

## Abstract 46

### EMBEDDING RESPONSIBLE RESEARCH INNOVATION IN SUSTAINABLE FORMS OF PRODUCTION THROUGH CO-DESIGN

Academic paper

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Abstract text:

Purpose and Methodology

The acceleration in the redefinition of economies, the change in demographic structures and needs, the spread of new technologies and communication channels act in different ways, but converge in their effects on all the European and global territories, raising up diffuse concerns about loss of interest in social challenges by Research and Innovation Systems (RIS). At the same time, these phenomena lead to the exclusion of vulnerable groups from specific societal benefits and decision processes (OECD, 2018), together with restrictions in knowledge sharing among different territorial actors, with an unequal distribution of resources and data (i.e. between SMEs and corporations) (Robinson, 2015).

To tackle these issues, this paper purposes a new open approach, starting from a Responsible Research and Innovation (RRI) -filtered re-definition of "territory" in terms of territorial capital (Villari, 2018). The methodological framework is based on a co-design system of practices (action-research projects) (Zamenopoulos, 2018), aimed at deconstructing the current binary modalities of collaboration among Quadruple Helix (4H) stakeholders, boosting horizontality, agility and interaction.

Originality and Value - The evolution of the participatory approach

In recent years there has been an evolution of collaborative and participatory methods due to the intensification of citizen and stakeholders involvement, posing new challenges in terms of tools (Alter et al., 2019), skills, approaches, organization, and governance dynamics (Turnheim and Sovacool, 2019) and epistemologies (Hansson et al., 2018).

ADU's investigation – on the different roles of design cultures in transformative processes of cities, industries, and complex systems – is focused on the mapping of tools and approaches capable to support spontaneous, unexpected, progressive, or sudden, predetermined or contingent mutations linked to society.

The COVID19 emergency has highlighted how unpredictable the evolution of these phenomena is. The drive for innovation has been unexpected and declined in various forms, ranging from self-managed to collective and institutional innovation, aimed at producing quick and effective responses (Palanica and Fossat, 2020).

ADU's approach investigates new ways to re-interpret relationships, increasing resilience to emergencies, and enabling co-design as a practice for exploiting tacit knowledge as a driver of innovation.

The RRI perspective and the quadruple helix approach

The methodology, based on an iterative process, starts from the mapping of the different approaches in the "collaborative practices" already in use by the different actors of the quadruple helix, to increase an evidence-based understanding of co-design role in the different fields of application:

- PAs and institutions work with participatory planning methodologies, involving communities and citizens to improve their services, empowering them as actors of change;
- Communities conduct civic activism initiatives aiming to improve the relationship with the urban context, adopting co-design as a mechanism for the democratization of society and knowledge;
- Companies adopt design tools at the management level to hypothesize new business scenarios;
- Academic & research participate in co-design processes by creating research practices to express and listen to the different traditions of knowledge.

By deconstructing this verticality, ADU is prototyping a set of tools and practices (personalized, generative and adaptive), integrated in a horizontally co-design RRI-oriented approach (Blok, 2015), to be adopted by the quadruple helix actors. This approach could represent key access to a more responsible and collaborative RIS, including feedback loops and external linkages. The adoption of continuous and iterative prototypes are oriented to engage SMEs, researchers and civil society in the co-designing of more RRI-oriented production (Pavie et al., 2014), to new forms of communication and collaboration, new services and products and patterns more suited to both user and territorial needs. The co-design approach intends to support a transition:

- from linear to responsible iterative innovation,
- from closed innovation to responsible open innovation,
- from a low degree of citizens participation to research coalitions.

Co-design is considered a common grammar in projects' development as a generative instrument to shift towards a sustainable and community-centered innovation (Villari, 2019). Creating tools and experiences and tailored solutions, territorial value chains will consider co-design as a core innovation asset, being able to use it autonomously and sustainably in the long run, interacting with their own communities (Unioncamere, Symbola, 2018).

## Results and findings

Several past and ongoing projects contributed to suggest the general approach proposed in this article; hereafter three of them are briefly reported:

**C.R.I.C.C.** The University of Bologna Research Center for Interaction with the Creative and Cultural Industries aims to strengthen the regional production system by focusing on the design-driven integration between technology, applied research, and culture. CRICC is involving the main Open Laboratories of the Emilia-Romagna region, to test and validate practices based on co-design activities for creative collaboration between citizens, associations, businesses, research centers, institutions.

**SUPERCRAFT.** co-design practices and procurement dynamics in B2B contexts are strictly related; we found that collaboration methodologies are affected by stakeholders' dimensions and goals, product requirements and channel. The project, aimed at the conception and prototyping of a new digital platform to support stakeholders collaboration among manufacturing SMEs, in the context of tech-driven innovations, is bringing out the need for a co-design methodology based on multiple factors such as the typology of innovation source or stakeholders combination, underlining the non-applicability of rigid and universal processes.

**DESIGN FOR CULTURAL COMPLEX HERITAGE.** The research project aims to highlight collaborative design practices that are influenced by the local territorial culture and reinterpreted through the concepts of responsible innovation. Mapping projects and approaches that have been able to activate a change of relationship between the territorial actors, the intention is to create an observatory of "Good design culture" and collaborative approaches (in Latin America and Italy), for the development of new innovations and enhancement in a responsible and inclusive territorial productive culture perspective.

## Limitations and implications

The adoption of an action-research approach is mainly addressed to transform specific initiatives and tailored or experimental projects in practices, to be codified in an iterative process, with recognizable phases, tools and findings. These new codes foresee the integration of co-design methodology in territorial productive dynamics to facilitate the adoption of an RRI approach in the context of a redefinition of RIS, improving interactivity, openness and inclusiveness.

Geographical origin:

Italy

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