CO-DESIGN FOR SOCIETY IN INNOVATION

Co-creation ecosystems are essential for the development of social innovation and its contribution to Public Engagement and Responsible Research and Innovation. This article introduces the project SISCODE, highlights preliminary findings and elaborates the project's ambition to create interactive playgrounds for better connecting bottom-up initiatives and top-down policy making.

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INTRODUCTION

Both science and society proved to benefit widely from social innovation research and practice in recent years, not at least through one of its core elements: finding solutions to new and old problems in alliance with all actors concerned in a co-creative manner. Ecosystems, understood as specific combinations of contextual factors moderating the solution-finding processes, play a crucial role in this context. In parallel to the developments in social innovation practice and research, the concepts of Public Engagement (PE) and Responsible Research and Innovation (RRI) gained more and more recognition. PE and RRI have emerged, in the last decade, as the results of policies and initiatives demanding the early involvement of multiple actors, including the public, in science and innovation. Nevertheless, the early engagement of actors faces several difficulties, and PE rarely goes beyond early stages of consulting citizens and beneficiaries and roughly collecting their needs. This is because the integration of co-creation in European STI policy and programmes faces barriers such as a scarce and diverging understanding of co-creation among researchers and policy makers, and a lack of effective knowledge to cope with constraints that hamper co-creation-processes in practice. A striking common goal on the three dimensions mentioned (social innovation, PE and RRI, STI policy) is therefore to seek for effective ways to engage users and beneficiaries in their processes of creating solutions for pressing societal demands.

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At this point, the introduction of design methodologies and tools is emerging as a valuable approach to deal with these challenges, as design has already been recognised as key to operationalize co-creation in different fields. Thanks to an iterative four-step process, co-design effectively supports co-creation to move from the ideation of new solutions and policies to their implementation. Starting with an initial phase of **understanding** all parties involved over to a joint **ideating** of new products, services or solutions an experimental stage of **prototyping** helps to adapt and refine the ideas. This goes hand in hand with **verifying** the solution for its practicability and a repeated restart until the solution is finalized.

Especially in policy making, co-creation is presumed to be able to create an "enlargement of the opportunities for civic collaboration, including citizens, stakeholders, and public issues" [1] not involved or addressed before. In a process of mutual fertilisation, different sectors and stakeholders interact and combine their knowledge resources from lays as well as experts. Their aim is to create innovative solutions in order to conquer new and old problems and to tackle the structural problem of managing the implementation phase of policies. The current discourse on this issue is working on a reconciliation between the two dominant thinking schools of bottom-up and top-down approaches. However, there is a lack of consistent and suitable definitions and frameworks on how to effectively create an environment where co-creation can unfold its full potential. It is a challenge to find appropriate ways to align relevant dimensions of co-creation and the inherent repositories of knowledge from different characters as well as mind-sets and concepts that come to light in the process.

Against this background, SISCODE aims to understand co-creation as a bottom-up and design-driven phenomenon that is flourishing in Europe – in places such as fab labs, living labs, social innovation labs, smart cities, communities

and regions – to analyse favourable conditions that support its effective introduction, scalability and replication; and to use this knowledge to cross-fertilise RRI practices and policies. During the project, (1) research on the current state of co-creation is complemented by (2) a transnational system of co-creation laboratories experimenting with co-creation tools and approaches and (3) an intermediate playground to re-connect policy design with grassroots initiatives of co-creation.

These three research strands, addressed in the upcoming three chapters, will produce knowledge to be further triangulated into a model of co-creation ecosystems to enhance capacity in RRI implementation and in STI policy making.

CREATING A CO-CREATION KNOWLEDGE BASE: FIRST INSIGHTS

The SISCODE consortium, consisting of 17 partner organisations from 13 European countries, collected and analysed 138 co-creation cases, now forming the project's knowledge base. It is imagined to become an interactive instrument and tool for data generation, open and transparent to the whole community of the project.

Deriving from SISCODE's working definition of co-creation, common themes are connecting different perspectives on it as a basis for a shared understanding [2]. Co-creation is therefore defined as being a **non-linear process** involving **multiple actors** and stakeholders in **all phases** of ideating and implementing new products, policies and systems with the aim of **improving their efficiency and effectiveness** under the maxim of **satisfaction of all** those who participate in the process. Looking at the close relationship between 'good' and promising cooperation among different actors the question of how to plan and implement such a process under the perspective of design studies is an important focus. Both policy makers and designers alike strive to find the 'right' ways of facilitating processes of co-creation to construct better solutions.

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With the initial survey, we gained preliminary descriptive findings about co-creation practices across Europe and their contextual characteristics [3]. Main goal of the explorative research based upon the gathered data is to describe co-creation approaches and ecosystems to better understand the dynamics and outcomes of different forms of integrating society in science and innovation. On the long run, the practices and procedures carried should allow further conclusions for the assessment and creation of policies. For the project progression, the results serve as a pattern and heuristic model for a second, qualitative research phase, featuring in-depth case studies.

The landscape of initiatives found by the project partners shows a generally broad diversity of co-creation and its contexts. The vast majority of initiatives addresses multiple societal challenges, many of them related to health, demographic change and/ or wellbeing issues, but also topics of climate action and environment, food security and sustainable resources are addressed.

In accordance to the survey, co-creation is strongly dependent upon personal motivation and high personal interest of like-minded people or groups. A further decisive driving factor is an overall innovative environment surrounding the initiative – a combination of personal engagement and an innovation-friendly atmosphere is assumed to be a good starting point for co-creation. Furthermore, most cases are characterised through a wide cooperation with multiple partnerships in a broad network. There regularly seem to be some pivotal moments in co-creation that decide upon the further success of the process (e.g. initial involvement of stakeholders, first meetings, and feedback loops). Regarding the obstructive factors, the already suspected insufficient integration of users' perspectives clearly reflects in the initial results. Another prominent barrier seems to lay in the time frame initiatives are granted to undergo their co-creation routines. Several contextual factors limit time resources with, again, negative effects on the integration of user's perspectives.

As presumed, co-creation is not only a cross-sectoral process, but in many cases it involves all four sectors of society (civil society, academia, the public and the private sector). Most of the cases are furthermore characterized by co-creative elements in all four phases of a design cycle (problem identification/understanding, ideation, prototyping, verifying/testing). Issues of diversity, inclusion and intersectionality are cross-cutting themes for many of the initiatives. In general, diversity in all facets is seen as a necessary precondition for successful co-creation processes as solutions are considered to work best, if they can adapt the heterogeneity of needs in society. However, little information is provided concerning the tactics followed to create diversity from the very beginning of the initiative.

From these short insights, it already becomes clear how the descriptive analysis rather raises more questions, as it does answer. These identified issues will be in focus in the upcoming research phase, where 40 cases will undergo in-depth case studies followed by 15 innovation biographies of co-creation processes. The focus here will be on the framework that enables the initiatives to set up a multi-sectoral playground for policy-making and the barriers that hinder the initiatives in other settings from doing so.

TEN CO-CREATION EXPERIMENTS: SETTING UP TRANSNATIONAL LABORATORIES

SISCODE has established a system of ten transnational co-creation labs out of three co-creation networks involved in the consortium (ENoLL, international fab labs network and Ecsite).

The role of the co-creation labs is to experiment with design methodologies and tools as an approach to shorten the distance between ideation and real implementation of solutions and policies (implementable co-creation). The experimentations started 6 months after the beginning of the project (and will run for two years). They are aiming to verify the hypothesis that the adoption of the design approach to co-creation can make RRI more implementable in practice by introducing design methodologies and competences in the organisational, institutional and policy domains where it develops. The expectations are that the

introduction of new knowledge and competences will require and trigger transformations in the co-creation ecosystems of the ten labs to overcome the barriers and constraints to the real implementation of RRI.

To achieve this aim, SISCODE thus combines the design process with a learning framework, using this combination to set up a learning environment (to provide a knowledge-creation space in the 10 labs) in which to make it possible for a range of diverse actors and policy makers to experiment with co-creation in situated conditions.

Furthermore, to implement this learning loop, the ten labs have been involved along an innovation journey composed by four main phases. These phases range from the stage of understanding the context and the problem and designing together an idea, to that of developing and testing a prototype and back to the design phase (iterative process). Each lab is currently working on prototyping the envisioned solutions to be experimented in each of the ten contexts to face the specific societal challenge they selected and analysed in the first three phases of the innovation journey.

As initial insights are showing, each lab started from a different background on co-creation that has influenced their overall initial capacity to deal with the specific co-design approach, methodology and tools provided by SISCODE. All the labs manifested a certain degree of knowledge acquisition with respect to co-design that has led to a re-combination and integration of pre-existing

SISCODE design-based learning framework, combining the design cycle with Kolb's experiential learning model
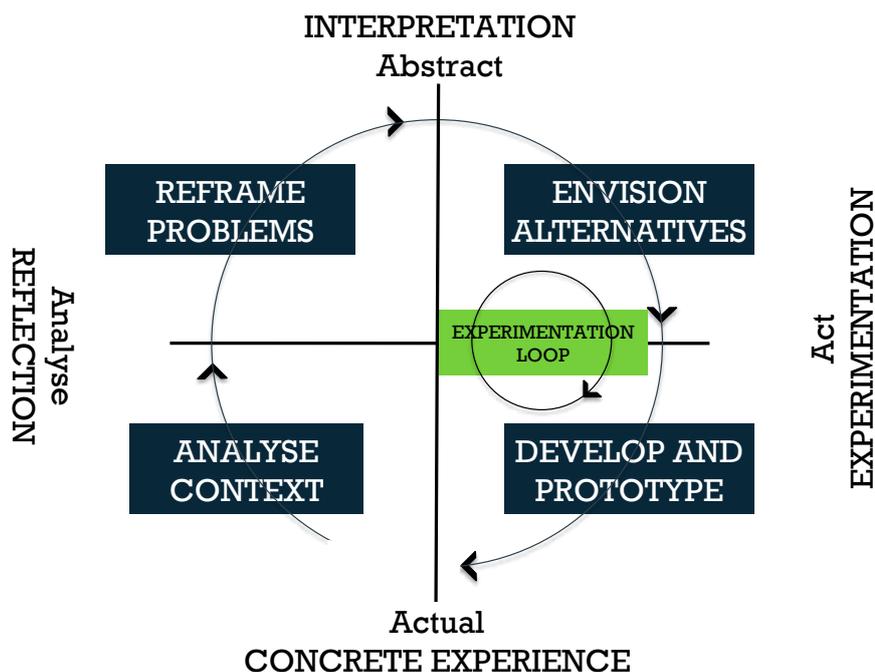
knowledge in the SISCODE teams and in some cases also in the larger contexts of the labs (e.g. the hosting organisations of the labs). The process of learning has particularly focused on the first three phases of the design process (context analysis, problem re-framing, envisioning alternative). The phase of prototyping and testing will start in August 2019 and will be devoted to co-producing prototypes and test them in real contexts with other stakeholders and end users.

AN INTERACTIVE PLAYGROUND: CONNECTING GRASSROOTS INITIATIVES AND POLICY-MAKING

As the experimentations in the labs proceed, they will be exploited for the conduction of a series of policy experiments based on the engagement of policy makers in real co-creation projects [4]. This second level of experimentation will then verify (and produce new knowledge) the hypothesis that using the co-creation projects run by the ten labs as playground for policy makers to observe and take part in small-scale co-creation experimentation in real contexts will reconnect this knowledge with to the policy making activity.

This part of SISCODE's action research will start in August 2019 as soon as the process of prototyping the envisioned solutions and experimentation is finished. Related to the effective implementation of the interactive playground, all labs are reporting some barriers that could limit the

participation of policy makers. The labs mentioned a lack of a co-creative culture in policy making, as it is still designed to be a top down process led by experts and politicians. Furthermore, the resistance to change of public organisations and civil servants tends to prevent them to deal with innovation. Moreover, politicians seek to solve problems as fast as possible – but, with respect to co-creation processes, an adequate time period is a necessary factor to align stakeholders with different interests and motivations.

RECAP AND OUTLOOK

SISCODE devoted six months to understand deeply the current state of the art in applying co-creation in RRI and PE: furthermore, the role of design in this context was examined closely. Taking this basic work as a starting point, the project started to produce knowledge alongside two parallel strands of research. Firstly, an explorative understanding of co-creation processes through an extensive mixed-methods analysis of case studies in different fields in and outside policy making and RRI. Secondly, the direct experimentation with a design-led co-creation approach in ten real contexts across Europe to introduce co-creation in RRI practice. The triangulation between these different sources of knowledge is meant to guarantee a systemic interpretation of research results making the development of knowledge related to co-creation realistic and actionable in the field of RRI.

Interaction between policy making and implementation
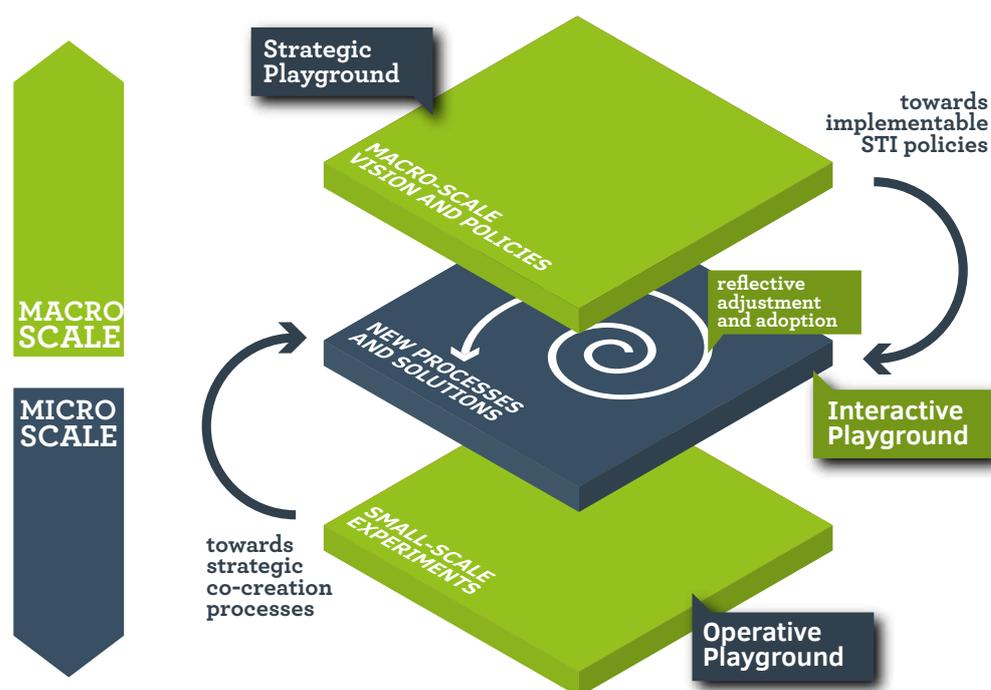
This triangulation will support to develop an understanding of the configuration and the transformative processes of co-creation ecosystems. Furthermore, it will help generating new knowledge on the mechanisms chosen to overcome internal and external barriers to successful solutions to societal challenges. This knowledge will be used in SISCODE to develop models of co-creation ecosystems to build capacity to adapt design-led co-creation that proved to be effective in specific contexts to RRI solutions and policies and to the diversity of cultural and regulatory backgrounds, guaranteeing high potential for their scalability across Europe and beyond.

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