Be.CULTOUR
Beyond cultural tourism

Be.CULTOUR:

"Beyond CULtural TOURism: human-centred innovations for sustainable and circular cultural tourism"

HORIZON 2020
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Deliverable D3.2 – Protocol/Methodology for human-centred innovation in sustainable and circular cultural tourism (Part 2)

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Abstract

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This Protocol/Methodology V.2 provides thus methodological guidance and support to the project partners and community members, including local stakeholders and innovators, throughout the different stages of the human-centred and circular innovation process, enabling communities to develop useful innovations towards wellbeing, prosperity and health "for all", adopting co-creation approaches. The human-centred approach ensures that innovations are suited to real needs of people and communities, and contribute to enhance human capital and human rights, while the circular economy perspective places the person and the business activity in the eco-sphere, enlarging the point of view from particular needs and desires to the "common good", towards the health of ecosystems and future generations.

Thus, the Protocol/Methodology of Be.CULTOUR (V.1 and V.2) aims to become a working guide for human-centred innovation in sustainable and circular cultural tourism, exploiting the co-creation potential of Heritage Innovation Networks for the valorisation and regeneration of cultural heritage as driver of sustainable growth in cities and regions.
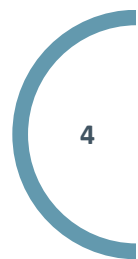
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Partners involved in the document

Participant No	Participant organisation name	Short Name	Check if involved
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4	Iniziativa Cube S.r.l.	INI	
5	Uppsala University	UU	
6	Haute Ecole ICHEC - ECAM - ISFSC	ICHEC	X
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15	Verde e Moldova	VEM	

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1. Description of the Project

Be.CULTOUR stands for "Beyond CULtural TOURism: heritage innovation networks as drivers of Europeanisation towards a human-centred and circular tourism economy". It expresses the goal to move beyond tourism through a longer-term *human-centred* development perspective, enhancing cultural heritage and landscape values.

Cultural tourism entails opportunities but also risks. Tourism as a whole can be a highly volatile economic sector. If not managed properly, cultural tourism can also easily turn into a "value extractive" industry, generating negative environmental, social and cultural impacts on local communities and ecosystems. This project will develop specific strategies to promote an understanding of cultural tourism, which moves away from a "stop-and-go" consumer-oriented approach towards one that puts humans and circular economy models at its centre, paying attention to nature, communities and cultural diversity. "Place", intended as the *genius loci*, the ancient spirit of the site expressing its "intrinsic value" and "people" as co-creators of its uniqueness, culture, art, tradition, folklore, productivity, spirituality, as well as its "time space routine", are the focus of Be.CULTOUR, which aims at realizing a longer-term development project for the pilot areas involved.

The overarching goal of Be.CULTOUR is to co-create and test sustainable human-centred innovations for circular cultural tourism through collaborative innovation networks/methodologies and improved investments strategies. Targeting deprived remote, peripheral or deindustrialized areas and cultural landscapes as well as over-exploited areas, local Heritage innovation networks will co-develop a long-term heritage-led development project in the areas involved enhancing inclusive economic growth, communities' wellbeing and resilience, nature regeneration as well as effective cooperation at cross-border, regional and local level.

Wide and diversified partnerships of stakeholders from 18 EU and non-EU regions of Northern-Central and Southern Europe, the Balkans, the Eastern neighbourhood and the Mediterranean will be the driving force of the project. A community of 300 innovators (which includes regional authorities and municipalities, clusters and associations, museums and tourist boards, entrepreneurs, chambers of commerce, citizens, researchers, practitioners as well as project partners) in 6 pilot regions will co-create innovative place-based solutions for human-centred development through *sustainable* and *circular* cultural tourism.

Collaborative "Heritage innovation networks" will be established in 6 European deprived remote, peripheral and deindustrialised areas and cultural landscapes identified as "pilot innovation ecosystems": committed to the project's objectives, they have defined clear cultural tourism-

related challenges requiring innovation that will serve as the basis for the collaboration with the 16 additional "mirror innovation ecosystems". Mutual learning and up-scaling of business solutions will be the objectives of the collaboration between pilot and mirror ecosystems, building the sustainability of the project's results beyond its lifetime.

By adopting a human-centred quadruple/quintuple helix approach to co-design, Be.CULTOUR will result in 6 community-led Action Plans, 18 innovative human-centred solutions and 6 close-to-market prototypes of new cultural tourism integrated services and products: these will directly contribute to inclusive economic growth, communities' wellbeing and resilience, and nature regeneration in pilot and mirror regions, stimulating effective cooperation at a cross-border, regional and local level. The core partners of the Consortium will progressively build Be.CULTOUR sustainability by broadening the interregional collaboration while anchoring it to relevant EU initiatives in the academic, business and institutional realms.

1.1 Be.CULTOUR specific objectives

The scopes of the Be.CULTOUR project will be achieved through a set of specific, measurable, achievable, realistic and time-constrained (SMART) specific objectives:

Objective 1 – To assess the impacts and market potential of sustainable and circular cultural tourism at national, regional and local level through multidimensional quantitative and qualitative indicators, innovative statistical methods and advanced smart data management systems;

Objective 2 – To build a Community of Practice of 6 pilot regional ecosystems and a Community of Interest with 16 "mirror ecosystems" in EU and non-EU countries actively engaged in knowledge-sharing and exploitation of Be.CULTOUR's approach, methodology, tools, and innovative solutions for sustainable and circular cultural tourism;

Objective 3 – To co-develop 6 Action Plans for sustainable and circular cultural tourism by establishing collaborative "Heritage innovation networks" in 6 pilot regions in Northern-Central and Southern Europe, the Balkans, the Eastern neighbourhood and the Mediterranean;

Objective 4 – To co-develop, prototype and test human-centred and place-specific product, process and service innovations for sustainable and circular cultural tourism in pilot heritage sites;

Objective 5 – To provide policy recommendations for more effective use of European Structural Investment Funds (ESIFs) and other EU funds to support cultural tourism innovation ecosystems in pilot and mirror regions, and develop a proposal of evolution of ESIFs through synergies with other public funds;

Objective 6 – To contribute to deepen cultural Europeanisation through information and educational activities focused on the European history, identity and culture expressed in tangible and intangible cultural heritage and cultural landscapes, developing European Cultural Routes and European Heritage Labels in pilot heritage sites.

All partners have wide experience in developing and testing the Be.CULTOUR proposed approach, methodology and tools, ensuring the effective and time-constrained achievement of all the above-mentioned specific goals.

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2. Introduction

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Be.CULTOUR research and innovation activities are structured into five technical work packages (WPs) as follows:

WP1 - Innovative statistical methods, tools and indicators for sustainable cultural tourism impacts assessment;

WP2 - Creation of synergies and efficient use of ESIFs and other EU funds for neighbouring regions for sustainable cultural tourism;

WP3 - Co-creation of human-centred innovations and Action Plans for sustainable cultural tourism;

WP4 - Building Be.CULTOUR Community of Interest in European and neighbouring regions;

WP5 - Exploitation of Be.CULTOUR innovative solutions, dissemination and communication.

WP1 and WP2 are meant to support the activities of co-development and implementation of the Action Plans and innovative solutions for circular cultural tourism in pilot heritage sites, providing data, insights, indicators and knowledge to inform the decision-making processes. WP3 develops Action Plans and concept solutions through a series of co-creation workshops, which are fully detailed in Deliverables D3.5 – "Action Plans and concept solutions for sustainable cultural tourism in pilot heritage sites". WP4 aims to build an international knowledge exchange community testing the replicability and transferability of the project methodology, while WP5 is focused on exploitation and validation of innovative solutions in the pilot heritage sites, as well as on the dissemination and cooperation with other related projects and initiatives.

This document, in particular, presents a detailed description of human-centred design tools, focusing on the evolution of human-centred design, starting from the niche field in which it was born, concerning the interaction between man and technological interfaces, passing through studies that have progressively focused on the influence of the meaning attributed by people to the world around them in the interactions between them and between them and the environment, up to the current trends that seek to investigate not only expressed needs, but also and above all unexpressed ones . It is clear that the complexity of such studies requires the integration of various disciplines that transcend the dimension of design and pertain to the domains of sociology, psychology and anthropology in order to understand real needs starting from the behaviour and feedback that users give with respect to certain stimuli.

For this reason, when we speak of innovation, we increasingly refer to an entire process, rather than to the individual product, since even product innovation does not only concern the final output but involves the entire system of relations connected to it. Therefore, current innovation challenges concern the design of the entire value and production chain, starting with the organisational system and ending with the business model.

2.1 Document structure

The document is structured as follows:

Section 1 presented the framework of the project, specifying the objectives, key concepts and approaches;

Section 2 introduces the objectives of the Be.CULTOUR Protocol/Methodology, specifying the contents of the first and second release;

Section 3 presents the overall methodology of human-centred and circular design adopted in the Be.CULTOUR project, describing the approaches and tools in supporting the activation of Heritage Innovation Networks according to the Innovation Areas identified, and it further provides the

base "map" for specific innovative solutions co-developed through the Call for Innovators, the Hackathon activity and the Be.CULTOUR Accelerator programme. Starting from this basis, the methodology proposed aims to operationalise human-centred design in the circular economy perspective. Starting from the definition and analysis of the main research fields, the methodology adopted integrates the inclusive, participatory and relational dimension of the human-centred approach with the systemic, adaptive and dynamic dimension of the circular economy. The definition of the methodological framework aims to support the development and the evolution of innovative solutions, from the concept elaboration to the product/service test and validation in real context. The Section includes a specific focus on the Call for Innovators, the Hackathon activity and the Be.CULTOUR Accelerator programme, describing the adopted methods and the implemented tools to operationalise the Human-Centred Circular Design through testing and implementing the proposed innovative solutions for circular cultural tourism in Pilot Heritage Sites;

Finally, Section 4 outlines first conclusions and next steps for the development of a enhanced European model of heritage-led, sustainable and circular cultural tourism.

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3. From idea to product: human-centred and circular design

Be.CULTOUR will achieve its objectives through a set of coordinated actions built around a structured human-centred design innovation process, involving pilot and mirror innovation ecosystems.

As described in Protocol/Methodology V.1, the project follows four main steps, reflecting the general articulation of the design process:

1. Exploration phase (M1-12);

2. Action Plans and Concepts co-design phase (M13-18);

3. Co-development phase (M19-20);

4. Deployment phase (M21-36).
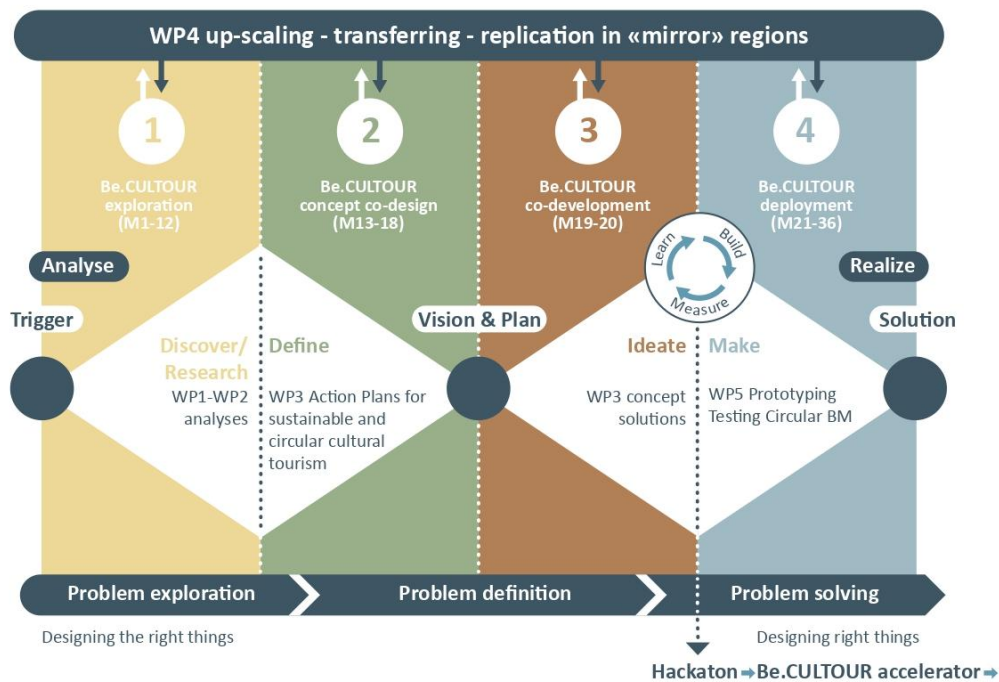
Figure 1 – Be.CULTOUR project overall methodology

Furthermore, the methodology of Be.CULTOUR project will be up-scaled, transferred and replicated throughout the Community of Interest, which includes the "pilot" and "mirror" innovation ecosystems, to test the approaches and tools proposed in diverse contexts, providing

a Learning Lab for the stakeholders involved in all EU and non-EU regions (see D4.3 – Be.CULTOUR peer-learning guidebook).

The following sections describe in detail the human-centred and circular design approaches, methodology and tools adopted in Be.CULTOUR project, with the aim of providing a theoretical basis and useful guidelines for the implementation within and outside the project boundaries.

3.1 Human-centred and circular design approaches, theory and tools

In the Be.CULTOUR project, the human-centred approach takes on particular relevance in relation to human needs, capacities and rights, towards the 'humanization challenge' as stated in the New Urban Agenda 2030 (United Nations 2017). Human-centred cities and settlements aim to fulfil the needs and rights of people, including not only present but also future generations. These needs and rights are strictly related to the conservation and regeneration of cultural and natural resources, ensuring that cities are safe, sustainable, resilient and inclusive (see: UN Sustainable Development Goals, n.11). This implies the capacity to think beyond the particular interest, towards the 'common good' in a inter-generational perspective. At the base of the search for sustainable development models that ensure the rights of present and future generations there is the recognition that the current 'linear' development model based on 'take-make-dispose', depleting natural resources at the grounds of life on Earth, cannot be sustained over long time. Thus, the 'humanisation challenge' today needs to be grounded on a ecological perspective, in which the man and communities are considered as integral part of the ecosystem in which they are included. A dynamic relational approach is needed, which puts in harmonic relation human processes with ecological processes. The circular economy, indeed, represents a innovation of the economic system (production-consumption models) which considers human development needs within the preservation of natural resources for present and future generations, 'decoupling growth from resources consumption' (Ellen MacArtur Foundation, 2015a, 2015b). Thus, interpreting the goals of 'humanisation' from the perspective of the circular economy implies the adoption of a complex systemic approach including "all" needs, focusing on relationships and interdependencies between people, communities, places and ecosystems / environment (Fusco Girard 2021). This perspective allows the identification of possible development scenarios that are adaptive to the needs of people in a given space and time, analysing reality as the result of *evolutionary* dynamics that are constantly changing over time (Fusco Girard 2019; 2021).

The evolution of human-centred design tools aims to create a knowledge base on which to build and to be enriched through the circular economy perspective. Since long, the human-centred design aims to avoid the adoption of a sectoral approach, focused only on product/service characteristics and performance, which risks to reduce the ideation of possible solutions to an exclusively technological effort incapable of satisfying a demand linked to 'real' needs. The risk of 'creating needs' rather than satisfying the fundamental needs of the human being, in a dynamic and evolutionary perspective, is addressed by human-centred design approaches, focusing on techniques and tools able to investigating questions – i.e. to find out the 'fundamental questions' to be satisfied, going beyond idealistic standardisation of the human being and experimenting through interaction with 'real' people. In this sense, the analysis tools proposed, while focusing on 'users', consider not only their demographic characteristics, but the deeper, sometimes unexpressed aspects concerning their perceptions and the motivations behind their choices and behaviours – what is 'valued' by people.

Moreover, the project approach assumes the circular paradigm, which means activating a 'solution' design process in which economic, ecological and social-cultural values coexist, moving towards a much more complex and richer conception of 'value' (Fusco Girard and Gravagnuolo 2017). The "Complex Social Value" as defined by Fusco Girard and Nijkamp (Fusco Girard and Nijkamp 1997) can become the driver to elaborate development scenarios no longer based exclusively on economic profit in the short-term, but capable of operationalize the principles of the human development paradigm linked with the ecological paradigm. The shift from a purely utilitarian notion of value to a 'multidimensional', complex notion of value can be realised by the circular economy model (Fusco Girard and Gravagnuolo 2017), becoming fundamental for the achievement of the Sustainable Development Goals (SDGs) (United Nations 2015) and for the implementation of European strategies to face the current challenges of climate change, poverty and resources depletion (European Commission 2021; 2019; Ellen MacArthur Foundation 2015a; European Commission 2014; 2015). At the EU level, the circular economy offers the potential to improve competitiveness, producing benefits for society as a whole both in terms of economic development and job creation (Morgan and Mitchell 2015) and reduced consumption of ecological resources (Ellen MacArthur Foundation 2015b).

As highlighted by European research (see: Horizon 2020 CLIC project[1]), the circular economy implies the 'reuse' and regeneration of all resources, tangible and intangible, including cultural, social and human capital. The 'reuse' of abandoned and underused cultural heritage, the

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[1] Horizon 2020 CLIC project https://www.clicproject.eu/

regeneration of immaterial values such as trust, cooperation and identity, the recognition and re-interpretation of intangible cultural heritage, can be considered as integral part of a 'human-centred' circular economy model (Fusco Girard, 2020).

Thus, adopting the human-centred approach in the perspective of the circular economy means also incorporating in the design process the set of values (tangible and intangible) that contribute to the enhancement of people and community wellbeing in multiple dimensions and beyond present generations, involving stakeholders directly in the co-creation of services and products, in order to strengthen their sense of belonging and the feeling of identity thanks to which users/consumers become 'actors', and spaces become 'places' (Fusco Girard 2020).

Human-centred design (HCD) has its roots in fields such as ergonomics, computer science and artificial intelligence. The development of human-centred design began with the first formal methods which placed humans at the centre of the design process in order to increase the efficiency of industrial production and laid the foundation for the emergence of ergonomics and human factors disciplines (IEA International Ergonomics Association, 2006). In particular, these methods assessed the appropriateness of the physical response of products with respect to measurable characteristics of people, outlining a scenario of possible human behaviour but giving no indication of its use (Kanis 1998).

The international standard ISO 9241-210 'Ergonomics of human-centred system interaction' (ISO 9241-210 2010) describes human-centred design as an 'approach to system design and development that aims to make interactive systems more usable by focusing on system use and applying human factors/ergonomics and usability knowledge and techniques' (ISO 9241-210 2010, 2). The ISO itself sets out six characteristics:

- the adoption of multidisciplinary skills and perspectives,

- explicit understanding of users, tasks and environments,

- User-centred evaluation/guided design,

- Consideration of the entire user experience,

- User involvement during design and development,

- Iterative process.

Considering this last point, Dreyfuss (1959) emphasised the importance of user or usability evaluations, in line with the general principle of iterative design, shifting the focus of HCD from an emphasis on product features to a focus on the complex interaction between people and products. Suchman (Suchman 2006, 177) was the first in declaring that interactions between people and products are governed by situatedness, i.e. by a specific condition determined by the

context in which the subject is acting and which emerges in an ever-changing way each time there is an interaction between people and between them and the environments in which they act. Therefore, from his point of view, the extemporaneity of this process determines its unpredictability with respect to fixed cognitive plans and schemes and preconceived notions pertaining to institutionalised social norms, placing itself rather as a communication and learning process subject to continuous evolution and change. This was a fundamental change in HCD.

On the basis of this awareness, many studies have focused on the need to apply creative processes in the identification of subjects and contexts of use (Maguire 2001), developing contextual design techniques (H.-G. Beyer and Sendhoff 2007; Holtzblatt, Wendell, and Wood 2005), testing field prototypes and ethnographic methods borrowed from the fields of anthropology and sociology capable of also considering emotional involvement (Chapman 2015; Cohan and Allen 2007; Hill 2010; Jordan 2002; Kamvar and Harris 2009; Verganti and Norman. 2012; Keltner, Oatley, and Jenkins 2013) as a determining factor in a design process. The development of these methods was caused by the gap identified by some authors between the user-focused research field and design practice (Wixon 2003; Norman 2010). In order to bridge this gap, three principles were pursued and applied in HCD: In the first principle, designers ask users to provide feedback on drafts made by them to describe how they expect users to interact with a proposed solution. This includes methods such as scenario-based design (Rosson and Carroll 2002; M. Van Der Bijl-Brouwer and Van Der Voort 2013), use cases and personas (Cooper 1999) and customer journey mapping. The second and third principles aim to 'merge' the worlds of the designer and the user, on the one hand by inviting users into the designer's world through participatory design methods (Ehn and Sjögren 2020; Schuler and Namioka 2017), on the other hand by inviting designers into the world of the user through techniques that stimulate empathy, such as role-playing, storytelling and prototype experiences (Buchenau and Suri 2000; Erickson 1996; Kouprie and Visser 2009; Simsarian 2003). With respect to the three stated principles, there are some hybrid forms of collaboration and design, for example, the approaches of design anthropology, in which designers and users collaborate to enact future scenarios through performance (Halse 2008). Well-known techniques for bringing the user into the designers' world are generative tools in which users are asked to express their ideas and dreams (Sanders and Stappers 2008). Methods for bringing the designer into the emotional world of the user are, for example, choreographic techniques that help designers experience and design the aesthetic qualities of tangible interaction (e.g. Buur, Jensen, and Djajadiningrat 2004).

Krippendorff (Krippendorff 2004, 48) emphasised the role of the 'meaning' that a product, system or service should offer to people, specifying that it is not a predetermined datum (by producers, designers or other cultural authorities) but is the result of human interaction with such a product/system/service and the perception that users have during fruition, i.e. the meaning they attribute to it. For this reason, according to Krippendorff, since meanings vary according to users, the major concern of human-centred design is not so much to ensure that artefacts function as intended as to allow diversity of meaning (corresponding to different individual or cultural conceptions) to develop in uninterrupted interfaces with technology.

Taking this point of view, other authors (Mieke van der Bijl-Brouwer and Dorst 2017) state that human-centred design is a pragmatic and applied approach to identify 'ideological opportunities' and to realise 'cultural design' (Holt and Cameron 2011).

Gradually, HCD shifted from a focus on the physical and cognitive characteristics of users to a focus on emotional needs (Overbeeke and Hekkert 1999) and pleasurable experiences (Jordan, 1999). Considering this field, Desmet and Hekkert (2009) identified three types of approaches to design research: 1) methods that measure how product characteristics influence emotions (P. Desmet 2003; Nagamachi 1995) based on controlled experiments, 2) emotional design research methods that aim to collect richer and more contextualised data (Gaver, Dunne, and Pacenti 1999); 3) methods that aim to bring the worlds of the user and designer closer together through deeper knowledge, i.e. on "deep customer insights" and "deep user-centred understanding" (Bucolo, Wrigley, and Matthews 2012; Martin 2009; Verganti 2008).

These methods introduce an innovation in the traditionally use of data in HCD because, by investigating deeper needs and aspirations, they consider human needs beyond usability. This has led to a greater focus on users, pushing considerations of aspects transcending their own actions, rather than investigating the designer's personal creative process or the physical and technological details of the artefact. This shift has involved the use of techniques that establish and express a relationship with the people involved, leading to an understanding of their needs, desires and experiences.

This trend emerged also in some European projects, as S+T+ARTS[2] and Artsformation[3], in which art is interpreted as a driver of cross-fertilisation with local communities and organisations, institutions and businesses to catalyse innovation and to support Europe in addressing current social, ecological and economic challenges. The creativity and critical spirit that characterise
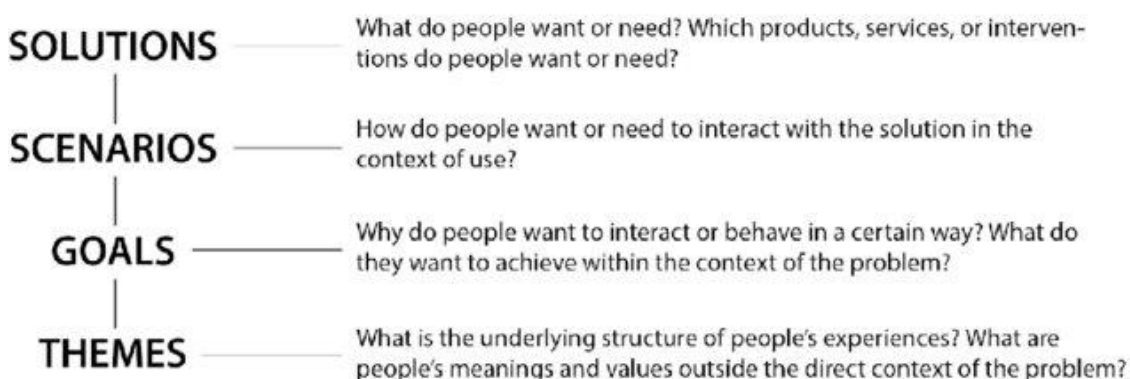
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[2] https://starts.eu
[3] https://artsformation.eu/

artistic practices are interpreted as fundamental elements to stimulate the advancement of science and technology for research and business, through a holistic and human-centred approach.

The concrete introduction of the arts into business strategies and entrepreneurial contexts through Art Thinking methodologies (Cacciatore and Panozzo 2021) is demonstrating the strong innovative potential in companies or local supply chains, in terms of both process and product, capable of orienting SMEs towards new ways of acting but above all capable of fostering the reintegration of man in nature, reinterpreting places for sustainable tourism through analogue and digital means and enhancing local resources and biodiversity.

A recent study by van der Bijl-Brouwer (2017) proposes a four-level model of human needs and aspirations to be applied in a design and innovation process (using the acronym 'NADI') (Dorst 2011), focusing on why a model contributes to design and innovation and focusing on human aspirations (meaning long-term needs), beyond the well-known Maslow's hierarchy of needs[4].

The following figure shows four levels of needs and aspirations (solutions, scenarios, goals and themes) identified as a result of the analysis of the different types of needs and aspirations produced by the different HCD methods.

SOLUTIONS — What do people want or need? Which products, services, or interventions do people want or need?

SCENARIOS — How do people want or need to interact with the solution in the context of use?

GOALS — Why do people want to interact or behave in a certain way? What do they want to achieve within the context of the problem?

THEMES — What is the underlying structure of people's experiences? What are people's meanings and values outside the direct context of the problem?

Figure 2 – The NADI model proposed by Mieke van der Bijl-Brouwer (2017)

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The 'solutions' level is the most concrete level and concerns the characteristics desired by users with respect to the products and services they need or want. The next, but not consequential, level is the 'scenario' level, i.e. the way in which a given context of use influences describes the

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[4] Maslow's hierarchy of needs is a theory of motivation which states that five categories of human needs dictate an individual's behavior. Those needs are physiological needs, safety needs, love and belonging needs, esteem needs, and self-actualization needs. See Maslow, 1943.

way in which people interact with products or services. "Goals" and "Themes" describe why people want or need certain solutions and scenarios: goals are necessarily linked to a specific design problem, whereas themes can also be analysed outside a specific context. The difference of this model from Maslow's hierarchy of needs (Maslow 1943) lies in the fact that lower-level needs contribute to higher-level needs and all levels are connected by the purpose of the investigation, whereas in Maslow the satisfaction of higher-level needs depends on the satisfaction of lower-level needs.

This method has in common with the 'levels of description' (product, interaction and context) (Hekkert and van Dijk, 2011) and Sinek's (2009) 'golden circles' that the lower degree levels (describing a product or service) are connected to the higher degree levels by the set of values and meanings (why something exists). The intermediate levels between these two types of levels represent the ways in which the goal can be achieved through what exists.

Human Data and Models	Capture of Needs, Desires and Meanings	Simulation of Possible Futures
– Anthropometric data sets and models – Biomechanical data sets and models – Psychophysical data sets and models – Cognitive data sets and models – Emotional data sets and models – Psychological data sets and models – Sociological data sets and models – Philosophical data sets and models	Verbally based – Ethnographic interviews – Questionnaires – Day-in-the-life analysis – Activity analysis – Cognitive task analysis – The five whys – Conceptual landscape – Word-concept association – Think aloud analysis – Metaphor elicitation – Be your customer – Customer journey – Extreme users – Personas – Scenarios – Brainstorming – Contextual inquiry Non-verbally based – Game playing – Cultural probes – Visual journals – Error analysis – Fly-on-the-wall observation – Customer shadowing – Body language analysis – Facial coding analysis – Physiological measures – Electroencephalograms	– Focus groups – Lead user design – Co-design – Storyboard futures – Experience prototypes – Para-functional prototypes – Role playing – Real fictions

Figure 3 – Classification of the most deployed human-centred tools identified by Giacomin (2014)
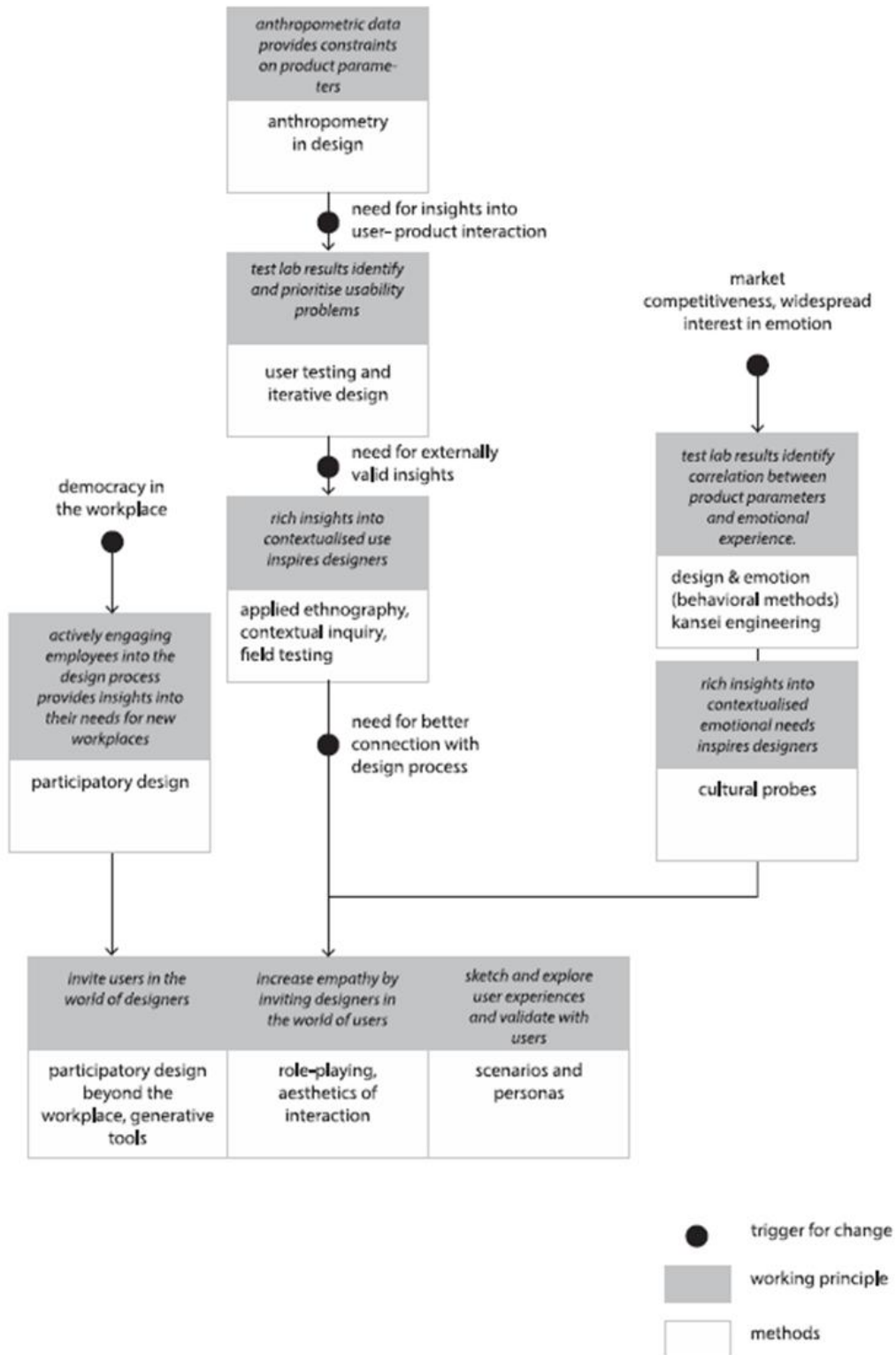
Figure 4 – A rational reconstruction of the evolution of human-centred design working principles and methods proposed by Mieke van der Bijl-Brouwer (2017)

The following boxes summarize application examples of some methods mentioned in the Figure 3 and Figure 4, which can be used within co-creation processes, both at strategic level (e.g. Action Plans) and solutions development (product/service development).

HUMAN DATA AND MODELS
Anthropometric data sets and models
The study of (Drinkwater, Pyne, and Mckenna 2008) presents the use of anthropometric design methods in sport, particularly in basketball, in order to calibrate training or player selection programmes based on changes in athletes' characteristics over time. In this case, the identification of typical (or 'reference') values, such as fitness and body size in basketball players, provides a more meaningful interpretation of on-field fitness test results for coaches and athletes and allows the identification of practical methods for interpreting changes both in individual players and between different players.
Psychophysical data sets and models
Some studies (Scilingo et al. 2003; Hale and Stanney 2004) highlight the usefulness of psychophysical design methods in interaction display design in improving human perception and performance. Such methods are particularly beneficial when there is a need to simultaneously reason about aspects of both the physical interaction between users and space and the understanding of their sensory, perceptual and cognitive capabilities and limitations. This approach has been of great support to developers of multimodal interactive systems and is still widely used today.
Philosophical data sets and models
Some authors have emphasised the contribution of philosophical data sets and models as the basis for the creative thinking that characterises a design process and which contrasts with the rigidity of standardised forms, materials and processes. Following this perspective, for some, design would take on the role of a language that, as such, provides the basic units of meaning (Butler 2002; Foucault 2010). This view in philosophical analysis takes on a pragmatic character with respect to "thought processing" (Heim 1993) and "instrumental realism" (Ihde 1991; 1998), to identify what Holt and Cameron (2010) call "ideological opportunities" and to realise what they call "cultural design".

NEEDS, DESIRES AND MEANINGS
Ethnographic interviews
Ethnographic interviews are among the most frequently used methods of enquiry when an in-depth description of a complex topic is sought, as they allow the motivations behind certain statements to be clarified, enriching the interview results with nuances and information that quantitative methods fail to detect. Although some authors (Agar and Hobbs 1982) point out limitations to such methods (e.g. inadequacy of the ethnographers in making the pattern as fashionable as possible, the risk that personal and cultural factors may influence the interpretation of statements, etc.), others emphasised the relevance of these methods for the promotion of openness towards culture learning (Bateman 2002) especially considering their close relationship and integrability with other relevant topics such as participant observation, qualitative interviews, focus groups and visual data analysis and collection (O'Reilly 2012), also opening up new directions of development (virtual, mobile, multi-sited and global ethnography).
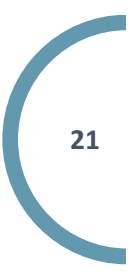
Metaphor elicitation
In the study by Lee et al. (2003), ZMET is used to examine customers' behaviours and motivations in adopting 3G mobile banking services by considering both innovation attributes and customers' perceived risk. The results of such analyses can be used at a strategic level to plan marketing strategies and promotional approaches. Carbone's research (2003) also confirms the use of this method for business purposes to define increasingly customer-centric marketing strategies. In this perspective, a deep understanding of the customer experience by directly addressing consumers to find out what they think of a product, service or experience is a fundamental basis for business decisions.

Contextual inquiry
Contextual enquiry is another ethnographic fieldwork tool aimed at understanding practices and behaviours that are analysed directly in the spaces where activities normally take place, through in-depth observation and interviews of a small sample of users (Wixon and Wilson 1997; H. Beyer and Holtzblatt 1998). This aspect makes it possible to include in the evaluation aspects that are part of usual attitudes and that, from the user's point of view, are not relevant for an external evaluation.
Contextual enquiry is especially useful in contexts where users interact with complex systems and in-depth processes, as well as to understand the views of experienced users (Salazar 2020). Therefore, such a tool is particularly useful during the early exploratory stages of a new functionality or product, enabling it to support design choices such as requirements, personas, functionality, architecture and content strategy.
Some studies (van Graan, Williams, and Koen 2016) have highlighted its usefulness in the medical field, e.g. in providing safe and effective nursing care and improving autonomous and responsible nursing care, starting with the assessment of the level of knowledge of the meaning of clinical judgement by professional nurses and the analysis of factors influencing the development of clinical judgement in the clinical environment.

NON-VERBALLY BASED
Game playing
Some gaming methods, such as serious games, are considered as HCD methods for interdisciplinary projects. Indeed, they are designed for a primary purpose other than pure entertainment and may serve a real educational function (e.g. for second language acquisition (Rankin et al. 2008) or to train health professionals (Munhoz et al. 2020)). For these methods, the processes of design, evaluation and iterative experimentation must take into account the interdisciplinary requirements of serious game creation in order to receive input from all the different fields of expertise before starting the design phases.
Customer shadowing
The idea behind shadowing is that the researcher acts only as an observer, without interfering with the subject of the research, to analyse the way in which the user uses the product or service in its natural environment in order to elaborate designs capable of adapting to existing user behaviour(Interaction Design Foundation 2021). This is therefore a much more qualitative type of research that allows the observation of behaviour rather than opinions.
Being a very time- and energy-consuming technique, it is more useful when used on a small scale and as a basis for further research that also provides statistical data rather than as the final step of a research project.

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SIMULATION OF POSSIBLE FUTURES
Focus group
The focus group is a qualitative technique used in research in the humanities and social sciences, in which a group of people are invited to talk, discuss and compare their personal attitudes towards a topic, a product, a project, a concept, an advertisement, an idea or a character. The questions are asked interactively; in fact, group participants are free to communicate with the other members, supervised by a presenter. In the marketing world, focus groups are an important tool for gaining feedback on new products. In particular, focus groups allow companies wishing to develop, name or review a new product to discuss, observe and/or examine the new product before it is made available to the public. This can provide relevant information on the acceptance of the product by its potential market. The use of focus group methodology is widely tested in the social sciences due to its ability to allow access to unspecialised and shared language, leaving room for the free expression of concepts and concerns by participants, while stimulating a richer dialogue and the strengthening of participants' collective sense (Wilkinson 1998).
Role playing
Role-playing is an organisational research technique designed to learn about attitudes and behaviour in organisational contexts and to gain insight into basic psychological contexts, considering three fundamental aspects: the level of involvement of the subjects, the role played and the degree of specificity of the responses provided (Greenberg 1993). Role-playing is used in a variety of fields: some research emphasises its motivational and guiding role in educational processes but also in the development of collaboration and communication skills (Prager 2019), other research emphasises its importance as a more naturalistic form of psychotherapy (Corsini 2017), through which psychiatrists and psychologists guide patients towards more competent ways of living and help them to see themselves in action.

In the Be.CULTOUR project, citizens and stakeholders assume the role of actors in decision-making through co-creation and co-design processes. For this reason, the establishment of Heritage Innovation Networks becomes a fundamental step for the development of innovative solutions for circular cultural tourism, contributing to the identification of needs, as well as skills and capacities for the development of possible solutions. Heritage Innovation Networks, interpreted in this way, ensure the effectiveness and longer-term sustainability of the co-creation process and make operational an approach that empowers all citizens and stakeholders involved as "shapers, makers and co-creators of their evolving city" (European Commission 2020) by fostering the activation of sustainable cultural tourism experiences, managed by the actors directly involved in tourism dynamics, and stimulating the elaboration of innovative solutions capable of satisfying both local needs and larger sustainability objectives.

Collaborative approaches are sought, in order to build a 'innovation ecosystem' rather than a number of innovative projects, exploiting the potential of synergies and cooperation to multiply the positive impacts, reduce costs and enable further subjects in a Open Innovation perspective.

3.2 Concept solutions co-design

Be.CULTOUR will draw cross-cutting lessons from the pilots in order to validate and replicate strategies and Action Plans for implementing longer-term development projects through integrated cultural tourism strategies, policies, tools, training, models, products that address sustainability challenges. These include the re-balance of tourism flows among over-exploited and under-exploited areas and the regeneration of under-recognized cultural resources as key assets of sustainable local development processes and an integrated territorial development.

After establishing the Action Plans for circular cultural tourism, and identifying the best innovative solutions to be developed, two main activities will be developed in the deployment phase: (1) at the institutional territorial level, the implementation of the Action Plans within existing policies and the identification of sustainability strategies, including use of European Structural Investment Funds and other funds; and (2) prototyping of the innovative solutions selected through the Hackathon process.

• *Action Plans implementation and long-term sustainability (WP3)*

The Action Plans will be implemented in the second part of the project, involving relevant authorities (especially managing authorities of ESIFs and other European funding instruments) and other stakeholders for their integration in local policies. In this phase, the project will focus on synergies between strategic infrastructural projects, as well as support to local stakeholders and communities to develop the strategies through the Heritage Innovation Networks. The objective is to ensure that local projects become ready for a diverse range of available investments from ESIFs and other financing models and actors, verifying the relevance and applicability of the financing instruments proposed and receiving precious feedback for Action Plans implementation.

• *Be.CULTOUR Accelerator: Prototyping, testing and Circular Business Model development (WP5)*

The best solutions selected for each Pilot Heritage Site will enter the Be.CULTOUR innovations Accelerator programme. The development stage of the process is aimed at developing and delivering the product. This phase takes the concepts and interaction designs and implements them into working systems ready to be delivered. In this phase, the winning teams will develop a prototype of the selected product/service and will test it in Pilot Heritage Sites, bringing Be.CULTOUR solutions at TRL 6. Effective development of the innovative solutions will be enhanced through involvement of end-users in all stages. Human-centred design tools, service

design workshops, user experience design tools and "Design for All" approaches and tools will be employed within an Open Innovation context. Once the components of BE.CULTOUR products/services have been validated in laboratory (TRL 4) and in relevant environment (TRL 5), they will be demonstrated in relevant environment (TRL 6). The selected solutions will finally enter the deployment phase to demonstrate the solutions in real environment, bringing them close-to-market (TRL 7). In this stage, the Circular Business Model and business plan of Be.CULTOUR solutions will be developed.

The key concepts underlining the development of innovative solutions in Be.CULTOUR project are: **Human centred innovation**: valorising human capacity for creativity and self-entrepreneurship, exploring needs and behaviours and ensuring human rights. But also fostering responsibility/co-responsibility; **Circular Economy** as re-generative economy: avoiding wastes of natural capital, man-made capital, human capital and social capital - able to produce new employment as the first condition for human sustainable development; **Heritage Innovation Networks and Innovation Ecosystem**: Less-known cultural heritage sites and cultural landscapes can become 'hubs' of entrepreneurship and social and cultural integration, fostering economic growth, creativity and innovation, social cohesion, wellbeing, human and ecosystem health. Heritage Innovation Networks can increase the attractiveness of cultural heritage sites through the enhancement of the innovation ecosystem and exploiting the potential of communities collaborative approaches.

These are further explained below.

- *Human centred innovation.* In the era of innovations, an important underlining concept is 'human centred innovations' - the human being as the centre of the regenerative project, valorising his capacity for **creativity, self-entrepreneurship, responsibility**. This interpretation reflects §26 of the UN New Urban Agenda (NUA) (2016) focusing on the **human paradigm and human scale of development** and on the research of a *new humanism* in the time of innovations in terms of **new relationships between people, people and places, people and nature** (the "Mother Earth", §59 Agenda 2030). The NUA developed a *humanistic* vision to "make cities and human settlements inclusive, safe, resilient and sustainable", fostering culture, creativity, inclusiveness and human-scaled urban/rural environments, including through cultural heritage conservation / regeneration. The opportunity to build such high-quality urban environment is underlined also in the UNESCO report on 'Culture: Urban Future' (2016). Digitalization, automation and robotization are rapidly changing work and

daily life, creating opportunities for development but also risks/constraints. In the increasingly automatized and robotized reality, isolation, alienation and standardization represent threats to human health and wellbeing. In the future, competitiveness and higher productivity will be the result of work creativity, innovation capacity, entrepreneurship / self-entrepreneurship / intrapreneurship, flexibility, critical thinking, emotional intelligence. These will be some of the key skills to thrive and adapt in a rapidly changing environment (World Economic Forum, 2016, 2018).

While many activities will be replaced by machines work, peculiar human qualities such as originality, creativity, cooperation and orientation towards a purpose or mission, will be more and more developed. Cultural values as cooperative, collaborative ones, will become more and more important. More and more companies are recognizing that "mindset transformation is at the heart of everything [...] for the purpose of personal growth and success, as well as creating positive social impacts" *(Entrepreneurial Spark)*. "Purpose-driven businesses" are rapidly growing and a huge market for 'impact' investors and entrepreneurs is developing (GSG summit, 2018).

- *Circular economy.* The impoverishment of natural resources, linked to over exploitative production-consumption models, is a cause for climate change and instability, social inequalities, as well as decrease of human and ecosystems health. Long since this threat to decent life "for all" has been recognized, global agendas for sustainable development (SD) have been developed, such as the 17 Sustainable Development Goals (2015). SDGs and NUA can be achieved through the implementation of the circular economy model in cities and regions. Despite multiple definitions (Kirchherr *et al.,* 2017), the circular economy can be considered the *new paradigm for sustainability* (Geissdoerfer *et al.,* 2017). Circular economy is linked especially to SDG 12, and it is central to achieve many other goals. Circular economy can be defined as a re-generative, self-sustainable (through closing loops) and generative production-consumption system, aiming at the conservation and regeneration of natural resources.

  The role of Circular Economy to achieve Sustainable Development. Sustainable development is at the centre of global policy actions and non-governmental actors' campaigns. In 2018, the World Circular Economy Forum has stressed that CE represents the way in which all SDGs can be achieved. The Forum stressed the importance of Circular Finance and Impact Investment in CE, highlighting the need of "responsible investing 2.0, which moves beyond avoiding harmful industries to creating positive outcomes" – adopting a regenerative
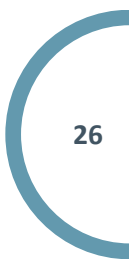
approach - "doing well and good simultaneously" (World CE Forum report 2018). CE is currently mostly applied for increasing *productivity* and is supported in specific sectors such as waste, water, row materials and energy management.

The complex notion of Value in the Circular Economy 2.0. Circular models are based on closed loops of value creation and can be defined as intrinsically systemic, regenerative, and self-sustainable. Circular economy processes centred on materials, energy and wastes minimization are the starting point to turn current linear processes into circular *closed metabolisms*. The circular economy stresses a broad concept of 'value' that is intrinsically multidimensional. Re-orienting production and consumption patterns towards sustainability through circular economy models requires focused action at all levels, from local communities to organizations. This is an enormous challenge for our society. Identifying and sharing common values (the 'mission' or 'purpose') is the enabling factor. "Value is important or lasting beliefs shared by the members of a culture about what is desirable or undesirable" (LeMille, 2017– Optimizing Circular Value). Value is recognized as key element to drive the development and success of "Startup Commons" (Cohan, 2018 – Startup Cities). In "Circular Economy 2.0" "profit-oriented" businesses are replaced by purpose-oriented businesses (LeMille, 2017), "creating shared value" for all (Porter and Kramer, 2011).

- Heritage Innovation Networks and Innovation Ecosystem. Research highlights the role of cultural heritage as attractive factor for localization of creative and cultural industries (Smith, 2011; Hani *et al.,* 2012; Della Lucia and Trunfio, 2018; Esmaeilpoorarabi *et al.,* 2018), improving the way places are perceived (Heritage Counts, 2018), enhancing competitiveness, contributing to sustainable development (CHCfE, 2015). The development of Heritage Innovation Networks and Innovation Ecosystems is fundamental to enhance cultural sites attractiveness. Cultural heritage thus can act as "neural networks" of territories, enhancing Entrepreneurial/Innovation ecosystems. Referring to startups/enterprises, Cohan (2018) states that *"location matters to startups, because the people who provide them with resources they need to grow – revenues, talent, capital, advice – are located in territories (...) And company founders seeking to build, develop and sustain vital trust relationships with their startup's customers and suppliers, employees, mentors, and investors, must meet with people in person repeatedly. Startups thrive or fizzle depending on the quality of these people and the strengths of those relationships. And part of that quality depends on where a startup locates"* (Cohan, 2018 – The Startup Common). Cohan identifies the elements that describe the entrepreneurial/startup ecosystem: *Pillar companies, Universities & research centres, Human*

capital, Investment capital, Mentor network, and *Values*. Between these elements, "Values" represent the intangible 'neural network' that links all other system elements, stimulating coordinated and synergic action. Cultural heritage is able to convey shared identity and values, representing the 'connective infrastructure', the 'neural network' of local communities, that can activate the Entrepreneurial/Innovation ecosystem.

The Heritage Innovation Networks and their Innovation Ecosystems can be considered as a *circular living system*, able to re-generate over time maintaining their essential structure. The *lifelike qualities* that describe *living systems* are identified by Bragdon (2016 – Companies that mimic life): "*decentralized, self-organizing networked structures*, whose component parts serve the health of the whole; *Regenerative life strategies* that increase opportunities for survival; *Frugal instincts* that optimize use of resources; *Openness to feedback* that enables adaptive learning; *Symbiotic behaviours* that link individual wellbeing to the health of the larger systems; *Consciousness* of capabilities, interdependences and limits". These qualities should be pursued within the design process of innovative solutions at both business and ecosystem level to enhance their productivity, resilience and usefulness.

These concepts can guide local Heritage Innovation Networks to develop context-specific innovations for circular cultural tourism in Pilot Heritage Sites, as an orientation towards the development of specific innovative solutions through the Call for Innovators, the Hackathon activity and the Be.CULTOUR Accelerator programme.

3.3 Innovations development

The project methodology for the development of innovative solutions for circular cultural tourism integrates the inclusive, participatory and relational dimension of the human-centred approach with the systemic, adaptive and dynamic dimension of the circular economy.

The initial phase explores the values and the characteristics of less-known tangible and intangible cultural heritage (the so-called "hidden treasures") in the Pilot Heritage Sites. This phase is particularly relevant as the analysis will influence the subsequent phases related to challenges and solutions identification. Indeed, this stage results in the identification of the specific challenges that the territory would face in order to activate sustainable cultural tourism processes and practices. These challenges find answers in the Be.CULTOUR Innovation Areas, within which Innovative Solutions are elaborated. Starting from the challenges linked to the targeted deprived, remote or over-exploited areas, innovators and entrepreneurs are called to develop circular

cultural tourism services and/or products focused on creating attractive "circular" and sustainable destinations.

The "Hackathon" method was chosen to stimulate challenge-based innovation, centred on the project concept and innovation areas, as well as the specific local heritage values. A Call for Innovative Solutions was launched to collect proposals of innovative solutions for circular cultural tourism in the Pilot Heritage Sites. The teams of the selected best innovations will join the Be.CULTOUR Hackathon event, having a unique opportunity to collaborate intensively on the development of their ideas into desirable, feasible and viable projects. The Hackathon method is well-known in the field of business innovation and to explore solutions for emerging societal challenges, and it is known to be the shortest route to innovation.

The best solutions selected for each Pilot Heritage Site will enter the Be.CULTOUR Acceleration programme offered by ICHEC within the Be.CULTOUR project, to develop their Minimum Viable Product and test it in real context.

The Hackathon method was adopted according to the following motivations:

- First of all it represents a general framework which could be testable, replicable and adaptable to other and different contexts and experimentations;
- It integrates the human-centred and circular economy approach in a more operational perspective;
- It allows the identification of specific tools to support the development and the evolution of innovative solutions, from the concept elaboration to the real product/service test and implementation;
- It adopts the co-design perspective in all methodological steps, fostering a continuous learning process involving all actors equally and promoting cross-sectoral dialogue and cultural exchange.

In the following sections the all steps of innovative solutions development are more in-depth described.

3.3.1 Call for Innovative Solutions

The Objective of the Be.CULTOUR Call for Innovative Solutions for circular cultural tourism is to select the best innovative solutions to the specific challenges of each Be.CULTOUR Pilot Heritage Site.

The Call issued aimed at creating innovative circular cultural tourism services and/or products in the following Be.CULTOUR Pilot Heritage Sites:

- Vulture-Alto Bradano area, Basilicata Region, Italy

- The cultural park of Rio Martin, Teruel province, Aragon region, Spain

- Larnaca rural cultural landscape, Larnaca Region, Cyprus

- Forsvik and Rydal Industrial Heritage Sites, Västra Götaland Region, Sweden

- Bač, Sremski Karlovci and Irig in Vojvodina Region, Serbia

- The Route of Stephan the Great and Saint, North-East Romania – Moldova cross-border area

This Call was open to individuals, companies, associations, foundations, institutions, and other entities (either individually or in association), which have a direct or indirect interest in intervening and/or contributing to the development of circular cultural tourism in one of Be.CULTOUR Pilot Heritage Sites.

As the innovative circular cultural tourism solutions were linked with Be.CULTOUR local Action Plans for circular cultural tourism co-designed by the local community in each Be.CULTOUR Pilot Heritage Site, the applicants were also invited to participate in local workshops organised by project partners in each Pilot Heritage Site, to exploit the opportunity to meet the local community, discuss and understand the local challenges.

Applications submitted to the abovementioned Call were examined and evaluated by an evaluation committee. The best applications from each Be.CULTOUR Pilot Heritage Site were invited to pitch their solution to a local jury to present them and discuss their feasibility and viability. Thus, three innovative circular tourism solutions were selected from each Be.CULTOUR Pilot Heritage Site following the evaluation criteria presented in the Call. The application form included team composition (internal skills and competences required for the implementation of the innovative solution proposed, motivation and commitment) and a concept note describing the innovative solution[5].

The description of the innovative solution included the following elements:

1) INNOVATIVE CIRCULAR TOURISM SOLUTION TITLE

2) INNOVATIVE CIRCULAR TOURISM SOLUTION OVERALL DESCRIPTION

3) DESCRIPTION OF RELEVANCE OF THE SOLUTION FOR THE PILOT HERITAGE SITE

   Contribution to the valorisation, reuse and regeneration of the Pilot Heritage Site.

4) INNOVATION TOWARDS CIRCULAR TOURISM SOLUTION

   Description of the innovativeness of the proposed solution, explaining how the three main concepts of Be.CULTOUR framework and definition of circular cultural tourism are

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[5] https://becultour.eu/hackathon/form

incorporated: Circular economy aspects; Human-centred, fair and responsible tourism aspects; Cultural Europeanisation aspects.

5) LINK WITH INNOVATION AREA(S)

The participants have had to specify which of the areas of innovation proposal referred to and which elements made it innovative, describing the coherence with the topics expressed in the target innovation areas, including cross-cutting areas such as digitalisation and smart data management.

6) IMPACTS DIMENSIONS OF THE INNOVATIVE SOLUTION PROPOSED

The participants had to explain the expected impacts of the proposed solution in economic, social and environmental, considering the following aspects:

- Social impact and social innovation, including benefit for local communities, engagement and/or wellbeing of cultural minorities and vulnerable social groups;
- Environmental impacts such as reduction of pollution, materials extraction, enhancement of biodiversity, energy, water, renewables & recycled materials use, etc.;
- Economic impacts in the region/site such as jobs generation potential, enhancement of local economy, increase in tourists' arrivals, etc.)

7) EXPECTED CONTRIBUTION TO SUSTAINABLE DEVELOPMENT GOAL(S)

The participants had to identify the SDGs directly linked to their proposed solution.

3.3.2 Hackathon event

A hackathon is a design sprint event that brings together professionals from different walks of life. It spans from multiple hours to a few days during which multidisciplinary teams brainstorm and solve a challenge, create a product prototype or conduct a case study. The teams of the 19 selected innovations will join the Be.CULTOUR Hackathon in Brussels, having a unique opportunity to collaborate intensively on the development of their ideas into desirable, feasible and viable projects.

The Hackathon provides the opportunity to co-develop place-specific concepts for new circular cultural tourism services/products, put them in front of potential users, get their feedback, and refine them. These ideas may be represented by low-fidelity prototypes, including paper prototypes and interactive wireframes. Synthesizing:

- N. of innovative solutions to be selected from this Be.CULTOUR Pilot Heritage Site: 3
- N. of participants per innovative circular cultural tourism solution: 4 people
- Total number of participants: 100 participants
- Outcome: a Minimum Viable Prototype

For the scope of the Call and Hackathon event, a Minimum Viable Prototype is a first non-marketable version of the product / service including its business model and a riskiest assumptions testing plan the team needs to dig deep into and solve in order to develop a viable go-to-market product. This MVP will drive the product/service roadmap for what the team should pilot first and what needs to be built year over year to achieve the vision.

Be.CULTOUR Hackathon is structured in three intensive days during which participating teams will go through the following stages:

- **Understanding the heritage site and circular cultural tourism**: identify my ecosystem, analyse the environmental and social impacts throughout the value chain, understand the scientific and technical aspects with a focus on energy, material flows, & understand the social issues.

- **Building desirable, feasible, viable and resilient circular cultural tourism solutions**: operate in Design Thinking, Lean Startup, Agile mode, discover and apply the suitable Sustainable Business Model, test the designed solution, its technical feasibility, monetization and impact measurement.

- **Deploying the solution**: think about organizational design and governance needed to run the solution and set up a first roadmap describing next levels.

The Be.CULTOUR Hackathon is structured along :

- the 4 pillars of a successful solution
- the 5 stages of the Design Sprint 3.0 methodology
- the Societal Impact Canvas

These sessions are designed as highly participatory processes that allows to move from idea generation to first solution prototyping. Business Model canvases adapted to cultural heritage sustainable tourism and circular economy approaches (i.e. inspired from the Flourishing Business Canvas; Strongly Sustainable Business Model; Inclusive Business Model) will help participants to consider the 4 main pillars of a business model: desirability / feasibility / viability/ impact.

During each of the above-mentioned sessions/days, a time for reflection is planned and coaching is provided by ICHEC Brussels Management school. During Be.CULTOUR Hackathon, the participants will have the possibility to interact and work with 100 innovators from: Be.CULTOUR Pilot Heritage Sites; Be.CULTOUR Mirror Innovation Ecosystems and experts from European countries.

The 4 pillars of a successful solution

In 3 days, participating teams will go through 5 stages that will allow teams to start from a nascent idea / thought solution to finish with a <u>minimal solution</u> that is **desirable**, **feasible**, **viable** and **impactful**.
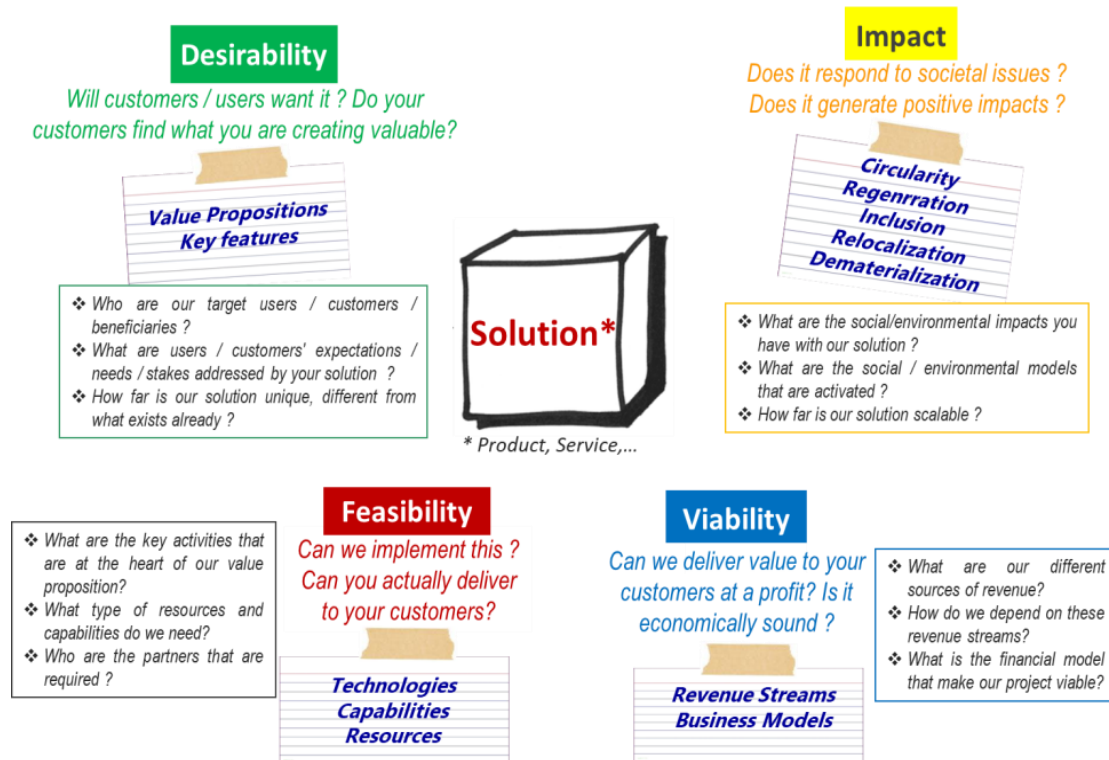

Figure 5 – The 4 pillars of a successful solution

(Source: Ruba Saleh & Philippe Drouillon, ICHEC)

The 5 stages Design Sprint 3.0 methodology

The Hackathon follows the 5 stages of the Design Sprint 3.0 methodology. It aims to develop human-centred and circular solutions thanks to:

- "UNDERSTAND" and "DEFINE" stages where teams will investigate further what are the actual and pressing stakes from societal impact perspectives i.e. circular and people dimensions; these stages will also encompass a human-centered design approach by collecting key needs, pains and expected gains thanks to interactions with target customers' and users' segments
- An "IDEATE" stage where teammates will "augment" their solution by tapping into inspiring examples of circular and people-centered solutions provided by the organizers
- "PROTOTYPE" and "TEST" stages that will allow teams to test the relevance of their solution vs actual needs therefore keeping a human-centered design approach

Stage	Objectives
1 – UNDERSTAND	Get a full understanding about: • the causes and consequences related to the challenge that theteam wants to address • the stakeholders' ecosystem • the value chain • actual needs, pains and expected gains of target customers / users
2 – DEFINE	Agree on the key challenge stakes and customer segments' needs thefuture solution will address
3 – IDEATE	Define an "augmented" solution nourished by inspiring examples andcombining teammates' insights
4 – PROTOTYPE	Design a minimal testable solution ready to be tested from desirability,feasibility, viability and impact perspectives
5 - TEST	Test minimal testable solutions & update them based on lessons learnt

Table 1 – The 5 stages Design Sprint 3.0 methodology

In more details, Be.CULTOUR hackathon will be structured as follows:

Day	Stage	Deliverables
1	UNDERSTAND / Map	• Adapted Business Model Canvas completed with assumptions • Stakes mapping & selection
	UNDERSTAND / Empathize*	• User / Client segments defined • Empathy map of needs (jobs to be done, pain points & gains)
	DEFINE	• Most important needs to be focused on selected
2	IDEATE	• Solution and its components described • Needs – Solution Fit checked
	PROTOTYPE*	• Value propositions defined • Prototype v1 built
	TEST	• Value propositions tested • Prototype v1 tested
3	PROTOTYPE	• Feasibility requirements added • 1st viability equation done • 1st impact assessment done
	TEST	• Prototype 1 tested -> • Prototype v1 updated -> Prototype 2
	Pitch	• Pitch prepared and presented

Table 2 – Details of the 5 stages Design Sprint 3.0 methodology

*These stages will invite participants to "get out of the building" by getting in touch with beneficiariesand clients either in presence or through videoconferencing.

The Societal Impact Canvas

The Societal Impact Canvas (Figure 9) is an evolution of the classical Business Model and Lean Canvases. They embed the societal impact dimension from different perspectives:

- "Raison d'être" *aka purpose* inviting to humans and sustainability at the heart of the solution

- "Value Propositions" that cover not only the functional dimension but also focus on environmental (circular) and social (people) dimensions

- Societal impacts where environmental and social positive impacts are demonstrated

- Reallocation of potential profits and surpluses as lever of further positive impacts

- Governance as a way to embrace key stakeholders' perspectives and to keep human centricity in the development of the solution
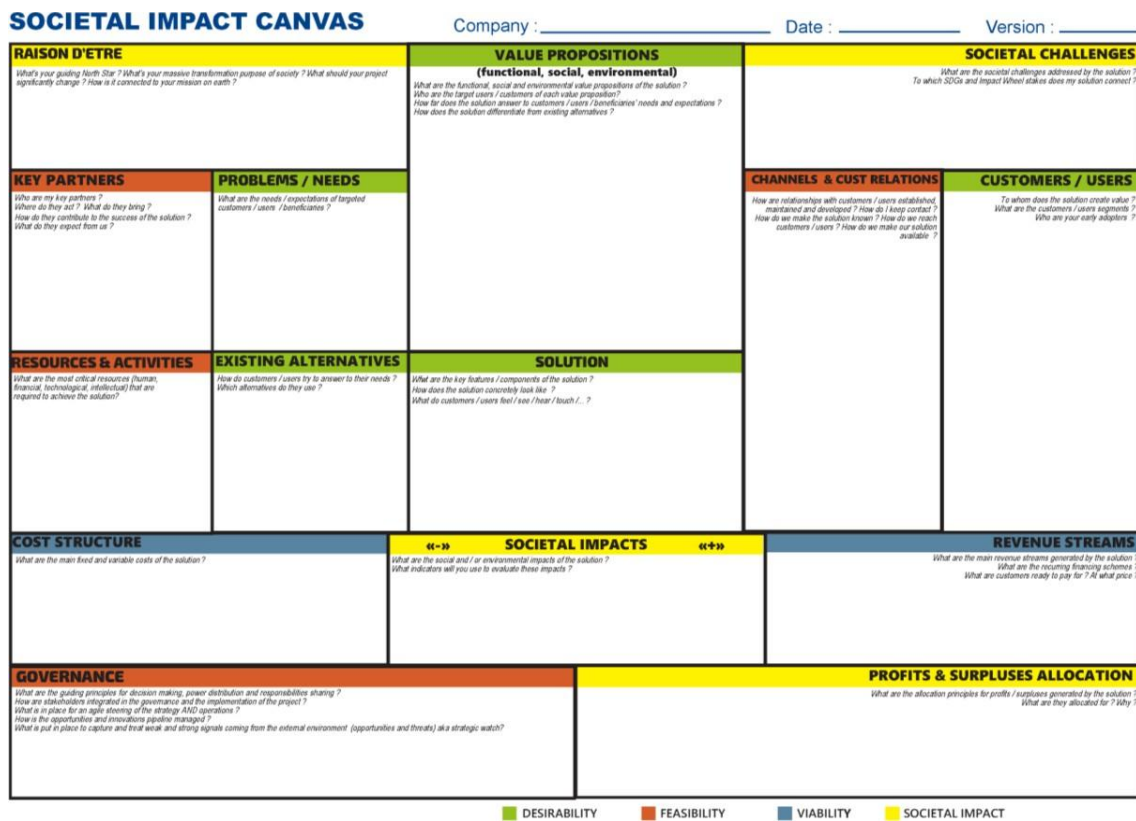

Figure 6 – The Societal Impact Canvas

During the hackathon, the following tools will be used by each team on its Miro board:

#	Day	Tools
1	Day 1	Cause & effect tree
2		Stakeholder map
3		Value chain map
4		Target users & customers map
5		Interview guide
6		Empathy map
7		Customer/user stories
8		Team Canvas

Table 3 – Tools used by each team on its Miro board during the Day 1 of the Hackathon

#	Day	Tools
1	Day 2	Societal Impact Canvas
2		Minimum Viable Solution Board
3		Value Proposition Board
4		Riskiest Assumption Tests (RAT) Board

Table 4 – Tools used by each team on its Miro board during the Day 2 of the Hackathon

#	Day	Tools
1	Day 3	Monetization scheme
2		Skills, capabilities, assets map
3		Business Model Visualization frame
4		Impact wheel
5		Communication kit: video + pitch document

Table 5 – Tools used by each team on its Miro board during the Day 3 of the Hackathon

3.3.3 Accelerator programme

The best ideas / teams (at least one per each Pilot Heritage Site) will be awarded with the participation in the Be.CULTOUR Accelerator programme for the prototyping and testing of the solutions, conducted in the second part of the project (WP5). The acceleration period aims at making innovative circular cultural tourism solutions become concrete business solutions. All the teams will be equipped with tools, knowledge and contacts to accelerate the development of innovative solutions in different innovation and test them with a wide and diversified partnership of stakeholders in each site.
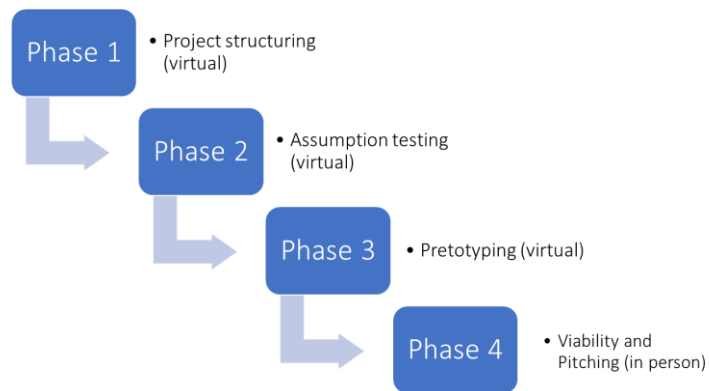
Figure 7 – Be.CULTOUR acceleration programme

The best concept ideas will be developed during 4 months to a close-to-market stage: a mentoring program run by ICHEC Brussels Management school which encompasses four key periods divided into tasks of 4 weeks. Each key period starts with a meeting aiming at igniting the items to be covered during the period.

4. Conclusions

This document provided the theoretical and methodological guidance for the co-development of human-centred innovations for circular cultural tourism in pilot and mirror innovation ecosystems. This Protocol/Methodology V.2 integrates and completes the V.1 covering the second part of the project, in the stage of Action Plans implementation and innovative solutions co-development. The human-centred design approach and circular economy orientation principles are described, providing details on the choice of analysis and co-creation tools towards business innovation and implementation. The role of Heritage Innovation Networks is considered fundamental to build the Innovation Ecosystem in the pilot heritage sites and ensure longer-term, resilient territorial development. Human capital and cooperation capacity are key for reaching circular development objectives at territorial level. In remote and less-known areas, entrepreneurial and innovation skills and capacities could be lacking, especially due to depopulation and ageing. Thus, the project experimentation aims to provide on one side the necessary knowledge to potential innovators in the pilot areas through the hackathon and acceleration experience, and on the other side to stimulate local stakeholders and innovators to take part in a international 'learning community', sharing knowledge, ideas, challenges and possible solutions. Clearly, each solution will be designed as place-based in line with the specific heritage sites characteristics and values, and will be people-centred according to local communities needs and aspirations. However, the methodological process established by the Be.CULTOUR project will be tested to be transferred and replicated in other European regions, identifying knowledge gaps and eventual barriers to the implementation in different contexts.

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Acronyms

[CE]   [Circular Economy]

[CoP]   [Community of Practice]

[CoI]   [Community of Interest]

[CSV]   [Complex Social Value]

[EC]   [European Commission]

[ESIFs]   [European Structural investment Funds]

[EU]   [European Union]

[HCD]   [Human-Centred Design]

[HIN]   [Heritage Innovation Networks]

[HUL]   [Historic Urban Landscape]

[IA]   [Innovation Area]

[IS]   [Innovative Solutions]

[LWS]   [Local Workshops]

[GA]   [Grant Agreement]

[PHS]   [Pilot Heritage Site]

[SDGs]   [Sustainable Development Goals]

[WP]   [Work Packages]

Annex 1 – HACKATHON DETAILED PROGRAMME

Day 1, Wednesday 07 September 2022
ICHEC Brussels Management School: Boulevard Brand Whitlock 6, 1150 Woluwe-Saint-Pierre, Belgium.

Time	Activity	Room
08:00-09:00	Registration	Espace Roger demain
09:00-09:30	Welcome remarks and introduction to Be.CULTOUR hackathon methodology	Auditorium
09:40-10:40	Understand / Macro-level - Cause and Consequence Tree	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
10:40-10:55	Coffee break	Cafeteria
10:55-12:15	Understand / Macro-level - Value chain & stakeholders mapping	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
12:15-13:05	Lunch	Cafeteria
13:05-13:20	Energizer	Espace Roger Demain or terrace
13:20-13:35	Understand / Micro-level - Introduction to the Empathy phase	Auditorium
13:35-14:15	Understand / Micro-level - User / Client segments defined	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
14:15-16:30	Understand / Micro-level - Collection of needs	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
16:30-16:45	Coffee break	Cafeteria
16:45-17:45	Define - Define the "real" problems of the challenge	201: Basilicata Region 211: Aragon region 221: Larnaca Region

Time	Activity	Room
		222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
17:45-18:00	Retrospective - Learning as a team	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area

Table 6 – Day 1 Hackathon Programme

Day 2, Thursday 08 September 2022
ICHEC Brussels Management School: Boulevard Brand Whitlock 6, 1150 Woluwe-Saint-Pierre, Belgium

Time	Activity	Room
08:45-09:05	Ideate - Introduction to Step 3 (Ideate) and to the Societal Impact Canvas	Auditorium
09:05-09:50	Ideate - Inspiration - consultation of positive impact maps and examples	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
09:50-10:50	Ideate - Solution design - Diverging phase	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
10:50-11:05	Coffee break	Cafeteria
11:05-11:25	Ideate - Solution design - Converging phase	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
11:25-12:10	Ideate - Solution design - Description with the help of the Societal Impact Canvas	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
12:10-12:55	Lunch	Cafeteria

12:55-13:15	Prototype - Overview of Stages 4 (Prototype), 5 (Test) and 6 (Monetization) Introduction to the construction of a Value Proposition, the RAT and the Storyboard	Auditorium
13:15-14:30	Prototype - First Minimal Testable Solution (MTS)	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
14:30-16:45	Test - Test MTS	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
16:45-17:00	Coffee break	Cafeteria
17:00-17:30	Test - Update MTS	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area
17:30-18:00	Test - Cross-team Feedback session - Dry test	201: Basilicata Region 211: Aragon region 221: Larnaca Region 222: Västra Götaland Region 231: Vojvodina Region 232: North-East Romania – Moldova cross-border area

Table 7 – Day 2 Hackathon Programme

Optional activity at La Vallée: Rue Adolphe Lavallée 39, 1080 Bruxelles https://lavallee.brussels/

Visit to La Vallée

Casual dinner at La Vallée