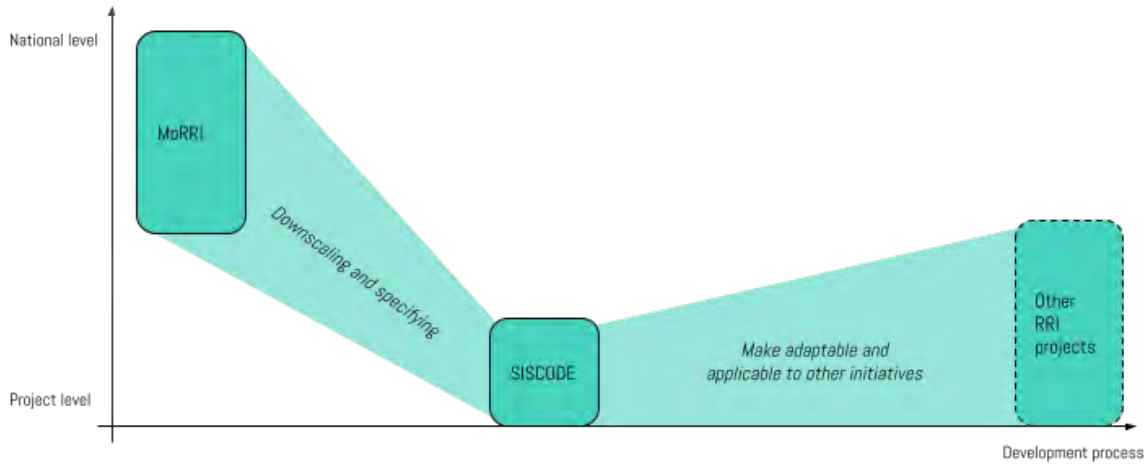

FIG 25 - POTENTIAL DEVELOPMENT PROCESS OF A GENERAL ASSESSMENT FRAMEWORK

Given the current state of the art of the framework, further elaborations in a scaling-out direction regard the division in general and project-specific indicators applicable to most RRI projects together with a guide to define, monitor and assess them.

Having been developed on the base of the MoRRI project and its indicators, there has been constant bilateral exchange on the topic of monitoring and assessment in RRI. Also the follow-up project, SUPERMoRRI shows a variety of parallels to the goal of SISCODE including the set-up of a self-assessment questionnaire.

From January 2020 SISCODE partners started joining the SwafS ecosystem meeting series[4] brought to life by SUPERMoRRI as a virtual space for discussions and exchange. The ecosystem features 25 different projects, most of them EU-funded and all operating in the field of RRI. The vivid and fruitful exchange in this group together with the issue of monitoring and assessing coming up frequently lead to a mini-series of meetings organized by SISCODE specifically on the topic of assessment where different projects presented their assessment tools and frameworks followed by direct discussions and exchange with the following projects:

- Orbit (orbit-rri.org)
- CheRRIes (cordis.europa.eu/project/id/872873)
- SUPERMoRRI (super-morri.eu; cordis.europa.eu/project/id/824671)
- Co-Change (cochangeproject.eu; cordis.europa.eu/project/id/873112)

[4] https://super-morri.eu/rri-ecosystem/

Therefore, the scaling out of the SISCODE framework is currently under development in direct collaboration with other projects, as part of the work done in the SUPERMoRRI project. The identification of this issue from the RRI community has led to the activation of a series of considerations and initiatives that are aiming at the investigation and scaling of assessment frameworks in RRI.

From September 2020, a new series of events has been launched by a group of SwafS 14 projects to develop a common plan for monitoring and evaluation, hosted and organised by CWTS Leiden University. It includes the SwafS 14 projects CHERRIES, SUPERMoRRI, TRANSFORM, SeeRRI, TeRRItoria, RRI2Scale, TeRRIfica, DigiteRRI and TetRRIs. The network of projects aims at addressing the present issue of impact assessment in RRI initiatives (see chap 2.2) joining forces and investigating present assessment methodologies, tools and frameworks in terms of results and adaptability. SISCODE joined this meeting series due to the specific interest in the topic of monitoring and assessment and its potential contribution to the development of this plan. Acknowledging the complexity of the creation of such a plan, existing assessment approaches and tools from three projects, among them SISCODE, have been analysed considering the following dimensions:

1. Purposes and justification of monitoring & assessing
   What is the overall purpose of the activity and what is measured and analysed specifically inside the project
2. Stakeholder involvement
   Who are the stakeholders of the project and how are they involved in the assessment activities?
3. Approaches to monitoring & assessing
   What are the theories and basis underlying the approach to assessment adopted?
4. Relevant aspects to be monitored and evaluated
   Which aspects of the project are monitored and what is expected as an outcome?
5. Instruments and tools
   What are the instruments and tools adopted for the assessment activities?

SISCODE's approach of exploring the MoRRI indicators within a project has contributed to the considerations currently being made in a further exploration to be carried out in the following months. The process is still ongoing investigating a set of issues to work on/to be considered when developing this assessment plan for SwafS 14 projects and beyond.

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12. Annex

12.1. Annex 1 - Tools for prototype evaluation

The document contains all the individual sheets developed for each of the prototypes to sustain and support their evaluation and improvement between the two cycles of prototyping.

PA4ALL

ICT based education programme for highschools specialized in agriculture

Suggested techniques

- Diary
- Students' presentation / Focus groups
- Field observation
- Survey

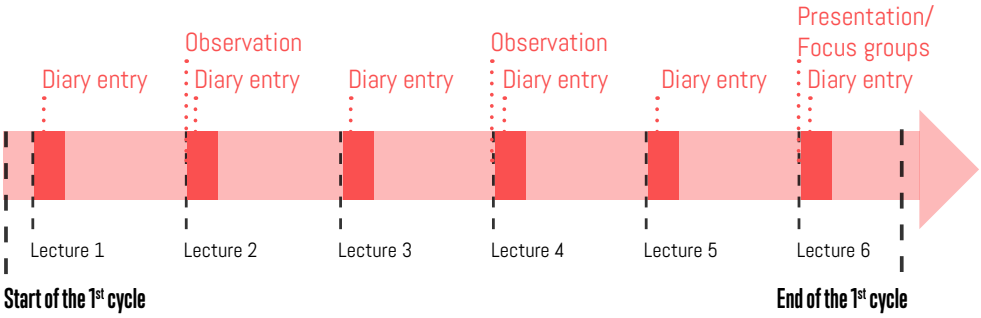
General recommendations

Exploring a long-term experience, the diary can track the progress and collect direct feedback after the single lessons while a final presentation or focus group will provide an overall feedback on the teaching module.
Instead of using the presentations of the students as a way to evaluate the prototype you could consider using those presentations for the evaluation of the learning progress and combine this closing lecture with focus groups, that will give feedback on the prototype itself.
In all evaluation methods you can involve students as well as teachers.

Timeline example and planning

You should create a timeline to plan your evaluation methods, in which moment they will take place as well as their duration and potential combination with other methodologies applied. Start also thinking about objectives in terms of numers for the different activities planned.
The figures below are just an example that you can use as a starting point.

Evaluation method	Quantity aimed
Focus groups	3 (8-12 participants each)
Interviews	15
Diary	all participants



DIARY

PA4ALL

Detailed description

A diary can help the students and teachers to express their impression after the single lectures.
What they appreciated, what was difficult and what they noticed in the particular lesson.
Writing it down immediately after the impressions are still fresh and unbiased by internal confrontations or opinions of other participants.
Requesting answers after the different lessons you will have the opportunity to obtain a more diffused view on your service - are all sessions perceived positively/negatively in the same way? Are there some that are appreciated in particular and why?
If the exact positioning of the lessons is not pre-defined you will also obtain insights on where the teachers decided to position them within the programme.

Tips and best practices

- Pre-defined moments in which the users should write the different sections of the diary can help to motivate them in doing it e.g. collective moments after the lessons.
- It is important to be very clear on the instructions that you send to participants on how often you expect them to write, how long it should be, and whether you expect images, screenshots, survey responses, etc. The clearer you are on this, the easier it will be managing the activity remotely.
- Diaries don't need to be written by hand anymore, you can consider digital tools supporting the data entry and allowing even other formats like pictures, videos or audio registrations.
- Ask your users if you can get back to them for in-depth interviews if you find particularly interesting comments.
- Meeting your participants face-to-face in the beginning and introducing yourselves and your activity personally can help them to stay commited.
- Sending reminders after use / integrating them in the prototype helps users to stay on track
- The tool itself requires some preparation, it needs to be designed and tailored for the specific situation e.g. creating templates

Examples / Tips on evaluation

- A platform offering diary studies - it's on payment, but you might catch something from the previews https://indeemo.com/mobile-diary-study
- Article on how to conduct diary studies https://www.nngroup.com/articles/diary-studies/
- Article on how to conduct diary studies https://www.spotless.co.uk/insights/6-things-for-ux-diary-study/
- Beneficaries and particularities of diary studies https://uxpamagazine.org/dear-diary-using-diaries-to-study-user-experience/
- How to collect and analyze data https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

USER PRESENTATION

PA4ALL

Detailed description

Wanting to wrap-up the entire experience in the end you can ask your student participants to give a short presentation on learnings after completing the module.
Those presentations could be held in front of the teacher, the other students and eventually also other teachers, the director of the school or various policy makers.
Eventually these presentations could turn into some kind of focus group or be combined with focus groups to open a discussion afterwards (see following page).

Tips and best practices

- Define some mandatory elements that should be included in this presentation apart from the purely technical learnings e.g. „the 3 things I liked most, the 3 things I did not like, what I'd be interested in to learn,...".
- If this presentation is to be held in front of the class, it could be helpful and interesting being present for eventual discussions and dialogues together with students and teachers.
- Be clear to students and teachers about the scope of this presentation. Should they present what they learned? What future they see for modules like this? One specific element they liked? Reflections on the module?

Practical examples / links

- How to for focus groups / possible integration (see next page)
  https://www.usability.gov/how-to-and-tools/methods/focus-groups.html

FOCUS GROUPS

PA4ALL

Detailed description

Focus groups are an activity where the participants are divided in groups that are then involved in a moderated discussion.
Unlike interviews, there are multiple participants involved in the same session.
This can help to fuel discussions and exchange among different users and let them share and confront ideas and opinions while eventually forming new ones.
Those discussions are an open conversation on the scope, use and utility of the prototype.
However, the moderator still drives some parts of the discussion and has some pre-defined guidelines at hand.

Tips and best practices

- Creating mixed focus groups with the different participants can lead to fruitful discussions on different expectations and desires among them (for example mixing teachers, policy makers and students)
- The person moderating the event should be well aware of the entire prototyping procedure and your objectives for the testing to bring the discussion back on the right track if needed
- This kind of feedback often requires a mix of reflections and fresh thoughts on what's just been tested. Do not plan the sessions too distant from the actual testing.
  You can even plan them as a final part integrating it in some kinds of activities.

Examples / Tips on evaluation

- Even this article talks exclusively about products, a lot of elements apply to focus groups in general and it provides some good hints and guidelines
  https://www.revuze.it/blog/6-keys-to-focus-groups-that-generate-valuable-consumer-insights/
- How to evaluate and document result of focus groups
  https://www.focusgrouptips.com/focus-group-results.html
- Tips on documentation and evaluation
  https://www.sagepub.com/sites/default/files/upm-binaries/11007_Chapter_7.pdf
- How to evaluate and analyze results
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis
- Article on focus groups in teaching models
  https://www.researchgate.net/publication/239794703_Using_Focus_Group_Research_to_Support_Teaching_and_Learning

FIELD OBSERVATION

PA4ALL

Detailed description

The idea of observation is a really simple one:
Getting your own impression on how something works by simply observing it without influencing the natural interactions going on.
To get an impression on how the prototype works in practice you can sneak in one of the lectures observing the interactions between teacher and students. This allows you to directly catch problematic elements, interactions that cause difficulties and reactions on both sides.
Observation can also be a part of other ways of evaluation or be used as a main technique.

Tips and best practices

- Avoid presenting yourself as one of the creators. It might keep people from critizing or acting naturally.
- Take notes on everything you observe to then evaluate the data afterwards. Some things do not seem important at first sight, but provide insights in a greater context
- Pay particular attention to the interaction between students, students and teachers and micro-reactions that normally would maybe not be noticed.

Practical examples / links

- Article on how to conduct and organize an observation
  https://www.interaction-design.org/literature/article/how-to-conduct-user-observations
- Practical examples of user observation
  https://www.noldus.com/blog/two-examples-of-on-site-observational-studies-with-older-persons
- Support for the collection and analysis of data
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

COMPARISATIONAL SURVEY

PA4ALL

Detailed description

A survey is a collection of questions asked to gather very specific information. It is applied to gather quantitative, qualitative and mixed data.
It is usually used as an instrument to collect standard data over large numbers of people.
Surveys can be conducted digitally by sending an online form by mail or directly in place (either digitally on devices or on printed paper templates.
The same survey conducted twice, once before/throughout the process and one after its conclusion provides insights on proceedings, changes in perception and learnings.

Tips and best practices

- Avoid pure yes/no questions, but let your users argument, WHY they liked or did not like something
- Digital questionnaires are easier to evaluate, but depending on the target you might consider also using printed versions
- Take care not making it too long since users might stop paying attention to their answers or simply interrupting the questionnaire
- Run a test with someone not involved in the project to check the time taken to fill the questionnaire and identify eventual difficulties in comprehension that might stop users from completing the questionnaire
- Questionnaires do not have to be purely textual: You can ask your users to draw, insert pictures or any kind of file they might want to share (depending on the support you are using)

Examples / Tips for evaluation

- https://www.mockplus.com/blog/post/user-experience-survey-questions
  (a lot of questions are focussed on products, but there are some interesting ones for services as well)
- https://explorable.com/survey-research-design
- https://smallbusiness.chron.com/evaluate-survey-results-61615.html

THESS-AHALL

Participatory research programme for elderly and chronic patients

Suggested techniques

- Survey
- Interviews (with card sorting)
- Focus groups

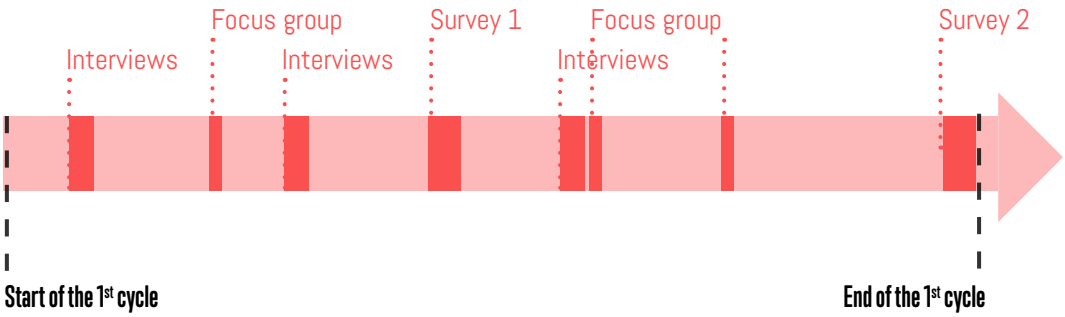
General recommendations

While focus groups are helpful to initiate a discussion among different groups of users and directly let them confront their needs and desires.
In-depth interviews with chosen participants can be done throughout the experimentation or in the end to catch a close-up.
A survey could be used for example after the overall experience for a final evaluation of satisfaction or being conducted twice - once throughout the experience and once in the end - having a comparison of two different states in a quite long experience.

Timeline example and planning

You should create a timeline to plan your evaluation methods, in which moment they will take place as well as their duration and potential combination with other methodologies applied. Start also thinking about objectives in terms of numers for the different activities planned.
The figures below are just an example that you can use as a starting point.

Evaluation method	Quantity aimed
Survey	2x, all participants
Interviews	8
Focus group	3x (10 users each)



SURVEY

THESS-AHALL

Detailed description

A survey is a collection of questions asked to gather very specific information. It is applied to gather quantitative, qualitative and mixed data.
It is usually used as an instrument to collect standard data over large numbers of people.
Surveys can be conducted digitally by sending an online form by mail or directly in place (either digitally on devices or on printed paper templates.

Tips and best practices

- Avoid pure yes/no questions, but let your users argument, WHY they liked or did not like something
- Digital questionnaires are easier to evaluate, but depending on the target you might consider also using printed versions
- Take care not making it too long since users might stop paying attention to their answers or simply interrupting the questionnaire
- Run a test with someone not involved in the project to check the time taken to fill the questionnaire and identify eventual difficulties in comprehension that might stop users from completing the questionnaire
- Questionnaires do not have to be purely textual: You can ask your users to draw, insert pictures or any kind of file they might want to share (depending on the support you are using)

Examples / Tips for evaluation

- https://www.mockplus.com/blog/post/user-experience-survey-questions
  (a lot of questions are focussed on products, but there are some interesting ones for services as well)
- https://explorable.com/survey-research-design
- https://smallbusiness.chron.com/evaluate-survey-results-61615.html

INTERVIEWS WITH CARD SORTING

THESS-AHALL

Detailed description

Interviews are usually longer conversations between two people: one interviewer who is part of the research organization and/or very familiar with the project. The interviewee is part of the group that is to be examined.
Interviews are, at least partly, guided by predefined interview guidelines.
Interviews have the scope to deep-dive into specific issues with single users gathering qualitative data from them.
Depending on the users, your relation to them and the environment interviews can be relaxed chats or more formal conversations.
Card sorts are sometimes done as part of an interview. The user is given a set of cards, and asked to sort them on a table according to their importance, build groups, ecc.
The goal of a card sort is to explore relationships between content, and better understand the hierarchies that a user perceives.

Tips and best practices

- If your desired interview partners are not available for a face-to-face interview, interviews can also be conducted on the phone or online using tools like Skype
- Try to find a good balance between letting your counterpart talk freely and carefully guiding him/her towards the questions that you would like to have answered
- Interview your users in a comfortable environment and possibly in their mother-tongue. The more comfortable they feel, the more they might illustrate and go in detail about their experiences, feelings and impressions
- For the card sorting exercise you can spontaneously see how much the user interacts and then eventually give them a push interacting with them over the cards (e.g. „Would you say the nurse plays a more important role with the doctor?“, „So the public office is interacting with the citizens?“ to help them get into the exercise and gather additional information

Practical examples / Data analysis

- Tips on how to plan and conduct interviews
  https://guides.lib.vt.edu/researchmethods/interviews
- Decide for some „mandatory“ questions, that you want to be always answered and some „probes“, that the interviewer may or may not use according to the direction the interview is taking.
  e.g.
  Question: „Tell me a little about your working background“
  probe 1: „What did you study?“
  probe 2: „What kind of other jobs did you do in the past?“
  probe 3: „Why didn‘t you like that sector you‘ve worked in?“
- On collecting and analyzing data
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis
- On card sorting
  https://uxdesign.cc/card-sorting-what-how-the-perks-29f6cb020270

FOCUS GROUPS

THESS-AHALL

Detailed description

Focus groups are an activity where the participants are divided in groups that are then involved in a moderated discussion.
Unlike interviews, there are multiple participants involved in the same session.
This can help to fuel discussions and exchange among different users and let them share and confront ideas and opinions while eventually forming new ones.
Those discussions are an open conversation on the scope, use and utility of the prototype.
However, the moderator still drives some parts of the discussion and has some pre-defined guidelines at hand.

Tips and best practices

- Creating mixed focus groups with the different participants can lead to fruitful discussions on different expectations and desires among them
- The person moderating the event should be well aware of the entire prototyping procedure and your objectives for the testing to bring the discussion back on the right track if needed
- This kind of feedback often requires a mix of reflections and fresh thoughts on what's just been tested. Do not plan the sessions too distant from the actual testing.
  You can even plan them as a final part integrating it in some kinds of activities.
- Carefully select the participants for the single groups - do you want a mixed feedback and discussions among different groups or do you prefer concentrating on one specific target e.g. elderly

Examples / Tips on evaluation

- Even this article talks exclusively about products, a lot of elements apply to focus groups in general and it provides some good hints and guidelines
  https://www.revuze.it/blog/6-keys-to-focus-groups-that-generate-valuable-consumer-insights/
- How to evaluate and document result of focus groups
  https://www.focusgrouptips.com/focus-group-results.html
- Tips on documentation and evaluation
  https://www.sagepub.com/sites/default/files/upm-binaries/11007_Chapter_7.pdf
- How to evaluate and analyze results
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

KTP

Preparation of the new Air Protection Plan for Malopolska region

Suggested techniques

- Interviews
- Focus groups

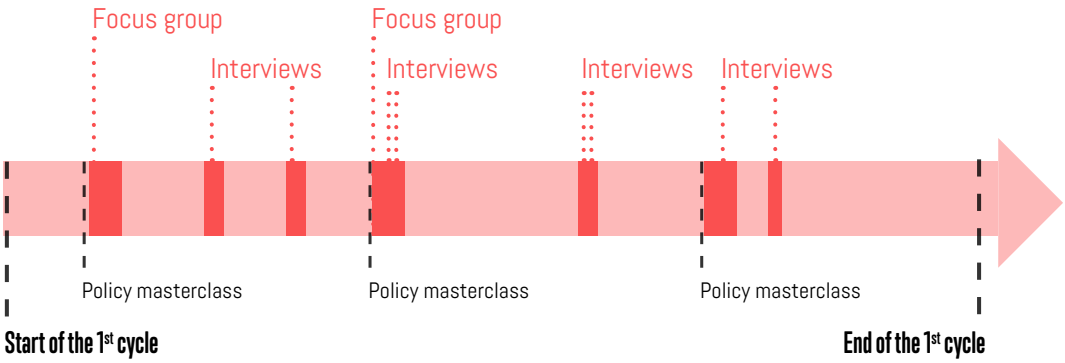
General recommendations

To evaluate the ongoing activities with policy makers, interviews and focus groups can be conducted, eventually to be integrated/in combination with the policy masterclasses and activities already planned.
As soon as the solution is going to be ready after the smogathon, adapted evaluation techniques can be suggested according to the solution developed.

Timeline example and planning

You should create a timeline to plan your evaluation methods, in which moment they will take place as well as their duration and potential combination with other methodologies applied. Start also thinking about objectives in terms of numers for the different activities planned.
The figures below is just an example that you can use as a starting point.

Evaluation method	Quantity aimed
Focus groups	3 (8-12 participants each)
Interviews	15



FOCUS GROUPS

KTP

Detailed description

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Tips and best practices

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Examples / Tips on evaluation

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- Tips on documentation and evaluation
  https://www.sagepub.com/sites/default/files/upm-binaries/11007_Chapter_7.pdf
- How to evaluate and analyze results
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

INTERVIEWS

KTP

Detailed description

Interviews are usually longer conversations between two people: one interviewer who is part of the research organization and/or very familiar with the project. The interviewee is part of the group that is to be examined.
Interviews are, at least partly, guided by predefined interview guidelines.
Interviews have the scope to deep-dive into specific issues with single users gathering qualitative data from them.
Depending on the users, your relation to them and the environment interviews can be relaxed chats or more formal conversations.

Tips and best practices

- If your desired interview partners are not available for a face-to-face interview, interviews can also be conducted on the phone or online using tools like Skype
- Try to find a good balance between letting your counterpart talk freely and carefully guiding him/her towards the questions that you would like to have answered
- Interview your users in a comfortable environment and possibly in their mother-tongue. The more comfortable they feel, the more they might illustrate and go in detail about their experiences, feelings and impressions

Practical examples / Data analysis

- Tips on how to plan and conduct interviews
  https://guides.lib.vt.edu/researchmethods/interviews
- Decide for some „mandatory" questions, that you want to be always answered and some „probes", that the interviewer may or may not use according to the direction the interview is taking.
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  probe 1: „What did you study?"
  probe 2: „What kind of other jobs did you do in the past?"
  probe 3: „Why didn't you like that sector you've worked in?"
- On collecting and analyzing data
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

FABLAB BARCELONA

System for food surplus and bio waste valorisation at a neighborhood scale

Suggested techniques

- Moderated usability test (for the platform)
- Interviews
- Focus groups

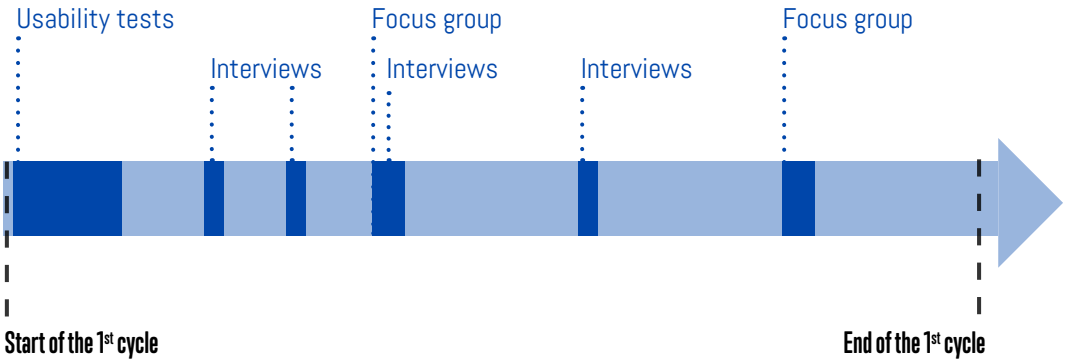
General recommendations

A moderated usability test allows the testing of the single platform and its usability while focus groups will provide an evaluation of the overall experience of the service.
Interviews offer the possibility to go in-depth with few specific users.

Timeline example and planning

You should create a timeline to plan your evaluation methods, in which moment they will take place as well as their duration and potential combination with other methodologies applied. Start also thinking about objectives in terms of numbers for the different activities planned.
The figures below is just an example that you can use as a starting point.

Evaluation method	Quantity aimed
Focus groups	2 (8-12 participants each)
Interviews	15
Usability test	8



MODERATED USABILITY TEST

FABLAB BARCELONA

Detailed description

Structured user testings are one-to-one interactions thought for the in-depth examination of a smaller range of cases.
Users are put in simulated real-life conditions having to use the product or service during a test session. Usually not the entire product/service is tested, but some key features and going in detail on some other features, that might appear problematic and that you need feedback on.

Tips and best practices

- Try to properly simulate a real-life experience to your users that they could be in if they were actually in that situation to use your product/service
- User tests are usually conducted one-by-one, but if your product will require multiple users at the same time you should also involve more than just one person at a time in the testing
- „Reserve" one person just to provide guidance to the user, giving tasks and so on. Videotaping, audio-recording or note-taking should be done by an additional person not to continuously interrupt the test
- Ask your users to „think out loud" during the test to capture immediate impressions and confusions

Practical examples / helpful links

- Structuring the user test like a real-life example in a logical sequence e.g.
  Task 1: You just received this bill by post and want to pay it through the app (handing paper bill)
  Task 2: Having already paid online once you are curious if there's any way to activate automatic payment
  Task 3: You changed your provider and now need to cancel the automatic payment for this one
- How to conduct usability tests
  https://www.toptal.com/designers/ux-consultants/how-to-conduct-usability-testing-in-6-steps
- Guide to user testing
  https://blog.maze.design/usability-testing-guide/

INTERVIEWS

FABLAB BARCELONA

Detailed description

Interviews are usually longer conversations between two people: one interviewer who is part of the research organization and/or very familiar with the project. The interviewee is part of the group that is to be examined.
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Interviews have the scope to deep-dive into specific issues with single users gathering qualitative data from them.
Depending on the users, your relation to them and the environment interviews can be relaxed chats or more formal conversations.

Tips and best practices

- If your desired interview partners are not available for a face-to-face interview, interviews can also be conducted on the phone or online using tools like Skype
- Try to find a good balance between letting your counterpart talk freely and carefully guiding him/her towards the questions that you would like to have answered
- Interview your users in a comfortable environment and possibly in their mother-tongue. The more comfortable they feel, the more they might illustrate and go in detail about their experiences, feelings and impressions

Practical examples / Data analysis

- Tips on how to plan and conduct interviews
  https://guides.lib.vt.edu/researchmethods/interviews
- Decide for some „mandatory" questions, that you want to be always answered and some „probes", that the interviewer may or may not use according to the direction the interview is taking.
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  probe 1: „What did you study?"
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  probe 3: „Why didn't you like that sector you've worked in?"
- On collecting and analyzing data
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

FOCUS GROUPS

FABLAB BARCELONA

Detailed description

Focus groups are an activity where the participants are divided in groups that are then involved in a moderated discussion.
Unlike interviews, there are multiple participants involved in the same session.
This can help to fuel discussions and exchange among different users and let them share and confront ideas and opinions while eventually forming new ones.
Those discussions are an open conversation on the scope, use and utility of the prototype.
However, the moderator still drives some parts of the discussion and has some pre-defined guidelines at hand.

Tips and best practices

- Creating mixed focus groups with the different participants can lead to fruitful discussions on different expectations and desires among them
- The person moderating the event should be well aware of the entire prototyping procedure and your objectives for the testing to bring the discussion back on the right track if needed
- This kind of feedback often requires a mix of reflections and fresh thoughts on what's just been tested. Do not plan the sessions too distant from the actual testing.
  You can even plan them as a final part integrating it in some kinds of activities.

Examples / Tips on evaluation

- Even this article talks exclusively about products, a lot of elements apply to focus groups in general and it provides some good hints and guidelines
  https://www.revuze.it/blog/6-keys-to-focus-groups-that-generate-valuable-consumer-insights/
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- How to evaluate and analyze results
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

POLIFACTORY

System for motor-stimulation of the limbs - transformation of movement into sound

Suggested techniques

- Focus groups
- Interviews
- Feedback wall (see dedicated page)

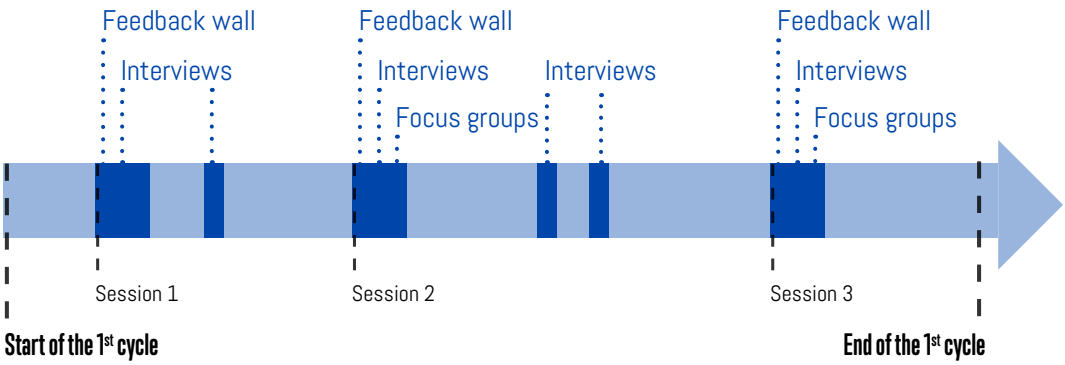
General recommendations

Focus groups will allow an open discussion with different kinds of users and stakeholders while interviews can provide in-depth inside on single cases.
A feedback wall could mainly give some qualitative feedback and could represent an opportunity involving also the children in a playful way in the feedback collection.

Timeline example and planning

You should create a timeline to plan your evaluation methods, in which moment they will take place as well as their duration and potential combination with other methodologies applied. Start also thinking about objectives in terms of numers for the different activities planned.
The figures below is just an example that you can use as a starting point.

Evaluation method	Quantity aimed
Focus groups	2 (8-12 participants each)
Interviews	15
Feedback wall	present in all sessions



FOCUS GROUPS

POLIFACTORY

Detailed description

Focus groups are an activity where the participants are divided in groups that are then involved in a moderated discussion.
Unlike interviews, there are multiple participants involved in the same session.
This can help to fuel discussions and exchange among different users and let them share and confront ideas and opinions while eventually forming new ones.
Those discussions are an open conversation on the scope, use and utility of the prototype.
However, the moderator still drives some parts of the discussion and has some pre-defined guidelines at hand.

Tips and best practices

- Creating mixed focus groups with the different participants can lead to fruitful discussions on different expectations and desires among them
- The person moderating the event should be well aware of the entire prototyping procedure and your objectives for the testing to bring the discussion back on the right track if needed
- This kind of feedback often requires a mix of reflections and fresh thoughts on what's just been tested. Do not plan the sessions too distant from the actual testing.
  You can even plan them as a final part integrating it in some kinds of activities.
- Staying in a group can help vulnerable groups or their caregivers to open up and exchange with others

Examples / Tips on evaluation

- https://www.revuze.it/blog/6-keys-to-focus-groups-that-generate-valuable-consumer-insights/ (even this article talks exclusively about products, a lot of elements apply to focus groups in general and it provides some good hints and guidelines)
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INTERVIEWS

POLIFACTORY

Detailed description

Interviews are usually longer conversations between two people: one interviewer who is part of the research organization and/or very familiar with the project. The interviewee is part of the group that is to be examined.
Interviews are, at least partly, guided by predefined interview guidelines.
Interviews have the scope to deep-dive into specific issues with single users gathering qualitative data from them.

Tips and best practices

- If your desired interview partners are not available for a face-to-face interview, interviews can also be conducted on the phone or online using tools like Skype
- Try to find a good balance between letting your counterpart talk freely and carefully guiding him/her towards the questions that you would like to have answered
- Interview your users in a comfortable environment and possibly in their mother-tongue. The more comfortable they feel, the more they might illustrate and go in detail about their experiences, feelings and impressions

Practical examples / Data analysis

- Tips on how to plan and conduct interviews
  https://guides.lib.vt.edu/researchmethods/interviews
- Decide for some „mandatory" questions, that you want to be always answered and some „probes", that the interviewer may or may not use according to the direction the interview is taking.
  e.g.
  Question: „Tell me a little about your working background"
  probe 1: „What did you study?"
  probe 2: „What kind of other jobs did you do in the past?"
  probe 3: „Why didn't you like that sector you've worked in?"
- On collecting and analyzing data
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

FEEDBACK WALL

POLIFACTORY

Detailed description

Feedback walls are more playful ways to gather qualitative feedback after a short-term experience.
As a part of an exhibition or exposed in a common room, some installation like elements invite users to leave their feedback either completely free or on specific topics.
This should always be combined/followed by other evaluation techniques, since the data gathered might be few and could also not provide the needed feedback.

Tips and best practices

- Activities different from simply writing down feedback can provide answers to specific questions actively engaging users
- Also combinations of two or more activities to chose are a possibility to gather feedback from different kinds of users (e.g. drawings from children, written feedback from adults,...)
- The tool itself requires some preparation, it needs to be designed and tailored for the specific situation e.g. creating the templates/activities to be done at this wall

Examples / Tips for evaluation

- How to evaluate and analyze results
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

UNDERBROEN

Circular system for local sourcing, recycling and production of sustainable plastic building materials and products

Suggested techniques

- Moderated usability test
- Interviews (+card sorting)

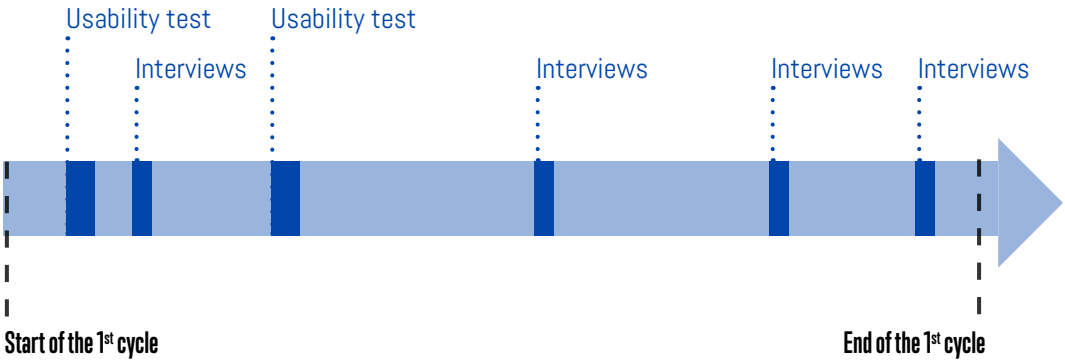
General recommendations

A moderated usability test will give a direct feedback and overview on the funcionality of the product-service itself while interviews can provide deeper insights on the general idea of the prototype and functions more related to the service.
Having different elements and a more complex system, a card sorting exercise can support users in pointing out priorities and hidden connections since they might seem a little abstract at first.

Timeline example and planning

You should create a timeline to plan your evaluation methods, in which moment they will take place as well as their duration and potential combination with other methodologies applied. Start also thinking about objectives in terms of numers for the different activities planned.
The figures below is just an example that you can use as a starting point.

Evaluation method	Quantity aimed
Usability test	8 sessions
Interviews	15



MODERATED USABILITY TEST

UNDERBROEN

Detailed description

Structured user testings are one-to-one interactions thought for the in-depth examination of a smaller range of cases.
Users are put in simulated real-life conditions having to use the product or service during a test session. Usually not the entire product/service is tested, but some key features and going in detail on some other features, that might appear problematic and that you need feedback on.

Tips and best practices

- Try to properly simulate a real-life experience to your users that they could be in if they were actually in that situation to use your product/service
- User tests are usually conducted one-by-one, but if your product will require multiple users at the same time you should also involve more than just one person at a time in the testing
- „Reserve" one person just to provide guidance to the user, giving tasks and so on. Videotaping, audio-recording or note-taking should be done by an additional person not to continuously interrupt the test
- Ask your users to „think out loud" during the test to capture immediate impressions and confusions

Practical examples / helpful links

- Structuring the user test like a real-life example in a logical sequence e.g.
  Task 1: You just received this bill by post and want to pay it through the app (handing paper bill)
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INTERVIEWS (WITH CARD SORTING)

UNDERBROEN

Detailed description

Interviews are usually longer conversations between two people: one interviewer who is part of the research organization and/or very familiar with the project. The interviewee is part of the group that is to be examined.
Interviews are, at least partly, guided by predefined interview guidelines.
Interviews have the scope to deep-dive into specific issues with single users gathering qualitative data from them.
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The goal of a card sort is to explore relationships between content, and better understand the hierarchies that a user perceives.

Tips and best practices

- If your desired interview partners are not available for a face-to-face interview, interviews can also be conducted on the phone or online using tools like Skype
- Try to find a good balance between letting your counterpart talk freely and carefully guiding him/her towards the questions that you would like to have answered
- Interview your users in a comfortable environment and possibly in their mother-tongue. The more comfortable they feel, the more they might illustrate and go in detail about their experiences, feelings and impressions
- For the card sorting exercise you can spontaneously see how much the user interacts and then eventually give them a push interacting with them over the cards (e.g. „Would you say the nurse plays a more important role with the doctor?“, „So the public office is interacting with the citizens?“ to help them get into the exercise and gather additional information

Practical examples / Data analysis

- Tips on how to plan and conduct interviews
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- Decide for some „mandatory“ questions, that you want to be always answered and some „probes“, that the interviewer may or may not use according to the direction the interview is taking.
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  probe 3: „Why didn‘t you like that sector you‘ve worked in?“
- On collecting and analyzing data
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis
- On card sorting
  https://uxdesign.cc/card-sorting-what-how-the-perks-29f6cb020270

TRACES

Collective interventions on how automated decision support can be a target for educational/cultural activities

Suggested techniques

- Feedback wall
- Interviews
- Field observation

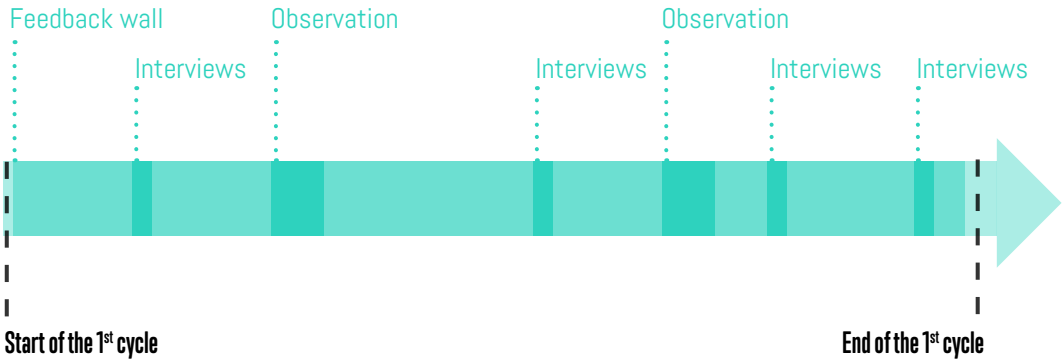
General recommendations

Field observation is an easy method to catch impressions directly from the field, listen to comments and observe behaviours while interviews provide deeper insights after a short-term experience and how it has been perceived.
A feedback wall is an alternative way of receiving feedback as part of an activity and integrating it in the actual service experience.

Timeline example and planning

You should create a timeline to plan your evaluation methods, in which moment they will take place as well as their duration and potential combination with other methodologies applied. Start also thinking about objectives in terms of numers for the different activities planned.
The figures below is just an example that you can use as a starting point.

Evaluation method	Quantity aimed
Oberservation	8 sessions
Interviews	15
Feedback wall	always



FEEDBACK WALL

TRACES

Detailed description

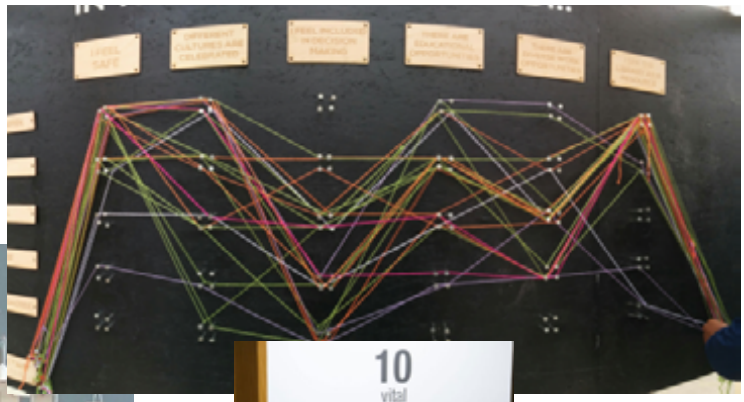
Feedback walls are more playful ways to gather qualitative feedback after a short-term experience.
As a part of an exhibition or exposed in a common room, some installation like elements invite users to leave their feedback either completely free or on specific topics.
This should always be combined/followed by other evaluation techniques, since the data gathered might be few and could also not provide the needed feedback.

Tips and best practices

- Activities different from simply writing down feedback can provide answers to specific questions actively engaging users
- Also combinations of two or more activities to chose are a possibility to gather feedback from different kinds of users (e.g. drawings from children, written feedback from adults,...)
- The tool itself requires preparation and it needs to be designed e.g. developing the activities to be done at the way, creating posters etc

Examples / Tips for evaluation

- How to evaluate and analyze results
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis



INTERVIEWS

TRACES

Detailed description

Interviews are usually longer conversations between two people: one interviewer who is part of the research organization and/or very familiar with the project. The interviewee is part of the group that is to be examined.
Interviews are, at least partly, guided by predefined interview guidelines.
Interviews have the scope to deep-dive into specific issues with single users gathering qualitative data from them.

Tips and best practices

- If your desired interview partners are not available for a face-to-face interview, interviews can also be conducted on the phone or online using tools like Skype
- Try to find a good balance between letting your counterpart talk freely and carefully guiding him/her towards the questions that you would like to have answered
- Interview your users in a comfortable environment and possibly in their mother-tongue. The more comfortable they feel, the more they might illustrate and go in detail about their experiences, feelings and impressions

Practical examples / Data analysis

- Tips on how to plan and conduct interviews
  https://guides.lib.vt.edu/researchmethods/interviews
- Decide for some „mandatory" questions, that you want to be always answered and some „probes", that the interviewer may or may not use according to the direction the interview is taking.
  e.g.
  Question: „Tell me a little about your working background"
  probe 1: „What did you study?"
  probe 2: „What kind of other jobs did you do in the past?"
  probe 3: „Why didn't you like that sector you've worked in?"
- On collecting and analyzing data
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

FIELD OBSERVATION

TRACES

Detailed description

The idea of observation is a really simple one:
Getting your own impression on how something works by simply observing it without influencing the natural interactions going on.
To get an impression on how the prototype works in practice you can sneak in one of the lectures observing the interactions between teacher and students. This allows you to directly catch problematic elements, interactions that cause difficulties and reactions on both sides.
Observation can also be a part of other ways of evaluation or be used as a main technique.

Tips and best practices

- Avoid presenting yourself as one of the creators. It might keep people from critizing or acting naturally.
- Take notes on everything you observe to then evaluate the data afterwards. Some things do not seem important at first sight, but provide insights in a greater context
- Pay particular attention to the interaction between students, students and teachers and micro-reactions that normally would maybe not be noticed.

Practical examples / links

- Article on how to conduct and organize an observation
  https://www.interaction-design.org/literature/article/how-to-conduct-user-observations
- Practical examples of user observation
  https://www.noldus.com/blog/two-examples-of-on-site-observational-studies-with-older-persons
- Support for the collection and analysis of data
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

CIÊNCIA VIVA

A yearlong workshop for the construction of watercrafts supported by science fair on river access and ocean literacy

Suggested techniques

- Focus groups
- Short interviews
- Field observation

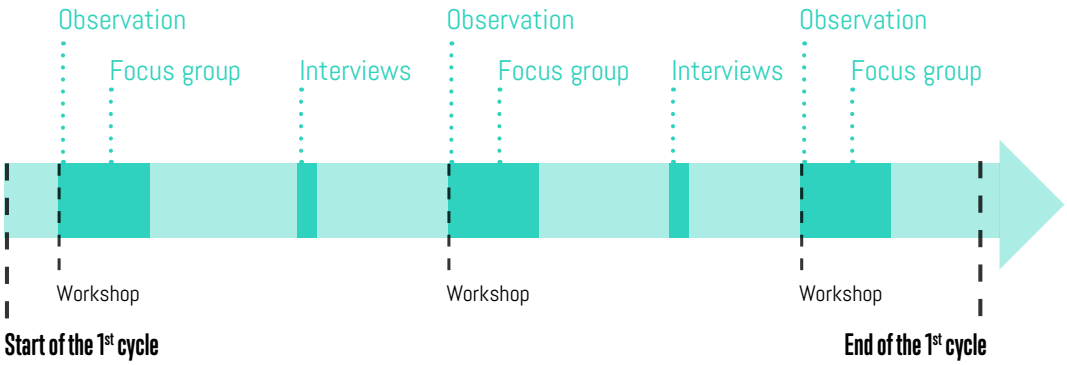
General recommendations

Field observation is an easy method to catch impressions directly from the field, listen to comments and observe behaviours while short interviews provide deeper insights after a short-term experience and how it has been perceived. This can for example help to explore if users actually change their perception on the river and its use.
Focus groups exploit group dynamics and bring users together to discuss desires, impressions and opinions.

Timeline example and planning

You should create a timeline to plan your evaluation methods, in which moment they will take place as well as their duration and potential combination with other methodologies applied. Start also thinking about objectives in terms of numers for the different activities planned.
The figures below is just an example that you can use as a starting point.

Evaluation method	Quantity aimed
Oberservation	8 sessions
Interviews	20
Focus groups	3 (10-15 users each)



FOCUS GROUPS

CIÊNCA VIVA

Detailed description

Focus groups are an activity where the participants are divided in groups that are then involved in a moderated discussion.
Unlike interviews, there are multiple participants involved in the same session.
This can help to fuel discussions and exchange among different users and let them share and confront ideas and opinions while eventually forming new ones.
Those discussions are an open conversation on the scope, use and utility of the prototype.
However, the moderator still drives some parts of the discussion and has some pre-defined guidelines at hand.

Tips and best practices

- Creating mixed focus groups with the different participants can lead to fruitful discussions on different expectations and desires among them
- The person moderating the event should be well aware of the entire prototyping procedure and your objectives for the testing to bring the discussion back on the right track if needed
- This kind of feedback often requires a mix of reflections and fresh thoughts on what's just been tested. Do not plan the sessions too distant from the actual testing.
  You can even plan them as a final part integrating it in some kinds of activities.

Examples / Tips on evaluation

- Even this article talks exclusively about products, a lot of elements apply to focus groups in general and it provides some good hints and guidelines
  https://www.revuze.it/blog/6-keys-to-focus-groups-that-generate-valuable-consumer-insights/
- How to evaluate and document result of focus groups
  https://www.focusgrouptips.com/focus-group-results.html
- Tips on documentation and evaluation
  https://www.sagepub.com/sites/default/files/upm-binaries/11007_Chapter_7.pdf
- How to evaluate and analyze results
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SHORT INTERVIEWS

CIÊNCIA VIVA

Detailed description

Interviews are usually conversations between two people: one interviewer who is part of the research organization and/or very familiar with the project. The interviewee is part of the group that is to be examined.
Interviews are, at least partly, guided by predefined interview guidelines.
Interviews have the scope to deep-dive into specific issues with single users gathering qualitative data from them.

Tips and best practices

- Try to find a good balance between letting your counterpart talk freely and carefully guiding him/her towards the questions that you would like to have answered
- Interview your users in a comfortable environment and possibly in their mother-tongue. The more comfortable they feel, the more they might illustrate and go in detail about their experiences, feelings and impressions

Practical examples / links

- Tips on how to plan and conduct interviews
  https://guides.lib.vt.edu/researchmethods/interviews
- Decide for some „mandatory" questions, that you want to be always answered and some „probes", that the interviewer may or may not use according to the direction the interview is taking.
  e.g.
  Question: „Tell me a little about your working background"
  probe 1: „What did you study?"
  probe 2: „What kind of other jobs did you do in the past?"
  probe 3: „Why didn't you like that sector you've worked in?"
- On collecting and analyzing data
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FIELD OBSERVATION

CIÊNCIA VIVA

Detailed description

The idea of observation is a really simple one:
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To get an impression on how the prototype works in practice you can sneak in one of the lectures observing the interactions between teacher and students. This allows you to directly catch problematic elements, interactions that cause difficulties and reactions on both sides.
Observation can also be a part of other ways of evaluation or be used as a main technique.

Tips and best practices

- Avoid presenting yourself as one of the creators. It might keep people from critizing or acting naturally.
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- Pay particular attention to the interaction between students, students and teachers and micro-reactions that normally would maybe not be noticed.

Practical examples / links

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SCIENCE GALLERY DUBLIN

Empowering young people tp understand the importance of hobbies for mental health while applying co-creation to be innovative in facilitating the clubs

Suggested techniques

- Diary
- Focus groups
- Feedback form/short survey

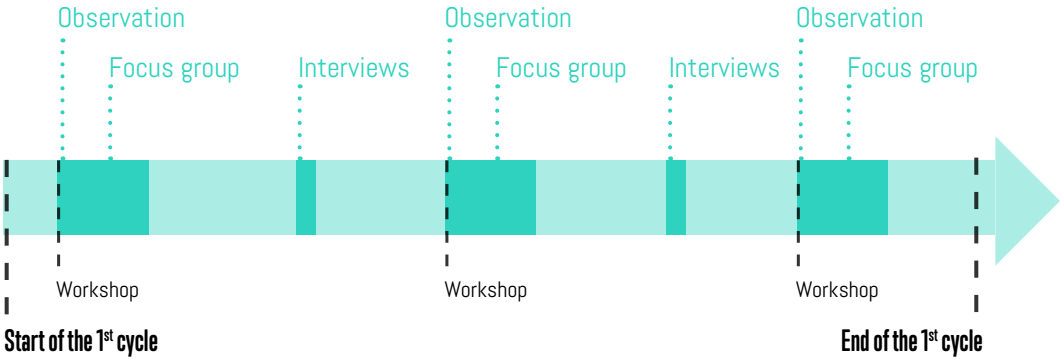
General recommendations

Being a longer-term process, a diary can help users to keep track of their development, positive impressions and difficulties step-by-step.
Focus groups allow reflection in groups and can bring up group dynamics and different perceptions.
To evaluate the overall experience after the closing, a survey with open questions or in-depth interviews will provide insights on details and very personal experiences.

Timeline example and planning

You should create a timeline to plan your evaluation methods, in which moment they will take place as well as their duration and potential combination with other methodologies applied. Start also thinking about objectives in terms of numers for the different activities planned.
The figures below is just an example that you can use as a starting point.

Evaluation method	Quantity aimed
Diary	8 sessions
Short survey	2
Focus groups	3 (10-15 users each)



DIARY

SCIENCE GALLERY DUBLIN

Detailed description

A diary can help the students and teachers to express their impression after the single lectures.
What they appreciated, what was difficult and what they noticed in the particular lesson.
Writing it down immediately after the impressions are still fresh and unbiased by internal confrontations or opinions of other participants.
Requesting answers after the different lessons you will have the opportunity to obtain a more diffused view on your service - are all sessions perceived positively/negatively in the same way? Are there some that are appreciated in particular and why?
If the exact positioning of the sessions is not pre-defined you will also obtain insights on when and how users decided to participate.

Tips and best practices

- Pre-defined moments in which the users should write the different sections of the diary can help to motivate them in doing it e.g. collective moments after the lessons.
- It is important to be very clear on the instructions that you send to participants on how often you expect them to write, how long it should be, and whether you expect images, screenshots, survey responses, etc. The clearer you are on this, the easier it will be managing the activity remotely.
- Diaries don't need to be written by hand anymore, you can consider digital tools supporting the data entry and allowing even other formats like pictures, videos or audio registrations.
- Ask your users if you can get back to them for in-depth interviews if you find particularly interesting comments.
- Meeting your participants face-to-face in the beginning and introducing yourselves and your activity personally can help them to stay commited.
- The tool itself requires preparation and it needs to be designed e.g. developing a layout for the diary

Examples / Tips on evaluation

- A platform offering diary studies - it's on payment, but you might catch something from the previews https://indeemo.com/mobile-diary-study
- Article on how to conduct diary studies https://www.nngroup.com/articles/diary-studies/
- Article on how to conduct diary studies https://www.spotless.co.uk/insights/6-things-for-ux-diary-study/
- Beneficaries and particularities of diary studies https://uxpamagazine.org/dear-diary-using-diaries-to-study-user-experience/
- How to collect and analyze data https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

FOCUS GROUPS

SCIENCE GALLERY DUBLIN

Detailed description

Focus groups are an activity where the participants are divided in groups that are then involved in a moderated discussion.
Unlike interviews, there are multiple participants involved in the same session.
This can help to fuel discussions and exchange among different users and let them share and confront ideas and opinions while eventually forming new ones.
Those discussions are an open conversation on the scope, use and utility of the prototype.
However, the moderator still drives some parts of the discussion and has some pre-defined guidelines at hand.

Tips and best practices

- Creating mixed focus groups with the different participants can lead to fruitful discussions on different expectations and desires among them
- The person moderating the event should be well aware of the entire prototyping procedure and your objectives for the testing to bring the discussion back on the right track if needed
- This kind of feedback often requires a mix of reflections and fresh thoughts on what's just been tested. Do not plan the sessions too distant from the actual testing.
  You can even plan them as a final part integrating it in some kinds of activities.

Examples / Tips on evaluation

- Even this article talks exclusively about products, a lot of elements apply to focus groups in general and it provides some good hints and guidelines
  https://www.revuze.it/blog/6-keys-to-focus-groups-that-generate-valuable-consumer-insights/
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FEEDBACK FORM/SHORT SURVEY

SCIENCE GALLERY DUBLIN

Detailed description

A survey is a collection of questions asked to gather usually very specific information. It is applied to gather quantitative, qualitative and mixed data.
It is usually used as an instrument to collect standard data over large numbers of people.
Questionnaires can be conducted digitally by sending an online form by mail or directly in place (either digitally on devices or on printed paper templates. Having an anonymous and quick feedback form might provide feedback that participants are worried to express openly - fears, uncomfortable moments or very personal emotions.
Keep it as simple and short as possible but as long as necessary to ask important questions and explain the needed details.

Tips and best practices

- Avoid pure yes/no questions, but let your users argument, WHY they liked or did not like something
- Digital questionnaires are easier to evaluate, but depending on the target you might consider also using printed versions
- Take care not making it too long since users might stop paying attention to their answers or simply interrupting the questionnaire
- Run a test with someone not involved in the project to check the time taken to fill the questionnaire and identify eventual difficulties in comprehension that might stop users from completing the questionnaire
- Questionnaires do not have to be purely textual: You can ask your users to draw, insert pictures or any kind of file they might want to share (depending on the support you are using)

Practical examples / links

- Collection of sample questions - Lot of questions are focussed on products, but there are some interesting ones for services as well
  https://www.mockplus.com/blog/post/user-experience-survey-questions
- Article on how to create and structure surveys
  https://explorable.com/survey-research-design
- Tips on data collection and analysis
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

CUBE

Establishing and facilitating a dialogue between citizens and policy makers

Suggested techniques

- Focus groups
- Interview

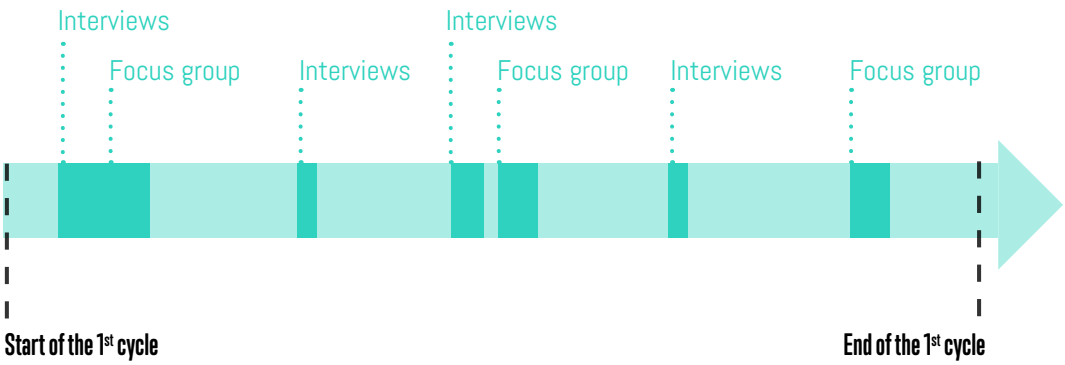
General recommendations

Focus groups support the exploration of group dynamics and can directly bring together and confront different groups of users to discuss their points of view, desires and needs. Interviews with single users allow to deep-dive into their experience and get a view on details of their experience.

Timeline example and planning

You should create a timeline to plan your evaluation methods, in which moment they will take place as well as their duration and potential combination with other methodologies applied. Start also thinking about objectives in terms of numers for the different activities planned.
The figures below is just an example that you can use as a starting point.

Evaluation method	Quantity aimed
Focus groups	3 (10-12 users each)
Interview	15



FOCUS GROUPS

CUBE

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- Tips on documentation and evaluation
  https://www.sagepub.com/sites/default/files/upm-binaries/11007_Chapter_7.pdf
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INTERVIEWS

CUBE

Detailed description

Interviews are usually longer conversations between two people: one interviewer who is part of the research organization and/or very familiar with the project. The interviewee is part of the group that is to be examined.
Interviews are, at least partly, guided by predefined interview guidelines.
Interviews have the scope to deep-dive into specific issues with single users gathering qualitative data from them.

Tips and best practices

- If your desired interview partners are not available for a face-to-face interview, interviews can also be conducted on the phone or online using tools like Skype
- Try to find a good balance between letting your counterpart talk freely and carefully guiding him/her towards the questions that you would like to have answered
- Interview your users in a comfortable environment and possibly in their mother-tongue. The more comfortable they feel, the more they might illustrate and go in detail about their experiences, feelings and impressions

Practical examples / links

- Tips on how to plan and conduct interviews
  https://guides.lib.vt.edu/researchmethods/interviews
- Decide for some „mandatory" questions, that you want to be always answered and some „probes", that the interviewer may or may not use according to the direction the interview is taking.
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  Question: „Tell me a little about your working background"
  probe 1: „What did you study?"
  probe 2: „What kind of other jobs did you do in the past?"
  probe 3: „Why didn't you like that sector you've worked in?"
- On collecting and analyzing data
  https://www.userinterviews.com/ux-research-field-guide-chapter/research-analysis

12.2. Annex 2 - Template for case studies

The template has been jointly developed by the partners to support the writing of the case studies ensuring the inclusion of common dimensions to be analyzed by all of the labs for the assessment.

Template for case studies – General instructions

How to prepare the draft for the case

Most material needed for the description of the case might already be at your disposal or easy to retrieve with a desk research within your organisation. If necessary, additional information can be retrieved conducting interviews to specific members of the organisation. It is not necessary to strictly stick to the template, but you can add any additional information or questions relevant for your case.

How to write the actual case

A list of key points/questions is provided to guide the input for the various sections. However, the final result is supposed to be a fluid narration, structured in paragraphs, where the guiding questions disappear. In the following the final structure that each case should follow is reported.

Technical details

Each case should contain a number of photos and eventually graphical representations. There are rough indications for the length of every chapter, that may vary based on the specific case. However, the total length should not exceed 10 pages for each case – images excluded.

General structure

1. Synthesis of the pilot's journey
2. Initial context

2.1. External context and ecosystem

2.2. Organisational background

3. Challenge
4. The co-creation process of the envisioned solution

4.1 Context analysis

4.2 Problem framing

4.3 Envisioning solutions

4.4 Developing and prototyping

4.5 The role of policies and policy maker engagement

5. The final solution

5.1. Final concept

5.2. Sustainability strategy

6. Transformations triggered and outcomes

7. Conclusive reflections

8. References

Template

1. Synthesis of the pilot's journey

Approx. word count: ~ 400

This section should provide a brief overview on the core aspects of your organisation and of the journey that it has been going through with SISCODE

1.1 The organisation

- Name, location, activeness and/or duration,
- Place of origin and extent
- Key concept and characterization
- Key idea and scope
- Members
- Form of organisation, ways of financing
- Societal challenges addressed, cross-cutting themes adopted,
- Role of co-creation activities and the entity facilitating the process

1.2 The co-creation journey

- Background of the initiative
- Key idea and scope
- Duration and brief structure
- Members, participants

- Main output/Final solution

2. Initial context

Approx. word count: ~ 600

This section has the scope to depict the given context before the project initiative describing both the external and internal situation in the organisation.

It will also give more details on the contextual tensions/ reference problems that this case provides a solution for.

2.1 External context and ecosystem

- National and local specificities
- Economic, political and societal norms and values (imperatives)
- Political and policy landscape

2.2 Organisational background

- Competences present inside the organisation
- Pre-existing culture of dialogue and exchange between citizen and politics?
- Organisational culture
- Tools and methodologies at disposal and frequently used
- Resources at disposal (human and economic model)

3. Challenge

Approx. word count: ~ 300

Describe the challenge in detail keeping in mind and including the following points:

- Derivation of the challenge
- How has the decision to tackle this specific challenge been made?
- Who was involved in deciding and defining the challenge?
- Policy context of the challenge

4. The co-creation process of the envisioned solution

Approx. word count: ~ 1000

This section aims to describe the entire co-creation process of your lab in detail

- How has the actual co-creation journey been different from the planned one and why?

4.1 Analysis of the context

- How has the analysis been conducted?
- What kind of methodology/tools have been applied?
- Who has been involved? (inside and out the organisation)
- How kind of direct outputs did it produce?
- How did those direct outputs influence the planning for the following phases?

4.2 Reframing of the problem

- How has the problem/challenge been reframed and at what level?
- What kind of methodology/tools have been applied?
- Who has been involved? (inside and out the organisation)
- Comparison old/new challenge – what has not been considered/needed to be added?

4.3 Envisioning of alternatives

- How has the ideation phase been conducted?
- What kind of methodology/tools have been applied?
- Who has been involved? (inside and out the organisation)
- How has the idea been narrowed down/chosen and who made the final choice?

4.4 Development and prototyping

- How has the idea been developed and then prototyped?
- What kind of methodology/tools have been applied?
- Who has been involved? (inside and out the organisation)
- First insights on the effectiveness of the prototype/lessons learned from prototyping

4.5 The role of policies and policy maker engagement

- The role of policies in the decision, development and implementation of the final solution
- Role and importance of policy makers
- Engagement of policy makers in the process of decision, development and implementation of the final solution
- Barriers and opportunities identified regarding policies and policy makers in the implementation process

5. The final solution

Approx. word count: ~ 600

This chapter entirely focuses on the final solution and is therefore directly based on the previous chapter describing the co-creation process.

It details the final product/service

5.1 Final concept

- Detailed description of the solution itself
- Pictures/Graphics/Schemes
- Brief technical aspects
- Involvement of stakeholders in taking/shaping this decision
- Direct involvement of policy makers in the final solution (if applicable)

5.2 Sustainability strategy

- What are the plans to make the prototype sustainable and how?
- What steps does the strategy foresee?
- Eventual collaborations and/or integration with other projects

6. Transformations triggered and outcomes

Approx. word count: ~ 400

This section is focussed on the transformations that have been initiated or triggered through/during the project.

This can be directly related to the ideated solution, but also more to the organisation itself and its parts not directly related to SISCODE (i.e. enhanced use of tools, new internal processes, shift of resources).

It is closely connected to chapter 2 describing the changes and transformation identified in the organisation itself and the ecosystem in respect to the initial situation.

This part can be partly subjective relying also on the perception of the author, but should be undermined with some evidence.

6.1 Organisational transformation

- Describe an eventual process of organisational learning
- Has co-creation been applied beyond SISCODE
- What did the introduction of new knowledge provoke?
- New initiatives or strategies implemented

6.1 Transformations in the ecosystem

- Changes and development triggered by the lab and its activities
- Further activities planned following the activities of SISCODE
- New initiatives or strategies implemented

7. Conclusive reflections

Here, we are asking for more general reflections on the activities conducted and also the entire case.

The focus lies on a concluding review.

- How could identified barriers be overcome?
- How could opportunities be fully exploited?
- Identified opportunities that you were not aware of
- Considerations on future directions
- Your perceptions of co-creation in the field
- Considerations on how co-creation is reflected within the field your lab is active in

8. References

Please list all references with endnotes.

Please list all interview partners with name (organisation, function)

12.3. Annex 3 - Self-assessment questionnaire - list of questions

This annex provides the complete overview of the self-assessment questionnaire that has been completed by the single labs three times over the course of the experimentation

It is divided in three main sections entitled 'Public engagement', 'Co-creation' and 'Dissemination'.

Section 1/3 - Public Engagement

This thematic area aims at identifying and assessing actual engagement practices of various relevant actors* in Science, Technology and Innovation (STI) initiatives.
**e.g. policy makers; scientific and research communities; industry and innovation communities; non-governmental/civil society organizations; end users; general public/citizens*

---

1. Strategies for actor engagement

Does your organisation identify and define clear strategies and formalised mechanisms* to engage relevant actors** in Science, Technology and Innovation (STI) initiatives?

*e.g. public hearings, consensus conferences, citizens' juries

**e.g. *policy makers; scientific and research communities; industry and innovation communities; non-governmental/civil society organizations; end users; general public/citizens*

Yes	No

[IF NO -> Question 2]

1.1 Details on strategies and mechanisms of engagement

Describe the various strategies and formalised mechanisms of engagement distinguishing the following levels of participation:

a) One way public communication
b) Public consultation procedures
c) Public deliberation procedures
d) Others (Procedures that do not fit in any of the categories listed above)

1.2 Self-positioning

Considering the overall current strategies and formalised mechanisms of engagement for the involvement of actors in STI initiatives situate your organisation within the following five-point scales:

1	2	3	4	5
The organization **does not have innovative strategies and formalised mechanisms** for the engagement of relevant actors.	The organization is situated in between the situation described in 1 and 3	The organization plans and develops **innovative strategies and formalised mechanisms**, but **not for all relevant actors**.	The organization is situated in between the situations described in 3 and 5.	The organization plans and develops **innovative strategies and formalised mechanisms for all relevant actors**.

1	2	3	4	5
Engagement activities are mainly conducted as **one-way communication** from the organisation to the actors	The organization is situated in between the situation described in 1 and 3	The conducted **engagement activities are weakly interactive and participative.**	The organization is situated in between the situation described in 3 and 5	An entirely **participatory and interactive** approach is applied.

---

2. Identification and engagement of actors

Does the organisation identify and engage all relevant actors* in Science, Technology and Innovation initiatives?

**relevant actors can be policy makers, scientific and research communities, industry and innovation communities, non- governmental organizations, civil society organizations, end users, general public / citizens*

Yes | No

[IF NO -> Question 3]

2.1 Identification of relevant actors

Provide a description of strategies and approaches adopted to identify stakeholders and relevant actors

2.2 Frequency of engagement

Provide a description of the frequency of engagement.

e.g sporadically; only in a particular phase of initiatives; regularly across all key phases

2.3 Self-Positioning

Considering the manners in which the organisation currently identifies and engages relevant actors in STI initiatives situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **is not used to identify in a structured manner** relevant actors.	The organization is situated in between the situation described in 1 and 3	The organisation **roughly identifies** relevant actors in a **semi-structured manner**	The organization is situated in between the situation described in 3 and 5	The organisation always **identifies relevant actors in a structured manner**

1	2	3	4	5
The organisation **very rarely engages relevant actors**	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally engages relevant actors**	The organization is situated in between the situation described in 3 and 5	The organisation **always engages** relevant actors

3. Involvement of policy makers

Does the organisation involve policy makers* in Science, Technology and Innovation (STI) initiatives?

**this refers to policy officers, research centre directors and funders including anyone who can influence or make decisions about the shape of Science, Technology and Innovation, or co-creation activities — whether locally, regionally, nationally or internationally.*

Yes	No

[IF NO -> Question 4]

3.1 Details on engagement of policy makers

Describe how the organization involves policy makers in STI initiatives.
Subdivide the information in the following governance levels:

a) Supranational (international) level
b) National level
c) Regional level
d) Local level

a) Supranational (international) level

If applicable, describe the engagement of policy makers on an international level specifying:

Who - List the actors involved specifying their position and field of work

e.g. EU Council and Parliament members; EU commission members; members of EU bodies and agencies

When - Specify the phase(s) in which involvement occurs

i.e. priority setting, conduction, assessment

How - Detail the nature and level of interaction

e.g. one-way communication from the organisation to the policy makers; workshops; focus groups; interviews; survey or other strategies and Innovation.

b) National level

If applicable, describe the engagement of policy makers on a national level specifying:

Who - List the actors involved specifying their position and field of work

e.g. Parliament members; Ministries and their delegates; members of national governmental bodies, members of employers organisations and trade unions

When - Specify the phase(s) in which involvement occurs

i.e. priority setting, conduction, assessment

How - Detail the nature and level of interaction

e.g. one-way communication from the organisation to the policy makers; workshops; focus groups; interviews; surveys, or other strategies

c) Regional level

If applicable, describe the engagement of policy makers on a regional level specifying:

Who - List the actors involved specifying their position and field of work

e.g. members of regional governmental bodies and branches; regional social partners

When - Specify the phase(s) in which involvement occurs

i.e. priority setting, conduction, assessment

How - Detail the nature and level of interaction

e.g. one-way communication from the organisation to the policy makers; workshops; focus groups; interviews; survey or other strategies

d) Local level

If applicable, describe the engagement of policy makers on a local level specifying:

Who - List the actors involved specifying their position and field of work

e.g. city council members and employees; members of municipal agencies

When - Specify the phase(s) in which involvement occurs

i.e. priority setting, conduction, assessment

How - Detail the nature and level of interaction

e.g. one-way communication from the organisation to the policy makers; workshops; focus groups; interviews; surveys, or other strategies

3.2 Self-positioning

Considering the current situation regarding the involvement of policy makers, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely involves** policy makers mainly practicing **one-way communication**	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally involves** policy makers mainly applying **interactive procedures**	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently** involves policy makers in a **two-way communication**

1	2	3	4	5
The organization involves policy makers **in at least one of the following phases**: a) priority setting; b) conduction; c) assessment	The organization is situated in between the situation described in 1 and 3	The organization involves policy makers **in at least in two of the following phases:** a) priority setting; b) conduction; c) assessment	The organization is situated in between the situation described in 3 and 5	The organization involves policy makers **in all of the following phases:** a) priority setting; b) conduction; c) assessment

4. Involvement of scientific and research communities

Does the organisation involve scientific and research communities* in Science, Technology and Innovation (STI) initiatives?

**this refers to scholars and researchers working both in private and public institutions. Everyone involved in the research system, such as research technicians and other support staff.*

Yes | No

[IF NO -> Question 5]

4.1 Engagement of scientific and research communities

Describe how the organization involves scientific and research communities in STI initiatives specifying:

Who - List the actors involved specifying their position and field of work

e.g. scholars and researchers working both in private and public institutions, research technicians, supporting staff

e.g. medical sciences; biological sciences; social sciences, humanities

When - Describe the phase(s) in which involvement occurs

i.e. priority setting, conduction, assessment

How - Detail the nature and level of interaction

e.g. one-way communication from the organisation to the policy makers; workshops; focus groups; interviews; surveys, or other strategies and Innovation.

4.2 Self-positioning

Considering the current situation regarding the involvement of scientific and research communities, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely involves** scientific and research communities mainly practicing **one-way communication**	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally involves** scientific and research communities mainly applying **interactive procedures**	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently** involves scientific and research communities in a **two-way communication**

1	2	3	4	5
The organization involves scientific and research communities **in at least one of the following phases**: a) priority setting; b) conduction; c) assessment	The organization is situated in between the situation described in 1 and 3	The organization involves scientific and research communities **in at least in two of the following phases:** a) priority setting; b) conduction; c) assessment	The organization is situated in between the situation described in 3 and 5	The organization involves scientific and research communities **in all of the following phases:** a) priority setting; b) conduction; c) assessment

---

5. Involvement of industry and innovation communities

Does the organisation involve industry and innovation communities* in Science, Technology and Innovation initiatives?

**This refers to everyone involved in the industry, business and innovation system, from SMEs to transnational companies, including networks, incubator hubs, and other supporting organisations and actors, such as science communicators.*

Yes | No

[IF NO -> Question 6]

5.1 Details on the involvement of industry and innovation communities

Describe how the organization involves industry and innovation communities in STI initiatives specifying:

Who - List the actors involved specifying their position and field of work

e.g. SME's, transnational companies, networks, incubator hubs, supporting organisations and actors such as science communicators

When - Specify the phase(s) in which involvement occurs

i.e. priority setting, conduction, assessment

How - Detail the nature and level of interaction

e.g. one-way communication from the organisation to the policy makers; workshops; focus groups; interviews; surveys, or other strategies and Innovation.

5.2 Self-positioning

Considering the current situation regarding the involvement of industry and innovation communities, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely involves** industry and innovation communities mainly practicing **one-way communication**	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally involves** industry and innovation communities mainly applying **interactive procedures**	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently** involves industry and innovation communities in a **two-way communication**

1	2	3	4	5
The organization involves industry and innovation communities **in at least one of the following phases**: a) priority setting; b) conduction; c) assessment	The organization is situated in between the situation described in 1 and 3	The organization involves industry and innovation communities **in at least in two of the following phases:** a) priority setting;	The organization is situated in between the situation described in 3 and 5	The organization involves industry and innovation communities **in all of the following phases:** a) priority setting; b) conduction; c) assessment

		b) conduction; c) assessment		

6. Involvement of NGO's

Does the organisation involve non-governmental/civil society organisations* in Science, Technology and Innovation (STI) initiatives?

**this refers to informal and legally recognised citizen-based organisations; grassroots organisations; NGOs at the local, regional, national and supranational level, media*

Yes | No

[IF NO -> Question 7]

6.1 Details on the involvement of non-governmental / civil society organizations

Describe how the organization involves NGOs and civil society organizations in STI initiatives specifying:

Who - List the actors involved specifying their position and field of work

i.e. international, national, regional or local NGOs

When - Specify the phase(s) in which involvement occurs

i.e. priority setting, conduction, assessment

How - Detail the nature and level of interaction

e.g. one-way communication from the organisation to the policy makers; workshops; focus groups; interviews; surveys, or other strategies and Innovation.

6.2 Self-positioning

Considering the current situation regarding the involvement of NGOs and civil society organizations, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely involves** NGOs/civil society organizations mainly practicing	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally involves** NGOs/civil society organizations	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently** involves NGOs/civil society organizations in a

one-way communication		mainly applying **interactive procedures**		**two-way communication**

1	2	3	4	5
The organization involves NGOs/civil society organizations **in at least one of the following phases**: a) priority setting; b) conduction; c) assessment	The organization is situated in between the situation described in 1 and 3	The organization involves NGOs/civil society organizations **in at least in two of the following phases:** a) priority setting; b) conduction; c) assessment	The organization is situated in between the situation described in 3 and 5	The organization involves NGOs/civil society organizations **in all of the following phases:** a) priority setting; b) conduction; c) assessment

7. Involvement of end users

Does the organisation involve end users* in Science, Technology and Innovation (STI) initiatives?

**everyone who ultimately uses or is intended to ultimately use a product or service*

Yes | No

[IF NO -> Question 8]

7.1 Details on the involvement of end users

Describe how the organization involves end users in STI initiatives specifying:

Who - List the actors/groups of actors involved specifying their characteristics

i.e. age, position, particular attributes in common

When - Specify the phase(s) in which involvement occurs

i.e. priority setting, conduction, assessment

How - Detail the nature and level of interaction

e.g. one-way communication from the organisation to the policy makers; workshops; focus groups; interviews; surveys, or other strategies and Innovation.

7.2 Self-positioning

Considering the current situation regarding the involvement of NGOs and civil society organizations, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely involves** end users mainly practicing **one-way communication**	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally involves** end users mainly applying **interactive procedures**	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently** involves end users in a **two-way communication**

1	2	3	4	5
The organization involves end users **in at least one of the following phases**: a) priority setting; b) conduction; c) assessment	The organization is situated in between the situation described in 1 and 3	The organization involves end users **in at least in two of the following phases:** a) priority setting; b) conduction; c) assessment	The organization is situated in between the situation described in 3 and 5	The organization involves end users **in all of the following phases:** a) priority setting; b) conduction; c) assessment

---

8. Involvement of general public

Does the organisation involve general public* in Science, Technology and Innovation (STI) initiatives?

**everyone who is not a member of a particular organization or does not have any special type of knowledge concerning STI activities*

Yes | No

[IF NO -> Question 9]

8.1 Details on the involvement of general public

Describe how the organization involves end users in STI initiatives specifying:

Who - List the actors involved specifying their position and field of work

When - Specify the phase(s) in which involvement occurs

i.e. priority setting, conduction, assessment

How - Detail the nature and level of interaction as well as their role

e.g. one-way communication from the organisation to the policy makers; workshops; focus groups; interviews; surveys, or other strategies and Innovation.

e.g. observing, co-funding, providing data, analyzing data

8.2 Self-positioning

Considering the current situation regarding the involvement of general public, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely involves** general public mainly practicing **one-way communication**	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally involves** general public mainly applying **interactive procedures**	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently** involves general public in a **two-way communication**

1	2	3	4	5
The organization involves general public **in at least one of the following phases**: a) priority setting; b) conduction; c) assessment	The organization is situated in between the situation described in 1 and 3	The organization involves general public **in at least in two of the following phases:** a) priority setting; b) conduction; c) assessment	The organization is situated in between the situation described in 3 and 5	The organization involves general public **in all of the following phases:** a) priority setting; b) conduction; c) assessment

Material upload - Stakeholder Map

Please upload an actual stakeholder map as of the conclusion of the experimentation displaying the actors you involved during your co-creation journey.

The template for the stakeholder map can be found in the SISCODE toolbox or at this link http://www.siscodeproject.eu/repository/tools/stakeholders-map

! The upload is limited to **one file**.

In case you have multiple files, photos ecc put all of them together in one word document and export it as PDF

Upload

Part 2/3 Co-creation

The main objective of this thematic session is to identify and assess the capacity of the organization to apply co-creation methodologies and tools as a main approach to address issues concerning Science, Technology and Innovation (STI) initiatives

9. Application of co-creation methodologies and tools

Does your organisation apply co-creation* methodologies and tools?

**co-creation is an integral process that ranges from the identification of needs and opportunities to their transformation into a product or service, its assessment and adjustment.*

Co-creation thus consists of co-design and co-production over a range of time including the phases of problem identification, ideation and development to implementation

Yes No

[IF NO -> Question 10]

9.1 Details on the application of co-creation methodologies and tools

Describe how the organization applies co-creation methodologies and tools in STI initiatives specifying:

What - Describe the initiative(s) where co-creation has been applied

When - Detail the stages (with the specific tasks and objectives) in which co-creation occurs

How - Detail the specific co-creation methodologies and tools applied by the organization

e.g. co-design by means of workshops and hearings, action research, ethnography, cultural probes, co-creation

9.2 Self-positioning

Considering the current situation regarding the application of co-creation tools and methodologies, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely applies** co-creation tools and methodologies in STI initiatives	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally applies** co-creation tools and methodologies in STI initiatives	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently applies** co-creation tools and methodologies in STI initiatives

i.

1	2	3	4	5
The organisation **does not have structured processes of co-design and co-production** not following a specific set of tasks and objectives	The organization is situated in between the situation described in 1 and 3	The organisation **does have semi-structured processes of co-design and co-production** following a somehow defined set of tasks and objectives	The organization is situated in between the situation described in 3 and 5	The organisation **does have structured processes of co-design and co-production** following a defined set of tasks and objectives

10. Evaluation of co-creation initiatives and actor satisfaction

Does your organisation apply tools and techniques to evaluate* the outcomes of co-creation initiatives and the satisfaction of the involved actors?

** any structured and unstructured activity aimed at producing useful and accessible information about the relevance and impact of the application of co-creation as well as about the satisfaction of the actors involved*

Yes | No

[IF NO -> Question 11]

10.1 Evaluation of relevance and impact of co-creation & satisfaction of actors

Describe any structured and unstructured activity conducted to produce useful and accessible knowledge on the relevance and impact of co-creation initiatives.

Detail also the evaluation of the satisfaction of the actors regarding the activities and results specifying:

What - Describe initiatives in which assessment activities have been conducted

Who - Provide details on the profile and role of who is in charge of conducting assessment activities

e.g. specific unit dealing with evaluation activities; conduction inside the initiative; delegation to external personnel

How - Detail how the assessment is conducted

e.g surveys; interviews; observation

10.2 Self-positioning

Considering the current situation regarding the evaluation of co-creation initiatives, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely evaluates** the outcomes of co-creation initiatives	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally evaluates** the outcomes of co-creation initiatives	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently evaluates** the outcomes of co-creation initiatives

1	2	3	4	5
The organisation **very rarely evaluates** the satisfaction of actors taking part in co-creation initiatives	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally evaluates** the satisfaction of actors taking part in co-creation initiatives	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently evaluates** the satisfaction of actors taking part in co-creation initiatives

11. Evaluation of co-creation methodologies and tools

Does your organization evaluate* methodologies and tools used to run co-creation initiatives?

**any structured and unstructured activity aiming to produce useful and accessible information on the appropriateness and suitability of methodologies and tools used in specific circumstances*

Yes | No

[IF NO -> Question 12]

11.1 Details on the evaluation of tools used for co-creation activities

Describe any structured and unstructured activity conducted to produce useful material and data to evaluate the suitability and appropriateness of methodologies and tools applied in specific circumstances specifying:

When - Describe the co-creation initiatives in which the design tools and methodologies applied have been evaluated

Who - Provide details on the profile and role of who is in charge of conducting assessment activities

e.g. specific unit dealing with evaluation activities; conduction inside the initiative; delegation to external personnel

How - Detail how the assessment is conducted

e.g surveys; observations; evaluation forms

11.2 Self-positioning

Considering the current situation regarding the evaluation of co-creation methodologies and tools, situate your organisation within the following five-point scale:

1	2	3	4	5
The organisation **very rarely conducts evaluation activities** regarding the effectiveness and efficiency of the design methodologies and tools used	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally conducts evaluation activities** regarding the effectiveness and efficiency of the design methodologies and tools used	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently conducts evaluation activities** regarding the effectiveness and efficiency of the design methodologies and tools used

12. Application of prototyping methods and tools

Does your organisation apply prototyping methods to design (tangible and intangible) solutions?

Yes	No

[IF NO -> Question 13]

ii.

12.1 Details on the application of prototyping methods and tools

Describe prototyping methods and tools applied specifying:

What - Describe the initiative(s) and solution(s) where prototyping has been applied

Who - Specify the target for which did you prototype solutions

When - Describe the number of cycles of iteration and validation that you usually do

How - Detail the specific methodologies applied for the prototyping of solution(s) as well as the methodologies used to evaluate the effectiveness of the solution

12.2 Self-positioning

Considering the current situation regarding the application of prototyping methodologies and tools, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely applies prototyping** methodologies and tools to develop a solution	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally applies prototyping** methodologies and tools to develop a solution	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently applies prototyping** methodologies and tools to develop a solution

1	2	3	4	5
The organisation **very rarely tests and evaluates the prototypes** in a way that the following version is a direct result from the evaluation	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally tests and evaluates the prototypes** in a way that the following version is a direct result from the evaluation	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently tests and evaluates the prototypes** in a way that the following version is a direct result from the evaluation

13. Considerations on potential for replication

Does your organisation consider the potential for replication in different settings and environments* when developing (tangible and intangible) solutions?

**e.g. urban contexts; workplaces; teaching institutions; health organizations*

Yes	No

[IF NO -> Question 14]

13.1 Details on considerations on solutions with a potential for replication

Describe solutions developed by the organization with an identified potential for replication in other contexts and settings specifying:

What - Describe the initiative(s) and solution(s) with an identified potential for replication

How - Detail the key aspects of the solutions regarding their potential for replication and the context factors that could allow an application of the solution in different settings and environments

13.2 Self-positioning

Considering the current situation regarding the considerations and reflections on the potential for replication of solutions in different contexts, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely reflects in a structured manner on the potential of replication** of their solutions in different settings and environments	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally reflects in a structured manner on the potential of replication** of their solutions in different settings and environments	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently reflects in a structured manner on the potential of replication** of their solutions in different settings and environments

14. Influence on policy making

Does your organisation produce inputs and knowledge to influence policies and regulatory frameworks (currently or potentially in the future)?

Yes	No

[IF NO -> Question 15]

14.1 Production of knowledge with the potential to influence policies

Describe the inputs and knowledge produced and able to influence policies and regulatory frameworks specifying:

What - Describe the initiative(s) and the governance level(s) influenced / to be influenced

e.g. supranational (international) level, national level, regional level, local level

How - Provide information on the appearance of these inputs and knowledge and how their potential to influence policies and regulatory frameworks has been detected.

14.2 Self-positioning

Considering the current situation regarding the production of a contribution to influence policies and regulatory frameworks, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely produces knowledge or learnings** with the potential **to influence policies and regulatory frameworks**	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally produces knowledge or learnings** with the potential **to influence policies and regulatory frameworks**	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently produces knowledge or learnings** with the potential **to influence policies and regulatory frameworks**

Co-creation and organizational transformation

Did the co-creation practices introduced in SISCODE have an impact on your organization beyond the project? This can be referred to daily organizational practices, practices applied in other projects, routines, strategies and planning or simply the way how specific tasks are carried out.

With organization here we are referring to you as the labs that took part in SISCODE, if your lab is incorporated in a parent organization this dimension is considered in the following question.

e.g regular application of new tools, change of practices and procedures related to other projects, ways of communication, ways of involving stakeholders, ecc

If your lab is part of a greater organization or incorporated in a parent organization (e.g. a university) - did the way in which you are relating to each other change in any way throughout the project?

e.g change of practices or ways how to communicate with the parent organization

---

Part 3/3 Dissemination

The main objective of this section is to identify and assess the capacity of the organization to disseminate knowledge and projects' results, by means of appropriate tools and channels as well as corresponding content and messages for all relevant actors

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15. - Dissemination of results across media

Does your organisation disseminate its projects' results and contributions across different media*?

*i.e. **specialised / academic publications**

(e.g. papers, conference proceedings, books' chapters, specialised reports);

popularised publications shared across mainstream traditional media

(e.g. television, radio, and print media and so on);

communications shared across new media

(e.g. blog posts, websites, social media, MOOC)

Yes | No

[IF NO -> Question 16]

15.1 Details on dissemination of results across media

Describe your organization's dissemination activities distinguishing among the following relevant actors:

a) Dissemination to policy makers;

b) Dissemination to scientific and research communities;

c) Dissemination to industry and innovation communities;
d) Dissemination to NGOs/civil society organizations, end users & general public

a) Dissemination to policy makers

Describe the dissemination activities to policy makers specifying:

What - Describe the **content** as well as the **media context** the organisation uses to disseminate knowledge to policy makers

e.g. blog post on EU policy framework; article in print newspaper on the outcomes of a public consultation

e.g. academic publications; policy master class; policy reports and guidelines

Who - Provide information on individuals that are in charge of dissemination activities to policy makers

e.g. specific unit dealing with dissemination activities; conduction of dissemination activities inside the projects; delegation to external personnel

b) Dissemination to scientific and research communities

Describe the dissemination activities to scientific and research communities specifying:

What - Describe the **content** as well as the **media context** the organisation uses to disseminate knowledge to scientific and research communities

e.g. full paper in a peer-review journal on co-creation in science and technology landscapes

e.g. academic publications; conference talks; workshops; conference proceedings

Who - Provide information on individuals that are in charge of dissemination activities to scientific and research communities

e.g. specific unit dealing with dissemination activities; conduction of dissemination activities inside the projects; delegation to external personnel

c) Dissemination to industry and innovation communities

Describe the dissemination activities to industry and innovation communities specifying:

What - Describe the **content** as well as the **media context** the organisation uses to disseminate knowledge to industry and innovation communities

e.g. white paper on the value of co-creation for promoting public engagement in technological innovation processes

e.g. specialized reports, white papers

Who - Provide information on individuals that are in charge of dissemination activities to industry and innovation communities

e.g. specific unit dealing with dissemination activities; conduction of dissemination activities inside the projects; delegation to external personnel

d) Dissemination to NGO's / civil society organizations, end users and general public / citizens

Describe the dissemination activities to NGOs / civil society organizations specifying:

What - Describe the **content** as well as the **media context** the organisation uses to disseminate knowledge to industry and innovation communities

e.g. blog post(s) about the results of a citizen-science project

i.e. publications through traditional media, communications using new media

Who - Provide information on individuals that are in charge of dissemination activities to NGOs / civil society organizations

e.g. specific unit dealing with dissemination activities; conduction of dissemination activities inside the projects; delegation to external personnel

15.2 Self-positioning

Considering the current situation regarding the dissemination to various actors and across different media contexts, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **regularly shares their results across only one of the three following media contexts** i) specialised or academic publications; ii) communications using traditional media; iii) communications using new media	The organization is situated in between the situation described in 1 and 3	The organisation **regularly shares their results across two of the three following media contexts** i) specialised or academic publications; ii) communications using traditional media; iii) communications using new media	The organization is situated in between the situation described in 3 and 5	The organisation **regularly shares their results across all of the three following media contexts** i) specialised or academic publications; ii) communications using traditional media; iii) communications using new media

1	2	3	4	5
The organisation **regularly shares their results with at least one of the following relevant actors** i) policy makers; ii) scientific and research communities iii) industry and innovation communities iv) NGOs / civil society organizations, end users & general public	The organization is situated in between the situation described in 1 and 3	The organisation **regularly shares their results with at least three of the following relevant actors** i) policy makers; ii) scientific and research communities iii) industry and innovation communities iv) NGOs / civil society organizations, end users & general public	The organization is situated in between the situation described in 3 and 5	The organisation **regularly shares their results with all of the following relevant actors** i) policy makers; ii) scientific and research communities iii) industry and innovation communities iv) NGOs / civil society organizations, end users & general public

16. Provision of open access to projects and results

Does your organisation provide free access (under an open access license) to its projects' results and outcomes ?

Yes | No

[IF NO -> End]

16.1 Details on the provision of open access to projects and results

Describe the open access policies adopted by the organisation specifying:

What - The kinds of results / outcomes that are provided under an open access licence:

i.e. software; source code; data repositories; publications (reports, scientific papers, white papers); 3D printer files; other learning materials such as MOOC and knowledge repositories

How - Specify the typology of licence adopted in realizing the concerned output

16.2 Self-positioning

Considering the current situation regarding the open access policies adopted to release projects' results and acquired knowledge, situate your organisation within the following five-point scales:

1	2	3	4	5
The organisation **very rarely provides open access** to its results and knowledge	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally provides open access** to its results and knowledge	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently provides open access** to its results and knowledge

1	2	3	4	5
The organisation **very rarely provides open access** to its results and knowledge. **Only very few of its projects' results and outcomes** are released under an open access license	The organization is situated in between the situation described in 1 and 3	The organisation **occasionally provides open access** to its results and knowledge. **About half of its projects' results and outcomes** are released under an open access license	The organization is situated in between the situation described in 3 and 5	The organisation **very frequently provides open access** to its results and knowledge. **All of its projects' results and outcomes** are released under an open access license

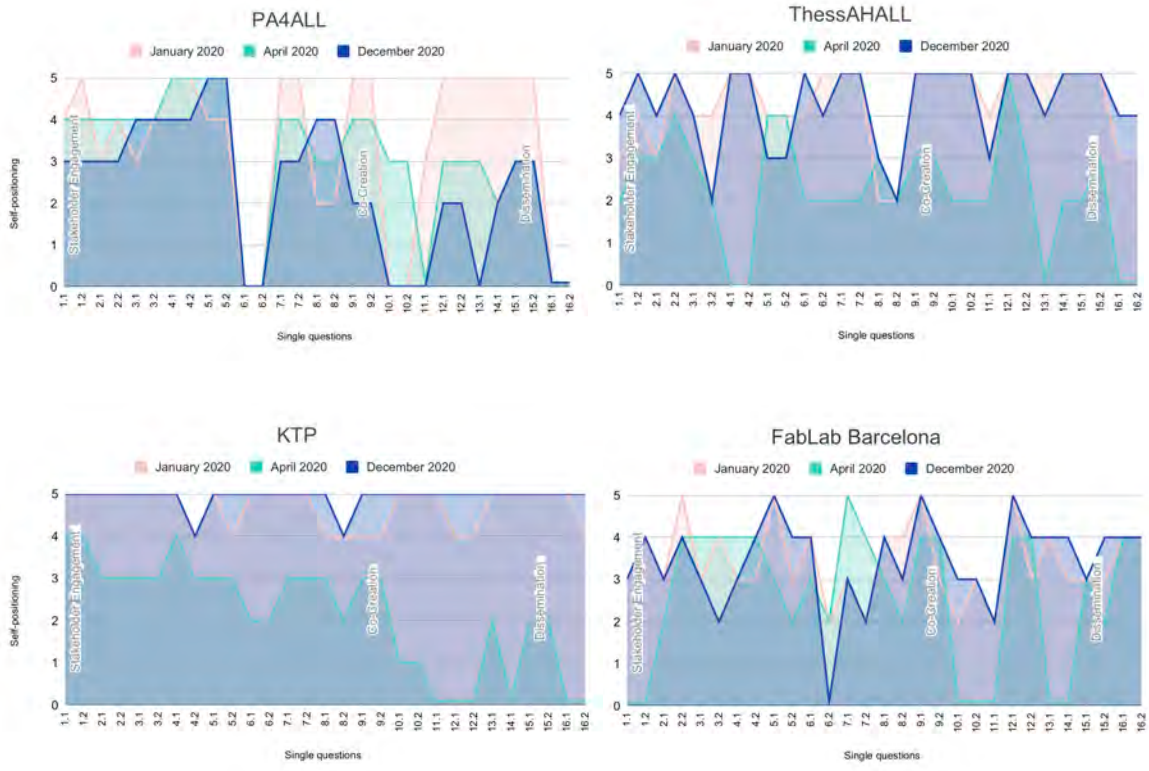
12.4. Annex 4 - Results from the self-assessment questionnaire

This annex contains the elaboration of the quantitative data collected through the self-assessment questionnaire represented in graphs.

Self-assessment on practices present in the organization

FIG 26-28 - SELF-ASSESSMENT ON PRACTICES PRESENT IN THE ORGANISATION

Self-positioning on Likert scales



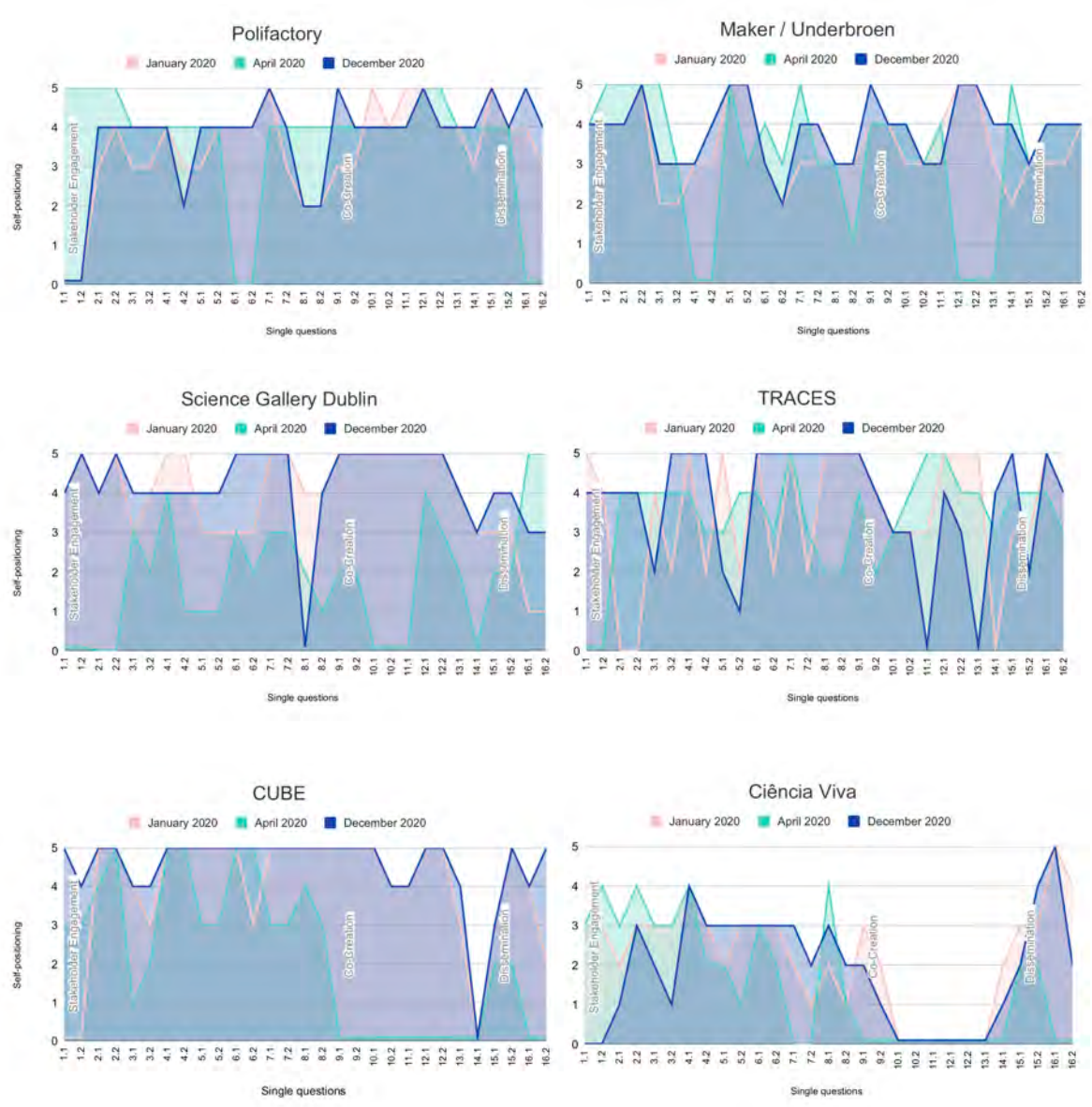


FIG 29-38 - SELF-POSITIONING OF THE LABS ON THE LIKERT SCALES

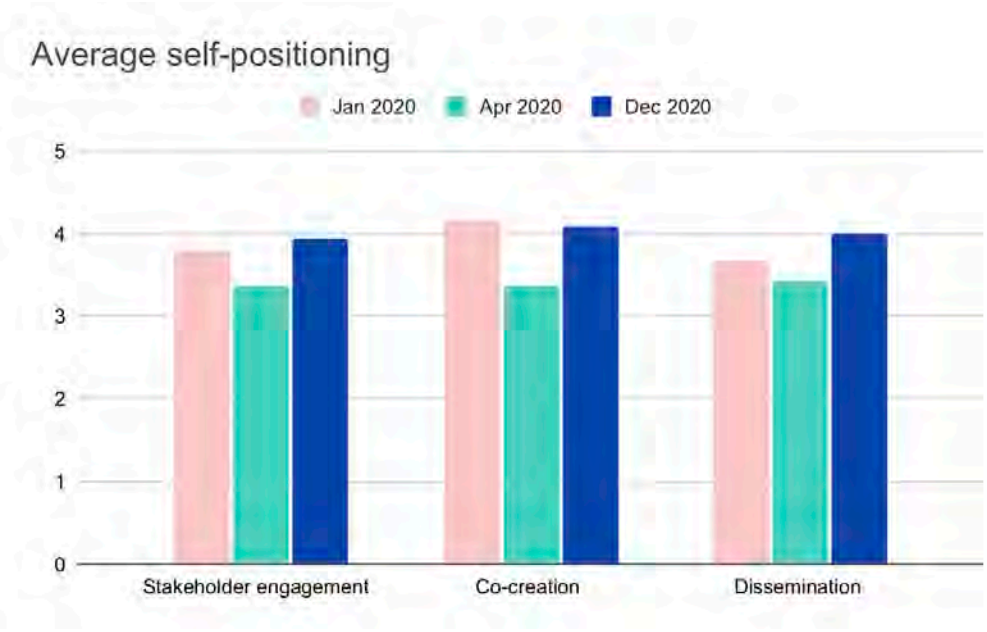


FIG 39 - AVERAGE SELF-POSITIONING ON THE LIKERT-SCALES

12.5. Annex 5 - Elaboration for the assessment of the pilots

This annex contains the complete collection of insights and their allocation and clusterization within a grid dividing the results of the different labs and the level of achievements divided into ones directly related to the prototype, organizational changes and influences on the surrounding ecosystem.

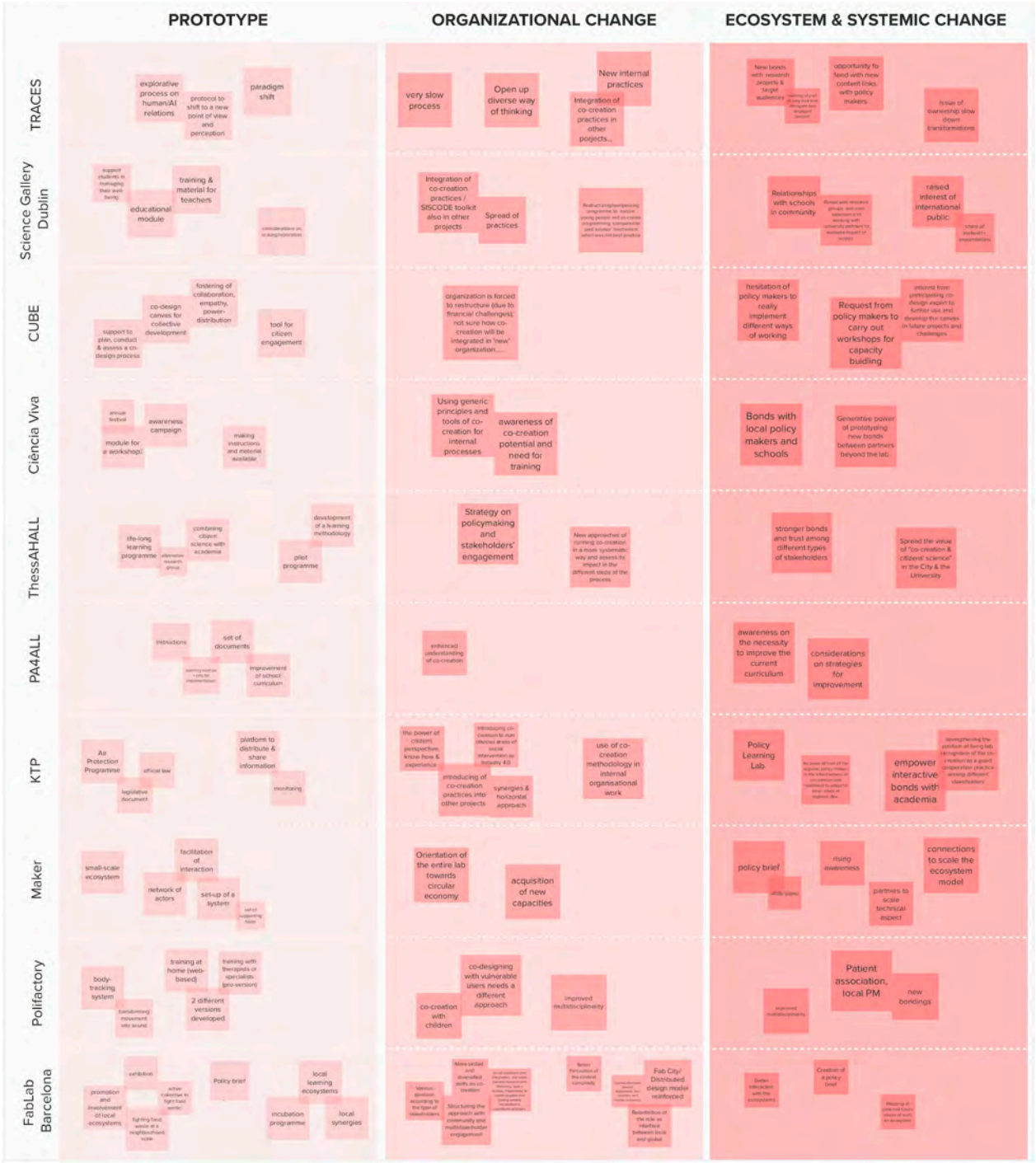


FIG 40 - ELABORATION OF INSIGHTS ACCORDING TO PROTOTYPE ACHIEVEMENTS, ORGANIZATIONAL CHANGE AND ECOSYSTEM TRANSFORMATION

12.6. Annex 6 - Elaboration for the assessment of the experimentation

This annex contains the analysis from the spreadsheet, the self-assessment questionnaire and the case studies of the entire experimentation conducted in SISCODE. The first graphics represent the elaboration of qualitative insights clustering them (Fig 19) and allocating them along the phases that the labs went through in their co-creation journey (Fig 20). The table contains an overview of all the insights extracted in relation to the single indicators of SISCODE considering new capacities and practices obtained, opportunities identified and pitfalls/points of attention (Table 7).

FIG 41 - ELABORATION OF INSIGHTS DIVIDED IN GENERAL CLUSTERS AND THEMES

FIG 42 - ELABORATION OF INSIGHTS DIVIDED IN PHASES OF THE CO-CREATION JOURNEY

Detailed results associated to SISCODE's indicators

Specific indicator	Best practices applied in SISCODE	Opportunities identified	Pitfalls	Transversal topics
Stakeholder involvement				
Strategies for stakeholder engagement	- Making stakeholders' needs a part of the strategy ensures they are met throughout the process - Development of flexible strategies and alternative plans to be adapted to the developing project - Introduction of new tools to put the strategies in place (panel management) - Identification of a gatekeeper for each community/group of stakeholders - Change of perception of importance of an initial strategy	- Engage stakeholders jointly with other projects to increase impact - Supporting tools for mapping and strategy creation - Different strategies or part of the strategy for different stakeholder groups	- Conflict of interest and power relations need to be addressed already when developing strategies - Individual strategy needed for every initiative	Organizational capacities Policy making
Identification of relevant actors	- Stakeholders as connectors to further stakeholders or local initiatives themselves - Exchange of expertise	- Align interests with local agendas, identify stakeholders with similar interests to have a common goal	- The actors relevant for an initiative may change throughout the development	Organizational capacities Policy making

	with similar stakeholders or competitors - Specific roles for specific actors (e.g. policy makers for implementation, industry and innovation community for the development of local solutions) - Stakeholder mapping not only for identification but also grouping actors		process, need to be newly identified - Very specific targeting for every initiative, even there might be some key-stakeholders generally relevant for an organisation	
Number of stakeholders involved throughout SISCODE	- Balancing quantity and quality of participation throughout the project	- Tracking stakeholder participation throughout the project to identify drop-outs of single actors or entire groups allowing an analysis of causes	- Number of stakeholders involved highly dependant on the kind and size of initiative - Too few stakeholders involved may lead to imbalances in processes and results	Organizational capacities
Variety of involved stakeholders	- Construction of a framework on how to work with particular user groups - Addressing power relations from the beginning to balance and set participants at an equal level (by considering different/'new' kinds of expertise)	- Identify the specific strengths of the single stakeholder groups in order to give a set role to all of them - Split up stakeholder groups, making them see each other as individuals, not roles - Function as a neutral bridge - Conduct first sessions divided making actors comfortable identifying potential problematic points to then mix all stakeholder groups	- Risk of losing entire groups of stakeholders when not meeting needs - Not involving all stakeholder groups in some way risks losing essential considerations for the final solution	Policy making
Level of stakeholders involved	- Aligning challenge to local/regional/national agendas in order to trigger engagement - Creation of a manifesto		- Activities need to be adapted to stakeholders from different levels (not only in their position, but also their thinking)	Policy making

Level of involvement	- 'Active' dissemination to (e.g. as part of workshops) to ensure commitment - Hands-on activities trigger motivation	- Decisive power is a strong driver for involvement if communicated - The level of engagement is often decided by the public itself, not imposed by the organiser - opportunity for dynamics and co-creation of involvement plans - Level of involvement and its efficacy can be evaluated and modified throughout the journey	- One-way communication should be avoided even for dissemination, creates feeling of exclusion from the active process	Ecosystem transformation Policy making
Phases of involvement	- Core stakeholders need to be engaged in all phases, secondary ones can also be relevant just for specific phases	- Strategies can be reviewed and modified throughout the process - Participation in events related to stakeholder groups external to the core initiative to keep and foster contacts	- Difficulty of engagement in early stages (priority setting) when initiatives lack concreteness - Stakeholders with higher levels often want to be 'impressed' with preliminary results	Ecosystem transformation
Frequency of involvement	- Opportunities for active participation can trigger motivation for frequent and regular involvement - Frequency is to be planned in the initial strategy - Clear expectations on participation and frequency beforehand with stakeholders - Identifying and using (different) channels for the different groups of stakeholders, talking to them through their main channel	- New developments as continuous way of attracting - Constant/regular flow of information and updates - Create and foster shared values together	- Missing concreteness causes drop-outs - Lack of mutual trust	Policy making Ecosystem transformation
Gender dimension of stakeholders involved		- Balance in all senses leads to most balanced feedback and holistic considerations	- Not involving all stakeholder groups/representatives in some way risks losing essential considerations for	

			the final solution	
Co-creation				
Frequency of application of co-creation methodologies and tools	- More frequent application of co-creation and consideration for new activities and phases - Step-by-expansion of fields and application - New capacities related to regular application (e.g. paper prototyping)	- New opportunities and connections created by specific tools and methodologies		Organizational capacities
Typologies of co-creation tools applied	- Multifunctionality of tools makes them applicable in a variety of contexts - Tools in combination with other creative practices / methodologies from other fields - Creation of an own set of tools that is regularly applied - Adaptation of the most frequently used tools for online application	- Adaptability of tools	- Need for testing of variations or application in new contexts - Tools need guidance - Correct application is as important as the tool itself	Organizational capacities
Processes and strategies for the application of co-creation	- Creation of safe spaces within the area of co-creation	- Integration of co-creation not only into the co-creation journey, but also the solution itself - Guidance and support on HOW to adapt and apply co-creation - Opportunity for cross-pollination of knowledge and practices	- Need for guidance and instructions	Organizational capacities Ecosystem transformation
Evaluation of outcomes of co-creation activities	- Importance of evaluation to improve - Preparation takes time, but results also in major improvements and benefits - Additional capabilities in relation to assessment - Learning-by-doing	- Assessment offers opportunity for other considerations - New dialogues	- Effort needed (time and resources) to assess properly	Organizational capacities

	- Regular discussions with external experts			
Actor satisfaction in co-creation activities	- Fundamental aspect of actor involvement to control alignment - Often includes also feedback on the initiative itself helping to move it forward	- Collective feedback sessions as opportunity for alignment	- Set of soft skills needed - Needs to be planned carefully & requires additional resources - Dealing with uncertainties - Issues out of reach of the actors (higher powers, laws, ecc)	Organizational capacities Ecosystem transformation
Evaluation of co-creation methodologies and tools	- KPI's and/or indicators of assessment necessary - Qualitative evaluation - Creation of a set of tools and methodologies that have worked well in the past - Workshops to test tools (integrating assessment in other activities) - Discussion of effectiveness in internal meetings	- Possibility on common reflections with stakeholders - Facilitator as a mediator - Experimentation of tools internally (internal meetings)	- Set of soft skills needed - Needs to be planned carefully & requires additional resources	Organizational capacities Ecosystem transformation
Application of prototyping methodologies and tools	- Transfer of prototyping activities online or development of a second version online - Development of alternative prototypes in case of change of plans	- Opportunity for rapid testing	- Dealing with uncertainties	Organizational capacities Ecosystem transformation
Testing and evaluation of prototypes	- Wide variety of possible tools for testing (frequent: surveys, interviews, observation, focus groups)	- Balancing short-term demands and long-term sustainability		Organizational capacities Ecosystem transformation
Considerations on potential for scaling and replication	- Open access dissemination of considerations and collection of feedback	- Not only considering in-house scaling, but alternatives: - Giving others the possibility to scale &		Ecosystem transformation Policy making

		replicate - Distribution of material and info that enables others to replicate and experiment (tutorials, gitbooks)		Organizational capacities
Influence on policy making	- Policy brief - White paper - Engagement and contact strategies specifically for policy makers - Keeping contacts beyond the borders of the single initiative	- Alignment with local or regional agendas - Teaming up with other initiatives with similar interests - Function as a bridge and mediator among public and policy makers to connect them	- Power relations/higher levels out of reach - Conflicts of interest	Ecosystem transformation Policy making Organizational capacities
Dimension of organizational transformation	- Step-by-step structuring of the application of co-creation - Dissemination of best practices to international partners and networks - Exchange with similar organizations - Trial and error process with tools - identification of an individual strategy + tools that work best - New capacities not immediately related to co-creation (empathy)	- Shift of practices can lead to a shift of mindset - Integration of co-creation into daily practices - Improved collaborative capacities within the organization	- Strong dependency of co-creation capacities to its application - Current practices are questioned	Organizational capacities
Dissemination				
Dissemination of results across media	- Identify specific targets for dissemination and choose channels accordingly - Stakeholders and dissemination targets can become precious partners	- Different tone of voice for different target groups - Improved efficacy of dissemination when revealing 'the whole truth'		Ecosystem transformation Policy making
Provision of open access	- Implementation of communication strategies	- Providing access to support the scaling/replication of the solution by others	- Partly published results difficult for comprehension	Ecosystem transformation Policy making

TABLE 7 - INSIGHTS IN RELATION TO SISCODE'S INDICATORS OF ASSESSMENT


SISCODE CO-DESIGN FOR SOCIETY IN INNOVATION AND SCIENCE