

Towards Inclusive Digital Welfare: A Multi-Layered Co-Design Approach

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Abstract

This research examines digital inequality and how it affects both access to online services and community integration, utilizing a collaborative design approach conducted within the *Milan* metropolitan area. The investigation engaged experts, youth, and senior citizens through an inclusive methodology designed to create digital assistance programs via an interdisciplinary framework. The model integrates training, facilitation, and technical assistance to reduce inequalities in technology use. Anchored in a distributed ecosystem, the initiative blends physical and digital spaces to ensure equitable access. Findings emphasize the key role of human interaction and local collaboration in overcoming digital barriers.

Keywords: Digital Divide, Co-Design, Digital Welfare, Social Inclusion

Introduction

The paper introduces a multidisciplinary research initiative undertaken by sociologists, urban planners, and designers from the Department of Architecture and Urban Studies (DASU) and the Design Department at Politecnico di Milano. It presents the co-design and co-creation phases carried out within the ongoing study titled *E-Welfare in the city. Physical and digital spaces for social inclusion in the metropolitan area of Milan*. This research is carried out by an interdisciplinary team operating within the *MUSA - Multilayer Urban Sustainability Action* framework, a project funded by the European Union's NextGenerationEU program under the National Recovery and Resilience Plan (NRRP).

MUSA seeks to establish the Milan Metropolitan Area as a hub for urban regeneration and innovation, integrating multiple levels of social and technological

intervention. The broader ambition is to scale this model at regional and national levels, ultimately positioning it as a reference point for Europe. This research seeks to accomplish its objectives through various initiatives that tackle multiple dimensions of an innovation framework, understood as “a dynamic network of participants, activities, and artifacts, along with the institutions and relationships - both complementary and substitutive - that influence the innovative capacity of an individual actor or a collective entity” (Granstrand & Holgersson, 2020). The effectiveness of this framework relies on robust partnerships between educational institutions, private sector entities, public agencies, and community organizations. This research in *Innovative Models Against Social Inequalities* identifies barriers to social inclusion for vulnerable groups and develops new welfare services. The project helps stakeholders and policymakers assess social inclusion measures while establishing metrics to guide technological support for marginalized communities. The research team focuses on Territorial Welfare, promoting social inclusion by integrating marginalized populations into local welfare services and policies. Key objectives include improving work-life balance policies and ensuring equitable access to social and healthcare services for vulnerable individuals.

The study *E-Welfare in the city* and the insights presented in this paper contribute to the ongoing discourse on the intersection of digital technologies and welfare provision. It examines how digitalization transforms local welfare systems while maintaining the importance of physical spaces. Rather than replace physical environments, digitalization reshapes their function in providing welfare access. These spaces serve as crucial intermediaries, linking specific population groups with support systems. The research highlights the need for integrated physical and digital infrastructures to improve digital welfare accessibility and create more inclusive urban environments.

Digital Divide: Barriers to Accessing Digital Services and the Role of the Research Lists

The “Smart City”, as defined by Angelidou (2015), represents one of the most recent developments in a series of urban development paradigms that have evolved over time, following earlier models such as the “creative city” and the “sustainable city” (Aurigi & Odendaal, 2020).

This approach focuses on the construction or redevelopment of urban spaces with sustainability-oriented approach, leveraging technological and digital solutions. The idea has gained broad support, with numerous cities in Italy and around the world actively implementing smart strategies (Vanolo, 2015).



However, the discourse on smart cities often overlooks a fundamental question: under what conditions can we move beyond technological advancements to foster a “smart citizenship” - one where all individuals can effectively exercise their rights and responsibilities in an increasingly digital society? (Kitchin, 2014).

As digitalization progresses, access to digital resources and skills is no longer merely a matter of convenience but a fundamental prerequisite for social participation. The digital divide - the gap between those who can fully benefit from digital technologies and those who cannot - has been widely recognized as a significant social challenge. Research on the digital divide has demonstrated that the emergence of the information society has led to new forms of social stratification (Antonio & Tuffley, 2014; Sparks, 2013; Van Aerschot & Rodousakis, 2008). As digital technologies increasingly shape economic, social, and cultural dynamics, dependence on these technologies has grown, making exclusion from the digital world a new dimension of social exclusion.

Digital inequality appears through multiple forms, overlapping with wider social and economic disparities. A minimum of three tiers of technological exclusion can be recognized:

- **First-Level Digital Divide: Access**

The bigger barrier is access to digital infrastructure, including:

- Availability of devices (computers, smartphones, tablets)
- Access to software and applications
- Internet connectivity
- Basic energy availability to power digital devices

- **Second-Level Digital Divide: Skills**

Apart from availability, differences lie in the ability to use technology effectively:

- Operational expertise with equipment and applications
- Online fluency and capability to manage web-based systems
- Understanding of wider technological consequences, including information security, data protection, and digital freedoms.

- **Third-Level Digital Divide: Structural Factors**

Digital disparities are not isolated phenomena; they intersect with existing social inequalities. Key structural factors influencing digital inclusion include:

- Gender disparities
- Age-related differences in digital proficiency



- Socio-economic status and financial capacity to afford digital tools
- Citizenship status and legal barriers to accessing digital services
- Bridging the Digital Divide: Towards an Inclusive Digital Society

Building on the capabilities approach the key challenge is not merely ensuring access and skills but evaluating whether individuals can effectively use digital tools to enhance their individual, family, and collective well-being. Digital inclusion must go beyond infrastructure and training to create conditions that empower full participation in digital society.

The study examines how access to welfare resources is evolving in response to the increasing digitalization of social policies and services. As digital technologies continue to shape the organization and delivery of welfare provisions, they seemingly create opportunities for more direct and immediate access to resources. Individuals can now use digital devices to access information, complete procedures, and track progress as reducing the need for phone calls, in-person appointments, or service operator assistance. However, digitalization also creates new divides. These divides appear in several ways: unequal access to devices, differences in the ability to use them effectively, and varying levels of awareness about their broader impacts.

While digitalization can enhance efficiency and streamline processes for some, for others, the shift toward disintermediation risks exacerbating difficulties, increasing exclusion, and deepening social isolation.

This research explores strategies for (re)intermediation, a mechanism that can mitigate the negative consequences of digitalization and bridge digital divides. It also examines the potential role of physical spaces in supporting such strategies, considering how spatial factors, in combination with other elements, might help counteract the inequalities emerging from digitalization processes.

Digital Welfare Investigation Profiles

The process of digitalization and its ambivalent implications impact all social groups and categories; the study focuses specifically the following population profiles:

- Young people (teenagers - young adults): Digital natives with strong technological skills but suffering from social isolation and loss of relational skills, worsened by Distance Learning (Dad) during the pandemic. They are at higher risk of educational poverty and school dropout, with the school-to-work

transition being increasingly influenced by the digital changes in the job market.

- Elderly people: They were introduced to new technologies at an older age, with varying levels of competence. Their health and autonomy conditions are diverse, leading to growing care and assistance needs, linked to the aging population process.

These profiles were identified through the collaborative efforts of the *Tavolo Connessioni (The Connections Roundtable)* of *Rozzano*, a working group promoted by the Municipality of *Rozzano* to foster structured collaboration and dialogue among social services, family and child welfare services, schools, and other key community stakeholders.

The two extremes of the life cycle (youth and elderly) exhibited combinations of resources and needs that were very different, requiring tailored interventions. Numerous examples of joint, multi or intergenerational projects were identified that addressed these differences, particularly in the exchange of skills across generations. Focusing on these profiles, their needs, and available resources, a project hypothesis took shape. It combined complementary goals: preventing and reducing digital divides, improving access to welfare services, and tackling educational poverty and school dropout among young people.

Community Engagement and Co-Creation in Local Welfare Services

This paper underscores the crucial role of community engagement and co-creation in designing services that effectively address local needs while empowering residents. *E-Welfare in the city* research follows a five-phase structure and examines two distinct scales: the urban level (The City of *Milan*) and the metropolitan area (Metropolitan City of *Milan*). This distinction is reflected throughout the different phases of the study:

- Phase 1: Review of existing literature and establishment of the research framework.
- Phase 2: Investigation of the *Milan* urban area through interviews and site visits at the *WeMi spaces* of the Municipality of *Milan*, complemented by additional visits and discussions at *Polimi Off Campus Nolo* and *Polimi Off Campus San Siro* spaces, as significant case studies within the City of *Milan*.

After an initial phase mapping data and analyzing existing spaces that blend physical and digital access to welfare, primarily concentrated within *Milan*, the study shifted its focus to a different setting outside the urban area: *Rozzano*, chosen as a key site for research and co-design. *Rozzano* was selected due to its distinct socio-economic and demographic characteristics, shaped by its urban development and housing policies. A particularly defining feature is its high percentage of public housing (*ERP - Edilizia Residenziale Pubblica*), which has played a significant role in shaping the local social fabric. The three social groups central to this research - youth, elderly, and individuals with a migratory background - are highly represented in *Rozzano*, each with its own specific needs and challenges. Additionally, *Rozzano*'s proximity and close ties to *Milan* make it an especially relevant area for analysis.

Several additional factors contribute to *Rozzano*'s significance as a research site. The presence of the *AFOL Metropolitana - CFP (Vocational Training Center)* provides specialized professional training, which is particularly valuable for young people at risk of dropping out of school. Moreover, the Municipality of *Rozzano* has implemented digital literacy programs, particularly through facilitation help desks. Although these initiatives were introduced on a trial basis for a limited time, they received very positive feedback from residents. Two key aspects stand out:

- The educational approach, which emphasized skill-building and empowerment rather than mere technical assistance.
- The widespread accessibility of training programs, which were integrated into existing welfare service locations across the city.

Another key actor is the *Tavolo Connessioni*, which has guided strategy and implementation by coordinating local organizations, linking *Rozzano* with the *Visconteo* area, and fostering shared expertise in education, training, social support, and youth empowerment. The collaboration with *Tavolo Connessioni* revealed significant alignment in goals and approaches, creating a strong foundation for the co-design of a pilot project in *Rozzano*. Building on this groundwork, the research proceeded to the next phases:

- Phase 3: A deeper analysis of *Rozzano*, including demographic research, mapping of housing and social services, and interviews with key stakeholders from *Tavolo Connessioni*.
- Phase 4: Further investigation of *Rozzano*, focusing on spatial and service assessments, as well as co-design workshops involving local stakeholders.

- Phase 5: The implementation phase - developing and co-creating a dedicated space/service within the *CFP of Rozzano* to improve welfare accessibility.

At present, the research is transitioning between Phase 4 and Phase 5, and this paper is situated at this key turning point.

Co-Designing a Hybrid and Inclusive Welfare Service

The goal of the co-design process was to test, through a pilot case, the conditions under which the integration of physical space, digital technologies, capacity-building support, and skills development can help reduce digital divides and inequalities in welfare access. At the same time, it seeks to prevent school dropout by promoting an integrated, intergenerational, community-based approach. The project's preliminary goals for co-design focus on creating a space/service with the following features:

- Hybrid: A place where physical space, digital tools, and empowerment activities intersect to create an inclusive environment.
- Intergenerational: A setting that facilitates welfare access for residents, particularly the elderly, by equipping them with digital skills while simultaneously providing opportunities for young people to apply, enhance, and acquire new competencies through hands-on experience.
- Co-Designed: Developed collaboratively with local stakeholders, young people, and community members, ensuring that it reflects the real needs and aspirations of the area.
- Diffused: Anchored in *Rozzano*, with a particular focus on the *CFP*, but designed to connect with other key spaces and services in the area, expanding its reach within the broader metropolitan network.

The co-design process will first focus on collectively defining the objectives, approaches, and key components of the initiative, translating them into a concrete project. This includes, identifying the services to be tested, ensuring they align with local needs and structuring the spaces that will host these services, considering both physical and digital requirements.

Exploratory Dimensions of the Research

The research framework is structured around three key interpretative axes, referred to as Exploratory Dimensions:

- **Service Dimension:** This aspect encompasses all activities and functions related to digital welfare, defining the essential requirements of the space. Beyond service delivery and policies, it includes digital elements, such as platform design and user accessibility
- **Spatial Dimension:** Following definition of space as “long-term physical assets in the social sector that enable goods and services to be provided” (Fransen et al, 2018) this dimension investigates the spatial organization and characteristics of the project. Space is not static but adapts dynamically to service needs, integrating both technological infrastructure (computers, printers, digital signage, screens) and physical elements (furniture, layout, accessibility features).
- **Digital Dimension:** This axis focuses on digital infrastructure and its impact on accessibility, user skills, and awareness. It encompasses both the digital platform that facilitates access to welfare services and the technological tools that support interaction, such as computers, printers, and connectivity solutions.

These dimensions interact dynamically, shaping the research outcomes and guiding the development of a digitally inclusive and community-driven welfare model.

A Multi-Layered Approach to Co-Designing a new Inclusive Digital Welfare Service

This section examines technology and service aspects to co-design a digital support service aimed at overcoming barriers to technology access. Using a participatory approach, the service will be inclusive and accessible, engaging experts, young people, and elderly citizens to meet diverse community needs. The strategy addresses skill gaps while building user confidence and promoting equitable access to technology and support.

The co-design process spanned four months and focused on two main themes: service and space. For each theme, three sessions were held, one per stakeholder group, totaling six sessions. A final session presented the outcomes, collected feedback, and defined the next steps collaboratively.

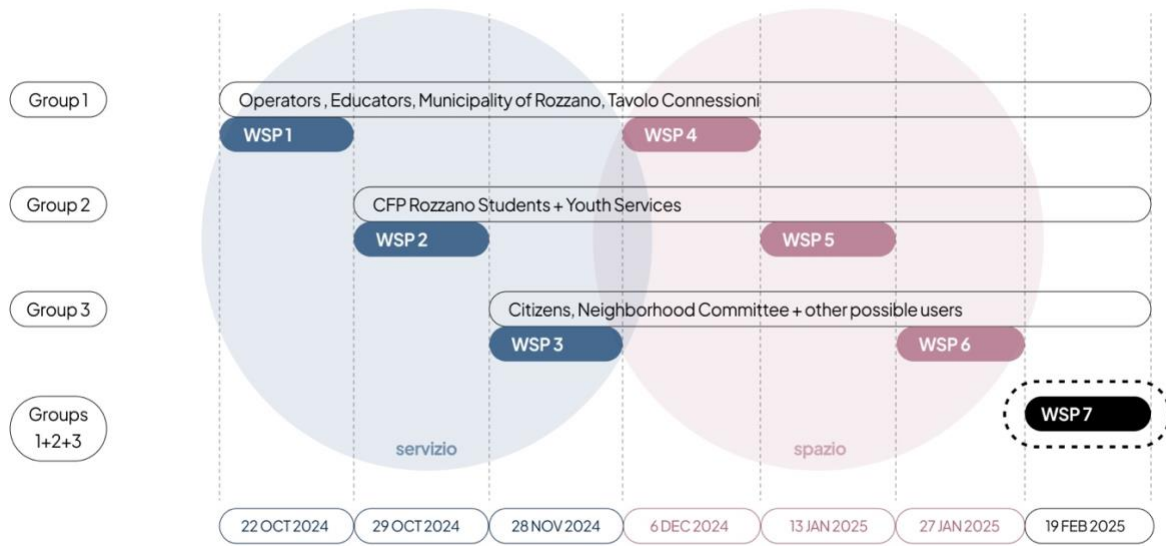


Figure 1: Gantt Chart of the Co-Design Process with timeline and key activities outlining the sequence of sessions and milestones across the various stakeholder groups.

The main objectives of the co-design process were to define an adaptable and innovative service that effectively responds to the identified needs, ensuring flexibility and sustainability over time. The process also focused on identifying key stakeholders, both service providers and users, to clarify roles and responsibilities. It aimed to define the service’s operating framework, including hours, to ensure accessibility and effectively meet community needs.

The co-design process aimed to foster participatory activities that identified stakeholders’ specific needs and requirements. Through a series of sessions, it explored how integrating physical spaces with support services could help reduce digital divides and inequalities in welfare access. The co-design sessions were conceived to encourage dialogue among the actors involved, with the objective of fostering the emergence of shared solutions that respond to the needs of vulnerable populations and promote equitable access to digital resources. The designers / researchers / practitioner's contribution in the *E-Welfare in the city* project was diverse, involving coordination, design, and facilitation as part of the co-design process. The team oversaw stakeholder participation, organizing meetings for the co-design sessions to maximize attendance and gather a wide range of perspectives. Strategies, tools, and dynamics for the co-design sessions were then developed, adapting to the specific characteristics of the different stakeholders involved. Finally, the role of facilitator during the co-design activities was crucial, as participants were



guided through various tailored activities to co-design the digital support service from three different perspectives. To effectively foster a collaborative environment that facilitated the co-design process, that role required a high level of adaptability, empathy, and active listening.

This co-design is part of a broader effort to integrate services and spaces. This paper, however, focuses only on the service aspect. Within this scope, three co-design sessions were conducted with the same objectives, each involving a different group of stakeholders.

- Group 1: Operators, Educators, Municipality and Third Sector
- Group 2: CFP Rozzano Students and Young People from Rozzano Entities,
- Group 3: Citizens, Elderly, Neighbourhood Committee and Other Potential Users.)

The characteristics of the three groups, the selection methods, and the tools designed for each of them are described in more detail in the following paragraphs.

First group of actors: Operators, Educators, Municipality and Third Sector

The first group of actors is made up of sixteen representatives of the Tavolo Connessioni, key experts in *Rozzano's* social landscape who play a crucial role in the co-design of social services. This collaborative network brings together representatives from educational institutions, social services and the third sector, fostering an ecosystem that integrates knowledge and expertise to effectively address the needs of the community. The tools used with the first group of stakeholders were designed with the recognition that these experts could more easily engage in systemic and service level thinking. This enabled them to provide valuable input to the workshop objectives. The tools aimed to identify the needs and desires of the different stakeholders.

After a joint brainstorming session to identify the tangible and intangible needs, the 16 participants were divided into three focus groups. Each group then conducted the same activity using a board. (Fig. 2).

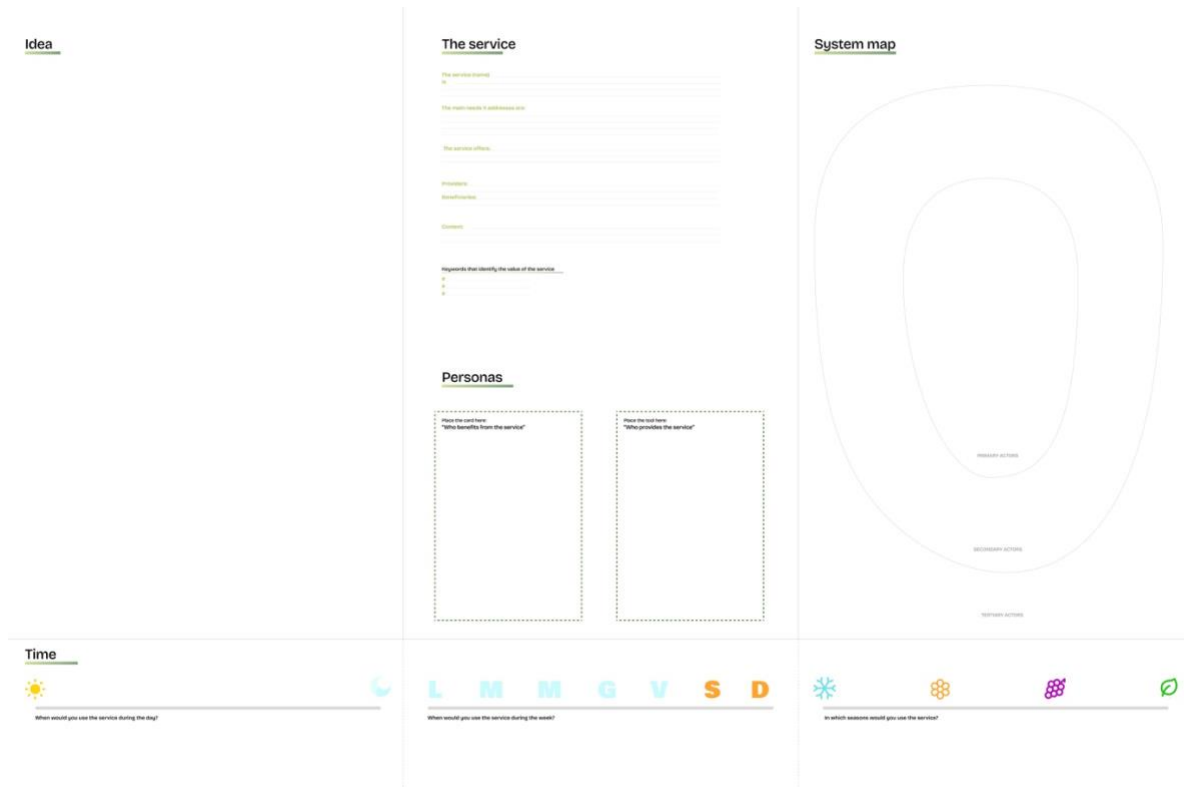


Figure 2. Focus Group Board Activity

Based on the initially identified needs, participants worked collaboratively to design the key components of the service with the help of cards we provided. This process included developing strategies to address citizens' needs, which were identified using specially designed cards created by the research team to facilitate co-design and the subsequent definition of the service to be implemented. The cards used to facilitate the session were tailor-made and context-based, designed according to users' specific needs and desires identified through a series of interviews and desk research. Next, attention turned to defining target user characteristics through collaborative persona development, comprehensively capturing the requirements, preferences, behaviours, and cultural contexts of distinct user segments. Subsequently, a mapping of the relationships connecting them to other stakeholders within the system was carried out, leading to the creation of a co-created ecosystem map (fig.3) that captures all the key roles influencing the user, the organization, and the service environment. (Forlizzi, 2013). Finally, the establishment of the service's operating hours.

Second group of actors: CFP Rozzano Students and Young People from Rozzano Entities

The second group of stakeholders consists of young adolescents who live in and/or attend school in *Rozzano*. The young participants involved in the co-design process came from two organizations: the *CFP (Vocational Training Center)* and the *Don Gnocchi Foundation*, an organization that provides educational and rehabilitation programs for youth experiencing school disengagement or at risk of early school leaving. Three consecutive sessions were conducted. The first session involved six young people from the *Don Gnocchi Foundation*, accompanied by an educator. This session was later replicated with two additional groups: one composed of six students from the *CFP*, and another involving six more participants from the *Don Gnocchi Foundation*. They are digital natives with a strong inclination toward using digital tools and acquiring skills in this field. However, they also experience the negative consequences of digital immersion, such as social isolation and a decline in interpersonal skills. As key target users, it was crucial to involve them in the co-design process to understand their digital needs and habits. This helped define, together with them, the role they would like to play within the service.



Figure 4. Paddle Response Activity; Storytelling and Response Activity Board.

The co-design session with the young was structured in two parts. The first part involved a collaborative brainstorming session to explore their technological habits and how they interact with both technology and family members who need assistance. Students answered a series of questions by raising paddles (Fig. 4) to indicate either a positive or negative response, which then led to an open discussion.

The storytelling phase of the co-design session organized participants into three groups of six members each. Each group examined one of the three services that had been previously created with expert input. The services were presented as visual narratives featuring illustrations and dialogue bubbles. After participants reviewed these narrative presentations, facilitators posed specific questions about potential participant roles within each story and requested suggestions for modifications that would better reflect their preferences. Participant feedback was collected using sticky notes, which were then placed on shared display boards. (Fig.4)

Third group of actors: Citizens, Elderly, Neighbourhood Committee and Other Potential Users

The third group involved in the co-design sessions consisted primarily of elderly citizens and mothers, totalling eleven participants. Due to their age, many of the elderly participants had only encountered digital technologies later in life, with varying levels of familiarity and confidence. In contrast, the mothers tended to view technology as an opportunity, often relying on their children for support when accessing digital welfare services. The participants' proficiency in technology varies, with some demonstrating high levels of skill and expertise, while others possess moderate abilities or limited to no prior experience. Furthermore, the participants' health and independence levels vary considerably, resulting in a broad spectrum of care and assistance needs. It is evident that these needs are significant and growing, particularly in the context of an ageing population.

The first part of the co-design session consisted of open-ended questions to introduce a discussion with all participants about their material and immaterial needs, as well as their relationship with technology, with a particular focus on their difficulties. The group was then divided into three focus groups to begin the second part of the session on the board (Fig. 6), where they were guided in creating a service based on the issues identified during the brainstorming session. Similarly to the co-design session with the experts, the tailor-made suggestion cards were used to help participants find solutions to their needs. This part of the co-design aimed to



turn the solution-finding process into a card game, making the exercise more participatory. Once the problem and possible solutions were identified, the approach of creating a story was used to define proto personas based on the participants. The final activity was to identify the key elements needed to create a story that integrates into the designed service.

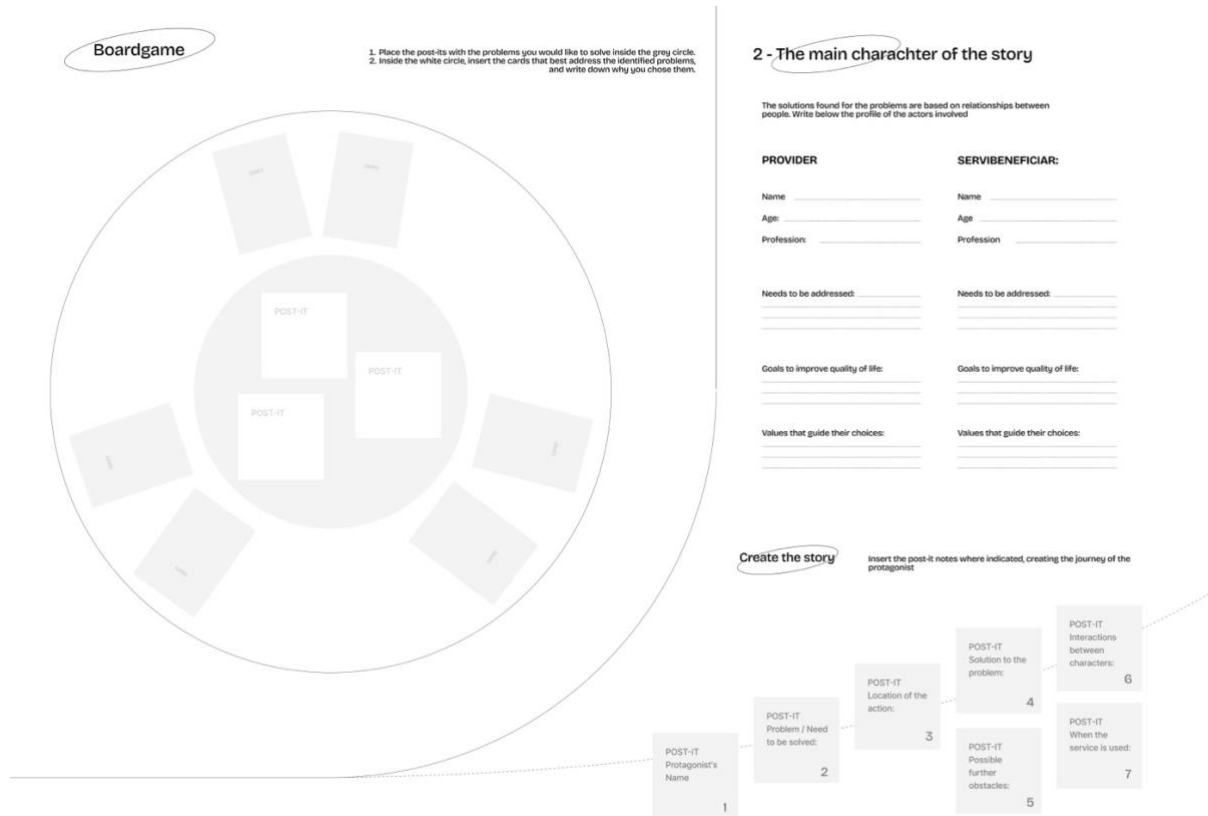


Figure 5: Focus Group Service Design Activity Board

The contribution of this third group was essential in defining the key characteristics of the end users of the digital support service, namely the citizens. The participants brought to light several issues related to the stigma associated with their age, such as being perceived as incapable, being treated with condescension and sometimes without dignity. These factors were subsequently incorporated into the design of the proposed service.

In conclusion, the co-design sessions described in this section played a pivotal role in shaping the digital support service, providing an inclusive and participatory approach to service design. By engaging a multilevel range of stakeholders, including experts, young people, and elderly citizens, the process allowed for a comprehensive exploration of the needs, challenges, and aspirations of different groups within the

community. The sessions enabled the identification of both tangible and intangible needs; furthermore, they addressed underlying issues such as the digital divide and social stigma. The use of interactive tools such as suggestion cards and storytelling techniques facilitated a dynamic environment in which participants could actively contribute to defining the service and its components. This collaborative effort has resulted in a service model that is based on the real needs of the community, ensuring that it is both accessible and relevant to the citizens it aims to support. The co-design process highlighted the importance of ongoing engagement with local stakeholders to create services that are not only effective, but also meaningful and inclusive, fostering a sense of ownership and empowerment within the community.

Multi-layered Co-Design Activity Results: The Offer and The System

The system in which the service is integrated and organized consists of a local network made up of a network of associations and organizations that collaborate to offer integrated digital services. The *CFP (Center for Professional Training)* serves as the pilot space and digital intermediary hub, providing a range of distributed and shared services. These services include activities aimed at supporting citizens' access to and effective use of digital technologies. The shared distributed services are offered in both coded spaces - socially recognized and classified spaces - as well as extra shared distributed spaces. The latter are less formalized but are socially recognized as frequently visited spaces, populated and identified as potential sites for more formalized community gatherings. This distinction is crucial because, for the researchers (as well as facilitators of the co-design activities and designers), the initial hypothesis for the research was to situate the service not only in a single location but also in other distributed locations functioning as *antennae* across the territory. The extra distributed spaces were mapped through the second phase of the co-design process, which focused on space.

The co-design activity conducted on services revealed several key insights that inform the development of the service. Among the most significant findings, participants expressed the following:

“I don't feel ready to help people with digital issues, but I would like to learn” (young participant).

“I want to be treated with dignity when I ask for help” (citizen).

“I need to speak with a person, not to a screen” (citizen).

“We don't have a fixed computer at home to use” (young participant).



“I enjoy repairing computers, phones, and digital equipment” (young participant).

These responses highlight various needs and challenges faced by individuals in relation to digital skills and technology. For example, there is a strong desire for learning opportunities, particularly among young participants, who express an interest in developing digital competencies but feel unprepared to assist others. Similarly, both young people and citizens emphasize the importance of human interaction in digital support, as evidenced by the desire to speak with a person rather than relying on automated systems or screens. The lack of access to personal digital devices at home also emerged as a significant barrier for some participants, particularly in the case of young people who lack a fixed computer. Finally, a keen interest in digital repair and maintenance was noted, suggesting a potential avenue for practical engagement with technology. These insights have directly informed the following strategic directions for the creation of the service. The four key results identified from the co-design activity were categorized into an offering map (Fig. 7) with the intention of clarifying what the service offers the user and refining the value proposition into more focused clusters of features (Sangiorgi, 2004). Then primary and secondary offerings were identified. The primary offerings focus on digital training and digital facilitation, while the secondary offerings encompass support and guidance as well as hardware assistance and repairs.

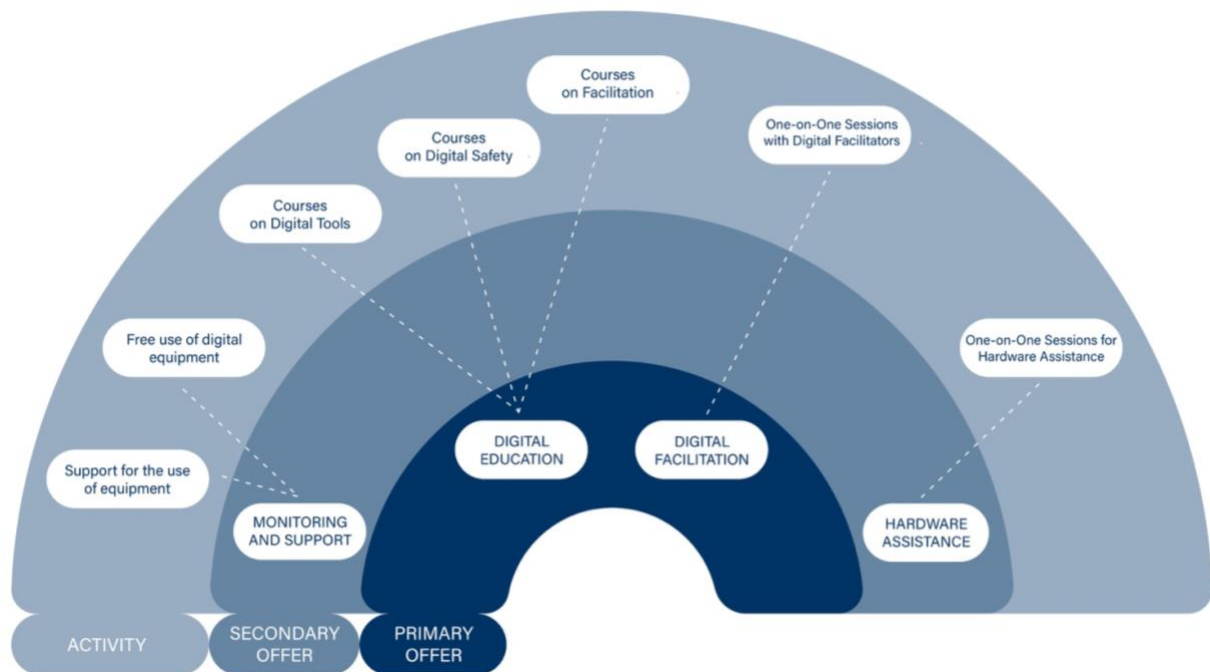


Figure 6. Offering Map: Primary and Secondary Offerings of the Digital Support Service



Primary offerings:

- **Digital Education:** The service offer training opportunities aimed at both young people (sometimes students) and citizens, focusing on building essential digital skills. This training should be designed to empower participants to help themselves and others in the digital realm, with a particular focus on developing the confidence and capabilities necessary to navigate digital tools effectively. In detail, Digital Training develops practical skills in digital tools (SPID, CIE, email, video production, graphic software), preparation for facilitation, and online privacy and security.
- **Digital Facilitation:** A dual approach should be adopted, incorporating both collective and one-on-one facilitation models. This would ensure that individuals receive personalized support while also fostering a sense of community and collective learning, allowing participants to share knowledge and experiences. In detail, Digital Facilitation supports citizens in the conscious use of technology through Digital tools and platforms and Digital education and accessibility.

Secondary offerings:

- **Monitoring and Support for shared digital equipment:** Given the issue of limited access to personal digital devices, the service should aid with the use of shared digital equipment. This could include offering guidance on how to use computers, tablets, and other devices in community spaces, ensuring that all individuals can access the necessary tools to participate in the digital world. In detail, Support and Monitoring ensures assistance and access to digital resources through free use of equipment, promoting autonomy and digital inclusion and Instrumental accessibility, providing adequate tools for everyone.
- **Hardware assistance and repair services:** Recognizing the interest in repairing digital devices, the service should incorporate a component focused on providing technological assistance and repair services. This would not only address the practical needs of individuals who rely on digital devices but also create opportunities for hands-on engagement, where young people can learn repair skills and contribute to the maintenance of the community's digital infrastructure. In detail, the hardware assistance is about a Repair Workshop, where CFP students repair citizens' digital devices.



Figure 7. User Journey Map of the Digital Facilitation Offer

Challenges Encountered During the Co-Design Process: Stakeholder Engagement, Balancing Systemic and Individual Needs

The co-design process provided valuable insights and fostered meaningful collaboration among stakeholders, but it also highlighted several challenges that required adaptive strategies and ongoing refinement of our approach. One of the primary challenges was ensuring active and equal participation among diverse stakeholders, each with varying expectations of the service and differing levels of experience with digital tools. Experts, youth, and elderly citizens all brought unique perspectives to the co-design sessions, requiring specific facilitation techniques to bridge knowledge gaps and stimulate productive discussions. The sessions revealed a tension between the individual needs of end-users and broader systemic factors such as infrastructure and governance. A clear dichotomy emerged between the immediate accessibility and human-centered interactions prioritized by users, and the long-term service sustainability emphasized by experts. The need for iterative discussions and modifications to the service design framework became evident to reconcile these differing viewpoints.

Conclusions and Future Improvements

The co-design process outlined in this paper led to the creation of an inclusive digital support service for the *Rozzano* community, incorporating input from experts, young people, and elderly citizens. These diverse perspectives informed a service model that includes digital training, facilitation, hardware assistance, and technical support. The process emphasized the importance of a participatory approach grounded in the

local context, with a focus on a distributed service system across both formal and informal spaces.

The results demonstrate the service's role in bridging the digital divide, empowering youth, supporting the elderly, and fostering human interaction with technology. The service addresses four key needs: digital skills training, tech facilitation, shared access to devices, and technical assistance.

The next phase will focus on co-designing the organizational framework, clarifying stakeholder roles and structuring operational relationships. This future step was raised as a necessity by the experts of the *Tavolo Connessioni* working group during the results-sharing session. To achieve this goal, a second phase of co-design was launched to define the service's management model, regulations, and manifesto. It will also involve designing the physical space to ensure it meets identified spatial needs. The objective involves developing a management framework that guarantees long-term viability of the service. Furthermore, assessment and tracking systems will be implemented to measure effectiveness and enable ongoing enhancements, ensuring the program operates efficiently while remaining accessible and embedded within the community through a durable, collaborative approach.

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