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Urban Furniture Design Strategies to Build Healthy and Inclusive Neighborhoods

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Abstract: Several guidelines provided by the World Health Organization as well as frameworks in the scientific literature suggest focusing on the built environment, i.e., indoor and outdoor spaces, including urban furniture, for promoting public health as it acts as a promoter of healthy lifestyles. The paper presents part of the results emerged from the HNH research project, which addresses the topic of neighborhood health at a systemic transdisciplinary and trans-scalar level of the project (macro-, meso-, up to micro-level). In particular, the results at the micro-scale of the urban furniture design are presented, which are related to the following research questions: (i) what are the strategic design requirements of street furniture for a healthy neighborhood and (ii) what are the micro-scale design scenarios for orienting the choices of the public administration in the creation of a healthy neighborhood. Through the use of a conceptual framework developed in the research, as a tool both to measure the quality of the built environment and to develop participatory design activities and co-design workshops, the research arrives at the categorization of urban furniture into domains, sub-domains, and related products categories, for each of which design strategies and scenarios are defined. The results highlight the potential and importance of urban furniture design in promoting a healthy built environment, underlining the strategic role of tangible products as healthy touchpoints to promote healthy lifestyles.

Keywords: healthy neighborhood; urban furniture design and innovation; built environment innovation; product design; design thinking; co-design methods; active aging

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1. Introduction

1.1. The Scientific Context: Built Environment, Urban Health, and Urban Furniture

Citizens' health is closely related to the built environment in which communities live and work [1]. It is consolidated in the scientific literature that the built environment—which means indoor and outdoor spaces, including urban furniture, wayfinding, information, and communication systems designed for such spaces—influences public health. Indeed, it acts as a promoter of healthy lifestyles and favors physical activity, the access to a healthy diet, and being involved in positive social interactions, as well as the access to safe and pleasurable spaces (see [1–9]). The built environment is crucial for avoiding exposure to factors that create health risks, such as air pollution and potential violence, as well as for improving factors such as walkability, crossroad safety, bus stop quality, cyclability, and the usage of street furniture, in addition to as strategic and crucial factors for experiencing healthy neighborhoods [10–15]. These factors help to experience the neighborhood environment to find individual strategies to impact lifestyles and help to prevent chronic and noncommunicable diseases and physical and cognitive aging (see [16–20]).

Actions aimed at supporting human fragility and combating loneliness also benefit from designing a healthy and inclusive built environment [21–23]. This is commonly explored in studies that correlate the built environment as a determinant of active and healthy aging [24,25] for instance, to build an age-friendly environment [26]. At the same time, while the quality of the environment design determines the support for concepts such as healthy aging, these design decisions are "often based on cultural tradition, cost, compliance frameworks and trends instead of scientific evidence" [27]. A similar design problem has been even underlined in those studies that touch on the relationship between the environment—from the perspective of the urban furniture design—and the urban health (e.g., see [28,29]). Indeed, in the field of urban health numerous frameworks, guidelines, and checklists have been developed. Among these, particularly for the neighborhood level, it is worth mentioning the following:

- The checklists proposed by Forsyth et al. [30] for understanding the processes and components involved in creating healthier places;
- the guidelines that refer to the debated concept of "active design" (e.g., [31]);
- the checklists of the healthy streets approach [14] that focuses on the built environment of the streets as a determinant of the healthy neighborhood;
- the "diagram of seven health targets" [32] that can be used as a checklist to work in the broader context of the healthy placemaking;
- the frameworks adopted by national ministry to provide guidelines such as those provided by the Italian Ministry of Health that describes criteria for the urban health at a wide urban level (see [8,33]);
- the drivers and indicators based on the principles of the Inclusive Healthy Places Framework [34] describing inclusion as an outcome, a process, and a tool that can eliminate health inequities at the urban level;
- the suggestions, best practices, and entry points for health that should help in urban design and territorial planning introduced by the World Health Organization [1,35];
- the resources provided by contextual authorities such as the Healthy Built Environment Linkages Toolkit as a living synthesis of research on healthy built environments [36];
- the Unhealthy Neighbourhood Syndrome framework that describes "symptoms" to be taking into account for making decisions on designing the urban environment by analyzing perceived and objective factors about the physical and social environments [37];
- the "health promotion model for urban furniture design" proposed by Tang [38].

The latter is one of the few frameworks in the literature that explicitly address the urban furniture perspective for health promotion by emphasizing that "urban community furniture design should focus on physical exercise functions, communication seating facilities, ease of use and understanding, resting and sitting facilities, and facility structure" [38]. However, this framework does not cover specifically how the urban furniture should be designed to address these aspects. This lack is common in the frameworks, checklists, and guidelines presented so far. Indeed, the presented resources discuss urban furniture as a general component of urban health without providing any specific suggestion on what and how the urban furniture should be designed. In these resources, urban furniture is deeply developed for the urban health purpose. They are generically presented as a category to be considered for healthy urban planning where products such as seatings, lights, information, and wayfinding systems should respect usability performance, inclusivity principles, pleasurable features, formal coordination with the context, adequate esthetic level, safety of materials, and adequate sizing (for instance see [8,14,30,33,34,37,39]).

In the meantime, related works in the field of salutogenicity and walkability discuss indicators where urban furniture is considered a category of urban ergonomic performance within the Human–Environment Interface [40], or an indicator of the "human scale" factor

in the neighborhood [41]. For instance, one of these considers Seats, Public Lighting, Signs, Waste dump, and Shadows as "performance" within the urban furniture category where, respectively, the "Length of seating", "Quality of the seating", "Light flow", "Quality of the light fixtures", "Minimum distance from danger sign", "Presence of information signs", "Quality of signs", "Distance between dumpsters", "Quality of waste containers", "Percentage of shaded areas", and "Transmission coefficient", "Albedo", and "Quality of sun protection elements" are selected indicators to be measured [40]. Also, in this case, no information on what kind of strategies for designing this furniture are provided. However, these categories, including their materials, the esthetic and the functions are commonly recognized as the most influential factors to experience the urban space [42].

The literature in urban health that addresses a furniture urban design perspective is still fragmented. Indeed, while urban planning studies are developing comprehensive models that address new perspectives such as the 15 min city [43], or the 1 min, 5 min, and 20 min city models (see and c.f. the discussion in [44–47]), the urban furniture perspective—at the micro-scale—is addressed from resources that non-necessarily consider the urban health and that present non-homogenous point of views. For instance, some resources focus on diffused products for physical activities in the urban contexts (e.g., [31]), others on wayfinding and information systems (e.g., [27,48]), others on furniture for parks that can address neighborhood people's needs with inclusive approaches (e.g., [49]). Even though they can all be valuable for understanding the urban furniture perspective on promoting health in the urban context, they are not yet sufficiently developed within a unique compression, multidisciplinary, and multiscale framework. However, because these examples can provide a wide perspective offered by this paper, they will be further discussed in the next section.

To conclude this section, according to our knowledge, there are no comprehensive references in the scientific literature or pilot cases that systematically address, from the macro to the micro-scale, the issue of the healthy neighborhood and the impact of the built environment on the health of citizens. Moreover, these resources do not offer a detailed description of the categories, features, and factors that should be considered when designing urban furniture to align with the goals of urban health.

1.2. Understanding Urban Furniture in the Context of Urban Health

This paper refers to the HNH research project that will be presented in the next section.

In the early project's stages, the research team critically and interdisciplinarily reviews the literature from the design perspective, identifying which methodological approaches, research methods, toolkits, and interventions strategically address urban health.

The HNH theoretical framework was built around three core topics, each adapted to the scale of the respective disciplines—product design, architecture, urban planning, and landscape design—to address neighborhood health challenges [29].

The three topics were as follows:

(i) the concept of "proximity" that was addressed from the micro-scale of urban furniture by exploring the field of design aimed at supporting proximity and fostering social innovation practices (see and cf. [50–52]);

(ii) the concept of "healthy lifestyles" that was addressed from the micro-scale of urban furniture by exploring mainly the domain of "active design" solutions [31,53], and interventions that can follow approaches such as the design for behavior change [54–56] and the nudging design (see [57]);

(iii) the concept of "inclusion" that was addressed from the micro-scale of urban furniture by exploring the field of design for inclusion through approaches, principles and solutions of the Inclusive Design (ID) [58,59], Design for All (DfA) [60–62], and

Universal Design (UD) [63], as well as by exploring participatory design experiences with the application of co-design principles (see [6,64,65]).

As highlighted in the previous section, existing frameworks for supporting urban health through the built environment do not provide explicit examples or design suggestions for addressing the three aforementioned core concepts from an urban furniture perspective. To address this gap, the authors have selected the following examples and case studies to propose strategies for designing urban furniture that supports urban health.

The first concerns wayfinding system projects. Indeed, wayfinding is a crucial urban furniture category for urban health to both improve walkability and make the urban environment usable and recognizable (e.g., see [30,40]). Among the selected examples it is worth mentioning the Legible London project that provides seamless walking information through an ecosystem of products and services across the Capital [66]; the Brisbane Multilingual Pedestrian Wayfinding System fosters the walk flow of citizens exploring the place [67]; the Seamless Seattle that aims at sustaining intermodality and connecting the walking environment to urban transport infrastructure [68]; and the Adelaide City & Park Lands Signage Strategy aims at transforming the experience of cycling and walking [69]. Similarly, there has been collected wayfinding systems for supporting cultural exchange of territorial identity and recognizability of public building accesses through city branding projects. Examples in this direction are The High Line branding project [70]; the City Branding of Melbourne [71]; the Porto City Identity project [72]; and the University of Technology Sydney Wayfinding project [73]. Another cluster that has been analyzed is urban furniture that enhances social relationships. As emphasized by several studies, fostering social relationships in and through the urban environment—from green spaces to the inclusion of urban furniture—is crucial for health promotion and advancing urban health (see [74–82]). Consequently, products' research projects that can be examples for this area of interest have been selected, including aggregative interventions capable of activating and building communities, such as the seating options of the "Happy to chat" initiative [83], the pop-up social seating systems (see [84]), some examples of book sharing product-service systems [85,86], modular benches [87] that are basic solutions to favor people encounters, and the urban furniture to support neighborhoods' gardening [88], which is a basic urban activity to support social relationship with a positive interaction with nature (e.g., see [81]).

As evident in urban design aimed at creating healthy places and neighborhoods, addressing the diverse needs of citizens presents a systematic challenge for designers (e.g., see [30,34,74,89]). This involves addressing the challenges faced by people with disabilities, elderly individuals, those in socio-economic disadvantage, minorities, and individuals at risk of exclusion due to immigration status or potential discrimination (e.g., based on ethnicity), with a specific focus on improving their interactions with the urban built environment [6,34,74,90,91]. As suggested by most of the urban design approach for urban health, this means addressing the principles of Universal Design (UD), Design for All (DfA) and Inclusive Design (ID) for the purpose of creating inclusive places for all the citizens, as well as increasing the occasion of participation for all (see [6,30,34,74,89–92]. Consequently, to explore how this can be achieved from an urban furniture perspective, a selection of urban products has been made. These products potentially address inclusion requirements, either directly or indirectly, with a focus on urban furniture designed for collective use, emphasizing flexible, intuitive, and equitable interactions within public spaces. The selection of examples includes the Responsive Street Furniture [93], which is a prototype that helps people with visual impairments to better interact with the urban context; a multi-sensory interactive 3D touch model [94]; PLEINAIR's active and intergenerational products (see [50,95]) as an examples of urban furniture designed to meet a variety of needs,

including those of people with disabilities; Superkilen's multicultural and multidiversity product installation [96]; and the M-EATING product-service system [97] incorporates examples of urban furniture designed to foster intercultural encounters through convivial experiences in outdoor urban settings.

As mentioned in the previous section, walkability is a crucial factor in promoting urban health. People are more likely to walk in a neighborhood if the built environment is accessible, enjoyable, visually appealing, and thoughtfully designed to ensure comfort while walking [12,39,98–101]. The pedestrian level of walkability is influenced by urban furniture typologies, such as those selected here to exemplify this concept. For example, multi-functional shelters in urban areas (e.g., [102]) or places for resting and/or waiting—such as with the example of the "Station of Being" [103], can provide shade, promote relaxation areas, and offer refuge during adverse weather conditions.

At the same time, bollards and barriers designed to ensure road safety [104], such as the "USE" 3D-printed jersey barrier [105], can create safer conditions for pedestrians. In some cases, pedestrian safety can be further improved if "urban games" encourage citizens to behave responsibly. For example, solutions like Actiwait's Street Pong [106] create an engaging game that encourages playful interaction while people wait for the green light to cross the road.

Walkability, along with cyclability, the promotion of intermodal transportation, and micromobility are all factors that, by encouraging active mobility, can improve the potential for achieving urban health outcomes [107–109]. For this reason, it is worth mentioning examples of urban furniture that promote cyclability and micromobility, including best practices such as bike repair, parking, and charging stations [110–112] and bike storage and cycle hubs [113]. These micro-level interventions can support innovative city models like the One-Minute City [114], while also allowing citizens to comfortably address needs (e.g., preventing bicycle theft) and shift from car use to active mobility, which is healthier, more sustainable, and affordable.

Finally, neighborhoods that are able to promote an active lifestyle by also improving physical activities are healthy neighborhoods in an urban health context [16–20]. Even a few of the aforementioned examples (e.g., about improving active mobility behaviors) are also in line with this scope in urban health, and a few examples that are more focused on physical activities are reported here. Among these, there are urban furniture or accessories for promoting physical, recreational, convivial, and interactive activities for all, such as flexible and modular urban exercise equipment [115], outdoor fitness products (e.g., Wellness Park in Rimini or [116,117]), or products to nudge and engage active behaviors [118] as, for instance, the Dole Piano Stairs initiative.

To conclude this section, on the one hand, it remains challenging to find frameworks that systematically guide the design of urban furniture in a way that aligns with appropriate approaches for supporting urban health strategies. On the other hand, empirical examples of urban furniture can potentially illustrate methods, categories, and strategies for creating opportunities for urban health at the neighborhood level. However, there is a lack of connection between these two levels, as well as an absence of standardized frameworks for understanding all the possible categories and solutions that can support urban health from the perspective of urban furniture. Essentially, there is no systematization of the requirements for urban furniture products, which, while potentially suitable for supporting urban health, lack a clear, interdisciplinary, multi-scalar, and holistic framework of reference.

1.3. Healthy Neighborhoods Hub (HNH) Research Project

The paper discusses part of the results that emerged from the research project "Healthy and inclusive neighborhoods for the communities of the metropolitan city of Florence. Design strategies and scenarios for a healthy and proximate city, and for the active aging of the population", acronym "Healthy Neighborhoods Hubs" (HNH), funded by Fondazione CR Firenze at the Department of Architecture of the University of Florence. The project involves an interdisciplinary team that includes disciplines related to product, service, and communication design, architectural technology, urban planning, and landscape architecture.

The innovation of the HNH project lies in promoting, stimulating, and driving design-driven urban innovation aimed at creating healthy and inclusive neighborhoods. It facilitates connections among a wide range of stakeholders including researchers, policy makers, companies, the third sector and citizens.

Furthermore, HNH focuses on the synergy between public health, urban planning, landscape architecture, architectural technology, and product design, for defining design strategies and scenarios aimed at increasing and promoting health, including the dimensions of mental health, social inclusion, and active aging.

The strong interdisciplinary component of the research team is also innovative and allows one to address the project in all phases of the development process, with a trans-scalar approach (from the micro-level of the design discipline, to the meso-level of the architectural technology and landscape architecture sector, until the macro-level of the urban planning) and a systemic vision of the neighborhood, creating a network that overcomes the limit constituted by innovation activities concentrated in spatial niches, individual or of scope.

This paper reports, especially, the design strategies and scenarios resulting from the research at the micro-scale of product design for urban environments.

The research project is applied to two neighborhoods in Florence, as case studies, in collaboration with many partners composed of public and private entities, such as the Metropolitan City of Florence, the Municipality of Florence, the Health Company of Florence, the Local Health Authority of Tuscany, and the Metalco Street Furniture Group. The two neighborhoods were chosen in agreement with the public partners involved in the project, for their characteristics: one neighborhood in the suburban area and the other in the center; the potential for improvement; the presence of a "Casa della Salute" [Health Center]; multigenerational and multicultural inhabitants.

As Macchi et al. [29] describe, in the first phase of interdisciplinary research, the team defined a multidisciplinary and multi-scalar conceptual framework that synthesizes and systematizes the key characteristics of healthy and inclusive neighborhoods into seven distinct themes (Figure 1) [29]: (i) the neighborhood for all; (ii) the neighborhood of the interactions; (iii) the active neighborhood; (iv) the neighborhood of the senses; (v) the green neighborhood; (vi) the smart neighborhood; and (vii) the neighborhood of the 1500 m. The seven themes incorporate spatial and environmental elements that foster health and well-being goals at the neighborhood level.

Each theme (or "neighborhood") describes specific characteristics, sub-characteristics, and variables that allow the measurement of the neighborhood-built environment from multiple perspectives (including the micro-scale of the urban furniture) and by involving multiple actors, including experts, citizens, policy makers, and third-sector entities [28,29].

Busciantella-Ricci et al. [28] explain how the HNH conceptual framework can be adopted as a design action research tool in desk and in-the-field activities and how it fosters user studies, social participation, and citizen and collective engagement research activities.

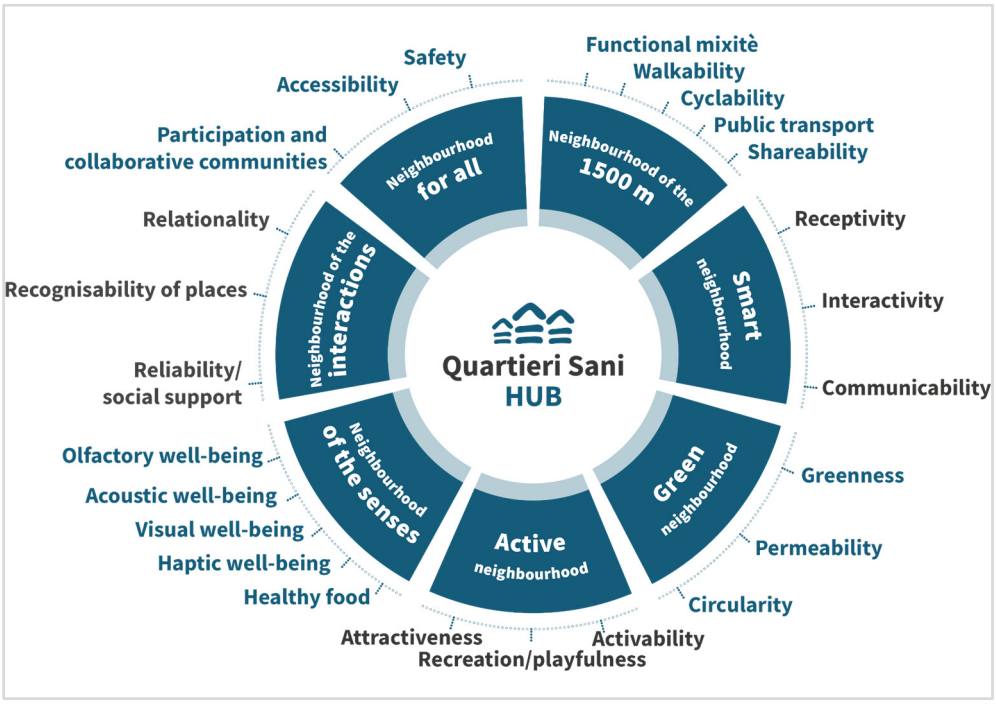

Figure 1. The HNH conceptual framework.

The adoption of the HNH conceptual framework has in fact led participatory research and co-design activities with stakeholders and citizens and has supported the definition of the strategic design requirements and design scenarios of urban furniture for a healthy neighborhood that promotes citizens' health.

At the micro-level of the design scale, the research, in the phase described in this paper, focuses on the following objectives: (i) to define a scalable and replicable methodological co-design process for designing healthy and inclusive micro-level interventions; (ii) to cluster and identify "Urban Furniture Product" domains, and sub-domains, capable of achieving the research challenges; and (iii) to outline strategic design requirements for the categories of "Urban Furniture Product" identified, aimed at supporting and orienting the public administration in urban redevelopment towards a healthy, inclusive and proximity-based city, but also designers and companies in conceiving and manufacturing innovative and 'healthy' urban furniture products.

The related research questions are: (i) what are the strategic design requirements of urban furniture for a healthy neighborhood are; (ii) what are the micro-scale design scenarios to guide public administration choices in creating a healthy neighborhood; (iii) how can the HNH conceptual framework enable the methodological co-design process; and (iv) which co-design research tools and methods can be implemented in the action research process.

This paper discusses the results concerning the research questions (i) and (ii), while as far as the research questions (iii) and (iv) related to methodological aspects applied and implemented for the development process, those are briefly discussed in the paragraph "Research methodology", have been partly described in Busciantella-Ricci et al. [28] and will be reported in a future specific paper.

The paper is organized as follows: (i) the Section 1 critically reviews the literature on urban health from the urban furniture perspective; (ii) the Section 2 describes the operative model and research methodological approach adopted, and it highlights the hierarchical structure of research phases and which design research methods and tools are to be undertaken; (iii) the Section 3 shows the results clustering the "Urban Furniture Product" in domains and sub-domains, defining the strategic design requirements to

consider in its development to achieve the research challenges and identifying the "Urban Furniture Product" categories to implement in the urban context;(iv) the Section 4 discusses the capability of the results to support the public administrations in urban renovation projects strategically; and (v) the Section 5 concludes with the impact and the limits of the research.

In conclusion, the adoption of the HNH conceptual framework highlights the role of "Urban Furniture Product" as a strategic neighborhoods touchpoint capable of promoting and nudging people towards healthy and inclusive lifestyles. Furthermore, it supported the participative co-design of the micro-level urban product scenarios, and the definition of "Urban Furniture Product" categories as a strategic tool for public administration to regenerate the urban space.

2. Research Methodology

The project adopted an action research approach [119–121] and identified two neighborhoods of Florence as representative case studies—chosen in agreement with the public partners for their characteristics and for the presence of the "Casa della Salute"—in which the HNH conceptual framework was validated and used as a tool both to measure the quality of the built environment on the 7 themes, such as inclusion, proximity, greenery, walkability, etc., and to develop the participatory design activities and co-design workshops that led to the definition of design strategies and scenarios for a healthy neighborhood. The results were treated to be scalable to other neighborhoods and contexts at the local, national, and European level.

The research strategy adopted is "research through design" (see [122]) and is aimed at generating knowledge to conduct interdisciplinary design research and guide higher education and practice in the development of strategies and design-oriented product-service system scenarios fostering healthy, inclusive, and livable neighborhoods.

The research process is hierarchically structured into two macro-phases or rather is framed in the Double-Diamond design thinking model (see [123,124]). The first one aimed at (i) clustering the "Urban Furniture Product" for a healthy neighborhood into functional domains and sub-domains; (ii) defining strategic requirements to be considered for developing "Urban Furniture Product" capable of meeting the research challenges, and (iii) identifying the categories of "Urban Furniture Product" to be implemented in the city to support public administrations in urban regeneration projects. Within the first Diamond, the research team strategically evaluated the data gathered through desk research activities, and the adoption of related methods and tools. As Busciantella-Ricci et al. [28] discussed, the research team used the HNH framework as a design research support tool for categorizing urban furniture products, enabling us to set the foreground for the following participatory and co-design activities.

The second phase is about co-designing the data results, which emerged from the first phase, with researchers, project experts, citizens, stakeholders, and practitioners. Within the second diamond, the research team structured the co-designed research tasks and aimed at (i) exploring and discussing with researchers and project experts the preliminary results on domains and sub-domains; and (ii) designing product-service system scenarios in a collaborative and participative context for and with practitioners, citizens, and stakeholders.

Notably, the two research stages have diverging and converging microphases, subdividing the research design process into 4 micro stages, aligned with the overarching objectives, encompassing research macro-tasks, research micro-tasks, and adopting related tools and methods.

2.1. First Phase: Clustering "Urban Furniture Product" Domains, Sub-Domains, and Strategic Requirements

2.1.1. Adopting the HNH Conceptual Framework as a Design Research Tool

In the initial diverging phase, the research team "broadened its horizons" on the challenges achieved by adopting the HNH conceptual framework [29] as design research supporting tool. A group of experts composed of 15 researchers mainly from the product design sector, engaging in focus groups with researchers from other sectors involved and with some of the stakeholders, analyzed abductively the general and specific characteristics, and variables with the three orders of design (see [125,126]), related to information, product, and product-service systems design disciplines. They extracted micro-level design opportunities, insights, and disruptive and promising interventions to gather main "Micro-level design trending topics" capable of delivering real outputs.

Following this activity, the research team organized an internal workshop to co-design information sheets supporting the desk categorization of the trending topics. The template in Figure 2 is specifically conceptualized to identify emerging concepts and assigns every theme: (i) an inspiring title, to provide a creative and imaginary vision of the content; (ii) the reference neighborhood theme, to directly link the content to the HNH conceptual framework; (iii) the corresponding general and specific characteristic of the seven themes; (iv) a representative of the emerged strategies or solutions; (v) a descriptive sample of the concept; (vi) keywords; and (vii) some space for notes.

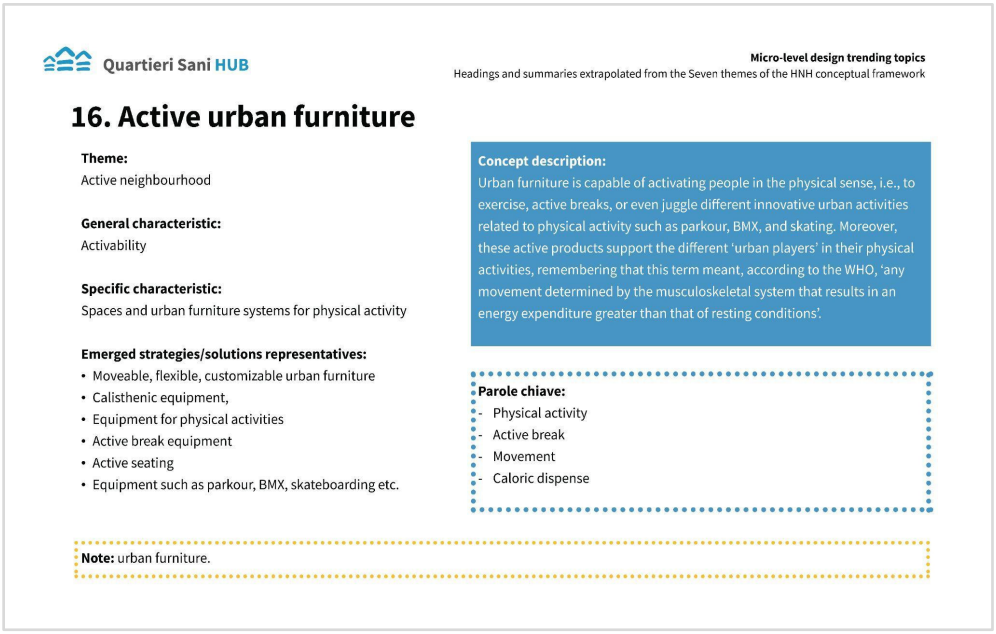

Figure 2. Example of a "Micro-level design trending topic" information sheet.

After the identification of the main emerged topics, the research team qualitatively iterated the synthesizing phase to reject the less promising proposals, through the adoption of the following indicators: (i) the innovative potential, regarding the research challenges and HNH conceptual framework; (ii) the feasibility and developing potential; (iii) coherence with the seven themes of the HNH project; and (iv) the research team development goals.

Lastly, in the final converging phase of the first Diamond, the research team collaboratively and qualitatively clustered the emerging topics in "macro-topics", or rather domains. The researchers adopted an affinity diagram (see [127]) to meaningfully categorize based on topic similarities, to fully consider and capture every insight, concern, and effective requirement.

2.1.2. Adopting Artificial Intelligence Design Tools

The emerging results were assigned to be explored through the application of Artificial Intelligence design tools, capable of investigating the potential of the selected ideas. In this synthesizing and converging phase, the research team identified the consistent AI software, i.e., Midjourney 5.2 (see [128]), DALL-E 2 (see [129]), and Microsoft Bing (see [130]), to iterate the previous phase in a free-thinking context, with the involvement of the design degree students of the Laboratory of Product Design III, and redefine the strategic brief to follow in the second "co-design" macro-phase.

Therefore, the researchers hierarchically structured the tasks the practitioners had to undertake to generate evocative images representing the macro-topics: (i) understanding the research challenges and topics; (ii) collaboratively developing concepts samples; (iii) defining the concept design; (iv) co-developing of one or more scripts for each domain, to graphically describe possible solutions; (v) submitting scripts to artificial intelligence systems to produce images; (vi) iterating and redefining scripts; and (vii) further submission of scripts.

2.2. Second Phase: Co-Design Research Process

2.2.1. Templates Design for Co-Design Activities

The iteration, addressed in the previous paragraph, set the basis for designing tools and templates for the facilitation of further co-design workshops. The aim was to define two templates for every domain and related sub-domains to collaboratively analyze and explore through design the potential of the results emerged from the previous desk activities, with expert researchers, practitioners, citizens, and stakeholders. Therefore, the first template (in Figure 3) consists of (i) a heading and conceptual references, for general understanding; (ii) a research question to investigate the theme's purpose, what needs or which requirements are being addressed to develop the scenario; (iii) a definition of where the scenario takes place; (iv) the description of possible categories or user groups; (v) leveraged elements to develop the scenario; (vi) the references concerning HNH conceptual framework's themes; and (vii) a small conceptual map concerning transversal elements to assume disruptive thinking in the development of the scenario.

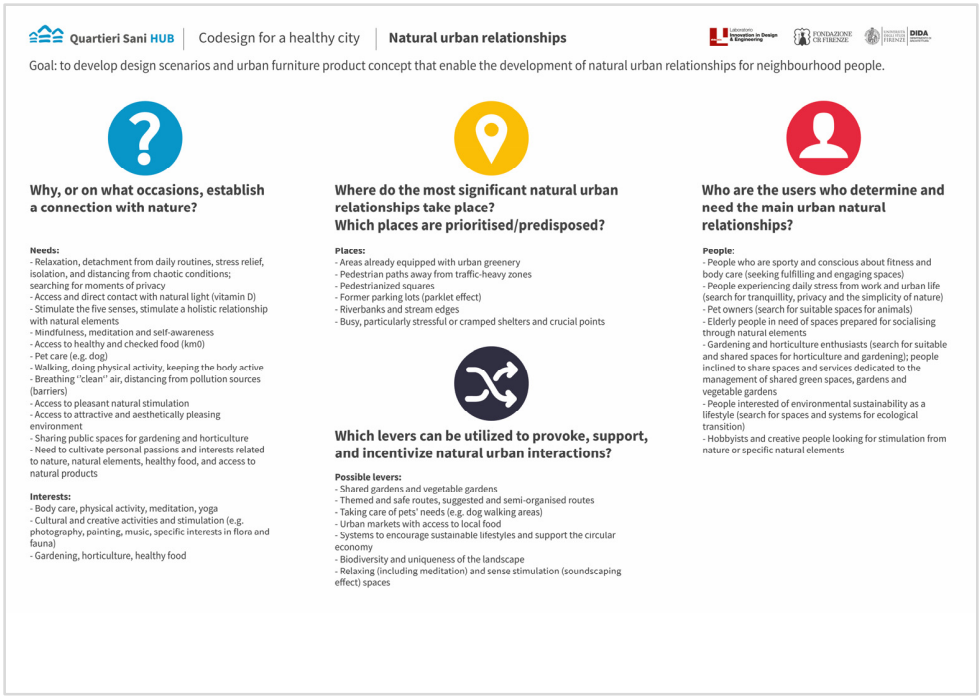

Figure 3. Example of the first template for further co-design activities.

Going on, the second template (in Figure 4) foresees every domain is (i) graphically represented through a conceptual map, describing possible scenarios; (ii) briefly described, concerning why, where, and who might be involved in the scenario; and (iii) inspiring and disruptive elements, enhancing the scenario proposed.

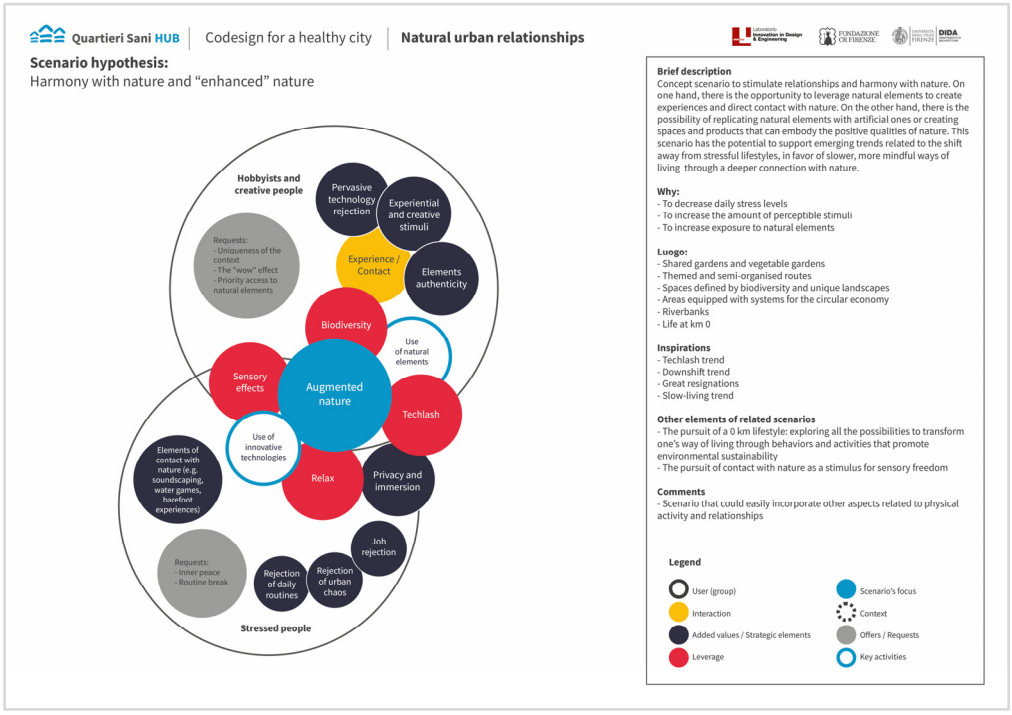

Figure 4. Example of the second template for further co-design activities.

2.2.2. Internal Co-Design Workshop

In the first micro-phase of the second Diamond, the research team hierarchically structured an internal diverging phase that involved 4 design expert researchers of the Innovation in Design and Engineering Laboratory—IDEE Lab, 3 design PhD students, and two design master's degree interns. The co-design workshop aimed at identifying a process enabling every domain and the development of corresponding scenarios, visions, and feasible outputs to implement and deliver.

The research team, indeed, organized a 5-day internal workshop, as follows: (i) brainstorming and collaboratively accomplishing the first template, Figure 3, identifying motivations, needs, places, and people, and which leverage support the implementation of every single domain; (ii) ideating the promising scenarios and concept by adopting the second template, in Figure 4; (iii) assessments of the scenarios selected for every domain; (iv) assessment of the connection elements between the scenario proposal and the HNH conceptual framework; and (v) the evaluation of transversal elements for disruptive thinking, capable of stimulating the level of creativity in further developments of the scenario.

2.2.3. Co-Design Workshop for and with Stakeholders

The co-design workshop for and with stakeholders is the final diverging stage before the internal implementation phase, letting the research team define and design scenarios for novel healthy lifestyles and ways of living in the urban environment. The co-design workshop aimed to (i) design in a participatory and collaborative manner tangible concepts and visualization, starting from idea generation of the scenarios proposed; (ii) identify design scenarios of urban furniture products and related accessories, and product-service

systems, consistent with HNH research; and (iii) frame strategies for the micro-level of the HNH research project.

The research team organized a 4-day co-design workshop, from 10/05 to 24/05, with the co-design team, the HNH research team, and with the participation of professionals and/or guests from the project consortium. The specific timetable includes the following dates and times (Figure 5).

Figure 5. Co-design workshop activities.

The first day was an opening day with students, young designers, urban planners, and architects. The IDEE Lab research team showed data and HNH case studies context to the young practitioners to create the best conditions for the following co-design phases. Moreover, the first-day schedule included the intervention of a design researcher, whose research concerns "physical activity", "active design", and "active and healthy aging".

The second day was scheduled for an open workshop in contact with communities and citizens, in the case studies' neighborhoods context. The research team organized the phase as follows: (i) divide the group into roles, letting the young practitioners take on different roles within the group, or rather one member had to be dedicated to interacting with the people intercepted, others had to be in charge of taking notes, photos and write material on the Miro board; (ii) invite the present to participate, where the young designers had to briefly introduce the workshop and invite people to participate; (iii) adopt the Lego Serious Play (see [131]) with the active and participative person, where the students had to briefly introduce the main activities to be performed, activate the process asking people which scenario they imagine, co-create vision with Lego Bricks in 10 min, define a descriptive storytelling of the proposed vision, and synthesized the developed results in Miro Table; and lastly (iv) adopt Artificial Intelligence tools to produce snapshot images, where the designers had to define and enter a script—i.e., SUBSTANTIVE (animal) + ADJECTIVE (funny) + VERB (wearing sunglasses) + STYLE (digital art), discuss the emerging results through modifying with hand drawing or reinserting another script.

After the Living Lab day, the third day foresaw the idea generation and development of the co-designed output with citizens and an assessment phase of the proposals with the Metalco Street Furniture Group.

Lastly, the fourth day was scheduled for (i) the second part of the idea development; and (ii) the online presentation of the results to citizens, public administration, stakeholders, third sectors, and the Metalco Street Furniture Group.

3. Results: Micro-Level Urban Furniture Product Domains, Sub-Domains, and Categories

As discussed in the previous section, the research team clustered 34 "Micro-level design trending topics", 3 "Micro-level domains", which consist of "Micro-level requirements", 4 corresponding "Micro-level sub-domains", and 13 "Micro-Level Urban Furniture products categories".

The "Micro-level design trending topics" are: (i) adaptable urban furniture; (ii) cross-cultural urban furniture; (iii) multi-sensorial wayfinding; (iv) safe pedestrian crossing; (v) green immersion; (vi) circular economy urban furniture; (vii) site-specific urban furniture; (viii) neighborhood branding; (ix) relational and proximal urban furniture; (x) social wayfinding; (xi) sharing through urban furniture; (xii) active urban furniture; (xiii) urban furniture supporting active lifestyles; (xiv) physically activator urban furniture; (xv) playful urban furniture; (xvi) spontaneous interaction activator; (xvii) supporting soundscaping; (xviii) take away design; (xix) urban furniture product that raises awareness on food waste; (xx) feed-breasting urban furniture; (xxi) DIY garden; (xxii) smart urban furniture; (xxiii) interactive urban furniture; (xxiv) energetically active urban furniture; (xxv) guerrilla healthy lifestyles; (xxvi) urban furniture for functional mixité; (xxvii) urban furniture for pedestrians; (xxviii) supporting walkability; (xxix) urban furniture for parking microvehicles; (xxx) supporting soft and e-mobility through urban furniture; (xxxi) intermodal matching; (xxxii) active bus stop; (xxxiii) sharing-mobility urban furniture; and (xxxiv) supporting sharing mobility.

The three functional domains promoting the development of a healthy neighborhood are: (i) Relating; (ii) Communicating; and (iii) Moving.

The domains have been assigned sub-domains to which a total of 13 categories of urban furniture products belong. For each domain and sub-domain, a project sheet describes the general and specific objectives, as well as the strategic product requirements. Similarly, the product category sheets explain how to approach the development of design scenarios for innovative and suitable street furniture concerning specific contexts, stakeholders, and users. The product sheets provide appropriate indications—where for whom, how, and why—for the application of strategic requirements in the design and choice of products that address the single category and introduce and explore some possible design scenarios that make the identified innovations and requirements visible and tangible.

The following Table 1 summarizes the categorization of urban furniture products into domains, their subdivision into sub-domains, and the related product categories.

Table 1. Categorization of urban furniture products into domains, sub-domains, and product categories.

Domains	Sub-Domains	Urban Furniture Product Categories
Relating	Human–Human Relationship	SP1 | Dialog and socialization
		SP2 | Sharing and conviviality
		SP3 | Widespread contact and exchange
	Human–Nature Relationship	SP4 | Sensory stimulation and biodiversity
		SP5 | Active and shared urban greenery
		SP6 | Sensory stimulation and soundscaping
		SP7 | Techlash
Communicating	Connected and Collaborative Communication	SP8 | Wayfinding and health
		SP9 | Smart Wayfinding
Moving	Active Mobility and Physical Activity	SP10 | Active breaks and waits
		SP11 | Physical activity and fitness
		SP12 | Physical activity and attractiveness
		SP13 | Supporting active mobility

3.1. Domain: Relating

3.1.1. Sub-Domain "Human–Human Relationship"

The sub-domain refers to the following themes of the HNH conceptual framework: Neighborhood for all, Neighborhood of interactions, Active neighborhood.

The general objective of this sub-domain is to support and facilitate the relationships between people, that means, to promote what concerns social interaction. The urban furniture products, which concern the micro-scale of the project, belonging to the design discipline, which falls into this sub-domain, must have the requirements to characterize the healthy neighborhood in this direction, such as the transformability, adaptability, and flexibility necessary to satisfy the different needs of use in the reference urban area.

In the process of defining strategic factors and building design-oriented scenarios, the necessary determinants and strategic product requirements to diversify and improve urban furniture products promoting the theme in question have emerged.

The list of the strategic product requirements referred to in this sub-domain is available in Appendix A. The following three product categories belong to this sub-domain.

SP1: Dialog and socialization

The objective of the category of urban furniture products for dialog and socialization is to stimulate social relationships, between people, between parents and children, families and caregivers of both children and the elderly, and between adults and adolescents, to support daily activities.

WHY—The challenge of the scenario is to respond to the various needs of those who live in the neighborhood, such as talking and expressing their thoughts, through social activities of cultural and multigenerational exchange, and mutual aid activities, but also managing the needs of families regarding children or grandchildren.

WHERE—The scenario proposes the design of accessible, flexible, aggregative, recreational, close-knit urban furniture and wayfinding products, spread within green areas, public gardens, or areas with games and activities for children, to stimulate positive social

relationships and healthy lifestyles, to create an information network between existing virtuosities and host recreational attractions.

WHO—The scenario aims to create a dialog between baby boomers, in search of social relationships that give shape to their future; X and Y generations, looking for functional relationships concerning the relationships they establish; the alpha generation, which benefits from the activities offered by associations and requires new models of interaction.

HOW—The levers to focus on concern the generation of informal, multicultural, and intergenerational communities through laboratory spaces, the activation of networks of recognition of realities in the territory, and the activation of measures for the digital transformation of the neighborhood. In particular, the activities that support the objective of the scenario are the multigenerational comparison, the shared use of new technologies, and taking care of children, sons, or grandchildren (Figure 6).

Figure 6. Tetramino (**a**). Modular furniture system for rest, whose flexibility, adaptability, and modularity facilitates socialization, multigenerational comparison, and cultural exchange. Design by Beatrice Bandiera and Alice Carfagno—IDEE Lab. Care Cup (**b**). Urban furniture to promote breastfeeding and the care of newborns and parents. Design by Jonathan Lagrimino—IDEE Lab. Ninfa (**c**). Outdoor smart-working station to support the parent–child and/or adult–child interaction. Design by Giulia Maria Sturma and Gessica Vita—IDEE Lab.

SP2: Sharing and conviviality

The objective of the category of urban furniture products for sharing and conviviality is to stimulate social relationships, between people, between parents and children, between families and caregivers of both children and the elderly, and between adults and adolescents, to support daily activities.

WHY—The challenge of the scenario is to respond to the various needs of those who live in the neighborhood, such as carrying out social activities of multicultural exchange and spending convivial moments, through recreational and inclusive, spontaneous and/or associative activities.

WHERE—The scenario proposes the design of accessible, aggregative, recreational-playful, close street furniture and/or wayfinding products, with excellent esthetic-material qualities, spread within green areas, public gardens, or areas with games and activities for children, to stimulate positive social relationships and healthy lifestyles, create an information network between existing virtuosities, host recreational-playful attractions and promote virtuous behaviors in using public space.

WHO—The scenario aims to create a dialog between X and Y generations, looking for functional relationships concerning the relationships they establish; the alpha generation, which benefits from the activities offered by associations and requires new models of interaction.

HOW—The levers to focus on concern the generation of informal, multicultural, and intergenerational communities through laboratory spaces, the activation of networks of

recognition of realities in the territory, the activation of measures for the digital transformation of the neighborhood, and the use of the banks for spontaneous recreational activities. In particular, the activities that support the dialog between the identified actors are the shared use of new technologies and access to services and activities based on cultural and functional exchanges (Figure 7).

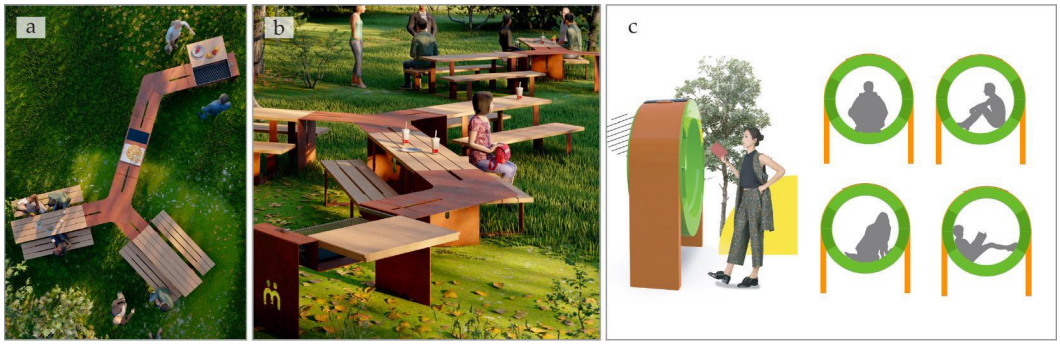

Figure 7. M-EATING (**a**,**b**): interactive urban furniture system to facilitate conviviality and intercultural dialog, through creative culinary activity. IDEE Lab, EU-funded project, subcontractor of Designscapes. Pocket Stop (**c**): waiting point at the bus stop that supports the performance of spontaneous social and cultural activities, through the collection, reading, and exchange of books. Design by Michela Castelli—IDEE Lab.

SP3: Widespread contact and exchange

The goal of the category of urban furniture products for widespread meeting and exchange is to stimulate positive social relationships between the different users of an urban area, supporting them in their daily activities.

WHY—The challenge of the scenario is to respond to the needs of those who live in the neighborhood, such as talking and expressing their problems through social activities of cultural and multigenerational exchange and creating spontaneous relationships based on shared passions or needs.

WHERE—The scenario proposes the design of accessible, aggregative, recreational, close-by street furniture and wayfinding products, spread along pedestrian paths far from busy areas and/or in waiting and parking areas, to stimulate positive social relationships and healthy lifestyles, create a physical and information network between existing virtuosities and host recreational attractions.

WHO—The scenario aims to create a dialog between boomers, looking for social relationships that give shape to their future; X and Y generations, looking for functional relationships concerning the relationships they establish; the alpha generation, which benefits from the activities offered by associations and requires new models of interaction.

HOW—The levers to focus on concern the generation of informal, multicultural, and intergenerational communities, the activation of networks of recognition of realities in the territory, the activation of digital transformation measures, and the use of embankments. In particular, the activities that support dialog between the identified actors are multigenerational comparison, shared use of new technologies, and access to creative activities such as dance, street games, and local art forms (Figure 8).

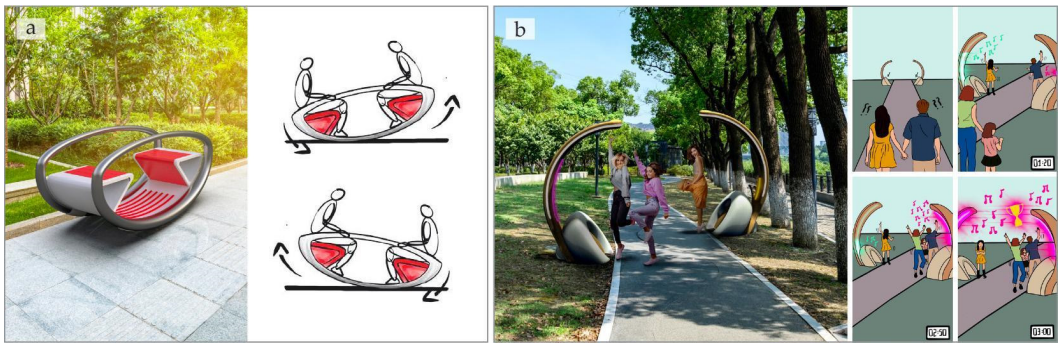

Figure 8. Ovalis (**a**): playful seating to encourage meetings, as well as new models of interaction and light physical activity. Design by Agatino Bulla—IDEE Lab. CUV (**b**): interactive furniture system to support spontaneous social relationships spread through gamification, music and dance. Design by Remei Barber, Maria Bustero, Marcela Soyas—IDEE Lab.

3.1.2. Sub-Domain "Human–Nature Relationship"

The sub-domain refers to the following themes of the NHN Framework: Neighborhood for all, Neighborhood of interactions, Neighborhood of the senses, Active neighborhood, and Green neighborhood.

Its objective is to support human–nature relationships, that means, to promote everything that concerns the relationships that people can establish with nature. The urban furniture products, which concern the micro-scale of the project, belonging to the design discipline, which fall into this sub-domain, must have the requirements to characterize the healthy neighborhood in this direction, such as transformability, adaptability, and flexibility that encourage the possibility of contact with nature or reproduce "green areas" in areas that do not benefit from them.

The design process has brought out strategic requirements to diversify and improve urban furniture that promote the human- nature relationship.

The list of the strategic product requirements referred to in this sub-domain is available in Appendix B.

The following four product categories belong to this sub-domain.

SP4: Sensory stimulation and biodiversity

The goal of the category of urban furniture products for sensory stimulation and biodiversity is to promote relationships and harmony with nature, to abandon stressful lifestyles, and to support a better quality of life for all.

WHY—The challenge of the scenario is to respond to the needs of those who live in the neighborhood, such as enjoying naturalness, creating a holistic relationship with natural elements, and relaxing from work stress and the chaotic conditions of daily routine.

WHERE—The scenario proposes the design of street furniture products, with excellent aesthetic/material qualities, present in a widespread manner within the neighborhood or in semi-organized themed paths, to stimulate the senses to natural light and open air and to enjoy the naturalness of greenery outside of dedicated green spaces and in areas subject to urban chaos.

WHO—The scenario aims to create a dialog between people subject to daily stress, dictated by work and urban life, who are looking for tranquility and natural stimuli.

HOW—The levers concern the increase in green spaces and the diffusion of greenery in areas without them, as well as the use of embankments for recreational and spontaneous activities. In particular, the activities that support the relationship with nature are: screening unpleasant visual, auditory, and olfactory stimuli through the presence of widespread greenery and promoting the presence of landscape biodiversity to stimulate the senses with

dedicated accessories; such as bird boxes, bee hotels, biodiversity kits applied to road signs (Figure 9).

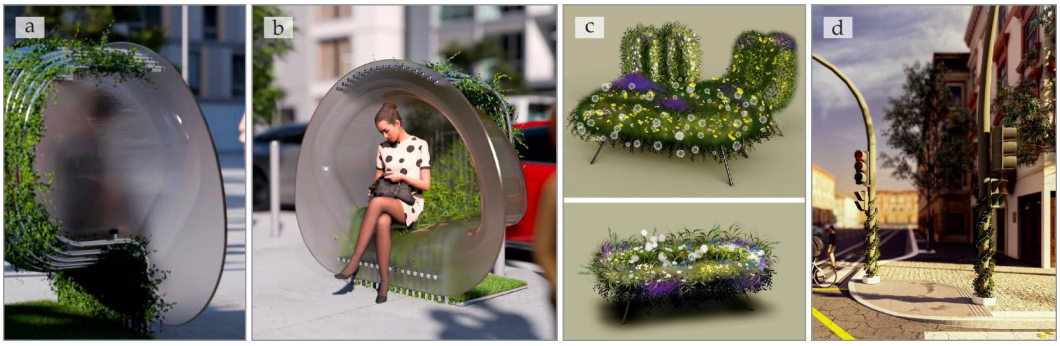

Figure 9. Pepito (**a**,**b**): furniture system design for increasing biodiversity and stimulating the senses through the integration of natural plant essences into the furnishings. Design by Lorenzo Tormentoni and Alessio Romano—IDEE Lab. Plantt (**c**): living furniture system. Design by Chiara Saccone, with the supervision of Marco Marseglia. GreeW (**d**): furniture system that enhances and gives new life to the elements already present within the built environment through the vertical installation of plants. Design by Sara Viviani—IDEE Lab.

SP5: Active and shared urban greenery

The objective of the category of furniture products for active and shared urban greenery is to stimulate relationships and harmony with nature, to abandon stressful lifestyles, and to support a better quality of life.

WHY—The challenge of the scenario is to respond to the needs of those who live in the neighborhood, such as enjoying naturalness, creating a holistic relationship with nature, and cultivating passions and interests regarding natural elements and healthy food.

WHERE—The scenario proposes the design of street furniture products, with excellent esthetic/material qualities, spread throughout the neighborhood, or in spaces designed for sharing, stimulating the senses, enjoying the naturalness of greenery outside of dedicated green spaces, encouraging sustainable lifestyles and supporting the circular economy and creating a physical and cognitive network of spaces, entities and virtuous products.

WHO—The scenario aims to encourage a dialog between people subject to daily stress, dictated by work and urban life, who are looking for tranquility and natural stimuli, and also between hobbyists and creatives looking for stimuli coming from nature and specific natural elements.

HOW—The levers to focus on concern the spread of greenery in areas without it, access to healthy and controlled food, the use of embankments for recreational and spontaneous activities, and access to an attractive and esthetically pleasing context. In particular, the activities that support the relationship with nature are the creation of an interactive context, where spaces can be shared for gardening and horticulture, and the ability to screen unpleasant visual, auditory, and olfactory stimuli through the presence of widespread greenery (Figure 10).

SP6: Sensory stimulation and soundscaping

The objective of the category of street furniture products for sensory stimulation and soundscaping is to stimulate relationships and harmony with nature, to abandon stressful lifestyles, and to support a better quality of life.

WHY—The challenge of the scenario is to respond to the needs of those who live in the neighborhood, such as enjoying naturalness, creating a holistic relationship with natural elements, and relaxing from work stress and chaotic conditions of daily life.

WHERE—The scenario proposes the design of street furniture products, with excellent esthetic/material qualities, present in a widespread manner within the neighborhood or in semi-organized themed paths, to stimulate the senses with natural light and open air, screen unpleasant auditory, olfactory, and visual stimuli, enjoy "quiet areas" and the naturalness of greenery even outside dedicated spaces or in areas subject to urban chaos.

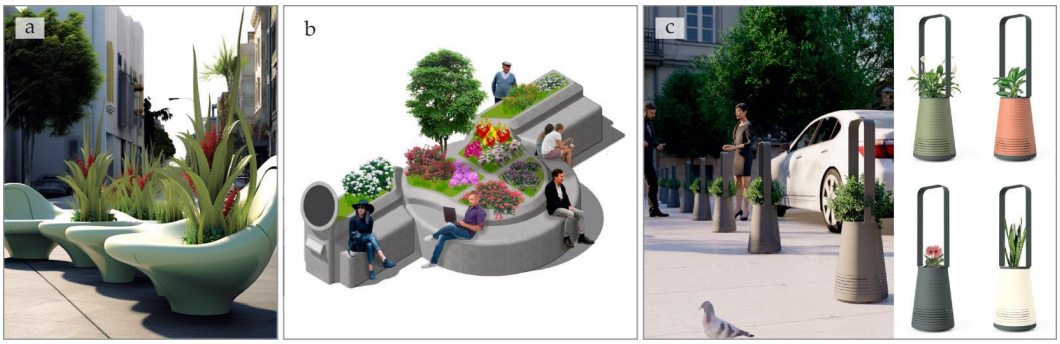

Figure 10. Application of artificial intelligence (**a**) to visualize the ideas that emerged in the workshop "Co-design for a healthy city" between citizens and researchers of IDEE Lab. Oh piantala (**b**): interactive furniture systems to share the enjoyment of nature, gardening, and horticulture, outside of dedicated green spaces, such as parks and urban gardens. Design by Giulio Dalla Porta—IDEE Lab. Aura (**c**): attractive traffic deterrent, designed to improve air quality and reduce pollution levels, thanks to its function as a phyto-purifier, but also to educate people to sustainable lifestyles, allowing users to reduce stress through greenery care. Design by Francesca Paola Fornari—IDEE Lab.

WHO—The scenario aims to create a dialog between people subject to daily stress, dictated by work and urban life, who are looking for tranquility and natural stimuli.

HOW—The levers to focus on concern the increase in green spaces and the spread of greenery in areas without them, as well as the use of embankments for recreational and spontaneous activities. In particular, the activities that support the relationship with nature are the presence of pleasant sound effects, which reduce the perception of noise pollution, through soundscaping and the stimulation of the senses through the integration of water or wind games, and the choice of materials with relaxing sounds (Figure 11).

Figure 11. (**a**,**b**) Modular, adaptable, and widespread urban furniture system that screens out negative and unpleasant auditory stimuli and relaxes through the sound of water and the flexibility of the seat. Design by Sara Viviani—IDEE Lab. Pocket Stop (**c**): waiting point at the bus stop that supports pleasant auditory stimuli through the sound that the air creates by blowing into the pipes that make up the seat. Design by Michela Castelli—IDEE Lab.

SP7: Techlash

The goal of the category of street furniture products for techlash is to stimulate relationships and harmony with nature, abandon stressful lifestyles, and support a better quality of life.

WHY—The challenge of the scenario is to respond to the needs of those who live in the neighborhood, such as enjoying naturalness, creating a holistic relationship with natural elements, performing meditative disciplines, and relaxing from work stress, from chaotic conditions of the daily routine.

WHERE—The scenario proposes the design of green street furniture products, with excellent esthetic/material qualities, present in a widespread manner within the neighborhood, on pedestrian paths far from busy areas or in waiting and rest areas, to stimulate the senses to natural light and open air and enjoy the naturalness of greenery even outside dedicated green spaces or in areas subject to urban chaos.

WHO—The scenario aims to offer people subject to daily stress, dictated by work and urban life, who are looking for tranquility and natural stimuli, to find opportunities for detachment, albeit temporary, from digital technology and related behaviors.

HOW—The levers to focus on concern the increase in green spaces and the spread of greenery in areas without them, the use of embankments for recreational, spontaneous activities, and the activation of digital transformation measures in the neighborhood. In particular, the activities that support the relationship with nature are access to spaces and urban furnishings that favor techlash and the presence of elements for body care, meditation, for carrying out holistic disciplines that stimulate the senses with dedicated accessories that recall the natural environment, improving the user experience (Figure 12).

Figure 12. Station of Being (**a**): smart and eco-friendly bus stop of the future that encourages people to use local public transport, transforming the bus waiting area into a welcoming, safe place, with natural materials, almost an urban forest, where you can relax and unload from tensions and technological stimuli. Design by Rombout Frieling Lab and Umeå University, Sweden. Squatted (**b**,**c**): sinuous and welcoming ischial seat for the bus stop, to transform waiting into moments of techlash, relaxation from work stress, with the possibility of performing light physical squat activity. Design by Lissia Di Noia and Lucia Noemi Cammarata—IDEE Lab. Go (**d**): attractive seating system, of high material and esthetic quality, that refers to the natural and healthy environment. The seats promote outdoor refreshment and meditation for the user in their daily commute. Design by Giulia Antonelli and Camilla Benincasa—IDEE Lab.

3.2. Domain: Communicating

Sub-Domain "Connected and Collaborative Communication"

The sub-domain refers to the following themes of the NHN conceptual framework: Neighborhood for all, Neighborhood of interactions, Active neighborhood, Smart neighborhood.

Its objective is to support topics that deal with interactive, information and communication systems that simplify the user experience in the urban area, as well as monitor its transition in favor of optimization and better use of services.

In the process of defining strategic factors and of building design oriented scenarios, the necessary determinants and strategic product's requirements to diversify and improve the urban furniture products promoting the theme in question have emerged. The list of the strategic product requirements referred to this sub-domain are available in Appendix C.

The following two product categories belong to this sub-domain.

SP8: Wayfinding and health

The objective of the category of urban furniture products for wayfinding and health is to inform and raise awareness among people about the importance of psycho-physical well-being to encourage the adoption of healthy lifestyles.

WHY—The challenge of this category of products is to respond to the needs of those who live in the neighborhood, such as enjoying and connecting the network of opportunities present in the neighborhood and developing a sense of belonging to give recognition to places and orient oneself in space.

WHERE—The scenario proposes the design of recognizable street furniture and wayfinding products, with excellent esthetic and material qualities, attractive, spread within pedestrian paths and in the proximity of the House of the Health (HoH), to promote virtuous behaviors, carry out physical activity, stimulate positive social relationships and healthy lifestyles, inform about the existing sports infrastructures, improve the experience of use and accessibility of the interface and entrance of the HoH and create a physical and information network between the existing virtuosities.

WHO—The scenario aims to create a dialog between X and Y generations, in search of functional relationships with respect to the relationships they establish, and "fitness addicted" people in search of data that demonstrates the improvement of performance.

HOW—The levers to focus on concern the increase in the attractiveness of the neighborhood, the fight against the abandonment of sport and the activation of digital transformation measures of the neighborhood. In particular, the activities that encourage the use of connected and collaborative information tools are specific feedback on one's physical condition (on the calories burned or to be burned, on the possible training options or healthy lifestyle to undertake, on biological data, on air quality, etc.) and neighborhood branding, to facilitate reaching places of interest, through specific and thematic directions or routes (Figure 13).

SP9: Smart Wayfinding

The objective of the category of urban furniture products for intelligent wayfinding is to inform and raise awareness among people about psycho-physical well-being to encourage the adoption of healthy lifestyles.

WHY—The challenge of this category of products is to respond to the needs of those who live in the neighborhood, such as using and connecting the network of opportunities present in the neighborhood and optimizing mobility, or making mobility functional.

WHERE—The scenario proposes the design of urban wayfinding products that are informative, accessible, with excellent esthetic and material qualities, attractive, spread along pedestrian paths, intermodal spaces and near public transport stops, to promote virtuous behaviors, carry out physical activity, stimulate positive social relationships and healthy lifestyles, promote the walkability of places and create a physical and information network between existing virtuosities.

Figure 13. Health Map (**a**): recognizable, attractive and widespread wayfinding system within the urban context of reference to raise awareness on issues that promote healthy lifestyles. Design by Research Team Quartieri Sani Hub. Wayfinding system for Health Map (**b**). Design by Sara Viviani—IDEE Lab. Neighborhood branding and accessible, inclusive, communicative and intelligent support tools to enjoy healthy places, activities and services within the neighborhood, improving the experience of use (**c**). Design by Research Team Quartieri Sani Hub. Wait-Fit (**d**,**e**): informative, connected, collaborative and attractive rest and waiting point that encourages users to perform light physical activity while waiting, through play and feedback on calories burned during the activity. Design by Leonardo Milotti and Mattia Parisi—IDEE Lab.

WHO—The scenario aims to create a dialog between the Z generation interested in technology and sustainability issues and workers and commuters interested in optimizing travel times based on work-related stress.

HOW—The levers to focus on concern the support of active mobility, the promotion of new styles of active mobility and the activation of digital transformation measures of the neighborhood. In particular, the activities that encourage the use of connected and collaborative information tools are specific feedback on the route to be taken (on calories, on existing usable routes, on stress indicators, etc.) and nudge solutions that improve the quality of time spent during travel through citizen engagement (Figure 14).

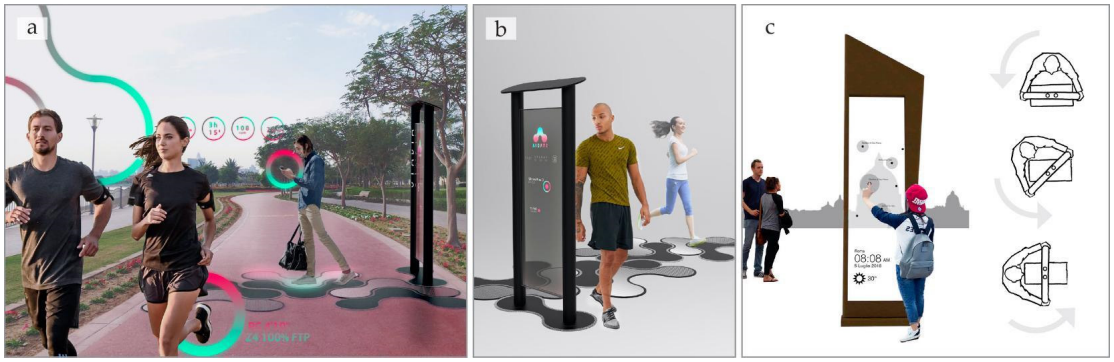

Figure 14. Stadia (**a**,**b**): urban furniture for smart running trails, informative and attractive, that stimulates active mobility behaviors. walkability and cycling, through specific feedback on emissions and calories burned. Design by Maria Sole Traversa—IDEE Lab. Panoramic totem (**c**): a smart, connected, collaborative and attractive furnishing system that connects the services and activities present within the neighborhood to improve their usability, through interactive engagement solutions and emerging technologies. Design by Marta Masili—IDEE Lab.

3.3. Domain: Moving

Sub-Domain "Active Mobility and Physical Activity"

The sub-domain refers to the following themes of the NHN Framework: Neighborhood for all, Neighborhood of interactions, Active neighborhood, Smart neighborhood, Neighborhood 1500 mt.

Its objective is to support topics that deal with the possibility of improving opportunities and spaces dedicated to physical activity, but also to active breaks and what has been defined as active rest.

In the process of defining strategic factors and of building design oriented scenarios, the necessary determinants and strategic product's requirements to diversify and improve the urban furniture products promoting the theme in question have emerged. The list of the strategic product requirements referred to this sub-domain are available in Appendix D.

The following four product categories belong to this sub-domain.

SP10: Active breaks and waits

The objective of the category of urban furniture products for breaks and active waiting is to encourage people to carry out light physical activity in an informal manner, during travel and other moments of everyday life.

WHY—The challenge of this category of products is to respond to the needs of those who live in the neighborhood, such as relaxing from daily work stress and creating the conditions to abandon sedentary lifestyles.

WHERE—The scenario proposes the design of street furniture products, wayfinding, informative and accessible to all, with excellent esthetic and material qualities, attractive, spread within waiting and rest areas and spaces close to workplaces, to carry out spontaneous physical activity, host recreational attractions, stimulate positive social relationships and healthy lifestyles, promote active mobility and create a physical and information network between existing virtuosities opposed to a sedentary lifestyle.

WHO—The scenario aims to create a dialog between the alpha, Z, and Y generations looking for new stimuli for physical exercise, and the X generation interested in maintaining physical fitness and looking for simple exercises.

HOW—The levers to focus on concern the creation of active spaces for interaction, the increase in the attractiveness of the neighborhood, the generation of informal communities and positive social relationships, and the use of the embankments for recreational, spontaneous activities. In particular, the solutions that support a positive relationship with physical activity are solutions of urban furniture products based on nudge design, which, in this case, elude physical effort with fun and entertainment and active breaks and waiting that optimize the time available to carry out light physical activity (Figure 15).

SP11: Physical activity and fitness

The objective of the category of urban furniture products for physical activity and fitness is to stimulate people to carry out informal physical activity, optimizing it in daily travel.

WHY—The challenge of this category of products is to respond to the needs of those who live in the neighborhood, such as systematizing physical activity in their daily lives and creating lasting, functional social networks that motivate them to maintain a healthy and correct physical shape.

WHERE—The scenario proposes the design of accessible, flexible, attractive, esthetic, and material quality street furniture products, spread throughout the neighborhood and in spaces with urban barriers—such as stairways, to carry out physical activity, host recreational attractions, stimulate positive social relationships and healthy lifestyles, encourage active mobility, support intergenerational activities and create a physical network between existing virtuosities opposed to a sedentary lifestyle.

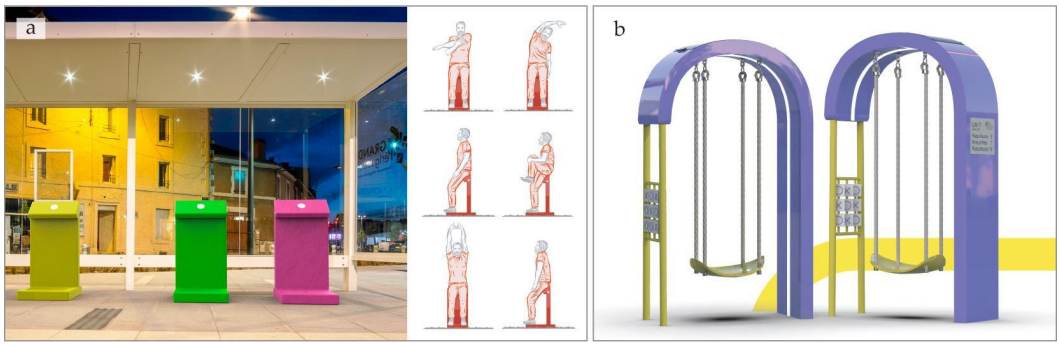

Figure 15. My Active Bench (**a**): active seat that inspires positive physical attitudes, helps to assume a correct posture, and stimulates active muscle tone for daily waiting moments. Metalco Street Furniture Group. Pocket stop (**b**): waiting point at the bus stop that promotes light physical activity and fun through the playfulness of the swing, ensuring movement and dynamism. Design by Michela Castelli—IDEE Lab.

WHO—The scenario aims to create a dialog between the alpha, Z, and Y generations looking for new stimuli for physical exercise, the X generation looking for simple exercises, and boomers looking for specific activities, social relationships, and mutual aid to stay fit.

HOW—The levers to focus on concern the creation of active spaces for interaction, the attractiveness of the neighborhood, the generation of informal communities and positive social relationships, and the use of embankments for recreational activities. In particular, the activities that support a positive relationship with physical activity are widespread fitness trials and gratifying social stimuli useful for the creation of social relationships that motivate people to make constant physical efforts (Figure 16).

Figure 16. Modular, flexible and attractive outdoor urban furniture system (**a**,**c**) to promote light physical exercise, through circuits for the legs, buttocks, abdomen and upper body, spread throughout the urban context. Design by Alice Beconcini, Giovanni Lastrucci, Iacopo Vaglio—IDEE Lab. Tone-up (**b**): multipurpose seat for physical strengthening and stretching. Design by Laura Melcarne—IDEE Lab.

SP12: Physical activity and attractiveness

The objective of the category of urban furniture products for physical activity and attractiveness is to stimulate people to carry out informal physical activity, optimizing it in daily travel.

WHY—The challenge is to respond to the needs of those who live in the neighborhood, such as relaxing from daily work stress and carrying out physical activity spontaneously.

WHERE—The scenario proposes the design of street furniture products, wayfinding, informative, accessible, and flexible, with excellent esthetic and material qualities, attractive, spread within the neighborhood and in spaces with urban barriers—such as stairways,

ramps, or complex paths, to carry out spontaneous physical activity, host recreational attractions, stimulate positive social relationships and healthy lifestyles, promote active mobility, support intergenerational activities and create a physical and information network between existing virtuosities opposed to sedentary lifestyle.

WHO—The scenario aims to create a dialog between the alpha, Z, and Y generations looking for new stimuli for physical exercise, the X generation looking for simple exercises, and boomers looking for specific activities, social relationships, and mutual aid to stay fit.

HOW—The levers to focus on concern increasing the attractiveness of the neighborhood, the generation of informal communities, and positive social relationships. In particular, urban furniture products that support a positive relationship with physical activity through attractive recreational elements, such as play, and creative activities such as dancing, street games, and active local art forms (Figure 17).

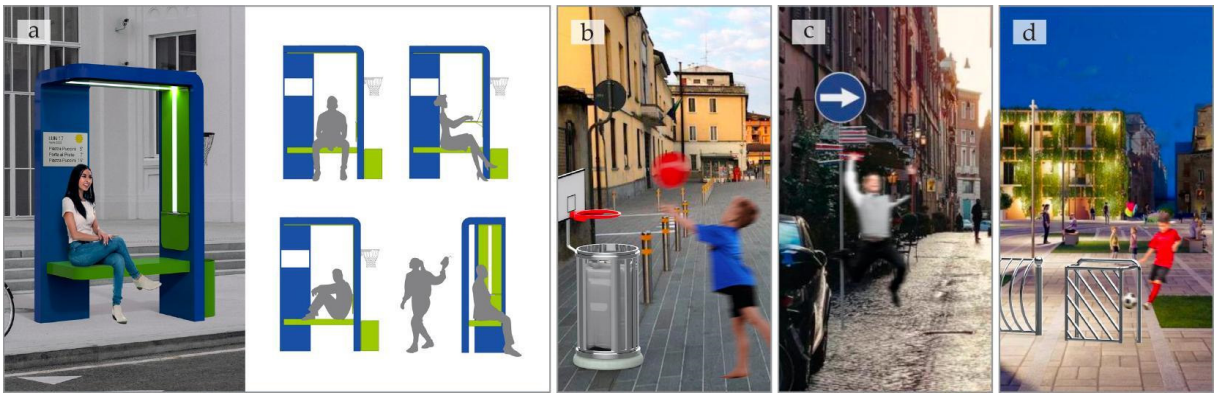

Figure 17. Pocket stop (**a**): recreational waiting point at the bus stop that raises awareness about waste collection by supporting virtuous behaviors and activating physical movement. Design by Michela Castelli—IDEE Lab. System of street furniture(**b**–**d**) that enhances and gives new functionality to elements already present in a widespread manner in the urban context, through the insertion of rotating poles, for high jump; safety barriers and deterrents for playing soccer and basketball in groups to raise awareness on the issue of waste. Design by Alice Beconcini, Giovanni Lastrucci, Iacopo Vaglio—IDEE Lab.

SP13: Supporting active mobility

The objective of the category of urban furniture products for the support of active mobility is to stimulate people to carry out informal physical activity, optimizing it in daily travel.

WHY—The challenge is to respond to the needs of those who live in the neighborhood, such as systematizing physical activity in their daily lives and adopting healthy mobility behaviors.

WHERE—The scenario proposes the design of street furniture products, wayfinding, informative, accessible, flexible, with excellent esthetic and material qualities, attractive, spread within the neighborhood, in spaces close to places of work and study, and in spaces with urban barriers—such as stairways, ramps or complex paths, to carry out spontaneous physical activity, host recreational attractions, stimulate positive social relationships and healthy lifestyles, promote active mobility, support intergenerational activities, and create a physical and information network between existing virtuosities opposed to a sedentary lifestyle.

WHO—The scenario aims to create a dialog between the alpha, Z, and Y generations looking for new stimuli for physical exercise and the X generation and boomers interested in keeping fit and looking for simple exercises.

HOW—The levers to focus on concern the promotion of sports activities, support for active mobility and micro-mobility, and the activation of digital transformation measures

for the neighborhood. In particular, the products that support a positive relationship between physical activity and micro-mobility are access to safe and functional parking systems for micro-mobility vehicles, such as bicycles, scooters, and others, and accessory elements to support active mobility, such as charging stations for vehicles, repair, and maintenance points, but also seats, drinking fountains and shelters for weather changes (Figure 18).

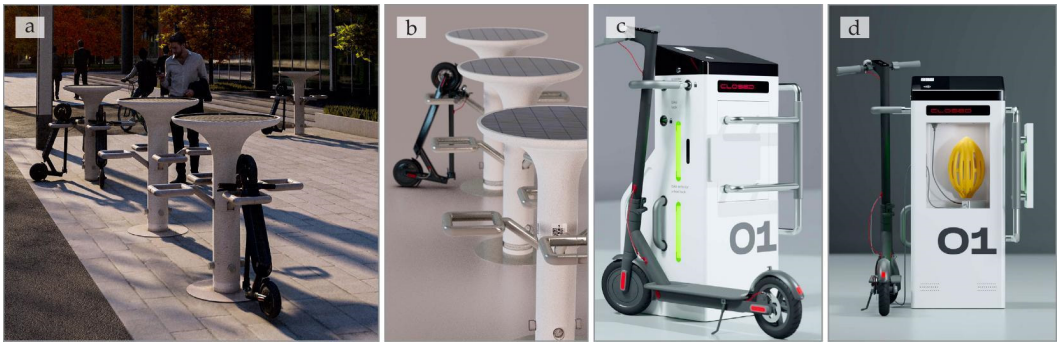

Figure 18. Sunenergy (**a**,**b**): urban furniture for parking and charging private electric scooters. Design by Giulia Maria Sturma—IDEE Lab. Service bike (**c**,**d**): docking station for e-scooters with integrated helmet storage. Design by Luca Cimaroli—IDEE Lab.

4. Discussion

The "Urban Furniture Product Categories" as a Strategic Tool for Public Administration

The aim of the article is to present part of the results of the HNH research project, namely those obtained at the micro-scale of product design, that concern the definition of design strategies, project sheets, and design-orienting scenarios related to urban furniture, stating that those have a decisive role in building healthy and inclusive neighborhoods.

The built environment—which includes open and closed spaces, as well as urban furniture, wayfinding, and information and communication product systems that better define the function of such spaces—affects public health as it acts as a promoter of healthy lifestyles. Performing physical activity outdoors, walking, being involved in positive social interactions, choosing an active and sustainable mobility mode, etc., depend greatly on the characteristics of the spaces and on the urban furniture that have been installed.

The choice and design of urban furniture must, therefore, be aimed at improving the conditions of public space, to promote health and active aging of the population.

The definition of the design strategies and design-orienting scenarios that the research team has arrived at is based on the results of the project obtained in other previous phases, primarily on the HNH conceptual framework.

The initial results of the research have already been published in other articles [28,29] that we invite you to read to have a more complete vision of the research process and methodology.

The HNH project was applied in two neighborhoods of Florence, Italy, as a field of research and investigation, but the results obtained—those relating to the micro-scale of product design—are scalable to other urban contexts both at the national and European levels.

The categorization into functional domains and sub-domains, as well as the product design sheets, have been worked out to directly support the design phases and, indirectly, also the decision-making phases.

A group of actors with a decision-making role can use the product design sheets presented in this article to become aware of the opportunities and concrete problems related to public space in a healthy neighborhood perspective and, therefore, direct strategic choices at a larger scale and in the phases preceding the design.

From a design point of view, the sheets provide indications on which individual solutions and measures to adopt at a detailed scale, and which requirements are necessary during the development of the project to create a healthy urban built environment that encourages citizens to adopt a healthy and active lifestyle.

The results aim to become a tool for orientation in urban redevelopment processes: (i) policy makers of public administrations; (ii) professionals such as architects, landscape planners, and planners in charge of public procurement; (iii) street furniture manufacturing companies of street furniture and designers; (iv) third sector entities.

At the same time, the results also address the scientific community of the disciplinary sectors involved, offering an innovative methodological approach to complex interdisciplinary issues, on the themes of built environment to promote health at urban and neighborhood levels.

The research questions related to the micro-scale of urban furniture design addressed in this article are as follows:

(i) What are the strategic design requirements of street furniture for a healthy neighborhood?
(ii) What are the micro-scale design scenarios to guide public administration choices in creating a healthy neighborhood?

With regard to these research questions, design strategies, project sheets, and design-orienting scenarios related to urban furniture—as presented in the results of this paper—enable urban designers, architects, product designers, policymakers, and citizens to interpret the concepts of 'urban health' and 'healthy cities' through the lens of urban furniture. By adopting this perspective, the "Domain", "Sub-domains", and "Urban Furniture Product Categories" presented in Table 1 help to provide key insights into the scientific background of this research.

Firstly, the contents in Table 1 serve as a framework, allowing one to address the discourse on the urban health and health cities with a stronger awareness about role, functions, and features of the urban furniture (cf. [1–15,28–37]). This essentially expands the reflections on how to build healthy neighborhoods (e.g., [30,37,38]) where the relationship between the built environment as a determinant of health is played by the urban furniture as a healthy touchpoint for citizens. Specifically, it expands on research works that predominantly focus on the urban planning perspective and refer to urban furniture as a general indicator of healthy placemaking and urban planning for designing healthy neighborhoods. (e.g., [1,8,30,32,33,35,37]). Table 1 provides an opportunity to establish a more comprehensive understanding of the concept of the "built environment" within the neighborhood context, particularly in relation to the design of urban furniture.

Secondly, the "Urban Furniture Product Categories" (see Table 1) highlight a segment of the built environment that can be approached from a product design perspective, not only for analytical purposes but also for transformation and civic or public innovation through product design. This opens further discussions on the role of these urban furniture categories in:

(a) contributing to the understanding of how to promote health in neighborhoods through the design of urban furniture (cf. [38]);
(b) using urban furniture as an indicator for understanding the "human scale" factors in neighborhoods (cf. [41]);
(c) applying an urban ergonomic approach and integrating urban furniture categories within a Human–Environment Interface system (cf. [40]);
(d) enhancing the comprehension of influential factors in urban spaces (e.g., esthetics and functionality) through urban furniture (see [42]).

Thirdly, the literature review has emphasized that fragmentation is the main feature of those resources that touches urban health from a furniture urban design perspective. The contents in Table 1, along with the scenarios and the presented urban furniture design strategies, may:

(1) Integrate, within a unified discourse, the urban furniture perspective into city models such as the 1 min, 5 min, 15 min, and 20 min city models [43–47].
(2) Provide a unique reference framework for studies that have previously focused separately on urban furniture for physical activities in urban contexts (e.g., [31]), wayfinding and information systems (e.g., [27,48]), inclusive approaches in public contexts (e.g., [49]), as well as sustainable and active mobility solutions, including discussions around walkability, cyclability, and intermodal mobility (e.g., [107–109]), and social relationships as a guiding principle for building healthy neighborhoods (e.g., [30] and cf. [74–82]).
(3) Support the identification of further examples and case studies in line with the fragmented categories mentioned above.

In a very practical sense, Table 1 organizes the fragmented discourse on designable urban products extrapolated from the broader discussions in healthy urban planning (e.g., [1,4–6,8]). As highlighted in the introduction of this paper, potential urban furniture categories relevant for healthy neighborhoods can be derived from various non-connected references that, in general, introduce urban furniture in terms of:

(i) wayfinding systems and products that communicate the neighborhood's visual and cultural identity;
(ii) products that foster social relationships;
(iii) products that address inclusion needs;
(iv) products that facilitate physical activity and support walkability, as well as active mobility;
(v) products that support sustainable mobility needs.

This overview was presented in Section 1.2, where we discussed literature that appears to suggest these types of products as categories to consider when designing urban furniture for healthy neighborhoods. However, while some contributions from the literature provide examples and guidelines for urban furniture, none specifically interpret these general suggestions in the structured manner presented in Table 1 and through the results of this paper. We argue that this structured approach is not only a novelty offered by this paper but also a practical contribution for professionals and stakeholders. It enables the application of these diverse resources within a more coherent, comprehensive, and usable framework specifically focused on urban furniture.

This approach also expands upon literature that provides tentative categorisations of urban furniture for healthy places and neighborhoods. For instance, [40] introduces the "performance" of urban furniture, such as seats, public lighting, signs, waste bins, and shading elements, with specific indicators (e.g., "length of seating", "quality of the seating"). Conversely, Table 1 presents categories organized into domains and sub-domains, offering intrinsic guidance for designers and policymakers on the functions and aims of designing and considering urban furniture for healthy neighborhoods.

While some resources in the literature have introduced checklists for similar purposes ([1,8,14,30–38]), none delve specifically into the detailed understanding of how to design these pieces of furniture. Some suggest general features or best practices to follow, such as respecting usability rules and/or applying well-dimensioned features (for instance, [8,14,30,33,34,37,39]). In contrast, the results presented in this paper provide strategies, along with practical recommendations, examples, and scenarios, illustrating how

these suggestions can be practically applied to build healthy neighborhoods by maximizing the role of urban furniture.

As emphasized by some references in related fields (e.g., [27]), design decisions to support healthy neighborhoods can be influenced by factors not directly tied to scientific references. This is particularly relevant for the micro-scale of urban health through urban furniture, which lacks a specific framework for reference (e.g., cf. [38,40–42]). Consequently, the categorization presented in this paper (see Table 1, primarily, and the Appendices A–D) supports working with scientific references that are synthesized and translated through the HNH framework to understand how to design healthy neighborhoods from the perspective of urban furniture. While the presented work focuses on the micro-scale of healthy neighborhood planning, it introduces design opportunities for using urban furniture as design indicators in an urban health process. Essentially, it helps to frame urban furniture as a determinant of urban health.

Finally, the presented work introduces design strategies for building healthy and inclusive neighborhoods by addressing the perspective of urban furniture. This contribution is novel within the urban design literature addressing similar topics. As emphasized in paragraph 1.1, there is a lack of comprehensive guidelines to identify not just the requirements but also the design features, examples, and urban health scenarios that are strongly influenced by urban furniture. Several guidelines and frameworks provide scenarios—often visually—for addressing and understanding healthy places from a design perspective (e.g., [1,30,32,34]). However, they do not specifically focus on urban furniture design to create such scenarios. For this reason, Table 1, alongside the related design examples and scenarios, domains, and sub-domains, as well as the design strategies, introduces and strengthens the perspective of urban furniture design as a crucial activity to be integrated into participative design processes for urban health.

5. Conclusions

Research Impact and Limits

The HNH project has currently reached a TRL 3, which does not include prototyping and validation on a relevant environment.

The results concern the definition of design strategies and design scenarios aimed primarily at orienting the Public Administration, at local and regional level, in the choices for the development of healthy cities, starting from the neighborhood scale. However, they are aimed at creating relevance on the topic of how the built environment at all scales (macro, meso, micro) impacts the adoption of healthy lifestyles by citizens. The relevance, engagement and awareness are aimed at designers (urban planners, architects, engineers, and designers), the third sector and citizens, as well as companies operating in the manufacturing sector of street furniture.

While issues such as sustainability, declined on aspects such as mobility, greenery and energy efficiency, and inclusion, on aspects such as social housing, removal of architectural barriers, etc., are addressed in the strategic tools of local and regional PAs, at the macro-scale level of urban planning and planning, and at the meso-level of landscape architecture and architectural technologies, with the cooperation of urban planners, architects and engineers, there are no examples that adopt strategies on the topic of the health of a neighborhood and the relationship with the built environment, with a systemic vision that goes down to the micro-scale of urban furniture design.

The innovative nature of the research is to address the issue of neighborhood health at a systemic transdisciplinary level of the project, and, in particular, with regard to product design for the urban environment, is to highlight the strategic importance that the design and choice of street furniture, their quality, function, usability, affordance, attractiveness,

have in the perception (pleasant/not pleasant; safe/not safe, inclusive/not inclusive, etc.) and in the way of experiencing a space and a path, influencing citizens' behaviors, lifestyles, and urban user experience.

The results of the HNH research to date have had an impact on the strategic tools of the Municipality of Florence, which has inserted a paragraph dedicated to the strategies of a healthy neighborhood within the PS (Structural Plan) and the new POC (Municipal Operational Plan).

Furthermore, two pilot projects have been activated, one for the design of an inclusive park and the other for the implementation of a "healthy urban path", with the involvement of the HNH team; projects that will allow the validation of the strategies outlined in the research described in the paper, reaching a TRL 4–5.

What is the limit at the micro-level of the results achieved regarding the strategic requirements and scenarios of urban furniture design?

Unlike urban planning, landscape architecture and architectural technologies, urban furniture design falls within design for industry; most of the urban furniture is produced on an industrial scale, with the possibility of customization for different urban contexts, and it is difficult to think of it as "tailor-made" products for a specific place or at least, this last type of furniture was not the focus of the research. This implies that without raising awareness among SMEs in the sector of urban furniture manufacturing and involving them, there is the risk that there is no market offer today that adequately responds to a demand for urban furniture that fits to a healthy neighborhood, with the strategic requirements described for the domains and sub-domains reported in Table 1.

To overcome this limit, the HNH project involved Metalco Street Furniture Group from the early stages of the research, to have the company's point of view, on the interest regarding the innovation of the domains, and on the technological and economic feasibility of the proposed scenarios.

It is, therefore, necessary to underline the importance of leveraging not only public administrations, but also designers and companies, and embracing a systemic transdisciplinary approach at different scales, for the design and choice of urban furniture, which influences correct behaviors and favors the health of citizens.

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Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available in the article itself.

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Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Sub-Domain "Human-Human Relationship": Strategic Product's Requirements
Consistency with the principles of Universal Design
Consistency with the coordinated image of the urban context, capable of coherently communicating the identity and recognizability elements of the points of interest
Result of collaborative and organized co-design activities with the neighbourhood community
Attractive aesthetics and sustainable, durable materials integrated with contextual features and pleasing to both touch and sight, featuring thoughtful colour choices and preferably sinuous shapes: • to encourage frequent use of the site, positive behavior, and improved safety conditions
Requirements for accessibility, flexibility, transformability, modularity, safety, nighttime visibility, and ease of use, incorporating nudge design and playful (gamification) solutions: • to support creative, artistic, or cultural events, including temporary ones; • to facilitate the arrangement of furniture in the space and promote socialization and dialogue among people; • to support multi-generational, multi-cultural interaction, various local activities, and informal meetings among groups of citizens; • to support pedestrian safety even during night hours; • to support neighbourhood community co-creation and co-production activities; • to support rest and refreshment, featuring drinking fountains, seating, public restrooms, and more, and to provide shelter in adverse weather conditions; • to stimulate and engage people in using fitness equipment and participating in playful, recreational movement activities during moments of waiting, stopping, or breaks
Inclusion of multi-language, multicultural, multi-sensory, multi-user and multi-function elements in urban furniture systems for wayfinding: • to make waiting at pedestrian crossings more pleasant; • to emphasize multicultural contexts as well as enhance physical, cultural, and social diversity; • to support the presence of systems that inform and guide citizens to places and activities for relationships and socialization, points of interest, spaces, active practices, and healthy neighbourhood activities.

Appendix B

Sub-Domain "Human-Nature Relationship": Strategic Product's Requirements
Consistency with the principles of Universal Design
Consistency with the coordinated image of the urban context, capable of coherently communicating the identity and recognizability elements of the points of interest
Result of collaborative and organized co-design activities with the neighbourhood community
Requirements to encourage outdoor activities, such as physical activities, and socializing
Attractive aesthetics and sustainable, durable materials integrated with contextual features and pleasing to both touch and sight, featuring thoughtful colour choices and preferably sinuous shapes: • to encourage frequent use of the site, positive behavior, and improved safety conditions
Requirements for accessibility, flexibility, transformability, modularity, safety, nighttime visibility, and ease of use, incorporating nudge design and playful (gamification) solutions: • to support creative, artistic, or cultural events, including temporary ones; • to encourage citizens to take positive actions in green care; • to provide spaces for urban agriculture, such as equipment for urban gardens, and to raise awareness about the importance of healthy food; • to support multi-generational, multi-cultural interaction, various local activities, and informal meetings among groups of citizens; • to support neighbourhood community co-creation and co-production activities; • to support rest and refreshment, featuring drinking fountains, seating, public restrooms, and more, and to provide shelter in adverse weather conditions; • to shield from unpleasant odours, reduce noise pollution, and stimulate the sense of smell with natural scents and essences, while promoting socialization and dialogue; • to stimulate and engage people in using fitness equipment and participating in playful, recreational movement activities during moments of waiting, stopping, or breaks
Inclusion of multi-language, multicultural, multi-sensory, multi-user and multi-function elements in urban furniture systems for wayfinding: • to make waiting at pedestrian crossings more pleasant; • to emphasize multicultural contexts as well as enhance physical, cultural, and social diversity; • to support the presence of systems that inform and guide citizens to places and activities for relationships and socialization, points of interest, spaces, active practices, and healthy neighbourhood activities; • to raise awareness of the issues of physical activity and healthy lifestyles, encouraging the use of fitness equipment for exercising and spending active breaks; • to raise awareness about food waste, healthy eating and breastfeeding; • to support the presence of information and guidance systems directing people to connect with nature in urban contexts and green areas; • to raise awareness about the circular economy, such as the collection of used and still usable clothes and products, and the recycling of materials; • to support the presence of recycling collection systems, through information elements; • to support the presence of information and guidance systems regarding healthy sensory stimulation pathways presence.

Appendix C

Sub-Domain "Connected and Collaborative Communication": Strategic Product's Requirements
Consistency with the principles of Universal Design
Consistency with the coordinated image of the urban context, capable of coherently communicating the identity and recognizability elements of the points of interest
Result of collaborative and organized co-design activities with the neighbourhood community
Presence of smart, connected, interactive, and attractive information systems to disseminate and receive information for more efficient people services
Presence of renewable energy-powered information systems, including those with direct user interaction stimulation, such as self-charging stations for electronic devices
Attractive aesthetics and sustainable, durable materials integrated with contextual features and pleasing to both touch and sight, featuring thoughtful colour choices and preferably sinuous shapes: • to encourage frequent use of the site, positive behaviours, and improved safety conditions
Requirements for accessibility, flexibility, transformability, modularity, safety, nighttime visibility, and ease of use, incorporating nudge design and playful and playful (gamification) solutions: • to support creative, artistic or cultural events, including temporary ones • to facilitate the arrangement of furniture in the space and promote socialization and dialogue among people; • to support multi-generational, multi-cultural interaction, various local activities, and informal meetings among groups of citizens; • to support pedestrian safety by making crosswalk systems visible and recognizable even at nighttime; • to support neighborhood community co-creation and co-production activities; • to support rest and refreshment, featuring drinking fountains, seating, public restrooms, and more, and to provide shelter in adverse weather conditions; • to stimulate and engage people in using fitness equipment and participating in playful, recreational movement activities during moments of waiting, stopping, or breaks
Inclusion of multi-language, multicultural, multi-sensory, multi-user and multi-function elements in urban furniture systems for wayfinding: • to make waiting at pedestrian crossings more pleasant; • to emphasize multicultural contexts as well as enhance physical, cultural, and social diversity; • to support the presence of systems that inform and guide citizens to places and activities for relationships and socialization, through third sector connection and networking; • to inform and guide citizens to places of interest, spaces, active practices, and healthy neighborhood activities; • to raise awareness among citizens on topics such as promoting healthy lifestyles and the use of fitness equipment and physical activity during stopping, waiting, and break times, through creative strategies like guerrilla communication events; • to support multicultural interaction and different activities in the local areas.

Appendix D

Sub-Domain "Active Mobility and Physical Activity": Strategic Product's Requirements
Consistency with the principles of Universal Design
Consistency with the coordinated image of the urban context, capable of coherently communicating the identity and recognizability elements of the points of interest
Result of collaborative and organized co-design activities with the neighbourhood community
Presence of smart, connected, interactive, and attractive information systems to disseminate and receive information for more efficient people services
Presence of renewable energy-powered information systems, also/ including those with direct user interaction stimulation, such as self-charging stations for electronic devices
Attractive aesthetics and sustainable, durable materials integrated with contextual features and pleasing to both touch and sight, featuring thoughtful colour choices and preferably sinuous shapes: • to encourage frequent use of the site, positive behavior, and improved safety conditions
Requirements for accessibility, flexibility, transformability, modularity, safety, nighttime visibility, and ease of use, incorporating/including through push-to-use (nudge) and playful (gamification) solutions: • to support creative, artistic or cultural events, including temporary ones; • to facilitate the arrangement of furniture in the space and promote socialization and dialogue among people; • to support multi-generational, multi-cultural gatherings, various local activities, and informal meetings among groups of citizens; • to support neighbourhood community co-creation and co-production activities; • to support rest and refreshment, featuring drinking fountains, seating, public restrooms, and more, and to provide shelter in adverse weather conditions; • to stimulate and engage people in using fitness equipment and participating in playful, recreational movement activities during moments of waiting, stopping, or breaks
Inclusion of multi-language, multicultural, multi-sensory, multi-user and multi-function elements in urban furniture systems for wayfinding: • to make waiting at pedestrian crossings more pleasant; • to emphasize multicultural contexts as well as enhance physical, cultural, and social diversity; • to support the presence of systems that inform and guide citizens to places and activities for relationships and socialization, through third sector connection and networking; • to inform and guide citizens to places of interest, spaces, active practices, and healthy neighborhood activities; • to raise awareness among citizens on topics such as promoting healthy lifestyles and promote the use of fitness equipment and physical activity during stopping, waiting, and break times, through creative strategies like guerrilla communication events; • to support multicultural gathering and different activities in the local areas.

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