REPORT OF PARTICIPATORY TOOLS, METHODS AND TECHNIQUES

DELIVERABLE D. T3.1.1 WORK PACKAGE WP3

VERSION 1.0

This deliverable and the work described in it is part of the project Alpine Space project Smart Villages (AS623 – Smart digital transformation of Villages in the Alpine Space). This deliverable was prepared in 2018.04 - 2018.10 and presented at the Capacity Building Seminar, held in Milan on November 28th, 2018, and will feed the development of SV Toolbox in the following activities of WP 3 as well as facilitate a smart transition in the Test Areas. The present document has been produced in the context as deliverable D. T3.1.1 of Work Package T-3 "REPORT OF PARTICIPATORY TOOLS, METHODS AND TECHNIQUES", led by project partner 3 - University of Ljubljana, Slovenia.

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LIST OF ABBREVIATIONS

SV. Smart villages

AGRI Committee. Agriculture Committee of the European Parliament

CCRI. Countryside and Community Research institute

CAP. Common Agricultural Policy

RDPs. Rural Development Programmes

EAFRD. EUROPEAN Agricultural Fund for Rural Development

EIP European Innovation Partnership

EIP AGRI FOCUS GROUPS

LIST OF TERMS

SMART VILLAGES as a concept has still a working definition. One of them is presented by EUSurvey (2018) conducted as a part of the Pilot Project on Smart eco-social villages ("Smart Villages" in short) granted by the European Commission (DG AGRI) to the consortium of Ecorys, Origin for Sustainability and R.E.D. According to the survey smart villages are communities in rural areas that develop smart solutions to deal with challenges in their local context. They build on existing local strengths and opportunities to engage in a process of sustainable development of their territories. They rely on a participatory approach to develop and implement their strategies to improve their economic, social and environmental conditions, in particular by promoting innovation and mobilizing solutions offered by digital technologies. Smart villages benefit from cooperation and alliances with other communities and actors in rural and urban areas. The initiation and the implementation of smart village strategies may build on existing initiatives and can be funded by a variety of public and private sources.

CO-CREATION is a management initiative, or form of economic strategy, that brings different parties together (for instance, a company and a group of customers), in order to jointly produce a mutually valued outcome (Prahalad et al., 2004). Co-creation is: together (co-) make or produce something (new) to exist (creation). Co-creation finds its origin in co-production where consumer participation was integrated in the supply chain (De Koning, 2016)

CO-OPERATION. Often used as a synonym for collaboration. It is also a pro- active group cooperation in developing viable solutions.

COLLABORATION. Collaboration is the process of two or more people or organizations working together to complete a task or achieve a goal. Collaboration is similar to cooperation. Most collaboration requires leadership, although the form of leadership can be social within a decentralized and egalitarian group.

CO-DESIGN. Co-design is an approach to creative practice, particularly within the public sector with roots in the participatory design techniques, on one hand used as an umbrella term for participatory, co-creation and open design processes, on the other as a subordinate term to co-creation. The co-design approach enables a wide range of people to make a creative contribution in the formulation and solution of a problem.

CO-WORK. Working together in a shared working space or place.

PARTICIPATORY METHODS AND TOOLS. Participatory methods and tools stimulate and facilitate collaboration in team in which stakeholders actively participate in understanding problems and finding solutions.

STAKEHOLDERS

CO-CREATION TECHNIQUE. A co-creation technique is the procedure for collectively accomplishing something and is often done through the use of tools such as mobile phones, design kits, software programs and websites (Durugbo et. al. (2014). Techniques engage customers to generate ideas through methods such as focus groups, workshops, story boarding and prototyping for new goods, equipment or services.

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1. FOREWORD AND CONTEXT

1.1 FOREWORD

The present document has been produced in the context of Alpine Space project Smart Villages (AS623 – Smart digital transformation of Villages in the Alpine Space), as a deliverable D. T3.1.1 of Work Package T-3 "REPORT OF PARTICIPATORY TOOLS, METHODS AND TECHNIQUES", led by project partner 3 University of Ljubljana, Slovenia. This deliverable was prepared in 2018. 04 - 2018.10 and presented at the Capacity Building Seminar, held in Milan on November 28th, 2018, and will feed the development of SV Toolbox in the following of WP 3 as well as facilitate a smart transition in the Test Areas.

First deliverable for WP3 work package in the preparation of development of SV Toolbox brings forth the first overview and description of most commonly used tools, methods and techniques for involving various stakeholders in the participatory process of co-designing and co-creating products, services and processes for Smart village environments. It brings forth main findings from the A.T.1.1 analyses of state of the art of participatory tools, methods and techniques and was executed through:

- analyses of different tools, methods and techniques for involving various stakeholders in the participatory process of co-designing and co-creating products and services with high social and economic impact for SV environments,
- analyses of practices, experiences and lessons learnt,
- selection of best practices (tools/techniques) for the toolbox.

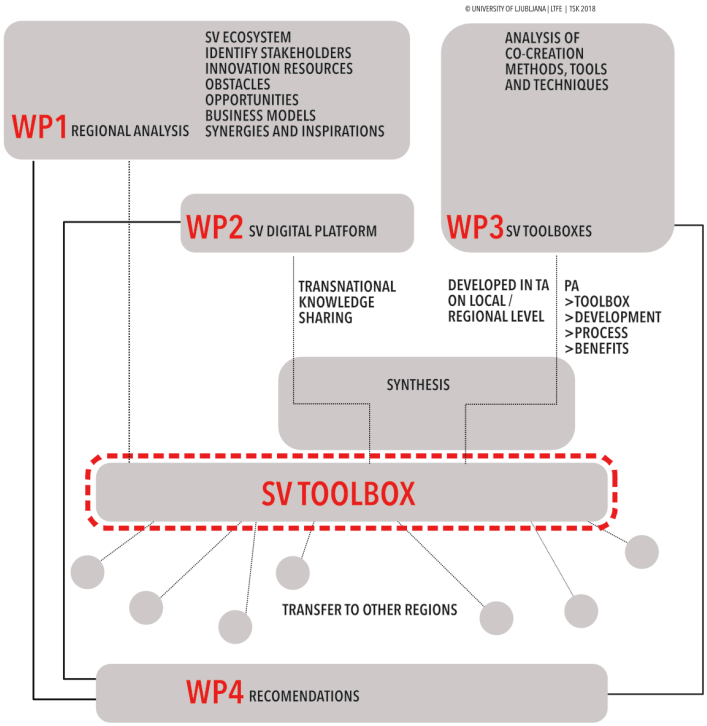

Figure 1. Developing the SV Toolbox in the context of the project Smart Villages on the basis of participatory methods of co-creation and co-design.

1.2 SMART VILLAGES AND PARTICIPATORY APPROACH FOR A SMARTER FUTURE

Smarter Future of the Rural Areas as declared by Bled declaration (ref) as well as Cork 2.0 Declaration (ref) is a vision or rural development in EU, in which rural digital economy will help improve the life-quality of rural citizens and reverse depopulation and migration from rural areas. By developing Smart Villages approach the urban-rural divide should be rendered oblivious, helping to increase economic and social cohesion, and thus improving the social equality of rural communities.

The Smart village vision is twofold. On one hand, it primarily builds on bottom up approach by empowering rural communities to embrace own existing strengths and assets, and thus developing new opportunities. On the other hand, top down approach will help raising awareness of innovative digital solutions to be incorporated in rural daily life and work and will make living in rural areas easy and comfortable. In addition, it is important for viable and successful project coordination and management.

One of the initiatives in the Smart Villages approach is mobilisation of local assets to solve the challenges and seize the opportunities rural communities face. A Smart Villages approach should insure a comprehensive participatory work of various stakeholders, in which co-creation methods, techniques and tools could be utilised. This will support development of knowledge and digital skills, strengthen entrepreneurship, improve resilience and self-reliance, develop local infrastructures, capacity and quality of life and local rural communities. Only then the digital and social transformation can actually take place and help sustain, rebuild and develop strong rural communities throughout the European Union. In order to support this transformation, new products and services for smart village environments have to be developed, supported by innovative participation process of active involvement of all stakeholders in co-creation.

2. PARTICIPATORY METHODS, CO-CREATION AND CO-DESIGN

2.1 PEOPLE AND PARTICIPATORY PROCESS

Participation is a process through which people become involved, to some degree, in development processes (Geilfus 2008), and is characterised by:

- building a collective knowledge with stakeholders,
- doing things together better to improve well-being in society,
- implementing co- creation as the fastest growing innovation phenomenon,
- thus enabling paradigmatic shift in value creation.

Cross-cultural and interdisciplinary teamwork as a contemporary response to the reading of the complexity and production of innovation. It operates in and for the culture of cooperation. The methodology reveals the connecting moments of creative thinking and group dynamics by building a process of elaboration shared by the individual and the group, at once being sustainable by the environment. Co-creation methodology in participatory approach looks at the person and his/her ability to create and innovate: it is a part of the transformative engine within the dynamics of a group in action.

The research of co-creation practice has increased since year 2000 rapidly. The new co-creation paradigm (ref) pinpoints the importance of collaboration of different stakeholders in order to boost innovative solutions in products, services and processes development. However, researchers and practitioners face some challenges of how to understand different co-creation approaches and transferability to other contexts, social and cultural environments. There is still lack of systemic studies to detail how co-creation instruments operate under different socio-cultural conditions, questioned in the on-going studies and projects, such as in one on-going H2020 project 'Scaling up Co-creation: Avenues and Limits for Integrating Society in Science and Innovation' (Project Scalings). They are addressing three co-creation instruments (public procurement of innovation, co-creation facilities, and living labs) in two technical domains (robotics and urban energy) across 10 countries, expecting to develop two new transformative frameworks – "situated co-creation" and "socially robust scaling" – to guide the wider dissemination of co-creation through "EU Policy Roadmap".

Co-creation thinking challenges the nature of enterprises; their organisation, governance, the relative roles of private, social, and public sector enterprises, and how economies and societies are shaped (Ramaswamy, Ozcan 2014). However, the involvement of stakeholders in the participation process varies. Levels of involvement in participatory work with communities is best presented in the Participatory Ladder (see Figure 2). Participatory ladder explains how a community can gradually transform itself from an almost completely passive spectator or beneficiary into the driver of its own process as an agent of self-development (Geilfus 2008). The level of participation in this ladder is determined by the degree of decision-making power accorded to the community (Geilfus 2008).

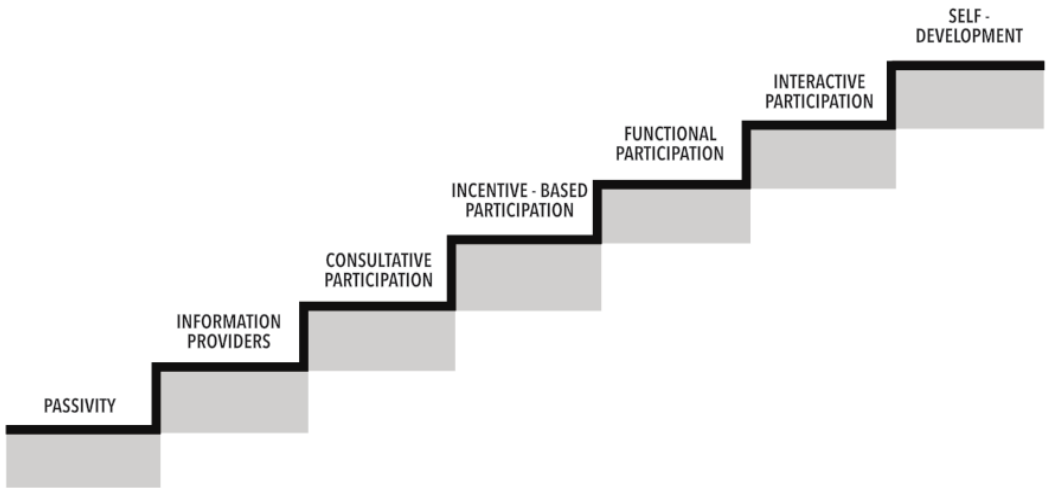

Figure 2. Participatory ladder. Adapted after Geilfus 2008

2.2 THE CO- CREATION PARADIGM

Co-creation is about value creation in which all stakeholders should be involved. In the past our social, business, and civic systems saw customer at the end of the value chain having no particular influence on the value creation supply and demand. Today a particular shift takes place in which individuals, not institutions are the centre of value creation. This co-creation paradigm builds on (Ramaswamy et al. 2014):

- INTERACTIONS: interactions are the locus of value creation,
- VALUE CREATION WITH STAKEHOLDERS: value is jointly created and evolved with stakeholding individuals;
- JOINT RESOURCE BASE: a joint resource base is developed when two groups of resources are harnessed together. These are on one hand open and social resources of individuals and their skills, and enterprise and network resources of multiple private, public, and social sector enterprises on the other,
- INNOVATING ENGAGEMENT PLATFORMS: innovating engagement platforms are the means of connecting joint value creation opportunities with joint resources through agential actions,
- COMMUNITIES MESHWORKS: leveraging ecosystems of capabilities based on meshworks of social, business, civic, and natural communities to engender new value creation capacities;
- INDIVIDUAL EXPERIENCES: individuated experiences are the basis of outcomes of value,
- WEALTH-WELFARE-WELLBEING: wealth-welfare-wellbeing is the basis of joint aspirations.

In the co-creation process people become innovative partners in creating products, services and process through active involvement as stakeholders (customers, end-users). The benefits of benefits of co-creation are manyfold, in organisations they become more customer oriented, their relationship with customers improves, and the success rate of new innovations increases. In societies and communities, also Social innovations take place, in which new strategies, concepts, ideas and organisations develop with the goal to fulfill social needs thus empowering civil society, namely issues such as working conditions, education, community development, and health. In figure 5 a spiraling structure presents the typology of co-operation of stakeholders in an open business model.

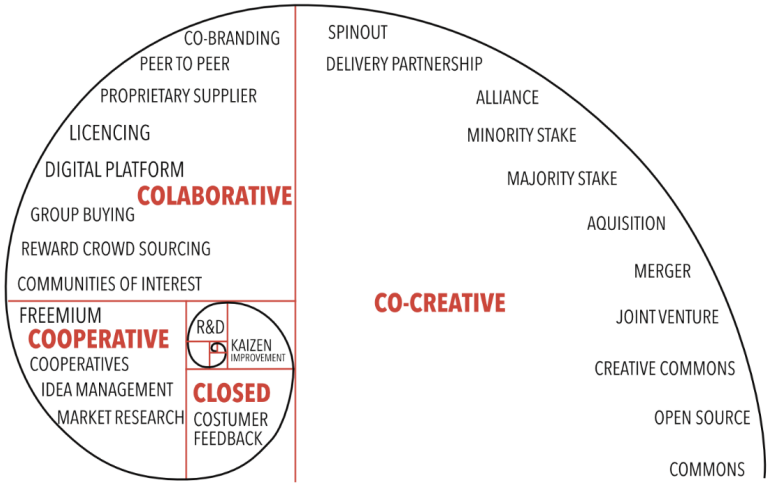

Figure 3. Co-creation process in the open business model spiral 'Adapted after https://www.100open.com/open-business-model-spiral/

Critical success of co-creation builds on sharing information, developing honesty to (potential) customer or community and expressing sincere interest. Co-creation with stakeholders is usually executed as either information exchange and consultation, on/off participation (co-creation only in particular stage/stages), or as a partnership (shared decision-making power through the whole process). In the co-creation process four types of relationship can develop, namely club of experts, crowd of people, coalition of parties, and community of kindred people. This categorisation relates to the level of openness of the community/ stakeholders and the 'ownership' of the co-creation process.

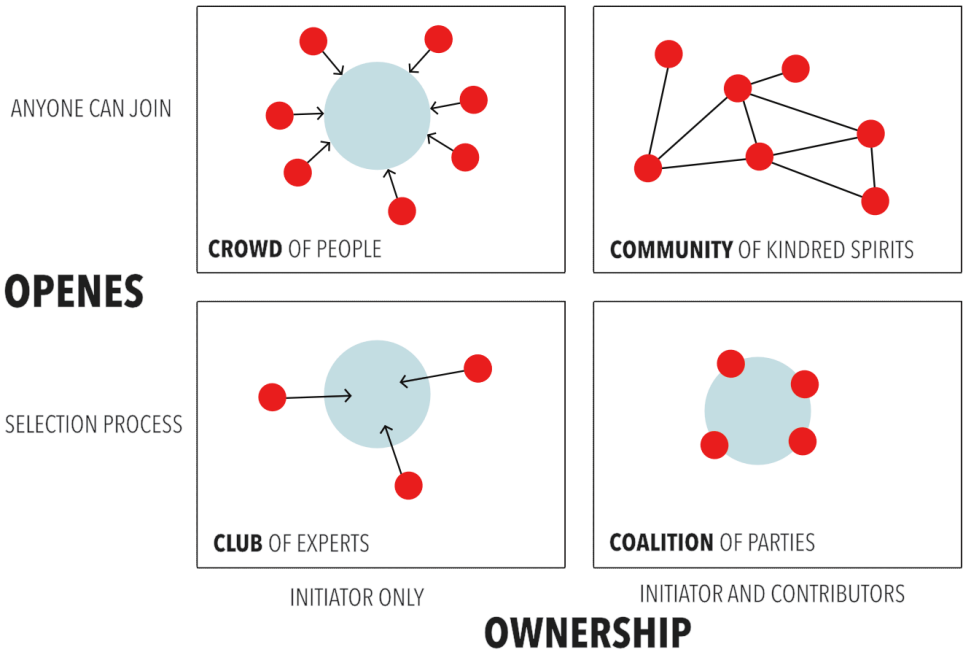

Figure 4. Types of co-creation according to Openness and Ownership. Adapted after: http://wiki.p2pfoundation.net/Four_Types_of_Co-Creation

In the rapidly emerging and developing field of co-creation research in academia as well as its presence in popular media, there is a lack of common taxonomy. This is demonstrated in 4 different meta-models of co-creation, based on case study research (ref: Wise et al. 2012). These models present the approach to co-creation with different emphasis as:

- joint space of creation,
- spectrum of co-creation,
- types of co-creation,
- steps of co-creation.

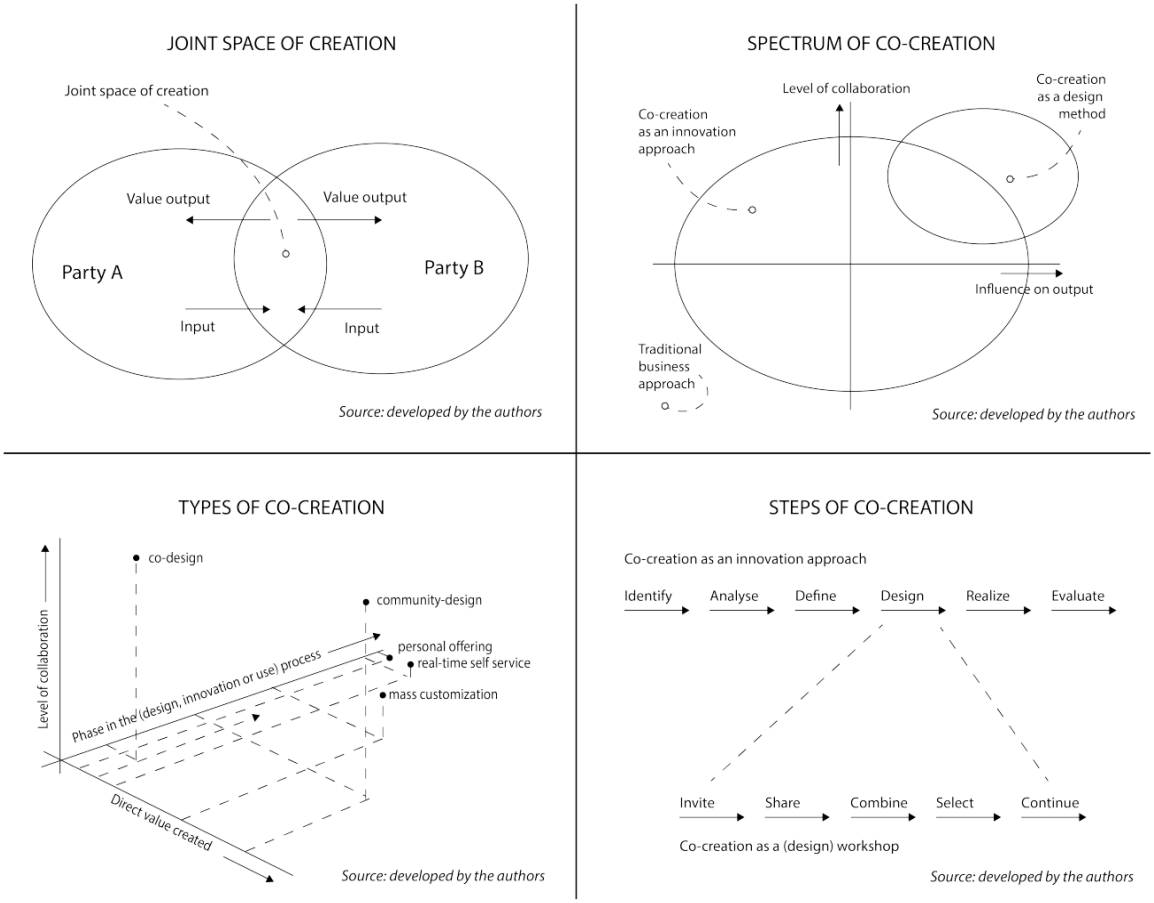

Figure 5. Four meta models of co-creation (Source: De Koning et al. 2016)

2.3 MODEL OF CO-CREATION PROCESS

Co-creation is a pro-active strategy for enabling firms to create value through co-opting consumer competences (Durugbo et. al. 2014). Durugbo prosposes a unified model of co-creation, building on characterizing the co-creation process, proposing methodologies and exploring the role of existing value or formalised the co-creation process and leading to success. The focus of the co-creation view is actively involving stakeholders in the customisation, personalisation and invention of solutions is (Bogers, Afuah, & Bastian 2010, Foxall 1986, Jenkins 2006,

Sunikka & Bragge 2012, Von Hippel 2005). Stakeholders become partners, who can collaborate in team or teams with a common goal. The physical connection is not necessary. I

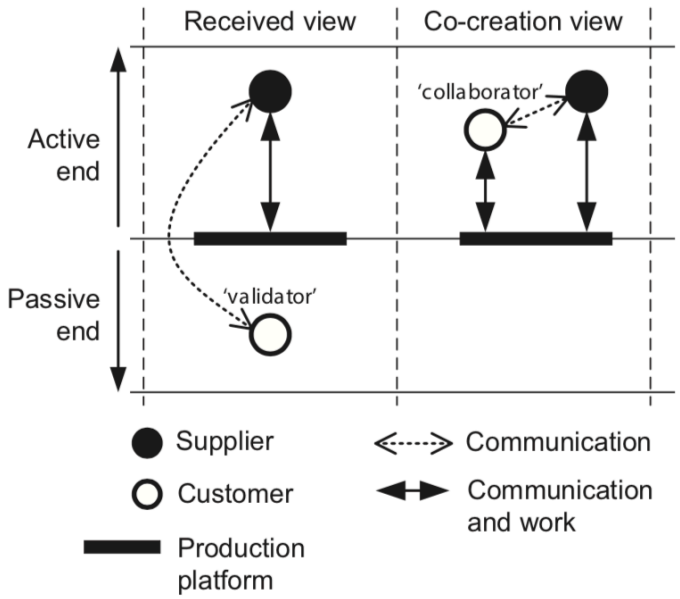

Figure 6. A comparison of the received and co-creation views (Durugbo et. al. 2014)

Characterisation of co-creation process

In order to better understand the co-creation process Durugbo et al. (2014) developed an integrated model of co-creation from two approaches by Hickey and Davis (2004). They used unified model of elicitation as an approach which:

- minimises ambiguity of processes by detailing the role of knowledge for characterising existing problems and solutions
- by specifying underlying assumptions,
- this is an iterative process characterised by three elements: requirements, situations and techniques.

The second used approach was the conceptual framework proposed in Payne et al. (2008), for managing value co-creation, to help formalised and generic view of co-creation.

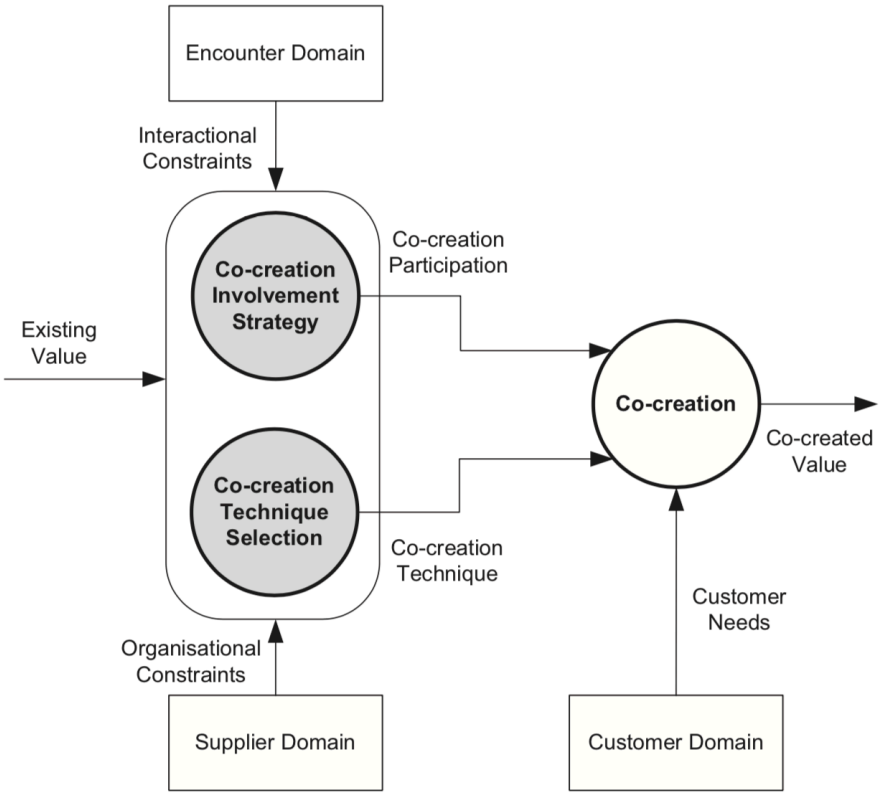

Figure 7. Model of co-creation (Source: Durugbo et. al. 2014)

In order to create value in the co-creation process from existing values two processes must take place simultaneously, namely:

- co-creation involvement strategy with participation,
- selection of co-creation techniques through a process of co-creation and incorporation of users' needs to develop co-created value.

On one hand, constrains for Involvement strategy are in developing correct and viable interactions between stakeholders, and in terms of Techniques selection it is organisational constrains, which could affect the success of co-creation process. In the model, stakeholders (e.g. customer, supplier) are important for selecting co-creation techniques. In addition, also the role of knowledge for co-creation is of critical importance. In co-creation we can identify four potential sources of knowledge:

- characteristics of people's needs (e.g. customer),
- acquired during encounters of different stakeholders (e.g. supplier and customer)
- the links between the characteristics of existing customer needs, customer involvement and co-creation technique selection,
- knowledge of the existing and co-created value.

In addition, Durugbo et. al. (2014) prescribed generalised step-by-step approach to using the unified model. The application shows how the unified model can be used to formalise the co-creation process in terms of involvement strategy and technique selection. Understanding and knowledge about the existing value informs co-creation technique selection (based on a priory systems/user requirements) and involvement strategy (based on existing experiences during stakeholder's encounters). The goals are to reach agreements or consensuses and to successfully coordinate co- creation through iteration and collaboration. By voluntarily entering the co creation process, the stakeholders may derive several main benefits (Durugbo et. al. (2014), namelly cognitive, social integrative benefits, personal integrative benefits and hedonic or affective benefits.

Selection of technique

A co-creation technique is the procedure for collectively accomplishing something and is often done through the use of tools such as mobile phones, design kits, software programs and websites (Durugbo et. al. (2014). Techniques engage customers to generate ideas through methods such as focus groups, workshops, story boarding and prototyping for new goods, equipment or services.

Tools in participatory process of co-creation

Tools in participatory approaches are intended to facilitate the co-creation and co-design of products, services and processes (Geilfus 2008, Tomitsch et a. 2018) Participatory tools can be divided into four main categories (Geilfus 2008)

- **Group dynamics**, to ensure effective participation of stakeholders,
- **Visualisation techniques**, to involve people with various academic backgrounds and education types and to achieve knowledge systematisation and consensus quicker and easier. These are namely matrices (logically organised information and ideas for different views comparison or ranking according to importance. Maps and charts are simplified representations of reality, particularly useful at the beginning stages of participatory process. Flowcharts are diagrams which illustrate the relationships between different elements, often with cause-and-effect relationships or sequences of events. Timelines show the presence, absence, or intensity of certain phenomena over time.
- **Interviewing and oral communication techniques** focus on information to be triangulated from points of view of different members of the community (selection of key respondents, focus groups) and on peoples' views regarding their problems (semi-structured interviews).
- **Field observation techniques** help gather information in the field, from a group perspective and utilising visualization techniques to analyse the data.

3. CO-CREATION METHODS, TECHNIQUES AND TOOLS IN SV CONTEXT

3.1 RESEARCH METHODOLOGY

The research approach was twofold, first we analysed different tools, methods and techniques for involving various stakeholders in the participatory process of co-designing and co-creating products and services with high social and economic impact for SV environments, and then we explored a number of examples of good practices, experiences and lessons learn. Method for finding different tools, methods and techniques for involving various stakeholders in the participatory process was primarily systematic online search using following pre-defined keywords: participation, co-creation and co-design in Scholar Google and online sources from various projects platforms and reports related to participatory methodology in the until December 2018. After initial Scholar Google search, we utilised Percipio Big Data tool for advanced search in publications, patents and EU project. Innovative Big Data search tool Percipio was used to screen the existing body of knowledge in the knowledge space 'Smart villages'. The tool is based on the theory of knowledge development form Adjacent possible followed by human assisted technology when the number of available selected publications is small enough for people to process them efficiently and classify them accordingly. The tool was deployed to search through a large dataset of publications, articles, patents and projects. Percipio is a context exploration tool which allows user to search for scientific papers and patents in a curated and continuously updated database. Currently database contains data on over 250 million scientific articles, patents and EU projects. Percipio stems from the premise that innovation results from informed search and recombination of search results. In our search we used search queries 'co-creation' and 'participation' separately and in combination with 'smart' 'village' and 'rural'. After retrieving manageable amount of search results, we screened the documents and selected relevant ones for further analysis. We presented results in several tables according to specified search and approach.

1. ANALYSIS OF DIFFERENT TOOLS, METHODS AND TECHNIQUES

FOR INVOLVING VARIOUS STAKEHOLDERS IN THE PARTICIPATORY PROCESS OF CO-DESIGNING AND CO-CREATING PRODUCTS AND SERVICES WITH HIGH SOCIAL AND ECONOMIC IMPACT FOR SV ENVIRONMENTS

In addition to the systematic keyword search, additional search with Percipio tool suggested contextual keywords was performed.

In order to narrow down search results we selected 16 by using inclusion criteria so the selected studies and case studies had to:

- studies which address participatory approaches, co-design and co-creation,
- studies had to clearly state the participatory methods and techniques used, describe objectives and process,
- objectives, methods and results had to yield high social and/or economic impact,

We analysed and categorised each selected technique according to objective, method and complexity and clearly linked them to the original source. Objective shortly described context of use of the techniques and brief approach, use or steps. We then defined to which part of the participatory approach it pertains.

2. ANALYSIS OF PRACTICES, EXPERIENCES AND LESSONS LEARNT

In the first stage of research we selected initial case studies analysis and explored case studies, then we also performed case studies search through general Google search and online sources from various projects platforms and reports, related to co-creation and possible or actual use in the context of Smart villages. We performed the search between August 2018 and December 2018.

In order to select most relevant cases, we used the following inclusion criteria:

- case studies which address participatory approaches, co-creation and co-design,
- studies had to clearly state the participatory methods and techniques used, describe objectives and process as well as best context (spatial, problem, related to stakeholder, product and/or service design etc), at what stage of participatory approach to use particular technique or method, to what purpose, the success, benefits of approach and also weaknesses and labelled them with direct links if possible,
- objectives, methods and results in the case studies had to yield high social and/or economic impact,
- objectives, methods and results had to show relevance for smart villages environment, with particular notion to being part of 6 pillar structure of the proposed SV dimensions of Smartness, namely Smart Economy, Smart Environment, Smart People, Smart living, Smart mobility and Smart Governance.

3.2 RESULTS

3.2.1. TOOLS, METHODS AND TECHNIQUES FOR INVOLVING VARIOUS STAKEHOLDERS IN THE PARTICIPATORY PROCESS OF CO-DESIGNING AND CO-CREATING PRODUCTS AND SERVICES WITH HIGH SOCIAL AND ECONOMIC IMPACT FOR SV ENVIRONMENTS

3.2.1.1 ON-LINE PLATFORMS OF PARTICIPATORY AND CO-CREATION METHODS, TECHNIQUES, TOOLS AND TOOLKITS

By using internet search, we found several platforms of participatory techniques with different functionalities. We selected 4 platforms which adopted different approaches to presenting participatory methods, tools and techniques and they differ in complexity, provenience and to some extent in key functionalities. To organise them we used the following categories: (1) name of the platform, (2) source: internet link to the on-line platform, (3) briefly description of the purpose of the platform, and (4) description of key functionalities. Platforms which involve co-creation process, methods, tools and techniques were selected as follows:

1. USER PARTICIPATION - participatory methods: toolbox of smart urban innovation participatory methods & tools.

2. SERVICE DESIGN TOOLS: collection of communications tools used in design process.

3. SERVICE DESIGN TOOLKIT: service design method for improving the quality of service.

4. ACTION CATALOGUE: online decision support tool.

In the platform USER PARTICIPATION, the participatory process is elaborated in several stages. Although it was developed for the purpose of smart urban innovation participation involving co-creation methods, it is a general procedure and could be likely utilised in the Smart Villages context as well.

Table 1. Stages of the participatory process.

STEPS	DESCRIPTION
1. DEFINING A PROBLEM & OBJECTIVES	▪ defining a challenge and objectives of the process ▪ reviewing definition of the problem or objectives after first interaction with target groups to make it clearer
2. BUILDING RELATIONSHIPS	▪ revisited for subsequent events ▪ continuous and ongoing process ▪ combinations of ICT tools and steps to be taken for reaching out and starting the first interactions with the target group
3. INVITATIONS	▪ Describing combinations of ICT tools for sharing and signing up to invitations of your interactive event
4. STARTING INTERACTIONS	▪ Engage stakeholders before the event by interacting with them ▪ Giving them opportunities to give input leading up to the event
5. DOCUMENTATION	▪ Different ways of preparing and carrying out the documentation at the event using existing technology and ICT tools
6. REMOTE AUDIENCE	▪ Steps to be taken before, during and after ▪ To set up for a remote audience during the event
7. FOLLOW UP	▪ Tools and checklist for getting back to participants following the event
8. CONTINUED INTERATIONS	▪ System for curating prolonged interaction of the participants from the event based on level of engagement

Table 2. Selection of on-line platforms of participatory and co-creation methods, techniques, tools and toolkits.

PLATFORM	SOURCE	PURPOSE	KEY FUNCTIONALITIES
1. USER PARTICIPATION			
PARTICIPATORY METHODS	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods	The Toolbox of Smart urban innovation participatory methods & tools was developed in the framework of the project "URBAN INNO – Utilizing innovation potential of urban ecosystems" to support urban innovation processes in cities of Central Europe. It should serve as a supporting mechanism to quadruple-helix urban innovation clusters at their collaboration with stakeholders and end-users. Project was supported by the Interreg Central Europe programme and supports collaboration of partners from eight Central European countries.	A toolbox of Smart urban innovation participatory methods & tools is a unique tool that will help you engage end-users (citizens, consumers) into urban innovation process (developing urban development strategies, smart urban solutions, services or technologies). It is designed as a manual which will guide you through the process of ▪ identifying your target groups, ▪ animate them by using new communication channels and technologies (social media), ▪ interaction with them in person and/or virtually at co-designing of solutions, ▪ maintaining relationship with them after the interactive event. The toolbox is developed in a form of a publication and virtual on-line toolbox. It consists of: ▪ Participatory methods described for different scenarios ▪ Tools available to support methods implementation and their implementation guidelines ▪ List of qualified facilitators who can assist the use of methods ▪ It is available in English and in languages of participating countries (German, Polish, Hungarian, Italian, Slovenian and Croatian).
1.1 CROWDSOURCING - PARTICIPATIVE GOVERNANCE	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/crowdsourcing-participative-governance/on-line-public-engagement	ONLINE PUBLIC ENGAGEMENT	Crowdsourcing – online citizen engagement is a tool of e-democracy which enables involvement in decision co-creation process, in various extent. This method is basically an open invitation to every citizen, willing to participate in particular issues, via free-access online platform. There are 5 different forms of crowdsourcing, which serve to authorities, to align their policies with citizens' needs and interests: crowdsourcing of opinions (1), ideas (2), funds (3), tasks (4), and data (5).
	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/crowdsourcing-participative-governance/participatory-budget	PARTICIPATORY BUDGET	Participatory budgeting (PB) is a process of democratic deliberation and decision-making, and a type of participatory democracy, in which ordinary people decide, how to allocate part of a municipal or public budget. It enables taxpayers to work with government to make the budget decisions that affect their live
1.2 PLANNING THE FUTURE - VISIONS, STRATEGIES, PROJECTS	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/planning-the-future-visions-strategies-projects/world-cafe	WORLD CAFÉ	World-Café is a workshop method, suitable for group sizes from 12 up to 2,000 participants. It is a structured conversational process intended to facilitate open and intimate discussion. It links ideas within a larger group to access "collective intelligence" of the participants and to understand/learn from multiple points of view.
	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/planning-the-future-visions-strategies-projects/vision-factory	VISION FACTORY	A Vision Factory is a combination of World Cafés for the future development of complex topics, e.g. urban development or restructuring of companies

	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/planning-the-future-visions-strategies-projects/project-in-a-day-method-description	DESIGN THINKING: PROJECT-IN-A-DAY	Design Thinking (DT) is a design methodology that provides a solution-based approach to solving problems. It is extremely useful in tackling complex problems that are ill-defined or unknown, by understanding the human needs involved, by re-framing the problem in human-centric ways.
1.3 DEVELOPMENT OF SERVICES OR PRODUCTS	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/development-of-services-or-products/leaders	LEADERS	Characteristics of Living lab approach: bringing users early into the co-creation process, bridging the innovation gap between technology development and the uptake of new products and services, allowing early assessment of the socio-economic implications of new technological solutions.
	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/development-of-services-or-products/demola	DEMOLA	Demola is an international organization that facilitates co-creation projects between university students and companies, either locally or internationally. Demola provides a co-creation concept that is geared to solve real challenges.
	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/development-of-services-or-products/collaborative-business-model	COLLABORATIVE BUSINESS MODEL	Collaborative Business Model (CBM) is an open innovation design, developed by academic sector with the goal to create a collaborative network of diverse stakeholders that would serve as a source of innovation to the specific industry related issue.
	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/development-of-services-or-products/hackathon	HACKATHON	A "hackathon", (composition from "hacking" + "marathon"), is a participatory activity of short duration, where people come together to solve some particular real life problems (challenges), in a friendly and fairly competition.
1.4 QUALIFICATION AND MOTIVATION	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/qualification-and-motivation/video-tutorial	VIDEO TUTORIAL	Tutorials should be designed to make a difficult task easier by offering simple instructions for processes and steps that are potentially complicated. A tutorial should allow users to save time and energy that they would otherwise have to spend researching.
	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/qualification-and-motivation/motivational-pitch	MOTIVATIONAL VIDEO PITCH	Motivational pitch aims to persuade target group to act in line with speaker's desires. Motivational pitch is a good method to animate your clients or citizens to act in preferred direction – by starting to use some new technology or product or to change behavior (for example use public transportation, save energy, separate waste, protect environment etc.).
1.5 HORIZONTAL SUPPORTING METHODS	https://www.user-participation.eu/planning-the-process/step-5-participatory-methods/horizontal-supporting-methods	SEMI-STRUCTURED INTERVIEWS	Mining of solutions through individual discussions.

		WATCH VIDEOS/SOLUTIONS THROUGH LENSES	et opinions on developed solutions from the perspective of user, professional, organization etc..
		CONTENT-RICH DOCUMENTATION	A way to present results in a simple and attractive way.
		SPEED DATING	Fast way to get people to know each other before the workshop starts.
		CONTEXTUAL INTERVIEWS	CI give insight in the participants' daily life.
		REFLECTING ON METHODS	Used for analysis of methods used at pilot projects.
		BRAINSTORMING	Warming-up or less-structured out-of-box production of solutions/ideas – quantitative method.
2 SERVICE DESIGN TOOLS			
	http://www.servicedesigntools.org/	An open collection of communications tools used in design process that deal with complex systems. Service Design Tools is conceived as an open platform of knowledge, to be shared with the design research community and is original research by Roberta Tassi and later developed in cooperation between DensityDesign research group at INDACO Department - Politecnico di Milano and DARC - the Research& Consulting Center of Domus Academy. Tools are developed in relation to communication design and service design, through analysis of the existing service design practices and establishing the importance use of communication tools during a service design process.	Display of tools according to: ▪ design activity they are used for, ▪ the kind of representation they produce, ▪ the recipients they are addressed to, and ▪ the contents of the project they can convey.
3 SERVICE DESIGN TOOLKIT			
	http://servicedesigntoolkit.org/index.html	Service design toolkit basis on the service design method for improving the quality of service. Those innovative improvements are directed at both the users and staff of the organisation. Innovation is approached from a human-driven way of design thinking.	Service design toolkit supports: ▪ analysing the needs and requirements of users ▪ finding solutions together with users and other stakeholders ▪ Ideas develop through the use of photos, drawings and models ▪ systematic revision with the users

			▪ collaboration and co-creation of a wide range of disciplines, such as ethnography, consumer research, interaction design, product design, industrial design, service marketing and corporate strategy. Toolkit includes: ▪ downloadable workshop materials ▪ service design poster ▪ toolkit manual ▪ explanatory technique cards
4 ACTION CATALOGUE			
	http://actioncatalogue.eu/search	The Engage2020 Action Catalogue is an online decision support tool that is intended to enable researchers, policy-makers and others wanting to conduct inclusive research, to find the method that is best suited for their specific project needs.	The Action Catalogue supports: ▪ searching the methods, their functionalities, their strengths and weaknesses, what societal challenges they help to address, and examples, ▪ doesn't give final decisions but suggests possible methods ▪ 57 methods described, search 32 different criteria ▪ focus is research driven by involvement and inclusion. ▪ suitable for users with different experiences ▪ to be used as a follow up of Engage2020 Anthology eBook (introduction) ▪ the Engage2020 project was funded by European Union's Seventh Framework Programme for research, technological development and demonstration.

3.2.1.2 DIFFERENT TOOLS, METHODS AND TECHNIQUES FOR INVOLVING VARIOUS STAKEHOLDERS IN THE PARTICIPATORY PROCESS OF CO-DESIGNING AND CO-CREATING PRODUCTS AND SERVICES WITH HIGH SOCIAL AND ECONOMIC IMPACT FOR SV ENVIRONMENTS

Analysis of participatory techniques which were used in co-creation process were clustered in several higher hierarchical clusters, which show suitability of methods, tool and techniques for a particular phase of co-creation process. These clusters are:

- PROBLEM FRAMING: defining what is the problem to be solved,
- DATA COLLECTION: acquiring data,
- DATA PROCESSING: analysing and evaluating data,
- DESIGN PROCESS: applicable to all stages of co-creation process,
- IDEATION: developing, exploring and building ideas and concepts,
- PROTOTYPING: developing solutions,
- TESTING: challenging or revealing the usability or viability of products, services, processes,
- USER RESEARCH: understanding user / stakeholder,
- USER EXPERIENCE: exploring user experience,
- BUSINESS MODEL DESIGN: improving existing business models and developing new ones.

The list of selected techniques features overview of the methods / techniques/ tools, their basic application and, a brief description.

Table 3. The list of selected techniques with a brief description.

METHOD/TECHNIQUE/TOOL	APPLICATION	OBJECTIVE
FIVE WHYS	PROBLEM FRAMING	▪ helps uncover a potential root cause to any surface problem ▪ root cause analysis ▪ structured approach for repeatedly asking 'why' in order to provide deeper insight into problem ▪ iteration
CONTEXTUAL OBSERVATION	DATA COLLECTION	▪ studying people's behaviour in different environments ▪ contextual observation
CULTURAL PROBES	DATA COLLECTION	▪ divergent thinking ▪ inquiring responses about life, thoughts, values ▪ for developing subjective understanding of unknown user group
AFFINITY DIAGRAMMING	DATA PROCESSING	▪ translating research data into user needs ▪ simple and cost-effective systematic method for processing large data, mostly qualitative ▪ analysis and synthesis ▪ generated by a group of people ▪ using affinity notes, which are grouped and themed ▪ repeated clustering, abstracting the data ▪ walk the wall for idea generation
A/B TESTING	TESTING	▪ parallel testing two different versions of the same product

AUTOBIOGRAPHICAL DIARIES	USER RESEARCH	▪ recording self reported data from users ▪ record events as they occur (as oppose to interviews and questionnaires) ▪ understanding peoples daily activities, personal experiences ▪ deeper understanding of own practices ▪ self-documentation ▪ textual and visual ▪ pairing with more objective methods ▪ in initial phases of design
BODYSTORMING	USER RESEARCH	▪ thinking with your body ▪ form of brainstorming ▪ insights through physical participation and experience ▪ also in collaboration
DIRECT EXPERIENCE STORYBOARD	USER RESEARCH	▪ understanding user's needs, also environment in which they use services ▪ combination of systematic observation, direct experience, documentation, storytelling
EMPATHIC MODELLING	USER RESEARCH	▪ thinking beyond design for ideal user ▪ simulating everyday challenges ▪ developing emphatic connection
CARD SORTING	USER RESEARCH	▪ structuring product's information architecture ▪ eg website design ▪ information architecture co-design ▪ best for refining or redesigning existing concept
CARTOGRAPHIC MAPPING	USER RESEARCH	▪ capture and understand domain specific user knowledge ▪ mapping method with focus on mediating role of map making activities ▪ mutual map of daily routines, relationships, settings ▪ visualisation
CHANELL MAPPING	USER RESEARCH	▪ communication with customers, b2c ▪ interaction of companies with costumers ▪ digital or physical, shopping
HERO STORIES	STORYTELLING	▪ new ideas through speculative storytelling ▪ envisioning new products or services ▪ exploring extreme scenarios not common tasks or scenarios
INTERACTION RELABELLING	IDEATION	▪ shifting focus from functionality to interaction possibilities ▪ exploring new ideas through lateral thinking as a momentary alternative ▪ playful exploration of ideas for product or service ▪ interaction with existing objects are mapped to interactions with
BRAINWRITING 6-3-5	IDEATION	▪ building on each other's ideas ▪ overcoming group dynamic issues ▪ combining individual and collaborative ideation
FORCED ASSOCIATION	IDEATION	▪ lateral thinking techniques to overcome block in developing ideas and to stimulate new ideas ▪ shaking loose from our pattern of thinking
GROUP PASSING	IDEATION	▪ brainsketching technique ▪ group of people collaborate and produce new ideas, solutions, design concepts
HEURISTIC EVALUATION	IDEATION	▪ fast and low-cost testing solution with domain experts as oppose to longer period of testing with end users ▪ collecting feedback from experts
DECISION MATRICES	DESIGN PROCESS	▪ decision making

		▪ making informed choices ▪ creating options and evaluating them
DESIGN BY METAPHOR	DESIGN PROCESS	▪ transfer of known to unknown ▪ aiding conceptual understanding of interactions
DESIGN CRITIQUE	DESIGN PROCESS	▪ evaluating existing ideas not developing new ones
CO-DESIGN WORKSHOPS	DESIGN PROCESS	▪ users, customers, stakeholders, designers together ▪ active involvement and participation in design with not design for the people ▪ rapid critique and iteration ▪ employed at any design stage
COMPETITOR ANALYSIS	MARKET RESEARCH	▪ evaluating existing products and services against the market; gather information of existing ▪ identifying opportunities for new products/services
BUSINESS MODEL CANVAS	BUSINESS MODEL DESIGN	▪ visually designing the value a company offers ▪ template for capturing value of company ▪ business model changes are among most sustainable forms of innovation ▪
BUSINESS MODEL EXPERIMENTATION	BUSINESS MODEL DESIGN	▪ iterative exploration of ideas for business model design ▪ contrasting different scenarios
EXPERIENCE PROTOTYPING	PROTOTYPING	▪ exploring tangible qualities of solutions ▪ prototyping user experience ▪ also used for testing and exploring
EXPERIENCE SAMPLING	USER EXPERIENCE	▪ sampling people's states, emotions, thoughts in real time ▪ using smart phone, reporting emotional state in a diary, answer questions ▪ data collection on on going experiences
EXTREME CHARACTERS	USER EXPERIENCE	▪ instead of focusing on the needs of typical and conventional user we explore design solutions for extreme users ▪ encouraging divergent thinking through defamiliarisation ▪ accession to larger spectrum of human emotions and practices
FOCUS GROUPS	DESIGN PROCESS	▪ observing, listening and recording a group of people having a focused discussion on a topic thus gaining insights ▪ data collection
FUTURE WORKSHOPS	DESIGN PROCESS	▪ a complex of problem framing, ideation, action plan, prototyping, testing solutions ▪ implementation one of the fundamental methods of participatory design ▪ get together of different stakeholders who share a common interest to solving problem ▪ fostering empowerment, democracy, teamwork, collective thinking, making
INTERVIEWS	DESIGN PROCESS	▪ one of most flexible research tools ▪ asking questions, getting answers ▪ acquiring large amounts of data ▪ gathering information from experts, users, stakeholders ▪ aim is to discern background information, gauge users' opinions, collect feedback ▪ helps developing empathy with users, ▪ interview types: structured, unstructured, semi-structured

3.2.2 PRACTICES, EXPERIENCES AND LESSONS LEARNT

3.2.2.1 CASE STUDY ANALYSIS OF RELEVANT ARTICLES

In our Percipio Big Data search we used search query 'co-creation'. The search in titles and abstracts yielded 4275 documents, of which 4153 were articles, 24 patents and 71 EU projects. Co-creation has emerged as a term of research interest only after year 2000 which is clearly demonstrated by the distribution of occurrence of the term in published documents in Word history diagram.

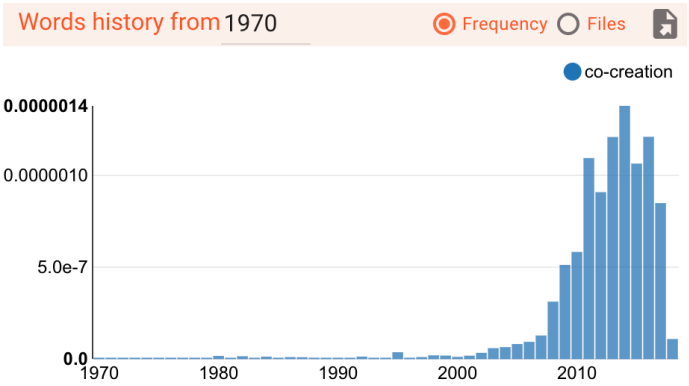

Figure 8. Word history diagram for term co-creation, created withthe help of Percipio platfom (percipio-big-data.com).

After adding 'smart' and village' keywords we found not a single document related to these terms, a fact that is also evident in the pertinent WordCloud for the knowledge space 'Smart Villages' with the absence of the term 'co-creation'.

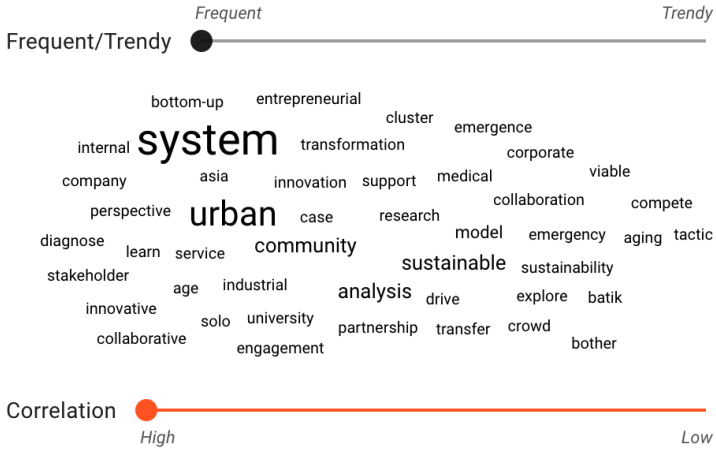

Figure 9. WordCloud for the knowledge space 'Smart Villages', taken from Percipio web application (percipio-big-data.com).

Even with pairing keywords 'participation', 'smart' and 'village' only 3 documents were obtained. In further exploration we used search query 'co-creation' and 'rural'. The search yielded 35 documents, featuring 31 articles and 3 EU projects. All the documents were screened and analysed according to the presented criteria. In the overview of 13 relevant articles, which were analysed and described, results presented in the table 4.

Table 4. The 'co-creation' and 'rural' related Case studies surveyed with brief description.

TOPIC	KEY WORDS	PROJECT	LOCATION/COUNTRY	PURPOSE	CO-CREATION PHASE / DESIGN / METHODOLOGY / APPROACH	STRENGHTS	WEAKNESES	EXAMPLE / LINK
SMART LIVING SMART PEOPLE	health care, elderly, community care	Service co-creation in community-based aged healthcare	Australia, 2 locations	Identifing and describing the themes underlying four concepts: Client orientation, Client involvement, Provider empowerment, and Client empowerment influencing service participant interaction in the formation of a service	Triadic studies in two separate locations with three discrete community-based service networks, recruited from the same aged healthcare organisation, Phenomological approach, 29 individual semi-structured in-depth interviews with managers, providers, and clients, Inductive and deductive analysis was used to identify the emerging themes and their meaning for each participant category.	▪ Key themes were identified for each concept ▪ Meaning reflect participant role differences in the service co-creation process ▪ Insights into how to engage clients in the service creation process to affect the quality of the service ▪ Aquisition of information on service design, staff selection, training, assessment	▪ Need for larger sample ▪ different Understanding of meanings by different stakeholders	Gill, L., White, L., & Cameron, I. D. 2011.
SMART ENVIRONMENT SMART PEOPLE	coping, interaction, involvement, diary, experience, tourist, narrative, storytelling	Coping and Co-creating in Tourist Experiences	Norway, three-day tour in Canary islands	How a tourist copes and co-creates experiences in various situations and with various people during a vacation What are tourist experiences in social (service provider and other consumers) and physical encounters ('servicescape')	Personal experiences A diary	▪ Host and guest are co-creating the value in experiences jointly ▪ Examples of coping and co-creation strategies and the subsequent effects on tourist evaluations		Prebensen, N. K., & Foss, L. 2011
SMART MOBILITY	rail transport, value chain, costumer orientation, critical success factors, service delivery	Value co-creation as a determinant of success in public transport services	Switzerland, SWISS FEDERAL RAILWAY COMPANY	Utilising Prahalad's five activities of co-creation (customer engagement, self-service, customer involvement, problem-solving, and co-design) to explore how value co-creation occurs in the context of a public-transport service provider	Content analysis of written communications from SBB to its stakeholders, Interviews with senior executives of SBB, Data analysis of annual reports and publications, Free hotline for customers	▪ Enriched understanding of value co-creation ▪ Firm is not merely a value facilitator, but has increasingly become a value co-creator through the five co-creation activities ▪ Organisations should take a comprehensive view of value co-creation if they are to exploit its full strategic potential ▪ Public-transport operators should facilitate the active participation of customers in	▪ A single case study with a focus on the supplier perspective	Gebauer, H., Johnson, M., & Enquist, B. 2010

						designing and implementing their processes and systems ▪ A public-transport service provider is not restricted to making value propositions, but can actively influence and assist customers in their fulfilment of value-co-creation ▪ Free hotline for customers to be involved in active dialog stimulating development of services such as d "Click & Drive", "CarSharing", "Park & Rail", "RailTaxi", "Rent a Bike", and "BikeParking"		
SMART PEOPLE SMART ECONOMY	collaborative technologies, public policy, innovation, communities, government-university-industry, collaboration, computer networks, knowledge transfer	COLLECTIVE INTELLIGENCE GENOME	US, EU	building on existing classification methodology for collective intelligence initiatives and extending it to pubic sector initiatives leveraging collaborative internet media collective intelligence as engaging broader community in co-creation of value		▪ framework offers a generally good fit ▪ framework for non profit ▪ proposal of expanding the gene pool ▪ Collective Intelligence initiatives do indeed co-create value ▪ they conform to the emerging services dominant logic concept	▪ the framework does not fully address all the factors at play	Wise, S., Paton, R.A. and Gegenhuber, T., 2012.
SMART ECONOMY SMART PEOPLE	collective intelligence, crowdsourcing, gold mining operation	GOLDCORP CHALLENGE	Canada	posted its proprietary (and until then extremely secretive) geological data on the internet where virtual gold prospectors could analyse the data and present their best estimates on where the gold is located	On-line crowdsourcing approach Analytical phase	▪ contest excited the interest of those traditionally outside the realm of gold prospecting (students, mathematicians, consultants, etc.) who applied novel approaches and collectively identified more gold deposits on the Goldcorp property than were previously known to exist ▪ the results helped developed Goldcorp as the largest gold mining operation in Canada		Brabham, 2008 Tapscott and Williams, 2006

SMART ECONOMY SMART PEOPLE	collective intelligence, crowdsourcing, contest online collaborative marketplace	INNOCENTIVE	US/UK	Online collaborative marketplace that was developed as a portal to connect independent collaborators with companies which had problems they needed to have solved	On-line crowdsourcing approach Contest Design process, Product/service design	▪ Portal for companies (Ee.g.Proctor and Gamble) to Connect to a range of individuals who collectively contribute to create a solution to the problem they post for a monetary reward ▪ By linking a broad range of experts, more effective solutions are developed	▪ Crowd present solutions but management decides who gets the reward	Travis, 2008 https://www.innocentive.com/
SMART ECONOMY	crowd	VenCorp		An industry changing venture capital fund, allows entrepreneurs (any entrepreneur) to post their nascent ventures on the platform and allows the community at large to analye, value and decide on which ventures deserve to be funded	on-line crowdsourcing approach ideation design process product/service design	▪ engaging entrepreneurs, external experts and potential customers to select prospective ▪ Crowd creates, crowd decides		Wise, S., Paton, R.A. and Gegenhuber, T., 2012
SMART ECONOMY SMART PEOPLE	crowdsourcing, voting, economic meltdown, re-building economy	YOUR COUNTRY YOUR CALL	Ireland	Initiative launched after the severe economic meltdown it suffered in 2008/2009 in an attempt to develop new ideas on which to re-build and expand the Irish economy	on-line crowdsourcing voting	▪ individuals to contribute their ideas on how Ireland can rebuild its economy, then allows individuals to vote and contribute what initiative they believe is best ▪ initiative deemed best by the government is actively adopted		yourcountryyourcall.com
SMART ENVIRONMENT SMART LIVING	environmental virtual observatories, knowledge co-creation, community empowerment	ENVIRONMENTAL VIRTUAL OBSERVATORIES (EVOs):	Netherlands, UK	Prospects for knowledge co-creation and resilience Participatory design of EVOs can mediate livelihood improvement and community empowerment. Technology is creating opportunities for knowledge co-creation and resilience.	knowledge co-creation	▪ First generation EVOs were designed for scientific audiences. Second generation EVOs have broader environmental governance implications. ▪ EVOs are open and decentralised, thus democratising flow and ownership of information between multiple actors	▪ Measurement errors (biases, equipment failures) ▪ Unverified content ▪ Errors from interpolation and rescaling of measurements ▪ Simplification of known processes	Karpouzoglou, T.et al. 2016
SMART GOVERNANCE SMART ECONOMY	Participatory budgeting	CO-CREATION OF GOVERNMENT BUDGETING	Germany	Portal which allows citizens of Freiburg, Germany to comment on the government budget which is outlined and to generate the budget as they think it should be	crowd co-creation	▪ dual role of the crowd: 1) determination of most important issues for the budget to address, which are clustered into segments ▪ 2) assignement of values of spenditure on every segment.		https://www.freiburg.de/pb/,Lde/1041335.html

						▪ Provision of insights to the government about how the budget should be structured		https://mitmachen.freiburg.de/stadtfreiburg/de/home
SMART ENVIRONMENT SMART ECONOMY SMART PEOPLE	rural tourism, tourist experience, attitudes, wind farms, renewable energies	WIND FARMS AND RURAL TOURISM EXPERIENCE	Portugal	Wind energy as a relevant alternative and renewable energy source is exploited in rural areas, and potentially competing for land and resources with rural tourism. Promoting wind farms as "green destinations"	Multiple data sources and complementary methods of data collection and analysis Semi-structured interviews Experience co-creation	▪ Potential impacts wind farms on the tourist experience and rural tourism were explored through active participation by visitors and residents in experience co-creation. ▪ Direct effect on investment in tourism and wind energy was explored, suggesting possible managerial actions as well as the potential for integrating tourism with wind energy production ▪ Guidelines for wind farm planners were proposed, Quality and market-targeted information and interpretation development suggested, and presented ideas to include wind farms in tourist experience planning (e.g. guided tours, event creation)	▪ Not enough comparable research. ▪ Need for collection of additional quantitative data as a complement to this exploratory qualitative study. ▪ Need for diversifying stakeholders, namely tourists in diverse tourist experience contexts (as paragliding, bird-watching, agrotourism, etc.),	de Sousa, A.J.G. and Kastenholz, E., 2015
SMART ECONOMY SMART PEOPLE SMART ENVIRONMENT	creative resources, tourism strategies, experiences, creative tourism development	BOOSTING POTENTIAL CREATIVE TOURISM RESOURCES	Mali, Village Siby	Developing the conceptual framework for creative tourism, discussing the co-creation of experiences and the identification of potential resources for creative tourism development	co-creation of experiences Semi-structured in-depth interviews with stakeholders	▪ Development of tourism and creativity in a non-western, rural environment, where creative tourism experiences can emerge spontaneously. ▪ tourists are involved in participatory action at different levels depending on the depth of the engagement of the visitor, from simply attending a ceremony or festival as a member of the audience to being cultural makers themselves.	▪ Unclear risks in creative tourism development	Marques, L., 2012

3.2.2.2 EU PROJECT ANALYSIS AND DESCRIPTION

In our Percipio Big Data search we used search query 'co-creation' and after introducing the keyword 'rural' only three hits yielded. The search yielded 35 documents, featuring 31 articles and 3 EU projects. All the EU projects were screened and analysed according to the presented criteria. In the overview table 5.

COASTAL Project focuses on coastal-rural synergy to foster rural and coastal development while preserving the environment. If fosters multiactor approach.

LIPSE project claims to develop learning from Innovation in Public Sector Environments, in which citizens' inputs into public innovation processes through participation, complaints and co-creation. They were identifiing drivers and barriers to successful social innovation in the public sector.

ClimeFish Project was developed in order to help to ensure that the increase in seafood production comes in areas and for species where there is a potential for sustainable growth, given the expected developments in climate, thus contributing to robust employment and sustainable development of rural and coastal communities.

Table 5. EU project analysis and description.

TOPIC	KEY WORDS	PROJECT	LOCATION/COUNTRY	PURPOSE	CO-CREATION PHASE / DESIGN / METHODOLOGY / APPROACH	STRENGHTS	WEAKNESES	EXAMPLE / LINK
SMART ENVIRONMENT SMART PEOPLE	collabortion, coastal-rural synergy, development, preservation of environment	COASTAL	Sweden, Belgium, France, Spain, Greece and Romania	▪ formulate and evaluate business solutions and policy recommendations aimed at improving the coastal-rural synergy to foster rural and coastal development while preserving the environment	Multi-Actor Approaches System Dynamics	▪ Rural development in the EU is increasingly affected by changing market developments, decreasing population densities, urban sprawl, lack of employment, desertification and other environmental, economic and social pressures. On the other hand, coastal areas provide interesting business opportunities but are also influenced by economic activities in the hinterland. ▪ Underlying feedback structures governing the dynamics, vulnerabilities, limitations, and business opportunities of the land-sea system will be identified and analysed, taking into consideration the regulatory frameworks, stakeholder priorities and social-economic conditions at the local, regional and macro-regional scale levels ▪ Multi-Actor Labs using qualitative and quantitative tools will be set up to support the co-creation exchanges between scientific experts, stakeholders, business entrepreneurs, sector- and administrative representatives		Collaborative IAnd Sea inTegration pLatform 2018-05-01, 2022-04-30, H2020
SMART PEOPLE		LIPSE project	Holland, Belgium, Estonia, Slovak republic, Denmark, Italy, Romania, UK, Germany, Spain, France	▪ Learning from Innovation in Public Sector Environments)	citizens' inputs into public innovation processes through participation, complaints and co-creation	▪ Identifiing drivers and barriers to successful social innovation in the public sector ▪ Collecting new insights on five building blocks of social innovation in the public sector: 1. Innovation environments 2. Innovation inputs 3. Innovation tools and processes 4. Innovation outcomes, diffusion and upscaling 5. Feedback loops in innovative systems ▪ Assessing what factors contribute to the successful upscaling of ICT-driven social innovations, with a focus on teleworking (as a new way of working) and e-procurement. ▪ Developing a comprehensive set of public sector social innovation indicators and explore future trends in social innovation through scenario-mapping with academic and practitioner experts		Learning from Innovation in Public Sector Environements 2013-02-01, 2016-07-31, FP7 Co-creating a decision support framework to ensure sustainable fish production in Europe under climate change 2016-04-01, 2020-03-31, H2020

SMART ENVIRONMENT SMART ECONOMY		ClimeFish	several countries	▪ Helping to ensure that the increase in seafood production comes in areas and for species where there is a potential for sustainable growth, given the expected developments in climate, thus contributing to robust employment and sustainable development of rural and coastal communities	Identification of strategies to mitigate risk and utilize opportunities in co-creation process	▪ Forecasting models will provide production scenarios that will serve as input to socio-economic analysis where risks and opportunities are identified, and early warning methodologies are developed		Co-creating a decision support framework to ensure sustainable fish production in Europe under climate change 2016-04-01, 2020-03-31, H2020

3.2.3. SELECTION OF BEST PRACTICES (TOOLS/TECHNIQUES) FOR THE TOOLBOX

Exploration of best practices should continue and reach outside the scope of rural environment. Methods, techniques and tools the which pertain to rural communities in the context of Smart Villages projects should fulfill these criteria:

- are efficient to be used in groups or in teams,
- have interdisciplinary character allowing for various stakeholders (4C) to work together,
- can be used in real life situations (in working with communities, in various workshops, in living labs, with farmers, in innovation camps and elsewhere),
- stimulate and encourage bottom up learning (learning with community, learning from community, exploring local knowledge, practices, and experiences) as well as allowing top down knowledge transfer,
- are designed to stimulate iterative learning,
- provide qualitative and/or quantitative data with a follow up in a more in-depth scientific research,
- allow for defining reframing life problems and develop innovative solutions for new products, services and processes in rural environment and rural communities,
- are basis for accurate and precise assessment of the state of the art, reframing problems, developing solutions as well as validating them.

The methods, techniques and tools in the Smart Villages toolbox help different stakeholders in rural communities to participate in co-creation and co-design process and be empowered. These tools can:

- help define, understand and reframe the problems in the rural communities,
- help develop improved or new viable products and services which are invaluable for rural communities,
- allow through co-creation approach to bring together various stakeholders and allow for bottom up knowledge transfer as well as top down guidance and support,
- rural communities and stakeholders can act upon developed solutions,
- the process of co-creation and co-design can empower rural communities and strengthen their identities,
- help build a viable self-sufficient and independent creative and innovative rural community to develop viable innovative solutions to current problems also in the future.

4. CONCLUSION

Co-creation process is a participatory approach which has been dominantly adopted in the past in academia and industry in supplier–customer collaboration processes that are iterative for realising evolving customer needs. However, lately, the process was utilised in a wider spectrum of uses and collaborative, co-creative and co-design applications. Explored studies have mainly concentrated on issues in urban environments and customer/supplier co-creation.

The aim of screening documents and EU projects and their analysis was to investigate the concept of co-creation in the context of Smart Villages and to identify the research gap, showing, that not much academic interest was yet expressed in this field of interest. The large research gap currently in the filed bases on the discovery, that there are zero hits in a specialised data search of documents and EU projects for combination of 'co-creation' and 'Smart Village' keywords and even in searching for 'co-creation' or 'participation' in combination with 'rural', less than 40 hits were obtained. Due to this research gap, there is still a wide range of definitions, explanations and proposed approaches to co-creation process. In addition, also the selection of techniques is still under scrutiny as well as true transferability of the experiences from case studies with different social, cultural and environmental contexts. However, at least on onging H2020 project will explore these issues and ambiguities into more detail and on a larger European scale.

We suggest to adapted of Co- creation approach, which is based on the general USER PARTICIPATION procedure in which the focus is shifted towards rural social, cultural and environmental specificity, which we call SV focus shift.

Table 6. Steps in user's participation procedure with proposed SV focus shift.

STEPS	DESCRIPTION	SV FOCUS SHIFT
1. DEFINING A PROBLEM & OBJECTIVES	defining a challenge and objectives of the process reviewing definition of the problem or objectives after first interaction with target groups to make it clearer	When defining the problem, SV related challenges should be taken into consideration and these which are topic specific, namely economy, environment and agriculture, tourism, living and working in rural areas, mobility, health service but also low level of digital literacy in comparison to urban areas etc.
2. BUILDING RELATIONSHIPS	revisited for subsequent events continuous and ongoing process combinations of ICT tools and steps to be taken for reaching out and starting the first interactions with the target group	Rural communities have usually stronger social and cultural interactions as, with high level of identity, often very closed and traditional. Particular care should be taken in establishing and continuing the relationships with stakeholders. In order to improve digital competences and efficient use of ICT tools, more care should be given to improving these competences and utilise social and cultural context adapted approaches to building these relationships.

3. INVITATIONS	Describing combinations of ICT tools for sharing and signing up to invitations of your interactive event	Exploring existing communication routes and combining with ICT tools while also support growth of digital literacy, particularly for elderly.
4. STARTING INTERACTIONS	Engage stakeholders before the event by interacting with them Giving them opportunities to give input leading up to the event	Engagement is related to number 2., 3. and 4. First interactions should be linked to already existing patterns of communication and socialisation. In finetuning the problem and preparing for the co-creative events people should be given enough time to getting accustomed to new approaches.
5. DOCUMENTATION	Different ways of preparing and carrying out the documentation at the event using existing technology and ICT tools	In addition to existing technology and ICT tools, improving digital literacy is of utmost importance.
6. REMOTE AUDIENCE	Steps to be taken before, during and after To set up for a remote audience during the event	These steps should be taken together with the community.
7. FOLLOW UP	Tools and checklist for getting back to participants following the event	Co-operation should be continuous and sustainable.
8. CONTINUED INTERATIONS	System for curating prolonged interaction of the participants from the event based on level of engagement	It is important to establish such co-creative process that it will simulate new projects, initiative and local engagement.

Methods, techniques and tools which pertain to rural communities in the context of Smart Villages projects should fulfill these criteria:

- are efficient to be used in groups or in teams,
- have interdisciplinary character allowing for various stakeholders (4C) to work together,
- can be used in real life situations (in working with communities, in various workshops, in living labs, with farmers, in innovation camps and elsewhere),
- stimulate and encourage bottom up learning (learning with community, learning from community, exploring local knowledge, practices, and experiences) as well as allowing top down knowledge transfer,
- are designed to stimulate iterative learning,
- provide qualitative and/or quantitative data with a follow up in a more in-depth scientific research,
- allow for defining reframing life problems and develop innovative solutions for new products, services and processes in rural environment and rural communities,
- are basis for accurate and precise assessment of the state of the art, reframing problems, developing solutions as well as validating them.

The methods, techniques and tools in the Smart Villages toolbox help different stakeholders in rural communities to participate in co-creation and co-design process and be empowered. These tools can:

- help define, understand and reframe the problems in the rural communities,
- help develop improved or new viable products and services which are invaluable for rural communities,
- allow through co-creation approach to bring together various stakeholders and allow for bottom up knowledge transfer as well as top down guidence and support,
- rural communities and stakeholders can act upon developed solutions,
- the process of co-creation and co-design can empower rural communities and strengthen their identities,
- help build a viable self-sufficient and independent creative and innovative rural community to develop viable innovative solutions to current problems also in the future.

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