EPIC-WE

Empowered Participation through Ideating Cultural Worlds and Environments

D3.1

Protocol 1: Quadruple Helix Cultural Innovation

EPIC-WE Quadruple Helix Cultural Ecosystems and Cultural Hubs (Initial protocol)

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EPIC-WE

Empowered Participation through Ideating Cultural Worlds and Environments

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EPIC-WE

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List of Acronyms & Abbreviations

Abbreviation	Description
EPIC-WE	**E**mpowered **P**articipation through **I**deating **C**ultural **W**orlds and **E**nvironments
TH	Triple Helix
QH	Quadruple Helix
DBR	Design-Based Research and Innovation
LL	Living Lab
CLL	Cultural Living Lab
HEI	Higher Education Institution
CI	Creative Industry
CHI	Cultural Heritage Institution
YC	Youth Citizens
CH	Cultural Hub
CGJ	Cultural Game Jam
EPIC-WE CH	EPIC-WE Cultural Hub
EPIC-WE CGJ	EPIC-WE Cultural Game Jam
EPIC-WE QH Cultural Innovation Ecosystem	EPIC-WE Quadruple Helix Cultural Innovation Ecosystem

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Introduction

01

1. Introduction

1.1. The EPIC-WE Project

EPIC-WE (**E**mpowered **P**articipation through **I**deating **C**ultural **W**orlds and **E**nvironments) is a Horizon Europe-funded project (2023-2026) aiming to empower youth citizens to participate in shaping European Culture and their own futures by 'imagining, creating and exchanging cultural values and heritage through game-making'. It explores and introduces new models for cultural innovation, collaboration, and empowered participation. To achieve this, EPIC-WE develops and iteratively tries out cultural game jams (CGJs), game-making as culture-making and games through and for culture through 12 interventions – in the form of *Cultural Game Jams* – across three European sites. The backbone of the project is the EPIC-WE Quadruple Helix Cultural Innovation Ecosystem (EPIC-WE QH Cultural Innovation Ecosystem), along with EPIC-WE Cultural Hubs (EPIC-WE CHs) and EPIC-WE Cultural Game Jams (EPIC-WE CGJs), as a transferable framework for youth citizens (YCs), cultural heritage institutions (CHIs), creative industries (CIs), and higher education institutions (HEIs) to work together as partners in cultural innovation.

Consequently, EPIC-WE brings together four different partner types – HEIs, CIs, CHIs, and YCs – to form new transformative cultural partnerships through close collaboration and co-creation. Each partner type represents a distinctive societal domain with its own knowledge, methods, and cultures – i.e., research/education, games/creative industries, cultural heritage/museums, and citizenship/the public. These four domains or sectors 'meet in the middle' to collaborate and develop more equal and interwoven partnerships for future cross-sector cultural collaboration and innovation. As such, the EPIC-WE project consortium is itself configured as a Quadruple Helix (QH) Cultural Innovation Ecosystem, bringing together leading

research, cultural and creative sector partners to invite YCs as a fourth helix partner in the ecosystem and take up practices of game-making as culture-making in CGJs and collaboration with the other three helix partners in each of the three so-called Cultural Hubs (CH).

EPIC-WE engages in CGJs to create games through and for culture inspired by cultural heritage. The project explores this approach's potential to strengthen European values, belonging, and cultural participation. Through cultural game-making activities, EPIC-WE aims to equip YCs with cultural-creative imagination and competencies to engage in cultural and societal challenges with curiosity, creativity, agency, and imagination – what we call *Empowered Participation*. EPIC-WE is carried out as a Design-Based Research and Innovation (DBR) project across three European CH in Aarhus (Denmark), Hilversum (Netherlands) and Óbidos (Portugal), where the QH partners co-create, and through this, develop, implement, and evaluate the proposed model.

In the EPIC-WE Cultural Hubs, CHIs, CIs, HEIs, and YCs work closely together in equal partnership to envision and create new formats for cultural dialogue, participation, and co-creation in the form of games through and for culture. Consequently, the QH innovation ecosystem is re-imagined and re-configured towards cultural innovation in CHs as a way forward for CHIs, CIs, HEIs, and YCs to work together in new cultural partnerships and provide alternative spaces for co-creating culture in close collaboration. The aim is to strengthen and extend the helix partners' cultural and civil roles and societal position by meeting and collaborating 'in the middle' through the EPIC-WE CHs and EPIC-WE CGJs. Hereafter, the abbreviations for the concepts above will predominantly be applied throughout the report.

It advocates for partners in research/HEI, museums/CHI, games/CI, and the public/YC to become profoundly intertwined and work together to fulfil their cultural and civic roles through establishing new forms of transformative partnerships in cultural research and innovation.

To enter and enact such cultural cross-sector partnerships, cultural innovation ecosystems, knowledge cultures, and collaboration models must be developed. Therefore, the EPIC-WE project and its QH partners will develop and enact a uniquely designed cultural innovation ecosystem, cultural collaboration model and culture-making format that prioritises 'meeting in the middle' through close cooperation, democratic and equal partnerships and mutual involvement in each other's knowledge and cultures, as scholars like von Hippel (2006) and DiSalvo (2022) discussed.

This involves 1) the design of the EPIC-WE framework on the macro level, The EPIC-WE Quadruple Helix Cultural Innovation Ecosystem (EPIC-WE QH Cultural Innovation Ecosystem), 2) The design of the EPIC-WE framework on the meso level: The EPIC-WE CH Model and 3) the design of the EPIC-WE ecosystem on the micro level: The EPIC-WE Cultural Game Jams (EPIC-WE CGJs). Taken together, the EPIC-WE framework on the macro, meso, and micro levels specifies how CHI, CI, HEI, and YC can work together as partners in cultural-creative innovation and transformation.

1.2. Developing the EPIC-WE framework within the EPIC-WE project

Partners in the EPIC-WE project work with lead beneficiary Aarhus University to develop and implement the EPIC-WE QH innovation ecosystem and CHs. This work has been initiated with the iterative development of so-called concept notes on CHs, hub signatures and participatory elements of CHs. From the continued cross-sector collaboration in the consortium towards the conceptualisation of the EPIC-WE framework on the macro, meso and micro level development, the main participants of the task have further conceptualised, developed, and refined the domain-sensitive and project-specific QH innovation ecosystem, CHs, and CGJs.

Throughout the process, the EPIC-WE partners and the executive board have been invited to discuss, comment, reflect, co-create, and criticise the emerging conceptualisations, frameworks and models. In developing the different elements of the task, a small and agile group of researchers and developers have inquired and innovated through (design) sprints and co-creative processes, and furthermore, invited relevant task partners, work package partners, and consortium partners to reflect, comment, revise, and reinforce. Through these processes, the task developments are characterised by iterative and reflective practices grounded in research and both historical and present research and innovation projects funded by, e.g., the EU. The consortium will continue this work in the second round of the EPIC-WE project (2024-2025) to test out, evaluate and iterate the QH innovation ecosystem, QH, and CGJs in practice.

To secure its research grounding, the report also draws on preliminary findings from the executed PRISMA2020 systematic literature review on “game jams and game-

making co-creation practices amongst Cultural Heritage Institutions, Creative Industries, Higher Education Institutions and Youth Citizens" carried out as part of the EPIC-WE project, thus further substantiating and grounding the EPIC-WE concepts, frameworks, materialisations, and enactments scientifically. This translates to extensive foundations in contemporary and relevant research, innovation, and practice surrounding QH innovation ecosystems, co-creative processes, design methods and processes, and laboratory thinking in tangible development in examining, developing, intervening with, and evaluating (cultural) game jams for YCs.

During the development process, the EPIC-WE QH Cultural Innovation Ecosystem and EPIC-WE CH model have also been presented at various conferences and in publications to ensure wider intelligibility and applicability beyond the EPIC-WE consortium. This report thus draws together this work, notably the upcoming publication "Meetings in the Middle: Cultural Co-creation, Transformative Partnerships, and Ecosystems for Public Good" (Nørgård & Holflod, 2024). Furthermore, as part of the task and the general conceptualisation of the different CHs in EPIC-WE, specific CH signatures have been developed to address, conceptualise, and materialise the context-sensitive elements, systems, and networks of the individual CHs.

1.3. Structure of the report

This report introduces and explains the EPIC-WE QH Cultural Innovation Ecosystem and EPIC-WE CHs. This is done by exploring its theoretical foundations, potential implications, and practical applications. First, Triple Helix (TH) and Quadruple Helix (QH) Innovation Ecosystems are introduced, and their key takeaways are summarised and transformed into principles for designing the EPIC-WE framework on the macro

level. These principles and their implications are then put into practice to construct the initial design of the EPIC-WE QH Cultural Innovation Ecosystem. Then, Living Labs (LL) is introduced as an applicable way to implement the EPIC-WE QH Cultural Innovation Ecosystem on the meso level. After that, key takeaways are summarised as principles to construct the initial design of the EPIC-WE CHs as a way for QH partners to practice cultural innovation together 'in the middle' and to practice and enact their partnership through joint activities such as the EPIC-WE CGJs.

Helix Innovation Ecosystems

02

2. Helix Innovation Ecosystems

2.1. Introduction to Helix Innovation Ecosystems

In Helix Innovation Ecosystems, the term **ecosystem** denotes the intertwined communication, co-operation, collaboration and co-creation between various components or partners (helices) in the system to bring cross-sector innovation within a specific domain or context. Here, **innovation** can take the form of new knowledges, practices, products, services or similar (Taratori et al., 2021). The focus is on how such an ecosystem can bring together components or partners to achieve cross-sector exchange, value-creation, and interoperation ability within a specific domain, such as culture and cultural heritage, in the case of EPIC-WE. Thus, an innovation ecosystem – such as a 'cultural innovation ecosystem' – involves several sectors– e.g. *three* in TH or *four* in QH innovation ecosystems – with a spectrum of partners and participants, all working together towards a shared idea, goal, ambition, or solution.

2.2. The Triple Helix Ecosystem

As initially proposed by Leydesdorff and Etzkowitz in 1995, the **TH** suggests that in a knowledge-based society, the distinctions between the public and private sectors, science and technology, and academia and industry are becoming increasingly blurred. Here, "traditional stakeholders in charge of developing and sharing innovation in the industrial sector sphere and creating knowledge in the academia interact with the political dimension of the knowledge to promote the economic growth in cities through top-down approaches" (Taratori et al., 2021: p. 6). This results in an ecosystem characterised by interwoven interactions, where (a) industry acts as the central hub for production; (b) government assumes a vital role as the

source of contractual relationships ensuring stable interaction and exchange; and (c) higher education institutions (HEIs) serve as providers of new knowledge and technology (Pique et al., 2018).

The TH ecosystem stresses the 'tri-lateral' interconnection and co-operation between the three helices to generate innovation and new solutions within its included sectors. Leydesdorff and Etzkowitz (1995) argue that a Double Helix system, or co-evolution, is reasonably simple to stabilise; complexities arise when three systems begin to interact. As such, the TH ecosystem is often demarcated by complexity and dynamic interactions in the relationship and connections between academia, industry, and government. One key aspect of the TH ecosystem is that it positions HEIs as a primary driver in a knowledge-producing society, in contrast to its secondary role in an industrial society (Cai & Etzkowitz, 2020). The TH model operates through three primary functions: wealth creation, knowledge production and normative control (Cai & Amaral, 2021: pp. 219-220). Part of the TH conceptualisation is built on and intertwined with concepts of so-called **mode 2 knowledge production** through furthering socio-economic growth, entrepreneurial mindsets, and a skill-based knowledge-producing workforce. However, the TH model is lacking regarding the role of citizens, civil society, artistic research, arts-based innovation, media-based and culture-based public, and the overarching theme of democracy and knowledge democracy. This is a critical absence, especially for projects such as EPIC-WE positioned within the domain of culture and cultural heritage, working with arts-based innovation in game-making as culture-making or positioning YCs as central partners.

The TH ecosystem can also be problematic as a lack of citizen or 'end-user' involvement and participation in innovation and research might entail rejection of or

resistance towards the developed innovations, products or services, lack of transparency when it comes to their development or underlying reasoning, or innovations that are superficial, instrumental, or technical solutions rather than culturally or socially beneficial (In for Care, 2019: p. 4). This, in turn, might lead to feelings of frustration, disempowerment, indifference or inauthenticity in end-users or citizens as they feel they have no real say in the 'what', 'why' or 'how' of the developed innovation, product or service. This is, in a similar vein, a potential critical deficiency concerning projects such as EPIC-WE that aim to support YCs' empowered participation in culture and cultural heritage and have the ambition of providing models, formats, methods, and resources that are deemed relevant, valuable, and usable, for CHI, CI, HEI, and YC across Europe.

However, the above-identified challenges and barriers have, to a large extent, been addressed and mitigated with the evolution of the TH ecosystem into the QH innovation ecosystem. The QH innovation ecosystem accentuates explicitly the importance and significance of, on the one hand, positioning society, the public and citizens as the fourth helix partner and including this partner in a continuous and collaborative innovation process between all helices and their participants (Taratori et al., 2021). Moreover, and on the other hand, it foregrounds a 'media-based and culture-based public,' as well as 'arts, artistic research, and arts-based innovation' (Carayannis & Campbell, 2022).

2.3. The Quadruple Helix Ecosystem

The QH adds a fourth helix, **the public**, specifically defined as the culture- and media-based public and civil society. The QH ecosystem involves representatives or participants from all partners forming the helix: public authorities and organisations,

industry, academia, and citizens. Public authorities and organisations encompass government, regional and local organisations in society or culture, and societal and cultural policymakers. The industry comprises small, medium, and large businesses, business clusters, and networks. Academia includes universities, HEIs, and research and development bodies. Citizens are the fourth helix actor – setting QH models aside from TH models – and necessitate citizens' inclusion or active involvement as partners and participants in the innovation and research development process. Ideally, participants in the fourth helix consist of the end-users of the products, innovations, or services as well as groups, communities, networks, organisations or other associated societal or parties that might be affiliated or connected to the helix. This fourth helix includes cultural domains and concepts like art, media, cultural heritage, the CIs culture, lifestyles, and values. As such, the QH ecosystem is a fitting foundation for projects such as EPIC-WE, which works with cultural heritage, culture-making, game-making, and empowered cultural participation and seeks to establish CHs that co-create culture with citizens. The QH ecosystem was initially conceived by Carayannis and Campbell (2006) in their book *Knowledge creation, diffusion and use in innovation networks and knowledge clusters* (2006) and further clarified in the articles '"Mode 3" and "Quadruple Helix": Toward a 21st-century fractal innovation ecosystem' (Carayannis & Campbell, 2009). In a similar vein, Arnkil et al. (2010) also proposed the concept of the QH to understand user-driven or participatory innovation and defined the fourth helix as users. Over the years, the QH ecosystem has been continuously developed and enhanced by Carayannis and Campbell (2012; 2013; 2017; 2021; 2022).

Within their work, Carayannis and Campbell (2022: p. 70) highlight that the QH ecosystem transcends the TH models in that it emphasises the authentic inclusion of the fourth helix, which relates to the 'media-based and culture-based public,' 'civil

society,' 'arts, artistic research, and arts-based innovation,' as well as the overarching theme of 'democracy and knowledge democracy.' The QH ecosystem introduces the significant and demanding aspect of including civil society, citizens and the public in research and innovation processes. Mainly, the fourth helix in the QH ecosystem focuses on the role of culture and media in communities, citizens, and the public – positioning culture as a critical and central component in future knowledge and innovation. In their literature review of helix model innovation, Taratori et al. (2021) found that the most potent innovation drivers in QH ecosystems were public participation, cooperation between helix partners and long-term commitment within the helix. In this way, the term 'Quadruple Helix' denotes the intricate fabric and interwoven partnership of four partners acting together in society towards shared innovations in the form of ideas, ambitions, products, or services, underscoring the need for the diversity of knowledges, methods, and cultures. In the case of the EPIC-WE project, partners come from a variety of sectors (industry, culture, higher education, communications, and the public) as well as disciplines (e.g., culture, media, games, cultural heritage, policy, design, education, arts, and humanities). These sectors, domains, and knowledges 'meet in the middle' in CHs to collaborate around and co-create cultural innovation. In a study on QH ecosystems, Schütz et al. (2019) argue that the core components of such ecosystems foreground the need for intricate and multi-layered bi-directional interactions between partners along with the significant role of civil society as a core component in innovation systems. This, in turn, accentuates the importance of integrating the public as a genuine partner within the helix.

In another review of QH ecosystems, Cai and Lattu (2022) specify three aspects that together constitute the foundation of the QH:

1. It centres on Mode 3 knowledge production. Carayannis and Campbell (2012) defined Mode 3 knowledge production as the nexus of the emerging twenty-first-century innovation ecosystem, where people, culture, and technology meet and interact to catalyse creativity, trigger ideas, and accelerate innovation across disciplines and sectors. Mode 3 knowledge production 'is highly determined by its adaptive capacity to combine and integrate different knowledge and innovation modes' (Carayannis & Campbell 2009: p. 221) via 'co-existence, co-evolution, and co-specialization of different knowledge paradigms and different knowledge modes of knowledge production and knowledge use' (Carayannis and Campbell 2012: p. 4).

2. It highlights 'knowledge cultures' and 'knowledge democracy' instead of 'knowledge economy.' QH foregrounds the quality of democracy as an innovation enabler and encourages the development of innovations that are pertinent for or desired by users or citizens (civil society). Whereas the TH ecosystem represents a basic core model of innovation for Mode 2 knowledge production in a "knowledge economy," the QH describes Mode 3 knowledge production within a "knowledge society" or "knowledge democracy"' (Campbell, 2019: p. 59).

3. It stresses the importance of fostering innovative cultures comprising diverse disciplines, knowledge, methodologies, and practices. Mode 3 knowledges are developed through a 'multi-lateral, multi-nodal, multi-modal, and multi-level systems approach to the conceptualisation, design and management of knowledge partnerships and cultures (Carayannis & Campbell, 2012), emphasising the embedded relationality of different modes of knowing, doing,

and being arising from the inherent trans-disciplinary, cross-sectorial, multi-faceted composition of QH (Carayannis & Campbell, 2006).

Following this, the QH focuses on how societies produce, disperse, and promote new knowledge – often in ways focusing on collectivity and collaboration (Taratori et al., 2021). This foregrounds how QH functions as cultural and social innovation drivers that establish ecosystems for cultural or social change by providing co-created innovations to domains, contexts, stakeholders, and participants within the ecosystem. Consequently, QH is an innovation and collaboration ecosystem with a citizen perspective and is of particular use where citizen needs are central (In for Care, 2019: p. 4). This is critical in a research and innovation project such as EPIC-WE, wherein YCs and their cultural practices are included as central helix partners. Each helix partner (HEIs, CHIs, CIs, and YCs) 'meet in the middle' through cooperation and co-creation to drive innovation. This collaborative effort necessitates an ecosystem that supports and promotes close working relationships among the helix partners, encouraging them to collectively co-shape shared cultural heritage innovations through game-making and culture-making. Establishing such an 'EPIC-WE' as a QH ecosystem signifies a commitment to structural transformations that go well beyond the capabilities of any single partner or individual. Something that takes even more prominence within the project, given that innovative processes often lack the involvement of citizens and end-users (In for Care, 2019: p. 4).

However, the emergence of an empowered 'EPIC-WE' through practices of meaningful and valuable 'meetings in the middle' within the domain of cultural heritage, games and culture necessitates specific and real-world enactment of QH co-operation, collaboration, and co-creation in entangled, equity-driven, epistemic, experimental, authentic cultural environments. Something that will be explored in

the section on 'Living Labs'. This moves partners within QH ecosystems towards engaging in more demanding but democratic cultural-creative co-creation for the public good. Here, helix partners must work closely together in practice towards collectively shaping their common cultural future together and between them.

2.4. Quadruple Helix Principles from research and practice

We find recurring patterns emerging when examining publications, projects, and proven practices about QH. From these patterns, cutting across research and practice, we can derive guiding principles for the design and realisation of a *QH innovation ecosystem* tailored explicitly to the domain of culture, cultural heritage, cultural game-making and CGJs such as in the EPIC-WE project. The principles below have general applicability for QH ecosystems spanning different domains, contexts, sectors, and disciplines but have been specifically selected for their relevance to the EPIC-WE project.

In the following sections, the QH *principles* will be purposely adjusted to the EPIC-WE project on the macro and meso level to deliver the preliminary design and configuration of the *EPIC-WE QH Cultural Innovation Ecosystem* and the EPIC-WE CH model.

1. **Include citizens or the public as fourth helix partner**: Include citizens as active, participatory and co-creating partners into the project as early as possible and for the duration of the project to heighten the credibility and authenticity of the project and its results, as well as to ensure uptake of the developed innovations. Involving citizens and the public as partners in the research and innovation process also creates greater social value and benefits.

Ideally, participants in the fourth helix are the end-users of the products, innovations, or services.

2. **Engage in democratic, participatory, and co-created innovation**: QH is oriented towards democratic, participatory, and user-driven innovation. Central in the QH are communication, cooperation, collaboration, and co-creation practices amongst the helix partners to promote cross-sector innovation.

3. **Establish cross-sectorial collaboration in the middle**: Each partner in the QH should work together to create shared understandings, ambitions, strategies, processes, roadmaps, and goals that enable them to meet in the middle to collaborate and co-create innovations in valuable and meaningful ways for all partners. The QH ecosystem aims to promote cross-sector exchange, interoperation, co-created innovations, and transformative partnerships within the helix.

4. **Aim for cultural and social innovation and transformation**: The fourth helix in the QH ecosystem focuses on culture- and media-based public, culture, and civil society. In different ways, QH innovation includes democracy, art, media, cultural heritage, the CIs, lifestyles, and values.

5. **Adjust and reconfigure QH to be domain- and project-specific**: The QH cannot be generalised – each project refers to a unique ecosystem with different domains, different contexts, different stakeholders, and different ecosystem balances. Ensure integration of sector-specific expertise within all

helices. Multidisciplinary cross-sector expertise is needed for successful cross-sectorial collaboration and cultural/social innovation within the QH.

6. **Connect QH ecosystems to local Cultural Hubs and concrete contexts**: QH projects should be exercised by establishing local QH Cultural Hubs and real-life practice labs or environments. The QH should work closely with public institutions or municipalities, citizens, universities, and entrepreneurs (SMEs) in concrete contexts to increase the QH project's value, benefit, success, and exploitation.

7. **Develop versatile Mode 3 knowledge**: The QH ecosystem should be tailored towards co-creating Mode 3 knowledges within the helix and amongst all helix partners (including citizens and end-users). QH stresses the importance of fostering innovation cultures and knowledge partnerships comprising a diversity of disciplines, knowledges, methodologies, and practices. Mode 3 knowledge is created through 'meetings in the middle' between the helices. The co-existence, co-evolution, and co-specialization of different knowledge paradigms and different knowledge modes become apparent and are embraced to accelerate emerging knowledge for cultural/social transformations and innovations.

8. **Ensure diversity with trans-disciplinary and multi-method approaches**: Different QH approaches and collaborative or co-creative methods should be used in different stages of the project. While trans-disciplinary and multi-method approaches require more effort, time, and collaboration, they often result in more profound, more intensive 'meetings in the middle' with more

rewarding outcomes. The helix partners' model, approach, methods, and involvement should vary with what the helix wants to achieve.

9. **Integrate media partners in the QH**: To increase the chance of success and grow the potential dissemination and impact of QH projects, they should include (professional) communication and media partners as part of the QH ecosystem. Communication should (also) be tailored to citizens and the public using different media- and communication formats and channels. New insights, knowledge, results, or products that might be of value or importance should be 'translated' and handed over in a way that is relevant and meaningful to the involved sectors or partners.

EPIC-WE as Quadruple Helix Research and Innovation Ecosystem

03

3. EPIC-WE as Quadruple Helix Research and Innovation Ecosystem

3.1. Introduction to EPIC-WE as Quadruple Helix Research & Innovation Ecosystem

One of the main results of the EPIC-WE project will be the construction, implementation, evaluation, and iterative adjustment of a QH ecosystem specifically tailored for empowered participation in cultural innovation between CIs, CHIs, HEIs, and YCs and across three sites in Europe.

These three sites and four domains or sectors 'meet in the middle' to collaborate and develop more equal and interwoven partnerships for future cross-sector cultural collaboration and innovation taking the form of CHs, CGJs and game-making as culture-making to create games through and for culture and establishing such an 'epic we' for cultural innovation points towards engaging in structural transformations that extend well beyond the capacity of any single partner in the project. This requires a model that scaffolds and promotes close co-operation and co-creation, meetings in the middle beyond one's own 'home turf,' democratic and equal involvement in each other's knowledges and cultures and adaptation of Mode 3 partnerships and knowledge cultures, as discussed by, e.g., von Hippel (2006) and DiSalvo (2022) and Carayannis and Campbell (2006; 2012; 2022).

For the partners to initiate and carry out this cross-sectorial collaboration and co-creation for cultural innovation, a preliminary cultural innovation ecosystem on the macro level must be in place. Here, EPIC-WE adopts and adjusts the QH *Ecosystem*

and the QH *Principles* to establish 'meetings in the middle' to co-create cultural innovation within and across the three sites in Aarhus, Hilversum and Óbidos.
The QH innovation ecosystem is a general model for imagining and enacting cross-sector collaboration between sectors. EPIC-WE modifies and extends this model to explicitly accommodate the domains of culture, cultural heritage, and cultural game design. From a processual perspective, the domains of culture, cultural heritage, and game-making represent unique ecosystems with accompanying knowledge cultures, methods, practices, and ways of knowing, doing, and being.

This way, a QH ecosystem tailored to cultural innovation within these domains will be developed through the EPIC-WE partners' enactment of a QH ecosystem in practice. This iterative development, practice, and evaluation of a QH for culture-sensitive innovation will result in the delivery of the *EPIC-WE QH Cultural Innovation Ecosystem*. By practising QH cultural innovation, partners will form CHs within the three sites to develop Mode 3 cultural knowledge, collaborate to foster empowered participation in culture and carry out CGJs for the public good. The ambition is to develop an EPIC-WE QH Cultural Innovation Ecosystem that enables CIs, CHIs, HEIs, and YCs to work closely together to become co-shapers of new cultural futures that reimagine European values and culture, innovate cultural products through CGJs and revitalise cultural heritage as public good. This entails the design of the EPIC-WE framework on the meso level, i.e., the *EPIC-WE CHs* and the design of the EPIC-WE ecosystem on the micro level, i.e., the *EPIC-WE CGJs*. Taken together, the EPIC-WE framework on the macro, meso, and micro levels specifies and extends how CHI, CI, HEI, and YC can work together as partners in cultural-creative innovation and transformation.

3.2. A Quadruple Helix Ecosystem Tailored to Cultural Innovation

When examining publications, projects, and proven practices about QH, recurring patterns emerge. From these patterns, cutting across research and practice, we can derive guiding principles for the design and realisation of a QH innovation ecosystem tailored explicitly to the domain of culture, cultural heritage, cultural game-making, and CGJs, such as in the EPIC-WE project. The principles below have general applicability for QH ecosystems spanning different domains, contexts, sectors, and disciplines but have been specifically selected for their relevance to the EPIC-WE project.

In the following sections, the QH principles will be purposely adjusted to the EPIC-WE project on the macro and meso level to deliver the preliminary design and configuration of the EPIC-WE QH Cultural Innovation Ecosystem and EPIC-WE CHs.

1. **Citizens included as equal partners in cultural innovation:** In the development of the EPIC-WE QH Cultural Innovation Ecosystem, YCs will play a central and critical role in the execution and evaluation of the EPIC-WE project's main cultural innovation: the EPIC-WE CGJs. Here, YCs will be the inventors of cultural products in the form of games through and for culture. These cultural products, which are the primary outcomes of the CGJs will hold a central position in the QH as they will act as a principal form of culture-making, game-making, and research-making within the cultural ecosystem. Furthermore, YCs will be included as central research and innovation helix partners in the cultural ecosystem throughout the project to enhance the credibility, authenticity, cultural value, and benefits of its innovations for end-

users (YCs). This will be carried out in EPIC-WE by involving YCs as research and innovation partners in both the EPIC-WE CGJs and the EPIC-WE CHs.

2. **Cultural innovation through democratic and participatory processes**: Developing the EPIC-WE QH Cultural Innovation Ecosystem will be distinctly visible in the configuration and distribution of roles and responsibilities in the EPIC-WE Consortium. An equal distribution of helix partners from CIs, CHIs, and HEIs constitutes the EPIC-WE Consortium. All partners will have equal representation and rights on the EPIC-WE Executive Board, and each of the three CHs will be composed of a HEI, CI, and CHI partner, as well as the inclusion of YC. The EPIC-WE Consortium's 12 helix partners – no matter if they are positioned within the culture, industry, or academia helices – are to be acknowledged and involved as co-researchers, co-designers, co-innovators, and co-practitioners (as are YCs) and the helices will be participating in all phases and key activities within the QH. To ensure substantial and committed cross-sector collaboration and co-creation, all partners and the expertise they bring with them will be equally indispensable for and utilised in all phases of the innovation process and within each of the EPIC-WE CHs. The QH's implementation of DBR as a fundamental innovation methodology will further reinforce this participatory co-creation approach.

3. **Cross-sectorial cultural collaboration within a co-creating Consortium**: Within the EPIC-WE QH, the helix partners work closely together in cross-sectorial cultural co-creation on the macro, meso, and micro levels. On the macro level – The EPIC-WE QH Cultural Innovation Ecosystem – this will, for example, be apparent through the QH's collaboration on shared ambitions, aims, objectives and outcomes of the cultural innovations amongst the helix

partners, the QH's co-creation of a common encyclopaedia and concept notes to produce a shared understanding of the conceptual foundation of the cultural innovations as well as making joint decisions and having an equal voice in all decisions through representation on the QH's Executive Board. On the meso level - The EPIC-WE CHs – this will, for example, be accomplished through QH workshops within the CHs to ensure the development of EPIC-WE protocols for cultural innovation are valuable and meaningful for all helix partners and monthly meetings amongst helix partners to organise CGJs and ensure cross-sector horizontal development and integration of the cultural innovations. On the micro level - The EPIC-WE CGJs – this will, for example, be practised through co-organised events and activities where all helix partners meet in the middle of the helix to participate in CGJs to test cultural innovation formats, methods and processes as well as co-create cultural innovations together in the form of games through and for culture. Through such close and continuous cross-sector cultural exchange, collaboration, and co-creation, EPIC-WE will have the ambition to nurture transformative QH partnerships and practices in cultural innovation.

4. **A focus on cultural innovation and transformation**: The EPIC-WE QH Cultural Innovation Ecosystem engages culture- and media-based public, culture, and civil society, which is positioned as the fourth helix partner. The EPIC-WE QH Cultural Innovation Ecosystem's ambition is to design for and promote cultural innovation and transformation in relation to cultural heritage, game-making, YCs, empowered participation in culture, European values, and the games through and for culture. This ambition is realised within the EPIC-WE QH Cultural Innovation Ecosystem by focusing on the potential and value of culture- and media-based public as co-creating partners in cultural

innovation, the formation of CHs for transformative partnerships in cultural innovation, and the role of YCs as cultural game-makers and innovators through CGJs. Within the EPIC-WE QH Cultural Innovation Ecosystem, democracy, art, media, games, CHIs, CIs, lifestyles, and values take the front stage in innovation – as methods, processes, and products. That is, the EPIC-WE QH Cultural Innovation Ecosystem 1) utilises methods originating within art, culture, design and games such as arts-based research, DBR, game design, value-sensitive design, speculative design, democratic and participatory design, poetic methods, narrative methods and similar, 2) utilise such methods in cultural innovation processes that are decidedly iterative, probing, open-ended, humanities-oriented, prototyping, workshop-based, multi-modal and, 3) engages in such processes towards the innovation of cultural products that function *as* culture, are created *through* culture and are *for* culture. These products are created through QH cross-sector events where partners from the four helices 'meet in the middle' to work together as game-makers, culture-makers, and research-makers in CGJs and towards the creation of new cultural formats and products in the form of games through and for culture.

5. **Reshaping QH to the cultural domain and practising QH Cultural Innovation within CHs and through CGJs:** As highlighted within the literature on QH, the QH cannot be generalised but must be tailored to specific domains, contexts, partners, and innovation ambitions. Accordingly, one of the main contributions of EPIC-WE is the creation of a QH innovation ecosystem tailored explicitly to the cultural domain with a focus on art, cultural heritage, media-based culture, game-making, cultural citizenship, and cultural value(s). Even more specifically, the QH is tailored to and tested in three specific CHs – each with different QH partners – and through 12 different CGJs – each with different

cultural themes, contexts, and participants. Across the CHs and within each CGJ, the EPIC-WE QH Cultural Innovation Ecosystem integrates sector-specific expertise from all helices in the form of, e.g. game companies, artists, cultural heritage specialists, game designers, researchers, workshop facilitators, game jam experts or value-sensitive designers. One of the primary outcomes of the EPC-ECO will be knowledge about how such trans-disciplinary cross-sector cultural expertise can contribute to closer and more valuable collaboration and co-creation in innovation.

6. **Cultivating Mode 3 cultural knowledge and innovation cultures**: The EPIC-WE QH Cultural Innovation Ecosystem should aim towards reciprocal value creation. It should create value for each helix partner and value creation for the combined helices as they meet and co-create in the middle. Innovation through the creation of Mode 3 knowledges within a cross-sector trans-disciplinary cultural ecosystem is demanding, tasking and resource-demanding work. It is an ecosystem with internal tensions and differences when it comes to what counts as good knowledge, methods, practices, outcomes, and value. In a QH, the whole should be greater than the sum of its parts. Otherwise, it is not worth the effort. In a cultural innovation ecosystem, what is created in the middle when partners communicate, co-operate, collaborate, and co-create should be something they cannot accomplish on their own. In the EPIC-WE QH Cultural Innovation Ecosystem, each partner is equally recognised as a culture-maker and game-maker, as a research-maker and innovation-maker, and as providing knowledge, methods, practices, and expertise that is of vital importance to the practice of the QH. If any cultural helix domain were excluded, cultural innovation would become impossible. In EPIC-WE QH, CIs bring knowledge and expertise in games, game design, technology,

programming, and game jams. CHIs bring knowledge and expertise in cultural heritage, art, audiences, media, storytelling, and exhibitions. HEIs bring knowledge and expertise in democratic and participatory design, arts- and DBR, methods from Arts and Humanities and the inclusion of youth (students) in group-based processes. YCs bring knowledge and expertise in youth cultures, youth engagement and empowerment, youth citizenship and the value of cultural heritage and games for youth. Only through the co-existence, co-evolution, and co-specialization of these four domains will cultural innovation in CHs, through CGJs and in the form of games through and for culture, become possible in the EPIC-WE project.

7. **Inclusion of professional network, media, and dissemination partners**: One of the strengths of the QH innovation ecosystem is the gathering of specialised experts and professionals within each helix in the system. In the EPIC-WE QH Cultural Innovation Ecosystem, all helix partners are professional network and media partners within their own specialised domain (e.g. for HEI partners: academic networks, conference presentations, academic webinars, research publications, public dissemination of research, etc.). However, they do not have networking, media communication or dissemination as their core expertise or specialised profession. To increase the chance of success, outreach, dissemination, and impact across the QH sectors, such expertise should be included within the ecosystem. EPIC-WE will work to include such expertise within its EPIC-WE QH Cultural Innovation Ecosystem by establishing a fourth 'glocal CH' alongside its three local CHs in Aarhus, Hilversum and Óbidos. The term 'glocal' is a contraction of the words 'global' and 'local.' As such, the glocal CH operates as a sort of 'meta-hub' that connects, works across and moves beyond the 'local' operations of the

individual CHs in EPIC-WE QH Cultural Innovation Ecosystem. To ensure that communication, collaboration, and co-creation within the QH are tailored to all sectors and that new cultural insights, knowledge, results, and products are 'translated' and handed over in a way that is relevant and meaningful to the involved sectors, the glocal meta-hub is constituted by professional media, communication, and network partners from within the policy, public, CIs, and culture sectors.

Based on the above framework and guidelines, EPIC-WE will collaborate over the next few years to implement, evaluate, and further develop the EPIC-WE QH in practice as it is implemented in the CHs. The outcome will be the delivery of a developed and tested model for an EPIC-WE QH Cultural Innovation Ecosystem. However, to achieve this, the QH needs to be paired with a practice-oriented 'environment' wherein the QH partners can develop, implement, enact, and evaluate QH in local and concrete contexts. An approach that has been highlighted as particularly promising in this regard is the setting up of 'Living Labs' (see, e.g. ENoLL; European Commission, 2009; In for Care, 2019).

Living Labs

04

4. Living Labs

4.1. Introduction to Living Labs

The concept of 'Living Labs' (LL) is a research method, a particular approach to innovation, and a concrete environment within which the method and approach are practised. The environment can be a room within a museum, the whole museum, or the whole city in which the museum is located. The invention of LL as 'in vivo' **environments** is usually ascribed to W. J. Mitchell from MIT and his PlaceLab (2004). Michell's Placelab was constructed as a 'private home' where users and their practices could be explored and documented. LL as a design and innovation **approach** is heavily influenced by participatory and democratic design originating in the Scandinavian countries in the 70's and 80's. Participatory design positions end-users as participants and partners in the design and focuses more on cultural and social values, systems, environments, experiences, interactions, interfaces, and products than on technical solutions (Ehn, 1988; Björgvinsson et al., 2010; Binder et al., 2015). As a **method**, LL often employs a mixture of methods from participatory design, democratic innovation, citizen research, human-centred design, ethnographic methods and other methods for democratic, participatory, and user-driven research and innovation (Fuglsang et al., 2021).

According to ENoLL, LLs are open innovation ecosystems in real-life environments using iterative feedback processes throughout a lifecycle innovation approach to create sustainable impact. They focus on co-creation, rapid prototyping and testing and scaling up innovations and businesses, providing (different types of) joint value to the involved stakeholders. In this context, LLs operate as intermediaries/orchestrators among citizens, research organisations, companies, and government agencies/levels (EnoLL, https://enoll.org/about-us/what-are-living-

labs/). In an integrative literature review on the adoption of the concept of LLs in public sector innovation, Fuglsang et al. (2021) highlight that this shift has implications for the understanding and organisation of public sector innovation as an open, participatory practice that, in different ways, involves citizens, users, and external partners when shaping our cultural, societal, and public futures. Generally, Fuglsang et al. (2021) find that LLs, as an approach and methodology, are versatile in encompassing different participant-centred research methods and decision-making processes that involve citizens and other partners.

Overall, empirical research on LLs suggests they are practical environments for diverse partners to engage in participatory citizen research and innovation characterised by trans-disciplinary thinking, cross-sector partnerships, and a multi-method approach towards medium to long-term temporal enactments (Schurmann et al., 2015). In LL environments, the focus and aim of research and innovation are shifted from developing and delivering technical solutions, technological infrastructures or product innovation towards democratic participation, citizens as co-creators of knowledge and innovation (Ansell & Torfing, 2014; Ballon & Shuurman, 2015; Dell'Era & Landoni, 2014; Muller et al, 2006; Steen & van Bueren, 2017). As such, the LL is uniquely positioned to function as a 'translator' and 'transformer' of a macro-level conceptual QH Ecosystem into meso-level concrete practice and tangible reality.

Largely, LLs share the following characteristics: They are practised in real-world environments and involve collaboration and co-creation of cross-sector partnerships. They practice participatory approaches by focusing on collective action and the active involvement of 'end-users' as co-innovators. They are practised in multi-disciplinary teams through 'hands-on' practices such as joint workshops, events, interventions, or

experiments that drive the shared research and innovation agenda between the partners practising in the LL environment (Higgins & Klein, 2011). Taken together, LLs entails a participatory-focused innovation process and environment in real-world settings; that is, innovation and research are happening within the actual real-world context where products, innovations or services are to be used and through involvement and collaboration with the end-users in that context.

Importantly, they function as 'on-the-ground' and 'hands-on' environments for putting QH ecosystems (or similar) into practice through concrete research, innovation interventions, experiments, and projects (Almirall & Wareham, 2011; ENoLL, 2020). As such, LLs are real-life environments where open innovation and participatory-driven innovation processes can be developed, studied, and evaluated through concrete experiments, activities, interventions, or events. As such, LLs functions as QH intermediaries among citizens, researchers, industries, organisations, cities, and regions for joint value co-creation, rapid prototyping, and innovation (ENoLL, 2020). A more substantial introduction to LLs will be given in the following sections. Then, the notion of Cultural Living Labs (CLLs) will be introduced as a specific framing of LLs that are particularly suited for cultural innovation within QH ecosystems. The sections will conclude by listing some core principles for implementing CLLs in practice.

To facilitate the enactment of QH ecosystems in practice as LLs, Fuglsang and Hansen (2022) underline three defining characteristics of LL practices:

1. **The foregrounding of co-creative processes over technical services or solutions**. It portrays LLs as co-operative environments where continuous exchanges between the partners seamlessly blend into everyday work. This

fosters interpersonal togetherness and a sense of citizenship, thereby setting the stage for ‘meetings in the middle’ through engaging in cross-sector, trans-disciplinary and co-creative activities in and with the public.

2. **The centrality of innovation emerging from real-world and real-life cross-sector practices**. It positions 'in vivo labs' as particular environments away from the partners’ ‘home turf.’ Such ‘third spaces’ are established to, first, facilitate a ‘de-centring’ of pre-existing sector-confined ways of knowing, doing and being within the individual helices and, second, enable a ‘centring’ of new modes of co-operation and co-creation by way of practising transformative environments for knowing, doing and being in the middle of the helix.

3. **The focus is on establishing environments for empowered participation**. It practices LLs by integrating methods and approaches well-suited for democratic and participatory co-creation, trans-disciplinary and cross-sector collaboration and positioning the public as co-researchers and -innovators within the QH through involving the public as partners and participants within the LL.

From a ‘typology’ perspective, there are different Living Lab set-ups for enacting LLs in practice (Malmberg et., 2017):

- **Research-driven Living Labs**: Research-driven LLs utilise the format as a way to conduct research and create new knowledge. Here, research is positioned as the innovation outcome of the participants’ practices in the LL.

- **Industry-driven Living Labs**: Industry-driven LLs transform a physical place within the company into an LL, inviting users, employees and/or stakeholders to help them co-create and accelerate innovation. Here, creating products, services or solutions is positioned as the innovation outcome of participants' practices in the Living Lab.

- **Community-driven Living Labs**: Community-driven LLs are established in a region, city, public space, community, or 'neutral' environment to open up sites for communal engagement, experimentation or (inter)action. Here, public good(s), socio-cultural change or democratic design are positioned as the innovation outcome of the participants' practices in the LL.

- **Testbed-driven Living Labs**: Test-bed-driven LLs are employed to demonstrate or test new products, services, or solutions in real-life contexts with users. Here, a developed product's demonstration, test or uptake is positioned as the innovation outcome of the participants' practices in the LL.

Most LLs will, in reality, be a combination of several types. However, to keep in mind the ambition, goal, or intentionality of initiating an LL, a distinct configuration must be tailored to each instance. Furthermore, tailored' sub-species of the LL format need to be developed for an LL to animate a concrete QH Ecosystem in ways that create value and facilitate innovation within certain domains, sectors, projects, and partnerships. Examples of such tailored 'sub-species' LLs are, e.g. 'Ethnographic Living Labs,' 'Climate Change Living Labs,' 'Smart Cities Living Labs,' 'Health Care Living Labs', or 'Campus Living Labs.' Consequently, EPIC-WE will develop CLLs to be practised as 'meso-level' CHs to animate the 'macro-level' EPIC-WE QH Cultural Innovation Ecosystem and practice cultural innovation through 'micro-level' CGJs.

4.2. Cultural Living Labs

Building on the conceptual framework of LLs above, as well as Brandt and Bruun's (2023) adaptation of the format into 'Ethnographic Living Labs' in the city, EPIC-WE engages in a similar adaptation and transformation of the LL concept into CLLs. That is, LLs as an environment for engaging and animating cultural research and innovation in QH ecosystems. Similar to Brandt and Bruun (2023), EPIC-WE focuses on QH co-creation of research and innovation in the form of cultural value, experiences, knowledges, and formats for empowered participation in culture, cultural heritage, culture-making within CHs and through CGJs. Here, innovative solutions, services or products are not known in advance but emerge as the QH partners collaborate and co-create 'in the middle' through practising CH partnerships and CGJ events.

The understanding of what knowledge and innovation are needed and of value to the QH partners is co-created between them and along the way as the project develops. The value of the experiences, interactions, and outcomes of CHs and CGJs as they are practised in real-world cultural contexts and through real-world cultural events is the foundation of the research and innovation work happening within the EPIC-WE QH Cultural Innovation Ecosystem. The co-creation, testing and evaluation of valuable cultural environments, events, methods, and practices for all partners constituting the QH make up the innovation results of the partnership.

In this way, CLLs are in themselves 'designed cultural environments' as they are also part of the co-creation happening within the QH. They are envisioned, configured, and practised with certain goals or intentions in mind; they are centred around the development, implementation and evaluation of concrete projects, interventions, experiments, events, and activities co-created between the QH partners; and they are

carried out through participatory processes and methods between the QH partners as they 'meet in the middle' to collaborate (Brandt & Bruun, 2023). Together, QH and LLs for cultural research and innovation point towards a break with the 'silofication' of sectors, disciplines, and knowledges as both necessary and valuable when faced with wicked problems or on the lookout for innovations and ideas that are complex and culture sensitive.

In the CLL, the QH partners are simultaneously positioned as research partners and innovation partners. Each partner brings specific knowledge, methods, and practices to the middle as ways of approaching research and innovation within the domain of culture. These are brought together in the CLL to interact, cross-pollinate, and transform each other in order for something new to emerge. This happens through carefully designed cultural processes, tasks, and actions internally in the EPIC-WE CHs as well as externally through cultural events, workshops, and experiments such as the EPIC-WE CGJs. As such, the CLL takes form and is brought into being through tentative and probing processes of conceptualisation, prototyping, testing and evaluation on the macro-, meso- and micro-levels. Here, innovations are co-created as the QH partners meet in the middle to imagine, explore, experiment, and invent together. The conceptualisation, configuration, concretisation, and actualisation of the QH partnership within a CLL is just as much a part of the cultural innovation as the research results and innovation outcomes generated. Consequently, one cultural innovation result and outcome of the EPIC-WE will be the EPIC-WE QH Cultural Innovation Ecosystem, another will be the EPIC-WE CHs, and a third will be the EPIC-WE CGJs. Within EPIC-WE, these will both function as sites for the QH partners' cultural experimentation and innovation and as cultural designs and devices that enable other partners to set up their own QHs and CHs for similar cultural experimentation and innovation.

4.3. Living Labs Tailored to Cultural Innovation

As with QH publications, projects, and proven practices, we also find recurring patterns when examining the idea of LLs. From these patterns, we can derive some guiding principles for the design and practice of LLs tailored explicitly to bring QH ecosystems to life within the domain of culture, cultural heritage, cultural game-making and CGJs. The principles below have applicability for diverse sub-species of LLs but have been purposedly adapted to fit the EPIC-WE project on the meso-level to deliver the preliminary design and configuration of the EPIC-WE CHs.

1. **Living Labs as QH transformer**: CLLs should be established and practised based on cross-sector cultural partnerships. Accordingly, EPIC-WE, enacted as CLL, transforms, operationalises, and materialises the EPIC-WE QH Cultural Innovation Ecosystem in ways that connect partners through 'meetings in the middle' and 'on the ground practices' within the ecosystem. A CLL connects diverse 'partners in culture' through joint collaboration and co-creation activities and events to facilitate more holistic approaches to innovation in culture and society.

2. **Living Labs as cultural meeting places**: CLLs should be conceived as a cultural environment and meeting place that is characterised by 'communal ownership,' 'co-operative operations', and 'collective participation' enacted through democratic, participatory membership and based on notions of democracy, equality, equity, and solidarity. In CLLs, 'the middle' is constituted as a communal, co-operative, and collective cultural geared towards the creation of 'cultural and public good(s)'. For this to happen, QH partners must meet each other halfway and leave behind preconceptions and taken-for-granted knowledges, methods, and practices. CLLs are meeting places for

thinking, doing and being 'other-wise' within the cultural domain. As such, knowledge, methods, and practices might take on seemingly unintelligible or inappropriate forms. CHs compel partners to 'embrace the culturally alien' and to form open-minded, curious, imaginative, and creative cultural research and innovation partnerships. Through such meetings in the middle, CLLs seek to establish a collective being in culture, an 'epic we'. Meeting the other(s) halfway is hard work of continuously stabilising what is culturally unstable and destabilising what is culturally stable through collectively reimagining, reconfiguring, and revitalising culture(s) in the middle.

3. **Living Labs as cultural knowledge creators:** CLLs conducts cultural research and innovation through real-world and real-life cross-sector practices. It positions culture as something to be experienced, engaged, enacted and 'lived through'. Research and innovation are performed through CLLs and their activities, not on them. In the CLL, all partners are both inventors and knowledge creators – each in their own way. Here, CLLs work to, first, facilitate a 'de-centring' of pre-existing sector-confined ways of knowing, doing and being regarding the cultural domain and, second, enable a 'centring' of new modes of collective and co-creative knowing, doing and being within the cultural domain. Culture-making, research-making, and innovation-making within the CLL melt into each other. The goal of the CLL is to form an 'epic we' that can carry out QH research and innovation in culture that would not be possible within the individual helixes.

4. **Living Labs as living cultures**: CLLs function as cultural in vivo environments, sites, and methods. They function as 'cultural homes' for the coming together of the QH partners. This, in turn, requires real-world, real-life places of culture

wherein cultural practices naturally unfold as part of everyday cultural life. This could be places of culture such as museums, public spaces, libraries, CIs, cultural centres, exhibition spaces, cultural heritage sites or other 'living cultures' within which the CLL can come to life. CLLs operate in real-life settings of the cultural actors, infusing research and innovation into their everyday cultural experiences and interactions. Within such living cultures, CLLs can be established as design and innovation sites for cultural transformation and innovation. However, rather than 'overpowering' or assimilating the existing cultural environment and living culture, the QH partners work with or alongside what is already there through utilising democratic, participatory, and co-creative culture-relevant methods. The idea of CLLs is not to take over cultural worlds or environments but to ideate and co-design cultural transformation and innovation with present and future end-users. On the meso-level, this is also what EPIC-WE stands for: *Empowered Participation through Ideating Cultural Worlds and Environments*.

5. **Living Labs as cultural typology**: CLLs can be brought to life for different reasons (as well as a mixture of these) and be of different types. They can be established by QH partners within the cultural domain to engage in the co-construction of cultural knowledge, such as new understandings, conceptualisations, insights, methods, or perspectives within the cultural domain. Here, QH partners team up and collaborate in the CLL as 'research-makers' joining forces from each sector helix to make new cultural knowledge come into being. They can be established by QH partners within the cultural domain to co-construct cultural innovations such as new cultural artefacts, formats, products, solutions, systems, or services. Here, QH partners team up and collaborate in the CLL as 'innovation-makers' joining forces from each

sector helix to make new cultural innovations come into being. They can be established by QH partners within the cultural domain to co-construct cultural public good(s), such as new cultural opportunities, spaces, experiences, interactions, affiliations or publics for citizens, collectives, or societies. Here, QH partners team up and collaborate in CLLs as 'culture-makers' joining forces from each sector helix to make new cultural communities come into being. Finally, they can be established by QH partners within the cultural domain to collaboratively appraise cultural ideas, solutions or products through demonstrations, testbeds, try-outs, evaluations, reflections, assessments, or judgments. Here, QH partners collaborate in CLLs as 'product-makers' joining forces to estimate the meaning, relevance, and value of cultural products as they come into being.

6. **Living Labs for empowered participation in culture**: The experiential ambition of CLLs is to provide environments for empowered participation in culture – collectively and individually. This might be experienced at different times or phases, in different instances or places, within different events or activities and through different methods or practices for different sectors, partners and participants. However, overall, CLLs aim to provide diverse opportunities for empowered participation through the uptake of methods and approaches that are well-suited for democratic and participatory cultural co-creation, trans-disciplinary and cross-sector collaboration, and that seeks to position each QH partner as an indispensable and equal (in each their own way) contributor within the CLL. Accordingly, CLLs flourish when their QH partners flourish, feel empowered, have a sense of belonging, feel respected, heard, and acknowledged, and experience being able to accomplish things they could not accomplish on their own. In CLLs, the value of research,

innovation, culture, and products are developed bottom-up. This also highlights the fact that empowered participation in CLLs through meetings to collaborate in the middle goes beyond partners merely teaming up to exchange knowledge products, train skilled workers, offer technical solutions or deliver instrumental outcomes. Empowered participation in the CLL only emerges through authentic and dedicated co-operation and co-creation: The QH partnership must resonate with cultural curiosity, creative imagination, empowered agency, and valued communality to make sense when measured against the efforts, tensions, complexities, challenges and compromises each partner QH sector and partner is confronted with when establishing and running a CLL.

Applying the above model and guidelines, EPIC-WE will iteratively develop, implement, run, and evaluate CHs as a model for practising collaborative research-making, innovation-making, culture-making, and game-making in QH cultural partnerships over the following years. As well as a framework for co-developing cultural innovations through CGJs, the outcome will be delivering a matured and tested model for CLLs in the form of CHs. However, to achieve this outcome, the QH partnership needs to meet in the middle around concrete cultural events, activities, and practices through which the QH partners can develop, implement, enact, and evaluate the value of CHs concerning cultural research and innovation.

Cultural Living Labs: EPIC-WE Cultural Hubs

05

5. Cultural Living Labs: EPIC-WE Cultural Hubs

5.1. Introduction to EPIC-WE Cultural Hubs

The EPIC-WE model, which consists of the EPIC-WE QH Cultural Innovation Ecosystem on the macro-level, the EPIC-WE CHs on the meso-level and the EPIC-WE CGJ on the micro-level, is rooted in the research on helix ecosystems, LLs, and game jams in relation to cultural heritage and the cultural domain. Accordingly, EPIC-WE will develop and carry out the format of CGJs within its cross-sector trans-disciplinary EPIC-WE CHs. In the CH, the QH partners – YCs, HEIs, CIs, and CHIs – are positioned as research-makers, innovation-makers, culture-makers, and game-makers that work together to research and innovate games through and for culture as a method for enhancing belonging, European values and empowered participation in culture and cultural heritage. In the CHs, the QH partners work together as co-creators of culture, cultural heritage and new futures in culture and society. Here, CGJs are employed as a way for QH partners to establish transformative partnerships that work together to ideate cultural worlds and environments that enable new forms of engagement, participation, belonging and co-creation within the cultural domain. As such, CHs works to establish cultural dialogues and spaces for co-creation and enactment of epistemic partnerships (Estalella & Criado, 2018), where each helix provides the domain- and sector-specific expertise, intentionally blurring the differences between, i.e., research, practice, and innovation voices.

In EPIC-WE, the framework of LLs is used to enhance the intermingling of knowledge and innovation cultures between the QH partners. This approach focuses on enhancing experiences of empowered participation, allowing the collective imagining of alternative futures through collaborative efforts of 'meeting in the middle.' CHs are developed to serve as a meeting point between various knowledges, approaches,

cultures, and worlds, generating shared practices. This encourages collaborative problematising, imagination, and co-devising – both in an epistemological and tangible material sense – shaping the field between the QH partners as a space for joint research and innovation. In EPIC-WE, CHs are developed to merge and operationalise the QH Innovation Framework and LLs to a mutual and interdependent endeavour where it is experienced as beneficial to acknowledge each other as epistemic partners (Estalella & Criado, 2018) in cultural research and innovation.

Consequently, The EPIC-WE CH model is a vibrant animated enactment of the EPIC-WE QH Cultural Innovation Ecosystem. As such, it is – like all living things – a continuous work in progress reflecting the local life of each Cultural Hub, sector, partner, and participant. It is recognised and materialised as an ongoing cultural development of the purpose, role, responsibility, and expertise of the individual partner as well as of what emerges in the middle. To succeed, this requires that each sector and partner in EPIC-WE QH Cultural Innovation Ecosystem reimagine its relationship with the other sectors and partners and that they revitalise their civic engagement and reconfigure how they might work together in the middle to contribute with cultural value and public good for all.

5.2. EPIC-WE Cultural Hubs in Practice

The EPIC-WE QH Cultural Innovation Ecosystem differs from the general theoretical understanding by exchanging the policy/government helix with cultural (heritage) institutions to manifest the 'government/public sector' and approach youth as citizens in society. Therefore, this specific adaptation of the QH ecosystem accentuates the cultural domain as a governmental element and the YCs as quintessential civic

stakeholders. The importance of inviting YCs to become an active and equal part of the QH is of particular interest and relevance to EPIC-WE helix as "... there is a lack of consensus in previous research on how to define and operationalise the fourth helix (...), but there is a tendency to either take a civil society approach or an end-user approach (Hasche et al., 2020: p. 539). Consequently, integrating the fourth helix of YCs as more than mere end-users is of foundational importance by inviting their voices and perspectives to influence and transform the EPIC-WE QH Cultural Innovation Ecosystem.

The EPIC-WE QH Cultural Innovation Ecosystem for both research and innovation is, as mentioned, anchored in four diverse sectors (CHI, CI, HEI, civil society/youth) that are materialised across three local European Cultural Hubs (Aarhus, Óbidos and Hilversum), with each Cultural Hub containing the four different sectors. Accordingly, the EPIC-WE consortium is a working partner collaboration set up as a formation for transformative partnerships in research and innovation that are manifested across countries and sites and in the local CHs. This might be conceptualised and illustrated as a micro-meso-macro-megastructure permeating EPIC-WE:

Individual	Establishing, enacting, and evaluating the EPIC-WE QH Cultural Innovation Ecosystem and the EPIC-WE CHs on the partner level: **The sector partners and participants from CI, CHI, HEI, YC**
Local	Establishing, enacting, and evaluating the EPIC-WE QH Cultural Innovation Ecosystem and the EPIC-WE CHs on the hub level: **Partners and participants collaborating in the three cross-sector CHs in Aarhus, Óbidos, and Hilversum**
Glocal	Establishing, enacting, and evaluating EPIC-WE QH Cultural Innovation Ecosystem and the EPIC-WE CHs on the cross-hub

	level: **The three CHs in Aarhus, Óbidos, and Hilversum collaborating with each other**
Global	Establishing, enacting, and evaluating the EPIC-WE QH Cultural Innovation Ecosystem and the EPIC-WE CHs beyond the EPIC-WE partners and Cultural Hubs: **Partners and participants outside of the three CHs**

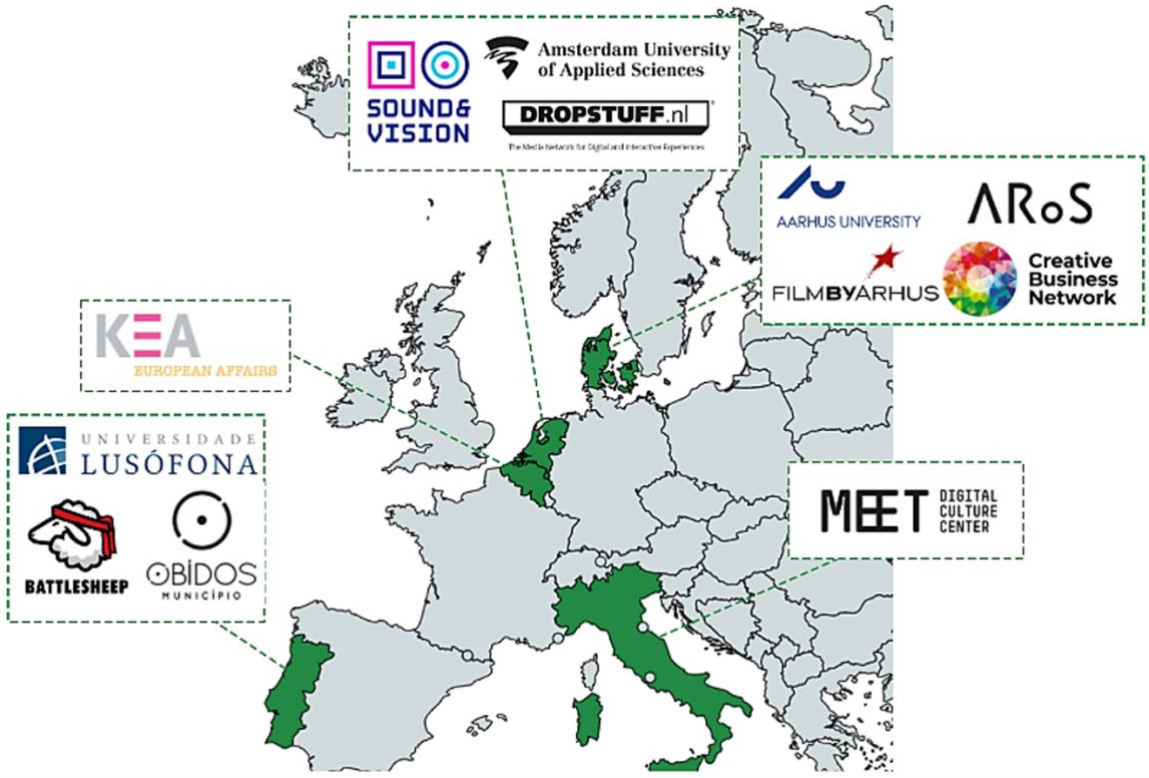

Figure 1: The EPIC-WE partners and cultural hubs – and their descriptions of experiences and expertise – can be examined at the project website: https://epic-we.eu/about/#consortium.

Within the EPIC-WE Grant Agreement, the different roles and responsibilities of the partners are identified and distinguished: "In EPIC-WE, CHIs provide cultural heritage, spaces and knowledge about culture; CIs provide game-making tools,

practices and knowledge about game design; HEI provides substantiated culture- and value-sensitive frameworks and methods; and youth provide expertise and perspectives on the game worlds and game-making environments that might bring about more valuable futures." (Grant Agreement: p. 9). However, youth or civil society might become of particular interest to engage with and integrate as "it is important to notice that there is a lack of consensus in previous research on how to define and operationalise the fourth helix (...) but there is a tendency to either take a civil society approach or an end-user approach (Hasche et al., 2020: p. 539). Schütz et al. (2019) also conclude that defining the functional role of society as the fourth actor among other helices is often problematic. Thus, employing sufficient methodologies and approaches towards addressing this problem – and tangibly integrating the fourth helix within the EPIC-WE QH Cultural Innovation Ecosystem, EPIC-WE CHs, and EPIC-WE CGJs becomes part of the research and innovation work carried out within the EPIC-WE project.

The EPIC-WE QH Cultural Innovation Ecosystem and EPIC-WE CHs enable co-operation, collaboration, and co-creation within the following dimensions:

5.2.1. Different levels: Local – Glocal – Global

- **Local**: The Cultural Hubs from Aarhus (Denmark), Hilversum (the Netherlands), and Óbidos (Portugal) form the research and innovation core in EPIC-WE by harnessing site-specific expertise, experience, and competency around, e.g., games, democratic design, game design, media, democratic innovation, youth empowerment, material culture, artistic culture, cultural heritage, and diverse research and innovation methodologies, coming from different fields of knowing in, i.e., CHIs, CIs, and HEIs. In other words, the local

level frames the scholarly, practical, experiential, and developmental knowledges from each site and context.

- **Glocal**: On a glocal level, the EPIC-WE QH Cultural Innovation Ecosystem and EPIC-WE CHs demarcate, co-create, and innovate connections and exchange across the three local Cultural Hubs, thus merging the above-mentioned diversity in ways of knowing and vast expertise to materialise emerging cross-sector and transdisciplinary knowledge, research, and innovation. As such, the glocal level is the CHs and the ecosystem's permeative qualities in that they create, exchange, evaluate, apply, and iterate site-specific and contextual knowledge in boundary-crossing settings to mature and reinforce local knowledge as glocal and inherently more general knowledge.

- **Global**: The EPIC-WE QH Cultural Innovation Ecosystem delivers a developed and tested ecosystem, a framework and model for co-operative and co-creative transdisciplinary CHs, and formats, approaches, protocols, and tested knowledge on CGJs and CGJ design kits to be exchanged across the EU and beyond, thus displaying and accentuating the value and utilisation of the methodology and frameworks for wider application and replicability.

5.2.2. Different sectors: CHIs, CIs, HEIs, Youth

- **CHI**: Cultural Heritage Institutions provide cultural materials, environments, and knowledge that enable game-making about cultural heritage. CHI benefits from new cultural-creative partnerships and sector possibilities for CHI ecosystem growth by collaborating with the QH partners to create new participation and culture-making possibilities through CGJs. This includes novel opportunities for cultural innovation, future audience engagement,

collaboration with new sectors and partners, QH cultural knowledge, events, and capabilities.

- **CI**: Creative Industries provides game tools, practices, and knowledge that enable game-making within the cultural domain. CI benefits from new cultural-creative partnerships and sector possibilities for CI ecosystem growth by collaborating with the QH partners to create games through and for culture. This includes novel opportunities for game innovation, future workforce engagement, access to new sectors and partners and QH industry knowledge, methods, and capabilities.

- **HEI**: Higher education institutions provide state-of-the-art research, development methods, and proven practices that enable the substantiated enactment of CHs and execution of CGJs. HEI benefits from new cultural-creative partnerships and sector possibilities for HEI ecosystem growth by entering new types of partnerships and developing QH ecosystems, models, and activities. This includes novel co-creative opportunities in research and education, student participation, societal engagement, access to new sectors and partners and developing QH knowledge, methods, and capabilities.

- **YC**: Youth citizens provide perspectives, participation, and products that enable the conduction of CGJs and the creation of games through and for culture. YC acts as culture-makers, game-makers, and research-makers within the EPIC-WE QH Cultural Innovation Ecosystem, connecting sectors and co-creating in the middle as the main participants in the CGJs. YC benefits from new cultural-creative opportunities and collaborations for YC-empowered participation and widened engagement. In the QH partnership, YCs are invited

in as equal and valuable partners to shape culture by expressing themselves through game-making and expanding new cultural horizons by being in culture. This includes novel opportunities in education, industry, culture, and society through empowered participation in the QH and QH citizen research, participation, and innovation.

5.2.3. Different countries: Denmark, Netherlands, Portugal, Italy, Belgium

- **Denmark**: The participating institutions from Denmark display a variety of expertise, know-how, culture, and approaches for research and innovation through the cultural heritage expertise from ARoS, the CIs and game design knowledge and networks of Filmby Aarhus (AAKS), the scientific and scholarly experience, network, and competencies of Aarhus University (AU), and the vast network and industry experience of Fonden Creative Business Cup (CBC).

- **The Netherlands**: The Netherlands Institute for Sound & Vision (NISV) provide experience and excellence in media history and dissemination, knowledge of interplaying media-based art and communication, with the Visual Methodologies Collective from Hogeschool van Amsterdam (HVA/AUAS) enriching the project with expertise to connect researchers, experts, and citizens in addressing substantial issues through participatory practices and lastly, DROPSTUFF MEDIA (DM) provides game design and interactive design approaches, experience, and know-how from an industry-perspective.

- **Portugal**: Universidade Lusófona (UL) is the research and development driver from the Portuguese Cultural Hub with diverse scholarly and designerly

experiences and knowledge on games studies, game design, and research methodologies to collaborate locally with BATTLESHEEP (BS), an experienced and innovative game design studio, and the municipality of Óbidos (CMO) as a rich cultural-historical partner.

- **Italy**: The MEET DIGITAL COMMUNICATION (MEET) team prioritises innovation as a cultural aspect rather than merely a technological one, specialising in promoting digital culture to enhance economic growth and improve opportunities and well-being for all citizens and drawing from its expertise in innovation, transnational projects, the intersection of arts, science, and technology, participatory interdisciplinary art approaches, and the organisation of immersive demonstrations and events.

- **Belgium**: The KEA EUROPEAN AFFAIRS (KEA) team specialises in designing and evaluating public policies, advocating for policies, and providing advisory services to European institutions in the cultural (CHIs) and creative (CIs) industries. With demonstrated experiences and competencies in effectively managing communication and dissemination activities for extensive EU research projects, KEA contributes significantly to EPIC-WE with communication, dissemination, and exploitation competencies, networks, and experience.

5.2.4. Different cultural hub themes and foci

- **Aarhus Cultural Hub**: The Aarhus Cultural Hub strategically aims to examine, reconfigure, and contribute to societal challenges of young people feeling foreign to, disempowered in, or excluded from game-making and culture, thus

emphasising the gender diversity and experiences of societal marginalisation – and wicked challenges thereof - of connecting games and culture.

- **Hilversum Cultural Hub**: The Hilversum Cultural Hub strategically focuses on developing Game Jams in the Netherlands, centring on societal issues like the impact of colonial legacies and online anti-democratic threats. With a target audience of 16 to 24-year-olds, the hub encourages collective thinking and ideation on relevant topics by acknowledging diverse needs in the target age group; the hub adopts an inclusive strategy, promoting multi-generational collaboration.

- **Óbidos Cultural Hub**: The Óbidos Cultural Hub approaches and explores the cultural heritage awareness of young people with intergenerational cooperation. In line with this emphasis and a youth-centric approach, the Óbidos Hub actively upholds European Union values of inclusive quality education and sustainable economic growth. This commitment is evident in promoting diverse voices, encouraging inclusive participation representation, and contributing to a culturally rich landscape.

To facilitate and cultivate this complex and entangled partnership, each CH has a dedicated *Hub Lead* who works in the middle to actively foster and maintain the partners' cross-sector trans-disciplinary co-creative engagement, even in challenging or contesting situations.

The hub lead works to keep the sectors in the middle when things become strenuous, conflictual, or incomprehensible due to the level of 'otherness' in value, knowledge, methods, practice, and culture. In this way, the CH and the hub lead insist on co-

operative and co-creative processual getting-to-know through ongoing and shared problematisations, ideations, exchanges, and innovations. This aligns well with the characteristics of LLs as put forward by Fuglsang and Hansen (2022), where the defining elements of interpersonal openness and joint problematisations/ideations in real-world settings and practices necessitate the formation of transformative partnerships and the formation of an 'epic we.'

The Cultural Hub Frameworks and Signatures are locally developed and applied, thus displaying a more context-sensitive approach towards developing and enacting the CHs. The 'framework' is a practical protocol and reflection piece to identify, locate, exemplify, and navigate the QH partners' diverse responsibilities, roles, networks, stakeholder connections, game jam participation, partnerships, etc. The 'signature' extends the framework by identifying and conceptualising the Cultural Hub 'specificity' – and thus how one CH differs from the two others in competencies, expertise, thematic foci during CGJs, specific elements/objects of inquiry that are context-sensitive, etc.

The EPIC-WE project aims to enable young people (ages 16-25) to explore games as culture and co-create games through culture and for culture together with CHIs, CIs, and HEIs. The project seeks to develop and deliver a cultural ecosystem "geared towards close cooperation, democratic participation, a pluralism of knowledge modes between the stakeholders and support the democratisation of innovation and inquiry" (Grant Agreement: p. 107). While 'democratic participation' is a broad theme – and emphasises different perspectives across the CHs – it is articulated in the project proposal that YCs are experiencing a disengagement from cultural and civic participation and democracy, which entails that models and tools for youth involvement as participants and co-creators of European culture and society are

paramount (p. 126). Consequently, there is a need for creative and participatory models, methods, and tools to ensure the active involvement of YCs as contributors and creators in shaping European culture and society.

CHs are ever-evolving and dynamic manifestations of the QH partnership that emerge from the partners' real-life collaborative practices as they meet in the middle. As such, a CH is a living image of the cultural transformation of each partner's purpose, role, responsibility, value, knowledge, and practices.
In innovating, conceptualising, and establishing new CHs within a transformed QH innovation ecosystem – now occupied by CIs, CHIs, HEIs, and YCs, the partners have developed 1) concepts notes, 2) hub frameworks, and 3) hub signatures – as also described earlier.

Development and integration of QH ecosystems for specific sectors and practices (i.e., for the practice of CGJs) might lead to more robust, valuable, and exploitable innovations for all stakeholders along with empowering citizens (i.e., youth) while increasing trust towards the innovators (i.e., CHI & CI) when becoming active parts of the innovation ecosystem (Grant Agreement: p. 8). This is strongly related to the project's emphasis on developing diverse culture(s), value(s) and life worlds through employing, i.e., creative, media- and arts-based research practices.
CHIs and CIs – collaborating with HEIs and YCs – might become new drivers of cultural transformation through local and glocal action-oriented and boundary-crossing communications, collaborations, co-creations, and communities.

Concluding remarks

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6. Concluding remarks

This report presents the EPIC-WE QH Cultural Innovation Ecosystem and EPIC-WE CHs, describing their theoretical foundations, guiding principles, and practical applications.

In the report, the TH and QH ecosystems are introduced, summarising key insights and transforming their underlying foundation into principles for the macro-level design of the EPIC-WE QH Cultural Innovation Ecosystem. Next, LLs are introduced as a theoretical and practical means to implement and enact the EPIC-WE QH Cultural Innovation Ecosystem on the meso level. Following this, the LL framework is translated into principles that will underpin the initial design of CLLs in the form of EPIC-WE CHs, offering QH partners a collaborative space for cultural research and innovation. These CHs serve as a practical model and concrete environment for partners to engage in joint activities, such as the EPIC-We Cultural Game Jams (the micro level), fostering collaboration and meetings in the middle through QH partnerships.

Throughout the development of the initial EPIC-WE Cultural Innovation Ecosystem and Cultural Hubs, a vital part has been the joint and iterative materialisation of a shared textual, visual, conceptual, methodological, and practical vocabulary and approach. This has taken on the form of e.g. concept notes, visual models, hub signatures, participation modes, core concepts and key messages for EPIC-WE. From here, the report further highlights the diversity and differences situated within EPIC-WE and displayed across the QH partnerships and the local CHs that permeate and enrich the co-creative and innovation potentials of the cultural ecosystem and Cultural Hubs.

Looking towards the future endeavours of EPIC-WE, the initial examinations, conceptualisations, and reflections in this report will lead to the materialisation, implementation and evaluation of both the EPIC-WE Cultural Innovation Ecosystem and Cultural Hubs in the coming period. Followed by further iterative development of these frameworks within the project to further substantiate and reinforce their utility, value, and impact as they are tried out in real-world contexts and actual practice. Finally, as a Horizon Europe Research and Innovation Action emphasising horizontal cross-sector trans-disciplinary integration of knowledge and innovation, the approaches and conceptualisations presented in this report will be evaluated, iterated, and reinforced by the knowledge and experiences produced in the project. This includes systematic literature reviews, design and research protocols, design-based research interventions, empirical studies taking place within, across, and beyond the various Work Packages, Cultural Game Jam interventions, Cultural Hubs and Quadruple Helix partnerships in EPIC-WE.

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