



CommuniCity

Innovative Solutions Responding
to the Needs of Cities & Communities

**D2.3 New inclusive models for co-creation within
marginalised communities - initial version**



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Table of contents

Executive Summary	6
Introduction	7
1. The Past	8
1.1 OrganiCity (2015-2018)	8
1.2 SynchroniCity (2017-2019)	11
1.3 Synthesis and perspectives	15
2. The Present	17
1.4 CommuniCity (2022-2025)	17
3. On Co-Creation	19
3.1 Facets of co-creation	20
3.2 Co-creation and the smart city	24
3.3 Co-creation for marginalised communities	28
3.4 Rebooting “co-creation” from a design justice perspective	35
3.5 Towards a more inclusive model for co-creation with marginalised communities	36
4. Conclusions and next steps	39
Bibliography	41

Index of Tables

Table 1. List of considerations for projects or pilots developed for/with/by marginalised communities based on design justice questions

Table 2. Preliminary model for more inclusive co-creation for/with/by marginalised communities

Executive Summary

Technological developments in the city context are transforming private and public organisations, impacting service provision in all aspects. Several efforts have been started to promote “democratisation” of these processes of innovation, but generally they are meant to involve resourceful, engaged, tech-savvy parts of the population. Despite being commendable, this is insufficient to fulfil the promise of fairly distributing the opportunities of technological transformation towards citizens and the common good, even more so when we consider marginalised communities. New innovation methods and approaches are urgently needed.

The CommuniCity project originated from this requirement. Its goal is to run across Europe 100 experiments through pilots of technological co-creation targeting marginalised communities. By translating in this new context the expertise and previous experiences of parties involved in large piloting and co-creation initiatives, we seek to understand both effective and less effective approaches in city innovation practices.

This document is meant to capture this reflective learning activity. Its companions are three other documents from work package 2, namely: D2.1 Guidelines for Translating Frameworks, Methods, Tools and Principles of Local Innovations for Marginalised and Vulnerable Communities – Initial Version, D2.5 Ethics and Intersectional Inclusivity Framework – Initial Version and D2.8 Principles for ethical and inclusive engagement - Initial Version. The reflection will be schematically divided in two main components: an empirical dimension, made of qualitative and semi-quantitative inquiries on knowledge, information, and data related-to or issued-from running the projects, and a theoretical dimension, which reflects incrementally on this input, informed by relevant scholarship and various discussions amongst partners.

Being our inquiry at an initial stage, the present version of the document is meant primarily to set the background for further reflection—that will take shape through future discussions with the project partners and investigations on empirical data obtained from the project. Thus, for both practical and strategic reasons, the document gives, at the moment, more prominence to theoretical elaborations.

Preliminary conclusions highlight that there is a fundamental ambiguity about what co-creation means, which is particularly dangerous when dealing with marginalised communities. Depending on their framing, pilots can be seen either as successful or ineffective, if not harmful. This observation entails that a fundamental conceptual restructuring is needed to set up the right expectations between public agencies and marginalised communities. The document provides an initial framework for assessing design projects that involve marginalised communities, based on the principles of Design Justice. This framework can guide the development of new co-creation models involving marginalised communities.

Introduction

The objective of this deliverable (D2.3 New inclusive models for co-creation with marginalised communities - Initial version), as stated in the project proposal, is to evaluate and expand upon frameworks, methods, tools, and principles from previous European digital city projects like SynchroniCity and OrganiCity, seeking to establish a guideline for adapting these frameworks, methods, tools, and principles to better engage with, involve, and empower marginalised communities.

The resulting guideline is envisioned to: 1) depart from current scaling-up principles that emphasise similarities and instead emphasise what distinguishes citizens and communities; 2) establish a structure for alignment, coordination, and regulation of engagement and co-creation processes within CommuniCity; 3) consolidate the project's engagement and co-creation insights into enhanced principles for a wider application beyond CommuniCity, aiming to encourage broader societal adoption of new technologies and knowledge-based solutions. Ultimately, this initiative is meant to lead to the creation of new inclusive co-creation models customised for marginalised communities.

This deliverable aim to compile insights obtained from a literature review and from the documents generated in the preceding projects, OrganiCity and SynchroniCity. While these projects differ in terms of their target groups and technological emphasis, a primary question to address is how and to what extent the engagement principles and co-creation techniques established in these previous initiatives—in the form of explicit and tacit knowledge—could be used and further developed in CommuniCity to align with the ethos of engaging with marginalised and vulnerable communities.

The ultimate goal of the framework, once finalised, is to integrate academic and policy literature on ethics, intersectionality, and inclusive co-creation with a practical, hands-on approach to innovation. This integration aims to create an applicable framework that extends beyond the immediate CommuniCity context.

The document is structured as follows: In chapter 1 we provide an overview of the most important aspects concerning co-creation addressed in OrganiCity and SynchroniCity. Chapter 2 briefly outlines the motivation, objectives, and the focus of the present CommuniCity project. In chapter 3, we dive into co-creation, reflecting on the present debates in the literature and the specific attention required by addressing marginalised communities. In the light of these observations, we select and build upon the framework of design justice, proposing an initial principled set of evaluative questions to qualitatively assess co-creation efforts for/with/by marginalised communities. A short summary and a note on the next steps conclude the document.

1. The Past

In recent decades, cities have become the centre of numerous initiatives concerning technological innovations. Many policy programmes have supported and aim to support, develop, and leverage the opportunities brought about by information and communication technology advancements for the benefit of citizens, businesses, and scientific communities. Prototypical examples integral to this innovation paradigm are three EU funded projects: OrganiCity, SynchroniCity, and now CommuniCity, developed and led by the same entities with consortia featuring recurring partners. These past projects have created a comprehensive body of explicit and tacit knowledge that can represent a valuable analytical base for future researchers on subjects such as smart city, digital city, human-centric design, co-creation, and related topics. The aim of this chapter is to provide a reasoned summary of the objectives, knowledge, assumptions, and approaches developed in OrganiCity and SynchroniCity, and how these have been integrated into the current CommuniCity initiative.

1.1 OrganiCity (2015–2018)

“OrganiCity: Co-creating smart cities of the future” was an EU-funded project implemented within the Horizon 2020 programme from 2015 to 2018, aiming to provide a new approach to European digital city development through *co-creation* involving various stakeholders. The project sought to integrate complex systems in city creation by combining top-down planning and operations with flexible bottom-up initiatives, placing citizen involvement at the core. With a consortium of 15 partners led by Aarhus University, the project focused on data collection and experimentation. It involved three clusters in Aarhus (DK), London (UK), and Santander (ES), developing a service for experimentation to explore how citizens, businesses, and city authorities may collaborate in addressing urban challenges through digital solutions. Open calls with a budget of €1.8M allowed 42 out of 423 experiments to utilise the new facilities and co-creation tools.¹ The following paragraphs summarise the main aspects of co-creation adopted in the project.²

¹*OrganiCity – Co-creating smart cities of the future* | OrganiCity Project | Results | H2020. (n.d.). [CORDIS | European Commission](https://cordis.europa.eu/project/id/645198/results). Retrieved October 26, 2023, from <https://cordis.europa.eu/project/id/645198/results>

² For the aims of the present document, we examined the public knowledge base established in the OrganiCity project, particularly focusing on “co-creation”. For doing so, we consulted the subsequent documents: Deliverable D1.1 We Are OrganiCitizens - Engagement Strategy (Initial); Deliverable D1.3 We Are OrganiCitizens - Dissemination and Impact Plan- Year 3; Deliverable D3.5 OrganiCity Tools for Service Co-Creation; Deliverable D5.3 OrganiCity First Open Call Execution; Deliverable D5.5 Co-Creating Smart Cities of the Future- Usability assessment of OrganiCity's first Open

Focus on urban data. OrganiCity worked (its website is not available at the moment) as a platform that enables urban experimentation and collaboration to address urban challenges through digital solutions. Data, as a resource produced and consumed by the “city” and for the “city”, had an intrinsically central role in the project.

Experimentation as a Service (EaaS). The platform operated in itself as a prototype of *Experimentation as a Service (EaaS)*, allowing individuals and entities to experiment with urban data. This model involves cities providing resources for testing new ideas on a small scale, therefore attempting a sandboxed approach to innovation, connecting regular citizens, and facilitating community engagement and co-creation. The initiative included various elements to facilitate experimentation, such as management, urban data discovery, technical environment, co-creation, engagement principles, and legal and ethical considerations.

Open call instrument and piloting. OrganiCity put the open call as a key instrument to reach external communities of stakeholders. These calls invited developers, IoT experts, data analysts, and data scientists to join teams and apply for funding from 5,000 up to 60,000 EUR to co-create and experiment digital solutions for urban challenges. To co-create the Open Call announcement, focus groups were conducted as a suitable method to facilitate discussions among citizens and bring forth issues related to the future development of cities, anchored in citizens' everyday experiences, needs, and hopes as part of the OrganiCity project. The focus group methodology involves in-depth group interviews with selected participants, focused on a specific topic within a particular population. Additionally, an experiment was conducted through Instagram to explore whether citizens' needs in cities could be articulated through visual media. The results and outcomes from the focus groups and Instagram for the three city clusters are later incorporated into the City Challenges or main themes in the Open Call Announcement. The focus was on utilising data, such as capturing new data through sensors, using data visualisations, analysing data, or merging datasets. Various roles included testing experimental tools, creative coding, contributing to existing code, and supporting the team with their experiments.

New process model. The OrganiCity consortium established a robust procedural standard in the open call process, involving online platforms for proposal submission and content evaluation. This included core requirements designed to streamline the application process and enhance the evaluation experience,

Call; Conference paper: Wilson D., McLoughlin S., and Brynskov M. (2019), OrganiCity: Lessons from an Experimentation as a Service Model for Digital Civic Innovation, Paper at the Conference: *International Conference on Smart Infrastructure and Construction (ICSIC)*, July 2019, DOI: 10.1680/icsic.64669.195; Official project archive on CORDIS#: <https://cordis.europa.eu/project/id/645198/results>.

aiming to comply with European Commission regulations for data protection. The OrganiCity project conducted workshops, webinars, and clinics to engage experimenters, with an emphasis on using the “Experimenter Handbook” as a reference during the experimentation period. An initial report webinar provided an overview of financial and legal documents and allowed teams to ask questions for clarification.

Target groups. The project underwent activities through the OrganiCity website, wherein three potential target groups led the experiments: (1) mature SME, (2) immature SME, and (3) an active citizen group, reflecting on real-life data collected over the past years.

Explicit knowledge. OrganiCity provided various services to support experimenters, including FAQ, a helpdesk, a Slack workspace for direct discussions, a GitHub repository for technical details and code examples, as well as conducting dedicated events such as workshops, webinars, and clinics for networking and information dissemination. Additionally, experimenters were given the Experimenter Handbook, encompassing welcome letters, an Experiment Agreement, financial and communication guidelines, support contacts, and a checklist for key dates and submissions.

Value of iteration. The project emphasised the values of iteration and collaboration by suggesting the creation of a live space for the exchange of information and documents between experimenters and the OrganiCity team.

Co-creation in OrganiCity. Co-creation played a central role in the project's approach, mostly in the first phase during challenges formulation to inspire and guide experiment teams. The initiative aimed to collect authentic stories from citizens and convert them into “City Challenges” using qualitative research methods such as focus group interviews and social media exploration. This involved conducting interviews to examine different facets of city life and aspirations of citizens and businesses. The project organised workshops and clinics at the onset of each phase to understand significant challenges in different cities, involving citizens, community groups, local authorities, and others.

Engagement principles. The project developed seven engagement principles: (1) Empower adjacent communities and champion advocates; (2) Design for trust, especially around change; (3) Facilitate personal and community ownership; (4) Debate and co-create across comfort zones; (5) Use challenge areas as catalysts for innovation; (6) Respect the value of time: the right space at the right time; (7) Provide a clear journey for participation and value visibility. These engagement principles were tested and adapted in the local contexts of Aarhus, London, and Santander to gain insight into variations across the cities. Both online and offline approaches were implemented before, during, and after challenges and during the experimental

phase. Furthermore, OrganiCity adopted the philosophy “to design, while leaving gaps,” avoiding prescriptive requirements, which might constrain the individuality of each city³.

Outcomes. It can be concluded that the rich experience of the OrganiCity project is contained within the processes of initiating and deploying the open call instrument, launching various experimental projects led by tech parties in different cities with a strong focus on stakeholders engagement component. The emphasis on co-creation has resulted in numerous top-down co-creation sessions overseen by city administrations or businesses. However, we also observe from the project documentation that there have been no grassroots, community-led co-creation initiatives, and no specific attention to marginalised communities. Yet, the seven principles of stakeholders engagement developed within the project may, in principle, still serve as a useful guide for initiating engagement if the peculiarities of the target group are taken seriously into account. Furthermore, the project experiences (including the process knowledge on running the open calls and experiments further extended in the SynchroniCity project) have been embedded in the foundations of the OASC organisation, the current leader of the CommuniCity project.

1.2 SynchroniCity (2017–2019)

“SynchroniCity: Delivering an IoT enabled Digital Single Market for Europe and Beyond” was a large-scale EU-funded project led by Aarhus University, implemented within the Horizon 2020 programme from 2017 to 2019, aiming the development of Internet-of-Things (IoT) enabled applications and services to help both cities and businesses developing shared digital services, placing special emphasis on the co-creation process within the context of smart cities. The following paragraphs summarise the project and the main conclusions related to aspects of co-creation adopted.⁴

Motivation. The project description states that for more than a decade, large companies have argued that public services could achieve greater efficiency through data-driven solutions. However, their products,

³ Wilson D., McLoughlin S., and Brynskov M. (2019) Organicity: Lessons from an Experimentation as a Service Model for Digital Civic Innovation, Paper at the Conference: *International Conference on Smart Infrastructure and Construction (ICSIC)*, July 2019, DOI: 10.1680/icsic.64669.195

⁴ For the aims of the present document, we consulted the following documents: Deliverable D1.3 Guidelines for SynchroniCity architecture; Deliverable D1.10 First set of citizen-centred methods and tools; Deliverable D1.11 Updated set of citizen-centred methods and tools; Deliverable D3.4 Common methodology and toolset for city service customization; Deliverable D4.4 Assessment on the user, stakeholder, replication and market validation; Deliverable D5.6 Report on the selected SME projects delivery and lessons learned; Deliverable D6.5 Final Impact Assessment Report; Article: Spagnoli, F., van der Graaf, S., Brynskov, M. (2019). The Paradigm Shift of Living Labs in Service Co-creation for Smart Cities: SynchroniCity Validation. In: Lazazzara, A., Nacamulli, R., Rossignoli, C., Za, S. (eds) *Organising for Digital Innovation. Lecture Notes in Information Systems and Organisation*, vol 27. Springer, Cham. https://doi.org/10.1007/978-3-319-90500-6_11; Official project archive on CORDIS: <https://cordis.europa.eu/project/id/732240>.

establishing *lock-in* mechanisms, prevented buyers, particularly local authorities, from accessing services provided by other vendors, and caused smaller companies to face difficulties in entering this market. Meanwhile, cities and communities struggled to independently define terms and technical specifications, dissuading them from adopting these novel services. Consequently, the market also became unattractive for companies, as they had to invest significant time with each customer, with limited prospects for scalability. All signs of a market failure bringing inefficiencies and dysfunctional dependencies.

Focus on IoT infrastructure. Compared to OrganiCity, the SynchroniCity project had a clearer technical perspective: IoT applications building upon a digital infrastructure collecting, sharing and processing data. Within this context, the project championed and showcased the effectiveness of the *Minimal Interoperability Mechanisms* (MIMs), which became the core technical instrument of the mission of the Open & Agile Smart Cities (OASC) network.

MIMs. MIMs consist of a set of reusable computational components based on open technical specifications, providing practical capabilities that can be easily applied to facilitate the sharing of data and the delivery of AI- and IoT-enabled services. They are vendor-neutral and technology-agnostic, and they can be integrated with existing systems. Currently⁵ there are three validated MIMs: Context Information Management, Common Data Models, Marketplace, and two underway as work items: Fair AI and Personal Data Management. As more cities and companies adopt them, the market grows and economies of scale reduce costs for buyers and developers. This breaks down barriers to procurement, also for smaller companies, and allows cities and communities to identify and tackle problems quickly and sustainably, to the benefit of their citizens.

Objectives. As expressed in the official project guide⁶ provided at the end of the project, the infrastructure developed by Synchronicity “*will create a richer choice of affordable citizen-centric services that meet their needs and expectations through increased market competition and co-creation opportunities.*” Indeed, SynchroniCity represented the first attempt to deliver a Single Digital City (data) Market for Europe by piloting its foundations at scale in 11 reference zones (8 European cities and 3 more worldwide cities), connecting 34 partners from 11 countries over 4 continents. Furthermore, SynchroniCity stems from the observation that co-creation and participatory design practices emphasise the need for a fundamental change in the traditional government engagement perspective over the past two decades. Using digital tools to gather feedback from citizens necessitates specific actions to facilitate their participation.

⁵ <https://cordis.europa.eu/project/id/732240/reporting>

⁶ A Universal Guide to Make Your City Fit for the Digital Transformation:
<https://oascities.org/a-universal-guide-to-make-your-city-fit-for-the-digital-transformation/>

Transparency, trust, and the need for new communication channels and processes are key factors in enabling citizens and businesses to engage in smart city initiatives. To activate “smart citizens” in this bidirectional approach and create new services, cities must provide them with the necessary tools.

Target groups. SynchroniCity aimed to support cities, communities (of “smart citizens”), and businesses, particularly Small and Medium-sized Enterprises, in addressing the challenging chicken-and-egg scenario in establishing a thriving data-driven market for smart cities and communities.

Outputs. Following the project documentation, SynchroniCity has facilitated local decision makers in addressing citizens' needs across Europe and South Korea, particularly in areas like mobility, energy, and public participation in local governance. It accomplished this by encompassing a wide range of suppliers, from small local businesses to large infrastructure companies, overall delivering 50 services across 21 cities in the piloting format. Moreover, these services were trialled in two or more cities by 16 pilot groups headed by Small and Medium-sized Enterprises (SMEs). Utilising MIMs deployment occurred rapidly over a 6-month duration, featuring simplified contracting and localised data sharing agreements. Importantly, these processes fully adhered to GDPR and other applicable regulations, reflecting real-world market conditions.

Co-creation in SynchroniCity. The project archive contains several documents that explicitly deal with the topic of co-creation, some re-organising the theoretical background of the concept of co-creation, as well as an extensive list of recommended methods and tools for co-creation within SynchroniCity (e.g., deliverables D1.10 and D1.11).

Establishing the framework and principles for co-creation within the context of SynchroniCity (to reiterate, strictly linked to smart cities and IoT) was functional to define a clear process and steps for the reference zones (cities) and project partners to follow. By discussing the evolution of the concept of co-creation within the context of smart cities and IoT projects, various definitions and approaches to co-creation described in the literature were analysed. The preferred definition of co-creation in the SynchroniCity emphasises *an active flow of information and ideas among different sectors of society: government, academia, business, non-profits, and citizens*. This approach allows, in principle, for participation, engagement, and empowerment in developing policy, creating programmes, improving services, and tackling systemic

change. Four steps have been suggested for the effective implementation of co-creation practices in smart cities: (1) co-analysis, (2) co-design, (3) co-evaluation and (4) co-implementation⁷.

Methodologically, the project documents provide a comprehensive literature review examining 89 papers on co-creation and participatory design in Living Labs⁸, smart cities, and Open Innovation⁹ settings. It pinpointed 10 methods and 12 tools tailored specifically for smart cities, addressing a previous lack of analysis in this particular area. The report detailed the approach, context, application rationale, and procedures for each method and tool through fact sheets, which were shared with cities involved in the SynchroniCity project to ensure effective deployment. Furthermore, the report clarified the distinction between theoretical co-creation frameworks (methods) and practical tools for implementation. Additionally, it delineates the objectives, tasks, tools, rewarding systems, and success factors required to implement selected co-creation methodologies effectively.

Living Labs. The project documentation recognises Living Labs as the most favourable method of co-creation. Living Lab strategies can be implemented within smart cities and IoT projects to conduct real-life experiments involving large-scale panels from both the public and private sectors with the aim of stimulating market potential by leveraging local innovation opportunities. Five key principles as identified as guiding Living Labs: *continuity, openness, realism, empowerment of users, and spontaneity*¹⁰.

Outcomes: SynchroniCity has evidently a core focus on technical aspects of smart cities and IoT, aiming to establish an interoperable data market in numerous cities using MIMs. This objective denotes an ambitious smart city endeavour with a considerable technological and essentially top-down orientation. The project supported and executed numerous service pilots in selected cities. Yet, in the realm of co-creation, the project has generated substantial documents outlining the literature on civic participation and co-creation. These documents identify critical tools and methods applicable to co-creation in the context of smart cities

⁷ Spagnoli, F., van der Graaf, S., Brynskov, M. (2019). The Paradigm Shift of Living Labs in Service Co-creation for Smart Cities: SynchroniCity Validation. In: Lazazzara, A., Nacamulli, R., Rossignoli, C., Za, S. (eds) *Organising for Digital Innovation*. Lecture Notes in Information Systems and Organisation, vol 27. Springer, Cham. https://doi.org/10.1007/978-3-319-90500-6_11

⁸ Emerged in the early 2000s, the term "Living Lab" is often connected to both open innovation and user innovation concepts, particularly in Europe. Living Labs use the dynamics of everyday life to co-create new products and services, exploiting a four-step approach: contextualization, concretization, implementation, and feedback gathering.

⁹ Implementing open data policies requires adopting transparency and accountability (as mentioned by the European Commission) but open innovation in smart cities can only be realised if prerequisites such as open knowledge, data, access, and connectivity are implemented.

¹⁰ Spagnoli, F., van der Graaf, S., Brynskov, M. (2019). The Paradigm Shift of Living Labs in Service Co-creation for Smart Cities: SynchroniCity Validation. In: Lazazzara, A., Nacamulli, R., Rossignoli, C., Za, S. (eds) *Organising for Digital Innovation*. Lecture Notes in Information Systems and Organisation, vol 27. Springer, Cham. https://doi.org/10.1007/978-3-319-90500-6_11

and IoT, suitable in principle for various co-creation initiatives. However, the project does not address the involvement of marginalised communities or initiatives for bottom-up co-creation within smart cities.

1.3 Synthesis and perspectives

The OrganiCity project established a robust and functioning process with clearly defined procedures for open calls and developed an online platform with tools for engaging with stakeholders. The project primarily focused on experimenting with city data and targeted tech developers and small to medium-sized tech enterprises. The themes of the experiments encompassed areas such as time management, air pollution, and urban mobility. Yet, there was no explicit focus on marginalisation or marginalised communities in the project context. In the project documentation, however, the acknowledgment of marginalisation is highlighted in the explanation of the second engagement principle, particularly emphasising awareness of the presence of marginalised communities, including those on low incomes, immigrants, people of colour, individuals with disabilities, and women, as they are often underrepresented in the tech and urban design sectors. Furthermore, a specific project (or “experiment” in the OrganiCity terminology) under the name “Color-in City” focused on engaging marginalised groups to tackle the issue of living in overcrowded homes. The project adopted intensive co-creation activities to comprehend and connect with this target demographic. We report here the insights gained as they hold relevance for the context of CommuniCity.

“Real experimental co-design with digital tools and data requires a lot of groundwork, especially if you are working with marginalised groups. Many of our parents were low income, single parents, had limited access to digital technology, were time poor and/or living complex lives. In this way they were ‘extreme users.’”

“We made the decision to keep our process very user-centred, which made for rich and deep insights about how to make the chatbot interaction meaningful and engaging. Our parent testing group was more flexible than service provider stakeholders, able to attend co-design workshops and give feedback, meaning we could test and iterate quickly. Our partner LEAP was very trusting and gave us free range to develop a digital tool that met user needs as a priority, feeding in at key moments. They actively helped us arrange workshops, engage with parents, facilitate discussions etc.”, Color-in City, learnings from co-creation¹¹

Although the OrganiCity project concluded in 2018, its ideas and lessons laid the foundation for the global Open & Agile Smart Cities non-profit network (OASC) in 2018. The explicit and tacit knowledge acquired

¹¹ DL5.5 Usability assessment of OrganiCity's first Open Call 2, p.75

through OrganiCity formed the epistemic basis for subsequent projects, first SynchroniCity (2017-2019) and now, CommuniCity (2022- 2025) led by OASC as a project coordinator.

Compared to OrganiCity, the SynchroniCity project took a much more precise focus, focusing primarily on technical components meaningful for data-driven IoT applications in a smart city context. Its core contribution has been the introduction, development, and uptake of the concept of *Minimal Interoperability Mechanisms* (MIMs). In terms of operations, MIMs have been shown to be an efficient and effective tool to facilitate development of applications within a streamlined co-creation process, typically addressed via Living Labs. While co-creation within the piloting framework was an important component of the project, the discussion on this topic was general and had no specific focus on marginalised communities.

2. The Present

By reflecting on both the implicit and explicit knowledge generated during its predecessor projects OrganiCity and SynchroniCity, the CommuniCity project, to which this deliverable belongs, is meant to proceed along this trajectory of experiments, studies of practices and theories related to co-creation in a civic setting. In particular, it aims to enlarge the breadth of co-creation initiatives to parts of the population which are generally excluded by contemporary approaches. The horizon of potential impacts foreseen with eg. the Color-in City experiment in OrganiCity remained largely unexplored. The starting intuition was that, in principle, the elaborately-outlined and lively-visualised seven engagement principles¹² may be highly relevant to the CommuniCity project if refined to prioritise the engagement of marginalised groups, viewed through an intersectional lens.

Yet, much further remains to be clarified; for instance it is unclear to what extent the MIMs developed by Synchronicity are meaningful, nor whether Living Labs are the most fitting method to approach co-design with marginalised communities. Additionally, the piloting format featured in both previous projects has been integrated into CommuniCity. Additional comprehensive analyses of piloting within the innovation settings are available in D2.5 Ethics and Intersectional Inclusivity Framework – Initial Version.

In the current version, this chapter delves only into certain aspects of explicit knowledge as recorded in the CommuniCity project documentation, particularly those related to co-creation. In future versions of this deliverable, along with other deliverables within work package 2, we will also reflect on the tacit knowledge

¹² D1.1 We Are All OrganiCitizens - Engagement Strategy (initial)

that partners will have conveyed into CommuniCity, as well as output and outcome data that will be made available.

2.1 CommuniCity (2022–2025)

The CommuniCity project, funded by the Horizon Europe programme, is a three-year initiative launched on September 1, 2022, and comprises a consortium of 12 partners from across the EU led by OASC as project coordinator. Its central goal is to narrow the technological divide between technology and marginalised/vulnerable communities, by focusing on co-creation and co-learning processes. The project aims to prioritise effective co-creation practices while recognizing potential challenges.

Target groups. The intended objective is to empower marginalised and vulnerable communities within European cities — starting from Amsterdam, Helsinki, and Porto, and then proceeding in circles of higher breadth, first at national level and then across of all Europe — by fostering co-creation and co-learning, in order to develop sustainable projects and technological solutions to address urban and social challenges.

Objectives. Departing from the perspective that engagement and co-creation should acknowledge the diversity of citizens and address issues of social justice and inclusion, the project seeks to achieve several key objectives: critically analyse the expectations and functions of co-creation processes with sensitivity to citizenship diversity, establish foundational practices for using co-creation to enhance social justice and sustainability through innovative technology solutions, and create virtual learning labs and co-creation spaces to facilitate interaction and resource reuse among cities, citizens, and technology developers.

Following the project proposal, CommuniCity's three primary objectives are:¹³ (1) In an *analysis* phase focusing on revisiting experiences of co-creation, mapping general patterns in adoption and execution, and testing these patterns with a focus on disadvantaged or marginalised communities, in line with EU Green Deal sustainability objectives. (2) a *synthesis* phase aimed at reflecting on experiences of deploying socio-technical solutions to assess the potential of middle-out interventions, with the aim of improving community engagement, welfare and transitioning to a cleaner, circular economy. The lessons from this experience could form the basis of a broader framework for cleaner, more inclusive, and sustainable societies. (3) In an *experimental* phase, CommuniCity will engage in practice, collaborating with local gatekeepers or champions and marginalised communities to pilot innovative technological practices and develop learning facilities that are reusable, set up matchmaking activities, and maintain a reusable toolbox

¹³ 101070325- CommuniCity – PartB – page 4

for implementing solutions in different cities, all with a view to enhancing efficient resource use and re-use while considering diverse contexts.

Iterated Open Calls and Incremental Learning. The project comprises three rounds of Open Calls at various levels, allowing selected pilots to develop customised solutions for local communities. By means of these pilots, the project seeks to gather insights from co-creation efforts with marginalised groups, offering scalable practices and solutions. Additionally, the project intends to disseminate best practices for successful open calls and piloting processes, as well as technical components and tools, making it easier for solutions to be replicated in other cities and communities.

Urgent need: understanding what co-creation for marginalised communities is. This deliverable addresses the first objective aimed at achieving project excellence, which involves critically analysing the existing knowledge about co-creation inherited by CommuniCity from previous projects initiated and executed by key project partners involved in all three projects. Indeed, the CommuniCity project proposal explicitly references the knowledge base on co-creation cultivated in the preceding projects, OrganiCity and Synchronicity, and describes them as successful. However, the proposal also acknowledges issues arising from certain co-design experiments involving marginalised communities, even labelling them as failures. As a result, the project description emphasises the importance of (understanding how) involving marginalised communities in creative processes much earlier, more consistently, and across all project phases.¹⁴

3. On Co-Creation

Co-creation is broadly viewed as a tangible manifestation of the collaborative trend observed in corporate, public policy, and environmental/science sectors. It is commonly asserted in discourses that co-creation is essential for addressing complex problems. Practitioners and researchers in areas such as community organising and public participation often consider co-creation as a desirable ethos for collaboration. Conventionally, co-creation involves the collaboration of diverse actors from civil society, academia, policy, and industry to collectively address challenges related to sustainability or innovation¹⁵.

¹⁴ 101070325- CommuniCity – PartB – page 4

¹⁵ Herberg, J.A. (2022) The Critique of Co-Creation: Democratic Dialogue or Displaced Politics? in Kluge, F.A. (ed.), *Transdisciplinarity: A Research Mode for Real-World Problems*, pp. 24-37, Population Europe Secretariat, Berlin

Initially developed within the context of interactions between companies and consumers or public offices and citizens, the “co-creation” concept has expanded to various fields involving multiple stakeholders in generating tangible solutions with mutual benefits.

Co-creation emerges as an inclusive process that welcomes diverse influences, yet it lacks clear guidelines for practical navigation. Although certain co-creation mechanisms can be recognized, the process is notably unpredictable. This limitation hinders the effective implementation of co-creation, as the outcome may not necessarily align with the intended rationale. Not surprisingly, the widespread adoption of co-creation has led to inconsistent practical application and conceptual ambiguity. As observed in chapter 1, OrganiCity and SynchroniCity conducted significant efforts of conceptualization and operationalization concerning co-creation, developing processes (open calls and pilots), practical methods (living labs), and computational tools (MIMs). Yet, both projects were aiming at public service innovation involving developers, technology-oriented organisations and citizens within a top-down framework. However, the target scope of CommuniCity—marginalised communities, is rather different—and we have no concrete elements at the moment to suppose that the same frameworks would work there.

Without a clear understanding of co-creation within this new context, we cannot effectively introduce new co-creation models, the primary aim of this deliverable. Therefore, this document seeks to establish the requirements for “co-creation” involving marginalised communities within the framework of the “smart city.”

3.1 Facets of co-creation

Methodologically, in order to delineate fields in which co-creation practices and communities occur, we applied a semi-structured scholarly literature review method on “co-creation” and “co-production” with citizens. In the following, we will provide an overview of all relevant facets we have collected.

Co-production vs co-creation: conceptual genealogy. Brandsen and Honingh make important distinctions between co-production and co-creation.¹⁶ The term “co-production” belongs to the scholarly work of Ostrom and other economists and is focused on public sector collaboration with citizens. A Nobel prize winning economist Elinor Ostrom defines co-production as “a process through which inputs from individuals who are not “in” the same organisation are transformed into goods and services”.¹⁷ Co-production of public

¹⁶ Brandsen, T. & Honingh, M. (2018). Definitions of co-production and co-creation. In Brandsen, T., Verschuere, B., Steen, T. (Eds.), *Co-Production and Co-Creation. Engaging Citizens in Public Services* (pp. 9-17). Routledge.

¹⁷ Ostrom, Elinor (1996) Crossing the great divide: Coproduction, synergy, and development, *World Development*, Volume 24, Issue 6, Pages 1073-1087, [https://doi.org/10.1016/0305-750X\(96\)00023-X](https://doi.org/10.1016/0305-750X(96)00023-X).

services means that services are not only delivered by professional and managerial staff in public agencies but also co-produced by citizens and communities. Some examples of co-productions are if individual tenants or groups of tenants work with the staff of the association or if tenants actively collaborate in the maintenance or design of the housing. Co-production is not if the association of tenants collaborates with a local council or if tenants only passively receive what they pay for.¹⁸ On the other hand, the term “co-creation” originates from the business sector. Co-creation has diverse origins and therefore when using the term ‘co-creation’, it is important to know which trend one is subscribing to.¹⁹

Macro-types of co-creation. In a systematic literature review, Voorberg et al. point that, in the business sector, co-creation is shaped by two main trends. First, companies are challenged to optimise the production efficiency of their goods, leading to the identification of end-users as potential co-producers engaged in specific tasks within the production chain. Simultaneously, there is a shift where end-users have the potential to evolve into co-creators, contributing their valuable experiences with products or services to enhance the overall value for the company.²⁰ Co-creation plays a role both in reducing costs (negative returns) as well as in increasing incomes (positive returns). On similar lines, Prahalad and Venkat Ramaswamy argue that the concept of co-creation primarily operates within the domain of business and marketing.²¹ In their book, they elaborate on the struggle of companies to satisfy customers and sustain profitability, despite ample innovation opportunities due to structural changes driven by industry and technology convergence, ubiquitous connectivity, and globalisation. These authors propose a shift in the consumer's role from a passive recipient to an active co-creator of value, as one of the approaches in addressing these challenges.

Fragmented languages of co-creation. Adding complexity to the proposed analytical task, the mentioned terms of co-creation and co-production represent only a subset of concepts indicating similar practices, including “collaborative governance”, “community involvement”, “participation”, and “civic engagement”²². Voorberg et al. emphasise the existence of intricate attempts of defining these terms across various

¹⁸ Brandsen, Taco and Honingh, Marlies (2015) Distinguishing Different Types of Coproduction: A Conceptual Analysis Based on the Classical Definitions, *Public Administration Review* 76(3), DOI: 10.1111/puar.12465

¹⁹ Herberg, J.A. (2022) The Critique of Co-Creation: Democratic Dialogue or Displaced Politics? in Kluge, F.A. (ed.), *Transdisciplinarity: A Research Mode for Real-World Problems*, pp. 24-37, Population Europe Secretariat, Berlin

²⁰ Voorberg, W. H., Bekkers, V. J. J. M. And Tummers, L. G. (2014), A Systematic Review of Co-Creation and Co-Production: Embarking on the social innovation journey, *Public Management Review*, DOI: 10.1080/14719037.2014.930505

²¹ Prahalad, C. K. and Ramaswamy, Venkat (2024), *The Future of Competition: Co-Creating Unique Value With Customers*, Harvard Business Press

²² Voorberg et al., *supra*.

scientific disciplines such as sociology, economics, political science, public administration, marketing, and management, but also that interdisciplinarity additionally contributed to the ambiguity of the term. At a more general level, despite the widely accepted notion of citizens participation in various public processes, there is a lack of conceptual clarity, as existing literature often blurs the distinction between concepts of co-creation and co-production. To address this, Voorberg et al. identifies three types of co-creation in social innovation context, where citizens act alternatively or concurrently as “co-implementers”, as “co-designers”, and as “initiators”. Their proposal recommends using the term “co-creation” for citizen involvement at the initiator or co-design level, while “co-production” should be reserved for citizen involvement in the implementation of public services.²³ Knowledge on co-creation produced within SynchroniCity argues that these definitions in smart cities and IoT projects do not adequately reflect the active role of citizens and the complexity of stakeholders involved. Hence, SynchroniCity preferred to apply the definition provided by Leading Cities²⁴, which sees co-creation as: *“an active flow of information and ideas among five sectors of society: government, academia, business, nonprofits and citizens—the Quintuple Helix—which allows for participation, engagement, and empowerment in, developing policy, creating programmes, improving services and tackling systemic change with each dimension of society represented from the beginning”*.²⁵

Motivations for co-creation. Business scholarship often discusses value co-creation for the company, while participatory processes are central in public policy circles. In public administration, co-creation is viewed as citizens' involvement in implementing public services.²⁶ General phrase “increased citizen involvement” is commonly mentioned rationale for co-production/co-creation, alongside goals of improved effectiveness, enhanced efficiency, and increased customer satisfaction. In OrganiCity, co-creation was centred on the concerns of those involved in the process, fostering their commitment to ensuring the best potential outcome for the pilot solution. The innovation design process involved comprehending and defining urban challenges by directly engaging citizens, community groups, and citizen representatives. This process moved beyond mere numbers or sign-ups and delves into the interactions, perceptions, motivations, and evolution of engagement with citizen groups, expressed in principles of engagement. On the other hand, SynchroniCity emphasised a digital platform that can motivate third parties to join co-creation activities,

²³ *ibid.*, p.15

²⁴ Leading Cities.: Co-creating cities. Defining co-creation as a mean of citizen engagement, <https://leadingcities2014.files.wordpress.com/2014/02/co-creation-formatted-draft-6.pdf> (2012)

²⁵ Spagnoli, F., van der Graaf, S., Brynskov, M. (2019). The Paradigm Shift of Living Labs in Service Co-creation for Smart Cities: SynchroniCity Validation. In: Lazazzara, A., Nacamulli, R., Rossignoli, C., Za, S. (eds) *Organizing for Digital Innovation*. Lecture Notes in Information Systems and Organisation, vol 27. Springer, Cham. https://doi.org/10.1007/978-3-319-90500-6_11

²⁶ Herberg, J.A. (2022) The Critique of Co-Creation: Democratic Dialogue or Displaced Politics? in Kluge, F.A. (ed.), *Transdisciplinarity: A Research Mode for Real-World Problems*, pp. 24-37, Population Europe Secretariat, Berlin

allowing smart cities to choose suitable tools for different stakeholder categories as an important requirement in the innovation process. This platform embodied within a LivingLab concept is essential for building a co-creation community and continuously involving participants at every stage, meeting their requirements, and sustaining their long-term interest. Moreover, the project claimed that the platform should effectively communicate the advantages for various stakeholders, considering their differing levels of knowledge and involvement. However, in both projects, co-creation was initiated by market-driven objectives.

Societal factors relevant to co-creation. Furthermore, citizen participation in co-creation and co-production is influenced by factors such as education level, family structure, personal characteristics, willingness, awareness of influence, and the presence of social capital. These factors are interconnected and must be considered sequentially. When lacking, the responsibility for the success of initiatives falls on the public organisation, which may involve actions such as assigning a policy entrepreneur, implementing supportive policies, or providing financial support.

Manipulation in participatory processes. In urban management, citizen participation is often considered essential, but its legitimacy may diminish when communities are subjected to imposition and manipulation rather than inclusion. Arnstein's (1969) participation hierarchy²⁷ highlights the tendency for manipulation in participatory processes. To foster genuine participation, traditional top-down governance systems should be reevaluated, replaced, or supplemented by leveraging context-specific knowledge and experience from local actors and communities within their socio-cultural context.²⁸

Pseudo-participation. Critics have also pointed out that researchers and practitioners often struggle to set aside their own preconceived notions about how a design should be and what an intervention should look like. This can hinder the emergence of new ideas for change that stem from stakeholders' input. Processes where stakeholders merely choose from predetermined options have been labelled as "pseudo-participation"²⁹ as the stakeholders lack agency in decision-making and setting the agenda in the

²⁷ The levels of participation and community engagement, as outlined by Arnstein (1969), are depicted as a 'ladder of citizen participation.' This ladder spans non-participation (manipulation and therapy), tokenism (informing, consultation, and placation), to citizen power (partnership, delegated power, and citizen control). [Arnstein, S. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4), 216–224.]

²⁸ Smith, H., Medero, G.M., Crane De Narváez, S. et al. (2023) Exploring the relevance of 'smart city' approaches to low-income communities in Medellín, Colombia. *GeoJournal* 88, 17–38. <https://doi.org/10.1007/s10708-022-10574-y>, p.21

²⁹ Delgado, Fernando, Yang, Stephen, Madaio, Michael, and Yang, Qian (2023) The Participatory Turn in AI Design: Theoretical Foundations and the Current State of Practice. In Proceedings of the 3rd ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO '23). Association for Computing Machinery, New York, NY, USA, Article 37, 1–23. <https://doi.org/10.1145/3617694.3623261>

design process. Partners involved in designing co-creation processes with marginalised groups in CommuniCity project must particularly pay attention to avoid the danger of pseudo-participation.

Analysis of outcomes. Voorberg et al. argue that the analysis of outcomes in co-creation and co-production is generally limited. Studies on specific outcomes, particularly the enhancement of public service effectiveness, are scarce. This reinforces the notion that co-creation and co-production are often perceived as virtues without the need for external legitimization through specific evaluation.³⁰ Mackinnon et al. go that far to use this as a reason to label co-creation as an “*empty signifier*”.

Co-creation: an empty signifier? Signifier and signified are central concepts in semiotics, where they are introduced as the two main components of a sign, standing respectively for the expression, and the content which is expressed. An empty signifier is an expression which is used with no real referent. In their book “Digital (In)justice in the Smart City” Mackinnon et al. thoroughly explore the concept of the empty signifier within the context of the smart city. They refer to the writings of political theorist and philosopher Ernesto Laclau (2007) who argued that signifiers must always contain concrete overdetermined meaning. In a language, meaning is constructed relationally, through contrast, opposition or proximity to other signifiers. Any signifier is therefore constructed on differentiation from other signifiers. This relationality is the source of the meaning, rather than the meaning being inherent to the term or idea itself. Authors argue that both smartness and participation are empty signifiers. To have a proper signified we should have a grounded picture of what non-smartness or non-participation mean. They illustrate this with Arnstein's account from her famous 1969 book that citizens participation for city administrators can entail everything because participation defies any signification of its radical other, it can take contradictory forms. In some of its forms, participation could even entail non-involvement- or rather, active exclusion from involvement.³¹ Dutch political scientist Nanke Verloo illustrates this phenomenon describing practices of ‘ignoring citizens’ during sessions of participation organised by city governments.³² For embedding both a positive and negative meaning, the term is devoid of any practical use, and acts more as a *signalling* device to pinpoint to a stream of discourse, a forming community of practice, or even just a trend to which speakers intend to place themselves.

³⁰ Voorberg et al., *supra*, p.15

³¹ Arnstein, S. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4), 216–224.

³² Verloo, N. (2023). Ignoring people: The micro-politics of misrecognition in participatory governance. *Environment and Planning C: Politics and Space*, 41(7), 1474-1491. <https://doi.org/10.1177/23996544231182985>

3.2 Co-creation and the smart city

The smart city embodies contemporary phenomena where modern technologies- such as IoT and AI with data³³, sensors, and algorithms are positioned as technical fixes for complex urban challenges and expected to improve citizens' quality of life.³⁴ Governments all over the world are aiming to adopt a 'smart city' paradigm. The smart city approach³⁵ often relies on a belief in technological solutions³⁶ as a means to address and optimise various urban governance³⁷ challenges³⁸. Discourse of futurism, connectivity and active citizenship is elevated through top-down management approach in implementation of smart city agenda³⁹. Both OrganiCity and SynchroniCity follow this approach in their discourse, motivations and objectives. Other interpretations emphasise the human, social, cultural, economic, and environmental factors inherent in a smart city⁴⁰. Smart cities are becoming an emerging domain of study⁴¹ since the concept of smart city is both theoretical and practical and there is no consensus on a definition, nor a framework to apply it as a universal approach^{42,43,44}.

Following the optimistic view, governments align with residents, research institutions, and private companies to implement smart city applications across various areas, covering governance, society,

³³ Meijer, A., & Bolívar, M. P. R. (2016). Governing the smart city: a review of the literature on smart urban governance. *International Review of Administrative Sciences*, 82(2), 392-408. <https://doi.org/10.1177/0020852314564308>

³⁴ Nam, T. and Pardo, T. (2011) Smart city as urban innovation: focusing on management, policy, and context. In *Proceedings of the 5th International Conference on Theory and Practice of Electronic Governance (ICEGOV '11)*. Association for Computing Machinery, New York, NY, USA, 185–194. <https://doi.org/10.1145/2072069.2072100>

³⁵ Washburn, D., Sindhu, U., Balaouras, S., Dines, R.A., Hayes, N., Nelson, L.E. (2010) Helping CIOs understand "smart city" initiatives, *Growth*, 17 (2) (2010), pp. 1-17

³⁶ Kitchin R (2014) The real-time city? Big data and smart urbanism. *GeoJournal* 79(1): 1–14.

³⁷ Paskaleva, K.A. (2009) Enabling the smart city: The progress of city e-governance in Europe *International Journal of Innovation and regional development*, vol. 1 (4), pp. 405-422, <https://doi.org/10.1504/IJIRD.2009.02273>

³⁸ Morozov E (2013) *To save Everything, Click Here: Technology, Solutionism, and the Urge to Fix Problems That Don't Exist*. London: Penguin.

³⁹ Zaman Sara, Hertweck Corinna, Methods for Uncovering Discourses That Shape the Urban Imaginary in Helsinki's Smart City, *Frontiers in Sustainable Cities* vol.4, 2022, DOI:10.3389/frsc.2022.796469

⁴⁰ Caragliu A. and Nijkamp, C. Del Bo, P. Nijkamp (2011) *Smart cities in Europe*, In *Journal of Urban Technology*, 18 (2), pp. 65-82

⁴¹ Meijer, A., & Bolívar, M. P. R. (2016). Governing the smart city: a review of the literature on smart urban governance. *International Review of Administrative Sciences*, 82(2), 392-408. <https://doi.org/10.1177/0020852314564308>

⁴² Hollands, Robert G. (2008) Will the real smart city please stand up?, *City*, 12:3, 303-320, DOI: 10.1080/13604810802479126

⁴³ Mora, Luca, Bolici, Roberto & Deakin, Mark (2017) The First Two Decades of Smart-City Research: A Bibliometric Analysis, *Journal of Urban Technology*, 24:1, 3-27, DOI: 10.1080/10630732.2017.1285123

⁴⁴ Smith, H., Medero, G.M., Crane De Narváez, S. et al. (2023) Exploring the relevance of 'smart city' approaches to low-income communities in Medellín, Colombia. *GeoJournal* 88, 17–38. <https://doi.org/10.1007/s10708-022-10574-y>

economy, transportation, environment, and quality of life⁴⁵. However, academic literature shows that not all city residents (including visitors, users, and data generators) are convinced of the desirability of new technologies and the utopian vision guiding their use, leading to discontentment⁴⁶.

Furthermore, scope of citizen engagement in these projects is often limited. Cardullo and Kitchin⁴⁷ argue that in many cases, citizen-focused projects often only involve providing smart meters, offering rewards for using energy-efficient services, or addressing parking concerns related to predetermined solutions for electric cars. This means that citizens have little say in how things are decided, leading to a situation where initiatives are more about supervising and paternalism because the focus, objectives and solutions were set before problems and suggestions from citizens could be taken into account, an issue authors observed across projects. Furthermore, authors are addressing the critique that smart cities are overly state- and market-centric, rather than citizen-centric⁴⁸.

While optimistic perspectives initially prevailed, a growing number of critical viewpoints on the smart city have been voiced by geographers and urban scholars since around 2014⁴⁹.

Despite growing criticism of techno-optimistic narratives, the political imagination is today still dominated by claims that technical solutions can be uniformly applied to complex social problems⁵⁰. Smart urbanism remains rooted in pragmatic, instrumental and top-down discourses and practices⁵¹. These tendencies are observable in motivation, activities and objectives of both OrganiCity and SynchroniCity projects. However, many authors address the crucial need for a deep and meaningful grounding of smart initiatives within their already existing spatial and social context, shaping place as a whole⁵². By centering its focus on marginalised communities and engaging them in innovation processes, CommuniCity has strived to progress in that direction.

⁴⁵ Giffinger, Rudolf and Gudrun, Haindlmaier (2010) Smart cities ranking: an effective instrument for the positioning of the cities?. "ACE: Architecture, City and Environment", vol. 4, núm. 12, p. 7-26, DOI10.5821/ace.v4i12.2483

⁴⁶ Van Twist, Anouk, Ruijter, Erna and Meijer, Albert (2023) Smart cities & citizen discontent: A systematic review of the literature, *Government Information Quarterly*, Volume 40, Issue 2, <https://doi.org/10.1016/j.giq.2022.101799>

⁴⁷ Cardullo, P., & Kitchin, R. (2019). Smart urbanism and smart citizenship: The neoliberal logic of 'citizen-focused' smart cities in Europe. *Environment and Planning C: Politics and Space*, 37(5), 813-830. <https://doi.org/10.1177/0263774X18806508>

⁴⁸ Kitchin R (2015) Making sense of smart cities: Addressing present shortcomings. *Cambridge Journal of Regions, Economy and Society* 8(1): 131–136.

⁴⁹ Rosol, Marit & Blue, Gwendolyn (2022) From the smart city to urban justice in a digital age, *City*, 26:4, 684-705, DOI: 10.1080/13604813.2022.2079881

⁵⁰ Cardullo, P., Kitchin, R. (2019) Being a 'citizen' in the smart city: up and down the scaffold of smart citizen participation in Dublin, Ireland. *GeoJournal* 84, 1–13. <https://doi.org/10.1007/s10708-018-9845-8>

⁵¹ Cardullo, P., & Kitchin, R. (2019). Smart urbanism and smart citizenship: The neoliberal logic of 'citizen-focused' smart cities in Europe. *Environment and Planning C: Politics and Space*, 37(5), 813-830. <https://doi.org/10.1177/0263774X18806508>

⁵² Odendaal, Nancy (2023) *Disrupted Urbanism- Situated Smart Initiatives in African Cities*, Bristol University Press

Cardullo and Kitchin argues that if smart cities are to become truly 'citizen-focused', an alternative conception of smart citizenship that enables an effective shift of power and is rooted in the right to the city, entitlements, community, participation, commons, and ideals beyond the market is needed. The authors suggest rethinking the idea of a "smart citizen" in the context of current smart city initiatives. They urge moving away from neoliberal notions of citizenship that emphasise individuals as mere consumers or users in a service-oriented market and from initiatives directed by authority and paternalism. Instead, they advocate for an approach based on the "right to the city" concept that prioritises citizens' welfare over state and market interests, encourage inclusive and thoughtful citizen participation, shift from market-driven citizenship to a framework supported by civil, social, political, symbolic, and digital rights, recognize public assets as communal resources for the greater good, and elevate concerns regarding fairness, equality, democracy, and social justice in smart city endeavours. This vision emphasises the importance of citizens and civility over capital and market dynamics in smart city development⁵³.

The initial 'top-down' perspective of smart cities was often criticised as dominant and involving powerful actors who implement programmes without meaningful consideration for civic participation or communities' needs. In response, critical scholars have sought social justice responses by contesting these top-down powers or by reimagining the smart city 'from below'. This approach, termed 'bottom-up', draws from grassroots thinking and seeks a more inclusive model⁵⁴. However, some authors expand beyond the dichotomous top-down/bottom-up view by exploring two actor groups that are not neatly classified as either top-down or bottom-up. They play significant roles in shaping, implementing, and challenging the concept of 'smartness'. The first group, positioned between the top and bottom of the smart city hierarchy, includes community associations, non-profit organisations, and ad-hoc task groups. The second group comprises entities with diverse digital practices, whose experiences of marginalisation influence the articulation and pursuit of digital systems⁵⁵. The CommuniCity project acknowledges⁵⁶ the significance of these intermediary actors, asserting that active engagement of beneficiaries and stakeholders is effectively facilitated through alliances with strong and innovative local partners who function as gatekeepers, champions, and facilitators for the targeted community.

⁵³ Cardullo, P., & Kitchin, R. (2019). Smart urbanism and smart citizenship: The neoliberal logic of 'citizen-focused' smart cities in Europe. *Environment and Planning C: Politics and Space*, 37(5), 813-830.

<https://doi.org/10.1177/0263774X18806508>

⁵⁴ Ratti, C., & Townsend, A. (2011). The Social Nexus. *Scientific American*, 305(3), 42–49.

<http://www.jstor.org/stable/26002792>

⁵⁵ Burns, R., & Welker, P. (2023). Interstitiality in the smart city: More than top-down and bottom-up smartness. *Urban Studies*, 60(2), 308-324. <https://doi.org/10.1177/00420980221097590>

⁵⁶ 101070325- CommuniCity – PartB – page 6

While many aspects of smart cities have been explored, there has unfortunately been a disproportionate focus on physical and technological elements at the expense of social justice and democratic values⁵⁷. Although there have been attempts to advance the ideas of human-centric or people-centric approaches, a comprehensive perspective encompassing human rights, democratic values, and social justice is still missing. To fill this gap, several authors recently suggest new concepts such as 'societal smart city'⁵⁸, 'alternative smart city'⁵⁹, 'insurgent smart city'⁶⁰, or aiming to enable 'right to the city'⁶¹ to all its inhabitants or propose moving beyond smart city discourse and focus on broader questions of urban justice in a digital age⁶².

3.3 Co-creation for marginalised communities

Participation and co-creation methodologies are seen as a key component in the work of various government institutions and organisations, where the inclusion of citizens within smart city initiatives is considered a way to capitalise on local knowledge and collectively address urban issues that affect large portions of the population as demonstrated both in OrganiCity and SynchroniCity projects. However, the varying, and mostly low-level intensity of participation within these processes reflect the complex inequalities that are present and highlight that often citizen participation and meaningful inclusion in the smart city are a social challenge⁶³.

The ability of impoverished communities to unite around shared goals and address complex issues using information and communication technologies is hindered by the “digital divide”⁶⁴. Despite the various meanings surrounding the term, it is an important issue to consider in relation to community-led urban management initiatives, together with other relevant dimensions such as linguistic divide, socio-economic

⁵⁷ Cardullo, P., & Kitchin, R. (2019). Smart urbanism and smart citizenship: The neoliberal logic of 'citizen-focused' smart cities in Europe. *Environment and Planning C: Politics and Space*, 37(5), 813-830. <https://doi.org/10.1177/0263774X18806508>

⁵⁸ Alizadeh, Hadi and Sharifi, Ayyoob (2023) Toward a societal smart city: Clarifying the social justice dimension of smart cities, *Sustainable Cities and Society*, Volume 95, <https://doi.org/10.1016/j.scs.2023.104612>.

⁵⁹ Vadiati, Niloufar (2022), Alternatives to smart cities: A call for consideration of grassroots digital urbanism, *Digital Geography and Society*, Volume 3, <https://doi.org/10.1016/j.diggeo.2022.100030>

⁶⁰ Stokols, Andrew (2023) The insurgent smart city: How a social movement created an alternative imaginary of the smart city, *Journal of Urban Affairs*, DOI: 10.1080/07352166.2023.2216887

⁶¹ Kempin Reuter, Tina (2019) Human rights and the city: Including marginalized communities in urban development and smart cities, *Journal of Human Rights*, 18:4, 382-402, DOI: 10.1080/14754835.2019.1629887

⁶² Rosol, Marit & Blue, Gwendolyn (2022) From the smart city to urban justice in a digital age, *City*, 26:4, 684-705, DOI: 10.1080/13604813.2022.2079881

⁶³ Smith, H., Medero, G.M., Crane De Narváez, S. et al. (2023) Exploring the relevance of 'smart city' approaches to low-income communities in Medellín, Colombia. *GeoJournal* 88, 17–38. <https://doi.org/10.1007/s10708-022-10574-y>

⁶⁴ Van Dijk, J. A. G. M. (2006). Digital divide research, achievements and shortcomings. *Poetics*. <https://doi.org/10.1016/j.poetic.2006.05.004>

divide, representation imbalance, and so on. This is necessary to properly account for the complex obstacles these initiatives face in a networked and technology-driven world. This critical remark is also relevant to the practitioners of co-creation. Beyond “process expertise”⁶⁵, co-creative practice must be based in transformation expertise. That is, practitioners need a critical understanding of transformations and social structures that underlie the need for collaboration and inclusion⁶⁶.

Critical reflection. Developing critical thought, as Paulo Freire, one of the most influential philosophers of education in the 20th century reminds us, is inseparable from action “upon the world in order to transform it.” Critical pedagogy of Freire invites readers to understand everyday life from the perspective of those who are the most powerless in the society so that society can be transformed in the interests of a more humane and just existence for all. Understanding social life from the perspective of the oppressed goes beyond mere empathy⁶⁷. Participation scholars have highlighted the significance of reflexivity of designers for understanding and ethically redirecting their influence in co-creation processes. However, they expressed concerns that existing power dynamics may limit the ability of reflexivity to fully prioritise the values and input of marginalised communities in the design process⁶⁸.

CommuniCity emphasises the significance of critical reflection and provides its definition of co-creation with marginalised communities:

Co-creation has become a popular driver for the digital transformation of cities and communities. Its promise lies in breaking down hierarchies between local government, business life, universities, citizens and other stakeholders. Instead of being a top-down or bottom-up process, co-creation involves a multi-directional approach to problem-solving. Despite bearing potential for alternative forms of action, though, co-creation is not free from inequalities, power relationships, and unbalanced forms of governance that begin to emerge as soon as co-creation is turned into practice and starts creating impact, in particular with marginalised or vulnerable communities. It is therefore of foremost importance to facilitate the emergence and diffusion of practices of social reflection and responsive balancing, by consolidating bodies of knowledge, principles and best practices concerning how to leverage sociotechnical means to promote positive and sustainable impact⁶⁹.

⁶⁵ Molinengo, Giulia & Stasiak, Dorota & Freeth, Rebecca (2021) "Process expertise in policy advice: Designing collaboration in collaboration," *Palgrave Communications*, Palgrave Macmillan, vol. 8(1), pages 1-12, December.

⁶⁶ Herberg, J.A. (2022) The Critique of Co-Creation: Democratic Dialogue or Displaced Politics? in Kluge, F.A. (ed.), *Transdisciplinarity: A Research Mode for Real-World Problems*, pp. 24-37, Population Europe Secretariat, Berlin

⁶⁷ McLaren, Peter. (2015) “Chapter one: Reflections on Paulo Freire, Critical Pedagogy, and the Current Crisis of Capitalism.” *Counterpoints 500*: 17–38. <http://www.istor.org/stable/45178202>.

⁶⁸ Delgado, Fernando, Yang, Stephen, Madaio, Michael, and Yang, Qian (2023) The Participatory Turn in AI Design: Theoretical Foundations and the Current State of Practice. In *Proceedings of the 3rd ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO '23)*. Association for Computing Machinery, New York, NY, USA, Article 37, 1–23. <https://doi.org/10.1145/3617694.3623261>

⁶⁹ 101070325- CommuniCity – PartB – page 3

Marginalised communities? The literature frequently talks about marginalisation in connection with inclusion and social exclusion without providing explicit definitions⁷⁰. Although a broad and ambiguous nature of 'marginalisation' creates challenges for scholars in various disciplines, in practical terms, it is often associated with related concepts like disadvantage, discrimination, disempowerment, exclusion, inequality, silencing, stigmatisation, victimisation, and more⁷¹.

While some suggest that inclusion and exclusion are linked processes, others warn against oversimplification⁷². Razer et al. defines social exclusion as a state in which individuals or groups lack effective participation in key activities or benefits of the society in which they live⁷³. Social exclusion equates to being marginalised from society. However, marginalisation goes beyond a mere condition and includes associated emotions. Marginalisation involves feeling alienated, undervalued, and incapable of contributing meaningfully within the community, often resulting in being excluded⁷⁴.

In relation to the marginalisation in the cities, we find the following definition valuable:

“Marginalised communities—such as racial, religious, and ethnic minorities; women; migrants and refugees; persons with disabilities; the elderly; the LGBTQ community; and people living in poverty—are often excluded from the urban discourse and do not enjoy the right to the city. These groups lack agency to become stakeholders in the urban design process because they are consistently and systemically disadvantaged due to social inequalities and structural violence. They usually live at the margins of society, and their existence is often neglected and their needs remain unheard”⁷⁵.

Kempin Reuter⁷⁶ argues that excluding marginalised communities prevents cities from fulfilling their role as inclusive advocates and creators of people-centered spaces, contradicting the fundamental purpose of cities as homes for all. Therefore, the primary goal for cities should be to ensure inclusion and access for everyone. This objective becomes increasingly urgent, given the rapid urban growth and the crucial role

⁷⁰ Messiou K (2012) Collaborating with children in exploring marginalisation: An approach to inclusive education. *International Journal of Inclusive Education* 16(12): 1311–1322.

⁷¹ Gurnham D. Introduction: marginalisation in law, policy and society. *International Journal of Law in Context*. (2022);18(1):1-9. doi:10.1017/S1744552322000027

⁷² Mowat, J. G. (2015). Towards a new conceptualisation of marginalisation. *European Educational Research Journal*, 14(5), 454-476. <https://doi.org/10.1177/1474904115589864>

⁷³ Razer M, Friedman VJ, Warshofsky B (2013) Schools as agents of social exclusion and inclusion. *International Journal of Inclusive Education* 17(11): 1152–1170.

⁷⁴ Mowat, J. G. (2015). Towards a new conceptualisation of marginalisation. *European Educational Research Journal*, 14(5), 454-476. <https://doi.org/10.1177/1474904115589864>

⁷⁵ Kempin Reuter, T. (2019). Human rights and the city: Including marginalized communities in urban development and smart cities. *Journal of Human Rights*, 18, 382 - 402.

⁷⁶ Ibid.

that cities play in global and national politics, economic development, and as hubs of social and cultural influence.

Co-creation as Design Justice Building on the work of colleagues in other deliverables (particularly D2.8 Principles for ethical and inclusive engagement), this document adopts therefore the *design justice* approach, which suggests a design perspective led by marginalised communities (e.g., people of colour, people with disabilities, etc.) that explicitly advocates challenging rather than reproducing structural inequalities. It has emerged from a growing community of designers in various fields who work closely with social movements and community-based organisations around the world. Design Justice goes beyond recent calls for design for good, user-centred design, and employment diversity in the technology and design professions; it connects design to larger struggles for collective liberation⁷⁷ and ecological survival⁷⁷, and provides for this reason a better fit to take a stance for marginalised communities.

Intersectionality and Matrix of domination. Before introducing the design justice framework, Costanza-Chock⁷⁸ defines two fundamental concepts borrowed from Black Feminist and Critical Race Theory scholars, namely *intersectionality* and *matrix of domination*. Black feminist thought redefines race, class, and gender as interconnected systems, acknowledging that these factors often intersect in the lived experiences of individuals. The analytical framework that emerges from this foundational insight is known as *intersectionality*. The idea of intersectionality laid the foundation for a gradual and ongoing paradigm shift in the social sciences, legal scholarship, and other research and practice areas. This shift is now making its impact on different design domains, including computational-oriented literature. The book Design Justice argues that the prevalence of *single-axis analysis*, where race, class, or gender is treated as an independent construct, consistently undermines the efforts of designers aiming to address bias in the objects, systems, or environments they create⁷⁹. More accounts on intersectionality, selected as the foundation for developing the ethical framework draft for piloting in the CommuniCity project, could be found in the deliverable D2.5.

Closely linked to intersectionality, but less widely used today, the *matrix of domination* is a term developed by Black feminist scholar Patricia Hill Collins to refer to race, class, and gender as interlocking systems of oppression, rather than each operating ‘on its own.’ Collins⁸⁰ contends that oppression takes different

⁷⁷ <https://designjustice.mitpress.mit.edu>

⁷⁸ Costanza-Chock, Sasha (2020). *Design justice: Community-led practices to build the worlds we need*. The MIT Press, 2020, p.18

⁷⁹ Ibid.

⁸⁰ Collins, P. H. (2000). *Black Feminist Thought: Knowledge, consciousness, and the politics of empowerment (Second ed.)*. Perspectives on gender. Routledge.

structural forms in various societies, she notes that “People experience and resist oppression on three levels: *the level of personal biography; the group or community level* of the cultural context created by race, class, and gender; and *the systemic level* of social institutions. Black feminist thought emphasises all three levels as sites of domination and as potential sites of resistance”⁸¹.

Intersectionality and Social Justice. The role of social justice within intersectionality frameworks is the subject of some debate among scholars⁸². While most intersectionality scholars typically address social justice directly, Collins and Bilge⁸³ argue that “working for social justice is not a requirement for intersectionality,” suggesting that intersectionality functions as an analytical tool regardless of its explicit focus on social justice. Similarly, Cho, Crenshaw, and McCall⁸⁴ encourage thinking about intersectionality as an “analytical sensibility,” emphasising its practical implications rather than its inherent nature. In contrast, Rice et al⁸⁵. assert that social justice is essential when using intersectionality, stating that “Intersectionality orients to social justice, so research utilising intersectional analysis must commit to justice in its processes and knowledge production”.

In the recent critical smart city debates, Rosol and Blue point out the lack of a clear definition of justice in the context of smart cities. They argue that despite the long-standing engagement of critical urban geographers with concepts of social justice, particularly highlighting the right to the city and spatial justice, the meaning of justice in the context of smart cities remains ambiguous and theoretically underdeveloped. Therefore, to fill this gap and strengthen the smart city critique, they draw on the tripartite approach to justice developed by philosopher Nancy Fraser, which is focused on *redistribution (put simply: who gets what), recognition (who is included and heard), and representation (how do we decide who gets what and where does this decision-making take place)*.⁸⁶⁸⁷ This justice operationalization could serve as an additional

⁸¹ Ibid.

⁸² Kelly C, Kasperavicius D, Duncan D, Etherington C, Giangregorio L, Pesseau J, Sibley KM, Straus S. (2021) 'Doing' or 'using' intersectionality? Opportunities and challenges in incorporating intersectionality into knowledge translation theory and practice. *Int J Equity Health.*;20(1):187. doi: 10.1186/s12939-021-01509-z. PMID: 34419053; PMCID: PMC8379861.

⁸³ Collins PH, Bilge S. (2016) *Intersectionality*. Cambridge: Polity Press

⁸⁴ Cho S, Crenshaw KW, McCall L. Toward a field of intersectionality studies: theory, applications, and praxis. *Signs*. 2013;38(4):785–810. doi: 10.1086/669608.

⁸⁵ Rice C, Harrison E, Friedman M. Doing justice to intersectionality in research. *Cult Stud Crit Methodol*. 2019;19(6):409–420. doi: 10.1177/1532708619829779.

⁸⁶ Rosol, Marit & Blue, Gwendolyn (2022) From the smart city to urban justice in a digital age, *City*, 26:4, 684-705, DOI: 10.1080/13604813.2022.2079881

⁸⁷ Smaal, Sara, Dessein, Joost, Wind, Barend and Rogge, Elke (2021) Social justice-oriented narratives in European urban food strategies: Bringing forward redistribution, recognition and representation, *Agriculture and Human Values*, vol.38, 10.1007/s10460-020-10179-6

layer in the attempt to seek more just arrangements in the innovation processes within the smart city paradigm.

Intersectionality and Social Justice in Co-Creation. Many authors mention prior design paradigms that have sought to centre users and communities, such as value sensitive design⁸⁸, values in design⁸⁹, resource-constrained design⁹⁰, human-centred design⁹¹ and others. However, none have the explicit attention towards intersectional equity as part of design work in the way that design justice does⁹².

It is worth mentioning that in practical terms, intersectionality theory does not offer methodology to advance the co-creation of urban services. Instead, it encourages a careful examination of existing co-creation practices. Authors⁹³ outline the significance of adopting an intersectionality lens as a critical perspective for an engaged critique of the dynamics of exclusion that may challenge service co-creation, pointing at three main insights: 1) the need for an explicit questioning of processes to define vulnerability, particularly when they rely on bounded, fixed identity categories; 2) a recognition of the complex and multiple lived experiences of inequality and marginalisation in any given context; and 3) a conceptualization of social identity as constituted through dynamic processes and always open to revision. It is important to ensure that innovation initiatives within marginalised communities do not transform into exploitative endeavours linked to surveillance capitalism, potentially overlooking crucial urban, civic, and political matters⁹⁴. Furthermore, it should be considered that the innovation pressure⁹⁵ can be the least needed in marginalised communities where trust and continuity of relationships are the most valuable.

Principles of design justice. Design justice principles unfolds as following:

⁸⁸ Friedman, B. Value-sensitive design, *Interactions*, 3 (6) (1996), pp. 16-23, [10.1145/242485.242493](https://doi.org/10.1145/242485.242493)

⁸⁹ Knobel, C., Bowker, G.C. (2011) Values in design, *Communications of the ACM*, 54 (7), pp. 26-28, [10.1145/1965724.1965735](https://doi.org/10.1145/1965724.1965735)

⁹⁰ Anderson, R.E., Anderson, R.J., Borriello, G., Kolko, B. (2012) Designing technology for resource-constrained environments: Three approaches to a multidisciplinary capstone sequence, *Frontiers in Education Conference Proceedings*, pp. 1-6, [10.1109/fie.2012.6462501](https://doi.org/10.1109/fie.2012.6462501)

⁹¹ Buchanan, R. (2001) Human dignity and human rights: Thoughts on the principles of human-centered design, *Design Issues*, 17 (3), pp. 35-39, [10.1162/074793601750357178](https://doi.org/10.1162/074793601750357178)

⁹² Das, Madhurima, Ostrowski, Anastasia K., Ben-David, Shelly, Roeder, Gillian J., Kimura, Kimberley, D'Ignazio, Catherine, Breazeal, Cynthia, Verma, Aditi, (2023) Auditing design justice: The impact of social movements on design pedagogy at a technology institution, *Design Studies*, Volume 86, <https://doi.org/10.1016/j.destud.2023.101183>

⁹³ Broto, Castán, V., & Alves, Neves, S. (2018). Intersectionality challenges for the co-production of urban services: notes for a theoretical and methodological agenda. *Environment and Urbanization*, 30(2), 367-386. <https://doi.org/10.1177/0956247818790208>

⁹⁴ Mackinnon, Debra, Ryan Burns, and Victoria Fast, eds. (2022) *Digital (in) justice in the Smart City*. University of Toronto Press

⁹⁵“Permanente vernieuwingsdrang ondermijnt het sociaal domein”:

<https://www.socialeVraagstukken.nl/permanente-vernieuwingsdrang-ondermijnt-het-sociaal-domein/>, (retrieved 22 November 2023)

1. We use design to **sustain, heal, and empower** our communities, as well as to seek liberation from exploitative and oppressive systems.
2. We **centre the voices of those who are directly impacted** by the outcomes of the design process.
3. We **prioritise design’s impact on the community** over the intentions of the designer.
4. We view **change as emergent from an accountable, accessible, and collaborative process**, rather than as a point at the end of a process.
5. We see the role of the **designer as a facilitator rather than an expert**.
6. We believe that **everyone is an expert based on their own lived experience**, and that we all have unique and brilliant contributions to bring to a design process.
7. We **share design knowledge and tools** with our communities.
8. We work towards **sustainable, community-led and controlled** outcomes.
9. We work towards **non-exploitative solutions** that reconnect us to the earth and to each other.
10. Before seeking new design solutions, **we look for what is already working** at the community level. We honour and uplift traditional, indigenous, and local knowledge and practices.⁹⁶

Critical questions of design justice Design justice proposes seven questions to critique existing technologies and institutional systems in which they operate, or to consider as part of the practice of designing new technologies. These questions include:

- (1) who gets to do design and whose work is recognized as design (*Equity*),
- (2) what users and communities do we design for and with (*Beneficiaries*),
- (3) what values are embedded implicitly or explicitly in technological artifacts and systems (*Values*),
- (4) how do we scope and frame design problems (*Scope*),
- (5) where is design work done and how does the location of the design work impact which sites are privileged whereas others are marginalised or ignored (*Sites*),
- (6) who receives the benefits of design work and how can the work be owned by communities instead of individuals (*Ownership, Accountability, & Political Economy*),
- (7) how do we rationalise and remember how and why technologies are designed as they are (*Discourse*)⁹⁷.

⁹⁶ Design Justice Network Principles: <https://designjustice.org/read-the-principles>

⁹⁷ Costanza-Chock, Sasha, Design Justice: Towards an Intersectional Feminist Framework for Design Theory and Practice (June 3, 2018). *Proceedings of the Design Research Society 2018*, Available at SSRN: <https://ssrn.com/abstract=3189696>

In order to add greater granularity to the analysis and pay particular attention to discussion of past harms of technology, we separated dimension “Discourse”⁹⁸ into two distinct categories of “Discourse” and “Histories” in order to develop an evaluative framework for design and co-creation in the CommuniCity project, as shown in the Table 1.

3.4 Rebooting “co-creation” from a design justice perspective

The typical approaches to co-creation pose several challenges. Firstly, the concept of co-creation is ambiguous, making it unclear how it can effectively work and be evaluated. Secondly, when targeting marginalised communities, these approaches fail to consider important dimensions such as intersectionality, various forms of oppression, and factors like digital, socio-economic, linguistic divisions, and representational imbalance. In order to genuinely collaborate with marginalised communities, it is crucial to apply justice design frameworks. The main contribution of this document is the proposal to adapt the framework, informed by recent scholarship, to the specific context in which CommuniCity operates, shaping it into an evaluative framework for design.

The critical design justice questions lead to the development of a following list of considerations for projects or pilots developed for/with/by marginalised communities⁹⁹:

Question	Project/pilot example
Equity: Who gets to do design?	The project/pilot considers how identity and background (race, class, ethnicity, gender, disability, and sexuality) shape who is able to do design and be recognized as a designer, or the project/pilot is explicitly treating users and communities potentially impacted by a technology as its designers.
Beneficiaries: Who do we design for or with?	The project/pilot considers how designers identify users and whether user identity and background impact who is considered as a potential user for new design and whose preferences and needs are accounted for as part of the design work.

⁹⁸ Das, Madhurima, Ostrowski, Anastasia K., Ben-David, Shelly, Roeder, Gillian J., Kimura, Kimberley, D'Ignazio, Catherine, Breazeal, Cynthia, Verma, Aditi, (2023) Auditing design justice: The impact of social movements on design pedagogy at a technology institution, *Design Studies*, Volume 86, <https://doi.org/10.1016/j.destud.2023.101183>.

⁹⁹ Adapted from: Das, Madhurima, Ostrowski, Anastasia K., Ben-David, Shelly, Roeder, Gillian J., Kimura, Kimberley, D'Ignazio, Catherine, Breazeal, Cynthia, Verma, Aditi, (2023) Auditing design justice: The impact of social movements on design pedagogy at a technology institution, *Design Studies*, Volume 86, <https://doi.org/10.1016/j.destud.2023.101183>.

Values: What values do we encode and reproduce in the objects and systems that we design?	The project/pilot educates and requires designers to reflect on their own biases, assumptions, and values and how these might become embedded in the artifacts or systems they design.
Scope: How do we scope and frame design problems?	The project/pilot educates designers to pay attention to the ways in which design problems are framed and the extent to which justice, equity, and ethics considerations shape those framings.
Sites: Where do we do design? What design sites are privileged? Which sites are ignored or marginalized? How do we make design sites accessible to those who will be most impacted?	The project/pilot asks designers to consider as part of their design work how their own design site may be privileged whereas others are overlooked or marginalized.
Ownership, Accountability, & Political Economy: Who owns and profits from design outcomes? What social relationships are reproduced by design? How do we move towards community control of design processes?	The project/pilot asks designers to reflect on who may ultimately own the artifact or system being designed, what social and power relationships the designed artifact may either reproduce or create anew, or how the ownership of the artifact or system being designed can, over its full lifecycle, be held by communities instead of by individuals.
Discourse: What stories do we tell about how things are designed?	The project/pilot asks designers to consider how the technology or artifact being designed may be interpreted and/or rationalized, and its <i>raison d'être</i> described by future users.
Histories: Acknowledging unequal histories and/or historical harms arising from technology design, use, or diffusion.	The project/pilot asks designers to consider the historical harms that may have arisen from prior versions of the technology being designed.

Table 1. List of considerations for projects or pilots developed for/with/by marginalised communities based on design justice questions

These questions are relevant throughout all phases of project implementation, with special emphasis on their importance during the challenge formulation phase, as it forms the basis for issuing open calls for pilots in the CommuniCity project.

3.5 Towards a more inclusive model for co-creation with marginalised communities

Embracing an inclusive approach to co-creation also involves recognizing the inherently political aspect of design and knowledge generation. The information we gather and the perspectives we develop directly influence decision-making, ultimately shaping resource allocation and budgetary priorities. Objective design process does not exist; the reasons behind our innovation project, team members involved, and the methodologies employed all hold significance.

At a higher abstraction level, we can start from the general three-level stratification of action: behaviour (*how*), intent (*what*), and motivation (*why*). A clearer distinction can be traced between intent and motivation levels as being concerned either by direct objectives (*what*), or preferences, constraints and values (*why*) defining the underlying motivation against which objectives take shape and are realised through the *how*. This observation unveils that, in the case of co-creation or co-production, there is a preliminary dimension to take into account which is *who* is to play a role with respect to selecting intent.

Combining the ten principles of Design justice with these three axes (*why*, *who*, and *how*), we propose the following preliminary list of evaluative questions, which in principle would then support conducting more inclusive co-creation activities with marginalised groups.

	Design Justice Principle	Questions
WHY (our purpose, our vision and our values embedded in the pilot or co-creation activity)	1	Does the design have a social and equitable mission? Is it intended to improve social outcomes and correct systemic inequities?
	8	Does the design include a commitment to accountability to the communities? Is it designed by community members and does it include a sustainability component?

	9	<p>Does the design have an environmental component to not only mitigate adverse impacts but nurture positive outcomes?</p> <p>Does the design include a social, human rights, gender, or environmental impact assessment?</p>
	10	<p>Does the design include recognition of past work on the topic with an emphasis on locally generated, indigenous knowledge, and practice?</p> <p>Does the design include a literature review, systematic review, interviews with local knowledge bearers, etc.?</p>
<p>WHO</p> <p>(our actors, allies, and advocates embedded in our pilot or co-creation activity)</p>	5	<p>Who is conducting the design and how do they impact the work?</p> <p>What are the roles and responsibilities of the designer or other team members?</p> <p>Is the design process co-designed or co-implemented with the community in question? Are we adequately listening to and capturing all perspectives from the project team and the studied community?</p> <p>Does the designer approach the design process, not as an expert, but as a facilitator who does not have the full knowledge of the community in question?</p> <p>Does the design recognize the blind spots of the designer?</p>
	6	<p>Does the design place value on the contributions of the team participants or communities as experts of their own experiences?</p> <p>Does the design allow for co-design, adaptation, or any way for participants to contribute to the research process?</p>
<p>HOW</p> <p>How are we conducting the pilot and co-creation activity?</p> <p>Reflecting on the process, and its impact</p>	2	<p>Reminder that the design both in its process and findings can have long-term effects on participants.</p> <p>Is the design centering their voices?</p>

can bring some realisations to steps along the way that can centre the communities and participant voices who are considered the subject. This is a key element of ensuring the design process is just and equitable.	3	<p>Is the design’s impact on the community prioritised over the design’s intentions?</p> <p>Could there be unintended outcomes? What is the meaning of free, prior, and informed consent in this context?</p>
	4	<p>Is there a commitment and series of actions that ensure that a design process is transparent, collaborative, and social change-oriented?</p> <p>Is the design process evaluated continuously and iterated for increased accessibility, accountability, and collaboration?</p>
	7	<p>Is there a mechanism for training and knowledge sharing with the communities that are being studied?</p> <p>Does the design process include a component in which we report back to the communities and ensure that it is a productive and constructive process for everyone involved?</p>

Table 2. Preliminary model for more inclusive co-creation for/with/by marginalised communities¹⁰⁰

The questions proposed above have been selected by having in mind the specific focus of CommuniCity, and taking into account discussions held by researchers and practitioners on Design Justice principles.¹⁰¹ In principle such an evaluative framework could be applied against any co-design project/pilot relevant to the scope of CommuniCity, and indeed, it is our intention to apply it in the coming phase on knowledge issued from the pilots currently running in CommuniCity. This step will provide us with qualitative insights of what has been done so far in terms of requirements which are deemed critical for marginalised groups, possibly to steer the future calls.

Yet, the framework in itself requires a more robust evaluation, going beyond scholarly debate. Besides expert interviews, we are going to establish a theoretical triangulation with the other deliverables “Ethics

¹⁰⁰ Adapted from Hasan, Mahrukh (Maya) and Amin, Sanam (2020) Design Justice: Why it matters and how you can apply the principles to your work, available at: <https://archive.researchworld.com/design-justice-why-it-matters-and-how-you-can-apply-the-principles-to-your-work/>, retrieved 1 February 2024

¹⁰¹ Ibid.

and Intersectional Inclusivity Framework” and “Principles for ethical and inclusive engagement”, as they offer complementary views from what we have constructed here.

4. Conclusions and next steps

After reviewing the knowledge and methodologies acquired in the previous OrganiCity and SynchroniCity projects (chapter 1) and recognizing the unique focus of the CommuniCity project (co-creation for/with/by marginalised communities) (chapter 2), this document engages (chapter 3) with a critical analysis and evaluation, drawing from scholarly literature, of the concept of co-creation across all relevant dimensions in the given context. It also introduces an initial version of an evaluative framework for more inclusive co-creation framed from a Design Justice perspective, which has been chosen as an exceptional instance of operationalization that is attuned to the specific characteristics of marginalised communities, as represented by intersectionality and the matrix of oppression. While OrganiCity and SynchroniCity effectively highlighted co-creation in their projects and generated associated documents, they employed specific top-down approaches with different target groups led mostly by tech parties in the context of a market-driven rationale. A design justice approach, however, emphasises community-led practices that empower marginalised communities to re-imagine cities that they need. At the conclusion of the project, the document will be updated to include insights from actual case studies of co-creation carried out in the CommuniCity project. Ideally, results of applying the proposed evaluative framework may serve to re-address the pilots of the third open call, at least where possible, then establishing a feedback loop from reflection which potentially can bring an increased effectiveness on action. Yet, from a scientific point of view, we need also to be open to acknowledge and unveil more fundamental issues: it may be that organisational and procedural structures as the one underpinning CommuniCity may be not the most suitable ones to foster co-creation engaging with, involving, and empowering marginalised communities.

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Web resources:

Design Justice Network Principles: <https://designjustice.org/read-the-principles>

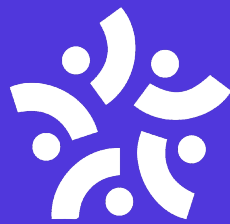
Design Justice- Community-Led Practices to Build the Worlds We Need:
<https://designjustice.mitpress.mit.edu>

A Universal Guide to Make Your City Fit for the Digital Transformation:
<https://oascities.org/a-universal-guide-to-make-your-city-fit-for-the-digital-transformation/>

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