Inclusiveness and Participation in the Design of Public Spaces:

Her City and the Challenge of the Post-Pandemic Scenario

Vasiliki Geropanta, Technical University of Crete, Greece*

https://orcid.org/0000-0003-1232-6174

Elia Margarita Cornelio-Marí, Universidad Juárez Autónoma de Tabasco, Mexico

ABSTRACT

The COVID-19 pandemic made visible the need for greater participation of diverse communities in the planning of cities since it revealed exclusions based on gender, migratory status, and class. As a result, initiatives were launched that applied new technologies, digital platforms, and data-based intelligence to bring alternative solutions to the re-use and re-management of public space. The aim of this article is to analyze Her City, a joint effort of UN-Habitat and Global Utmaning, meant to guide urban actors to implement projects through an open and digitally accessible platform that involves girls and young women in urban planning and design. The authors conducted a review of literature and analyzed a case study that included the application of the Toolbox in Chania, Greece, concluding that although Her City can face challenges in the post pandemic scenario, it could be considered among these new, radical, and forward-thinking technologies, groundbreaking from an urban planning point of view that can address large-scale challenges or opportunities in the design of public spaces.

KEYWORDS

COVID-19 Pandemic, Digital Collaborative Platform, Engagement Tools, Gender Perspective, Inclusion, Participatory planning, Smart Technologies

INTRODUCTION

The design and planning of cities need greater participation of diverse citizens to offer more inclusive public spaces for all their inhabitants (European Commission, 2019). This was a reality before the COVID-19 pandemic, but the conditions set by this global emergency made it even more visible (Pantic et al., 2021).

The aim of this article is to analyze *Her City,* an initiative based on ICT that promotes female inclusion and participation for the redesign and recovery of urban public spaces, in the context of the COVID-19 pandemic, identifying the novel challenges and opportunities for the participation of girls and young women in the shaping of more inclusive cities.

*Corresponding Author

Cole et al. (2020) have pointed out that the pandemic worsened existing "patterns of uneven urban development which have led to concentrated poverty, segregation, and environmental racism" (p. 1). It also showed the lines of exclusion already existing in the cities, making visible how difficult it is for some sectors of the population to access public spaces, within or without their neighborhood radius (Gehl, 2020; Geropanta & Ampatzoglou, 2022).

The need for better communication and access to public spaces has highlighted the role of local governments for an effective and swift response to local needs. The current return to the urban neighborhood as the space that concentrates human activity has been noted by Moreno et al. (2021), who propose the concept of the 15-minute cities, a residential urban development concept in which most daily necessities can be reached by either walking or cycling from residents' homes. This shift emphasizes that among the "most important aspects of sustainable urban planning [are] the open and green spaces as spaces for health and well-being" (Mouratidis, 2022), along with low neighborhood density, a mixed-use distribution of spaces outdoors and indoors, and a good accessible system of public transportation (Litman 2020). Unfortunately, few cities around the world meet this target because of (1) inefficient management of public spaces (due to overlapping mandates, a lack of communication among relevant agencies, and a lack of funding to effectively manage public areas); (2) insufficient access to detailed information on public spaces and their use; (3) scarcity and not efficient distribution of public and green spaces around the city; (4) lack of accessibility for vulnerable and marginalized groups, as public spaces are not always adequately designed for children, women, disabled or elderly people; and (5) new technologies and tools, posing risks for the respect of human rights, privacy, health and wellbeing (Mouratidis, 2022).

These weaknesses, swept under the carpet for decades, are now exposed in many cities around the world, explaining how exclusions and inequities, based on ethnicity, class, age, and gender can be strongly felt also in the use and management of public space (Gehl, 2020; Honey-Rosés et al., 2020).

At the beginning of the pandemic, when the streets, schools, markets, and plazas became out of bounds, entire families were forced to stay within their homes, many of which were not suitable for long periods of cohabitation (Hu et al., 2021). This situation was particularly severe for poor families, whose members had to crowd in reduced spaces, many times with deficient sanitary facilities.

The first lockdowns also created new exclusions overnight. For instance, semi-public spaces like shopping malls and supermarkets became very dangerous for people over 60 years old, pregnant women, and children, putting a limit in the accessibility these groups have. In many countries, more than one year later, this continues to be the case.

For women, the lockdowns created very precarious conditions. For instance, they aggravated the unequal distribution of work for mothers, who had to continue doing their paid jobs and also take the main responsibility for the homeschooling of their children (Collier de Mendonça & Freire de Oliveira-Cruz, 2020; O'Reilly, 2020).

Furthermore, arguing sanitary concerns, girls and young women were forced to stay indoors more often. As a result, we have seen an unwelcome return of female members of the family to the domestic space as for example in Mexico.

All this situation has brought a disproportionate toll on the everyday psychological and physical health of women, to the point that decades of progress are at risk, with the real danger of women losing effective empowerment in many developing countries affected by the health emergency (Filipovic, 2022).

The Human Development Report 2020 states that:

when new shocks interact with intersecting horizontal inequalities, they reinforce patterns of disempowerment of specific groups—including ethnic minorities and indigenous populations, women, children and young people...Women and girls are disproportionately affected by shocks because of their traditional roles and responsibilities including around three-quarters of unpaid care work (2021, p. 62).

Nowadays we are facing consecutive lockdowns, as a way to battle the waves of contagion caused by the different variants of the SARS-CoV-2 virus, such as Delta and Omicron. In this context, public

spaces that are green, sustainable, and accessible to all can come as a relief since they offer much needed opportunities for physical exercise and contact with nature. Moreover, for girls and young women, public spaces will be crucial to their full reincorporation into public life in the post-pandemic period. Thus, it will be essential to take their voices into consideration in the design of urban spaces in the near future.

ICT for the City and for the Public Spaces

During the lockdowns many community actors used Information and Communications Tools (ICT) to communicate and perform tasks that until then had been conducted face-to-face. This led to an expanding reliance on applications for e-government, entertainment, deliveries, and education. In urban planning, new smart technologies, digital platforms and data-based intelligence systems were adopted under specific rules and knowledge flows, as a way to build innovation and creative solutions in many cities (Geropanta et al., 2021).

These technologies seek to intervene in the city through district-based, activity-based, and network-based planning solutions. In the same period, the UN-Habitat launched People-Centered Smart Cities, an initiative to provide holistic assistance on digital transformation to all kinds of leadership promoting participation, inclusion, and engagement of all.

All these efforts can be seen as steps towards building more inclusive cities, valuing all people's needs equally. An inclusive city is defined as the one that,

creates a safe, livable environment with affordable and equitable access to urban services, social services, and livelihood opportunities for all the city residents and other city users to promote optimal development of its human capital and ensure the respect of human dignity and equality (Asian Development Bank, 2017, p. 4).

Therefore, inclusive cities are a goal that could be attained by taking advantage of the affordances of technologies, which allow for greater participation of more diverse stakeholders at reduced costs.

In fact, the increasing use of ICT for participation in urbanism represents the immediate response to a digital transition on behalf of the cities. Current efforts of urbanists to adapt new technologies are indicative of the historical move towards urbanism that unfolds online and reaches as many communities as possible. This is a way to better achieve the objectives of inclusion and sustainability.

The post-pandemic scenario brings the hope for more civic participation in the planning of urban spaces, particularly public ones, using ICT tools that could be mediated by local grassroots organizations, local governments, and institutions at the international level. Features like virtual questionnaires, Zoom meetings, applications, digital toolboxes, etc., have already shown promise to improve participation in urban planning initiatives (Pantic et al., 2021). It is important at this time to detect the challenges that such initiatives could be facing in light of the conditions set by the COVID-19 pandemic.

METHODS

The initial phase of the study consisted of a literature review and document analysis, followed by the application of the Her City Toolbox during a workshop that took place in Chania, Greece during 2021.

The literature review focused on available publications on the topic on urban inclusion in the context of the pandemic. This allowed identifying the main challenges that this global emergency has brought to vulnerable groups around the world. It concentrated on those challenges faced by girls and young women, trying to detect the changes in their daily lives brought about by the health emergency.

At the same time, we reviewed the various UN Habitat flagship programs created in the past years that use ICT for citizen participation in the design of public spaces. It was pertinent to look at the various engagement tools that were created in the last two years, such as Her City, Ourcity, Safepin, and Block by Block, among others.

Once it became clear how these programs work, we reviewed the main documentation concerning Her City, pinpointing those aspects that could be under pressure when confronted with the new normality in the post-pandemic scenario. We looked at the program's main tenets, to grasp a clear understanding of what it entails. After that, the core question that guided the analysis was: How would Her City be viable in the post-pandemic scenario?

The application of the Toolbox to a case study gave the opportunity to test the program on the ground, contrasting the principles of participation that the Toolbox proposes with real hands-on experience. As a result, we were able to gather insights about the affordances of Her City and the challenges it might face in specific contexts.

The authors come from two different disciplines (i.e., urban design and cultural studies), sharing a common interest in the social practices enabled by ICT. Their convergent views offer a richer understanding of the topic of gender inclusion in the city. While cultural studies are very attentive to instances of intersectional inequalities based on gender, ethnicity and class, urban design has the potential of shaping the spatial dimension of daily life for entire communities. A critical stance coming from these two complementary points of view can be useful to identify blind spots in a program that seeks to bridge an existing gap in participation based on gender.
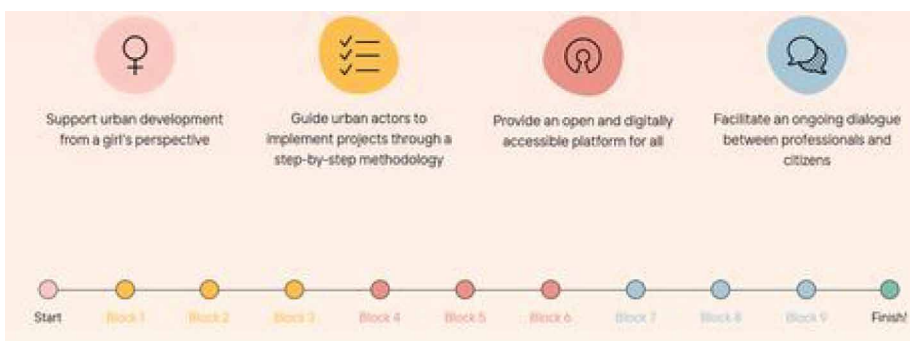
The Her City Toolbox

Her City is a joint initiative by UN-Habitat, the program of the United Nations that promotes transformative change in cities, and Global Utmaning, a Sweden-based independent think tank, which guides urban actors to implement projects through an open and digitally accessible platform that involves girls and young women in urban planning and design. Therefore, it is a very relevant case study to understand the linkage that exists between the city, new technologies, and possibilities for inclusion.

According to the program's website (https://hercity.unhabitat.org/), Her City was launched on 8 March 2021 at the occasion of International Women's Day. It consists of nine blocks, which guide participants in the design and implementation of a concept for an inclusive city.

Her City is an open-access digital platform that is used to develop or support informative content and functions also as a virtual space where users can work online together, learn, exchange flows of information, interact, and co-design in the virtual environment based on research in the built environment. Its Web 2.0 tools are available through the internet within the Her City Toolbox, and their innovation lies in the digital networking facilities they provide, along with the exchange of information at high and reliable speed and capacity.

The Toolbox consists of nine blocks that allow the user to follow a process on how to co-design cities from a girl's perspective (Figure 1). Each block consists of actions and activities that lead slowly to the above-mentioned objective. The experience is equal to having a digital guideline that

Figure 1. The goals and blocks of Her City (Source: The Her City platform)

allows for building a concrete understanding on the important steps in co-planning cities from the perspective of young women and girls.

The nine blocks represent the three phases of the urban development process as it is suggested in the platform's website: (a) Assessment of Public Space, (b) Design, and (c) Implementation. Each of the phases consists of three blocks (see Table 1), and the Toolbox, having a very simple User Experience, allows for individuals to build their own project.

The first three blocks consist of a number of activities that lead to the city-wide and site-specific assessment. In block 1 "Stakeholder engagement", participants get instructions on how to organize their team, plan each member's role in the project, make a list of all activities that should be included in the project, with a specific agenda and schedule for each of the three phases of the project. Once the team is ready and the objectives have been set, the Toolbox guides its members in acquiring a collective understanding of what is planned from a gendered point of view, through a literature review, and through analyzing local policies and documentation. In the last part of block one, the Toolbox includes a stakeholder's mapping exercise to identify who are the interested parties in the use and management of a public space, so as to guarantee a real understanding of the actual forces of influence in the specific site. This exercise leads to the identification of target groups that need to be included and brings everybody on board by building on social platforms where everyone can communicate and interact.

In block 2 "City wide assessment", the team of users can now proceed to a number of exercises that allow for realizing a city wide assessment from a girl's perspective. Interesting tools such as KoBo Toolbox and digital questionnaires are introduced to build a basemap of the city and to gather information and detailed data that can allow for a precise city wide evaluation. At the end of this exercise, the participants are called to prioritize their findings and to make a list of important insights regarding the city.

Block 3 "Site specific assessment" provides training to the group on delivering a precise evaluation of specific open public spaces and their five minutes walking radius (equivalent to 400-meter distance). From the information available in their platform, it seems that this part describes a participatory and incremental process to gather and analyze information by and with girls and young women, through a series of activities and tools. Here are introduced specific dimensions related to public space assessment, which are: (a) accessibility, (b) comfort and safety, (c) green environment, (d) amenities and furniture, and (e) use and users. The importance of this block is that people applying it will be able to evaluate the quality of the public space by scoring in the end the five dimensions and their indicators; therefore, leading to clearer ideas regarding the space and its users.

Block 4 "Analyzing challenges", brings all findings and stakeholders together, helping everybody to constructively discuss which can be their joint visions for a specific space. The description of Her City creators about this block states that "It teaches girls to 'think like an architect' and gives professionals new knowledge from the user perspective." (UN Habitat, 2021). Therefore, at the end

Table 1. Suggested correspondence between the phases of the urban planning process and Her City blocks

Phases of the urban development process	Her City blocks
a) Assessment of public space	Stakeholder engagement City-wide assessment Site-specific assessment
b) Design	Analyzing challenges Designing ideas Recommendations for action
c) Implementation	Action plans Implementation and follow-up Sharing results

of the fourth block, everybody has been included in a process of co designing, and the platform has allowed for vague ideas to transform into concrete suggestions.

Block 5 "Designing ideas" is revolutionary in the training it offers, because it teaches the participants to collaboratively plan and design the ideas that emerged in the previous blocks by using the sandbox video game Minecraft. As such, it gives the girls the possibility to learn a new skill and to get empowered by participating in the planning process, without barriers or gaps of expertise. The result is a rough design of the new space made jointly by all stakeholders involved, based on the solutions that were developed in the previous blocks.

Block 6 "Recommendations for action", gathers all preliminary plans together, prioritizes among designs and, drawing on a list of proposals coming from the groups, leads participants to build a joint strategy where girls and experts discuss the next steps for the project execution and the possible effect their project might have. Thus, they collaborate to understand what the implementation phase will be.

This last exercise leads to block 7 "Actions plans", where all the challenges and ideas for the design and implementation of any public space now find their precision through the same software used before (i.e. Minecraft). Specifically, at this stage girls and professionals produce their precise plans, define costs and build participatory construction and maintenance plans. The result is a number of "detailed plans collaboratively developed by the girls and professionals for the construction phase, including cost estimations and maintenance plans" (UN Habitat, 2021). In block 8 "Sharing results", all work realized is communicated to the stakeholders and, after receiving feedback by city leaders and actors, this leads to the approval and construction. Lastly, block 9 "Implementation and follow up" provides an opportunity to revisit the new public space created six months after construction is finalized and proceed to an in-depth assessment.

In summary, Her City proposes to include the points of view of girls and young women in the planning process for the rehabilitation or construction of specific public spaces. It uses digital tools to put professionals in contact with participants, who will provide not only insights about the uses or potentialities of particular sites, but also concrete ideas for design. It is conceived as a step-by-step sequence that allows the layperson to understand the basic logic behind urban projects; thus, making it more inclusive. This process of inclusiveness leads to a collection of real time data that can enhance urban planning in many ways. For example, these data can help authorities to (a) come up with evidence-based decisions when planning district land uses, and (b) acquire a deeper comprehension of the desires of local people in the provision of housing and mobility infrastructures. Furthermore, the same data can reveal necessities related to greening and comfort, among many others. Lastly, both city wide and site specific assessment can assist urban planners in a better understanding of real time problems, something that would be otherwise impossible. The authors believe that this process assists to the overall definition of e-planning and marks an important transition to the discipline as it could be now enhanced.

From its inception, Her City includes a component of technology that makes it quite viable in the pandemic scenario. In the platform it was possible to identify one note advising on how to adapt the Toolbox to the conditions of physical distancing. The note, located on block 6, says:

Due to the covid-19 pandemic, physical meetings and workshops might not be possible during the course of your project. Make sure to stay updated on regional restrictions that might affect your project. The option of a digital process is available in the Her City Toolbox. It will be easier to proceed with the project as planned if you decide on a digital strategy early on. Choose one digital meeting forum to host all your digital meetings on. Set aside time to get yourself well acquainted with the forums functions, such as how to organize breakout rooms and other functionalities. (UNHabitat, 2021).

It is clear that Her City is already following what we can call a hybrid approach to participation because it allows those who apply the Toolbox to choose between a face-to-face or a digital process. It would be interesting to know if it also allows for a change once the process has started, which could come handy in view of the sudden changes in policy regarding social distancing that come with the new waves of contagion.

Insights From the Application of the Her City Toolbox in Greece

Our guiding question was focused on the viability of Her City in the post-pandemic scenario. In order to answer it, the authors take the clue from the application of the Toolbox on two occasions in Chania, Crete in Greece. The first took place during a short period in 2021 in the framework of the workshop: Update my City, Public Space, Smart Technologies and Urban Health, Co - organized by Un-Habitat, Technical University of Crete, School of Architecture, Center for Mediterranean Architecture (KEPPEDIH - CAM), and the Global Pandemic Network. On that occasion, the participants used blocks 2 and 3 (City wide assessment and Site specific assessment). The topic of the workshop was focused on alternative ways to govern, use, and manage public space, and the platform was used as a background supporting technology to receive data and structure the thoughts of the participants.

Later on, in fall 2021, in the framework of the course Smart and Digital Cities at the Technical University of Crete, School of Architecture, the platform was used for educational reasons to support the training of students on how to use ICT in urban planning with a focus on redesigning public spaces (urban design) from a gender neutrality perspective. On this occasion, participant students used blocks 1, 2, 3, 4, parts of block 5 and followed workshops on the use of the platform taught by UN-Habitat experts that assisted to speed up a process that usually takes much more time.

In the first case, the group was formed by 16 female and 7 male participants, including: a) students from the Technical University of Crete, School of Architects (75%), external participants (15%), and representatives from the municipality (10%). All participants were related to architectural science - mainly because they were either studying or working as architects. In the group, there were also scholars from different geographic areas, which reveals the interest and curiosity the program is raising.

The mission consisted of the following phases: firstly, the scientific coordinators produced a base map of Chania in GIS with the help of the local GIS municipal documentation, in which they highlighted the quantity and geographic location of the city's public spaces (105 spaces distributed within 26 districts of the city). They presented this material to all participants and divided them into groups to go on site and collect data from each public space. This step included the training and use of the technology Kobo Toolbox, which is incorporated in Block 3 and helps to collect spatial, experiential and social data on site. The Kobo toolbox can be accessed at this link: https://kobo.humanitarianresponse.info/accounts/login/#/.

The specific tool required only a simple installation in each participant's cell phone or tablet, with no further necessities, and acted also as a storage space for the data collected.

As a second step, participants were split into 11 groups and they proceeded in an on-site survey of 85% of the public spaces highlighted (81 out of 105 public spaces), working on issues of comfort, public equipment, accessibility, safety, use, management and spatial morphology – configuration. With the help of installed surveys, the participants managed to collect numerous data on these sectors, as well as information and testimonies from passersby, acquiring a consolidated idea that would help them evaluate each public space.

As a third step, maps in GIS were produced in an effort to visualize the various results of the data collection, such as male and female users' affluence in the area, problems of accessibility for diverse groups, perceptions of safety in relation to lighting infrastructure, traffic, among others. Based on this information, and a series of lectures on planning public spaces from many perspectives, participants were able to start putting priorities on which action plan should go first and which second for the city of Chania.

In the second case, 38 students from the Technical University of Crete, School of Architecture participated in the mission, and in 10 groups they analyzed 10 specific public spaces and assessed their quality according to indicators for female inclusion and participation.

Each space was analyzed from many different perspectives, always around the sectors of comfort, public equipment, accessibility, safety and use, management, urban morphology and configuration including this time, surveys more targeted to the communities and with more social involvement. The overall mission lasted almost 12 weeks, and this mixed group of male and female users (almost

50% for each category), received training on how to collect data, how to analyze them, how to use the platform effectively to organize their activities in each public space, how to engage more people in the process, how to build ideas based on participatory design and how to draw spaces in different scales. At the end of this step, participants were able to come up with ideas that referred to specific public spaces and actually draw strategies that were later uploaded to the Her City platform as recommendations of actions and action plans.

For the sake of illustration, the process of Team 2 (formed by Andreas Petridis, Maroulina Kyriakidou, Panagiota Karagianni, and Paraskevi- Maria Kampouri) is presented below. Team 2 chose to work with Korai street, a pedestrian street that unites the city coast with the main part, and is passing through a stadium and a series of schools. Both parts of Korai street lead to the main artery in opposite directions. Initially, the students made an analysis in a radius of 5 minutes walks to explore all those elements of the built environment that have a direct impact on Korai street. Once this part was made, with the help of Kobo Toolbox they gathered some pieces of information, which they visualized in class. For example, Figure 2 shows their effort to analyze the stakeholders of the general area around Korai street and present their relations in terms of the main land uses, activities on the ground, networks and synergies in the scale of the neighborhood. This process allowed the students to prioritize which urban services are more important and to highlight possible actions that would be more inclusive and engaging.

Next, students made an effort to present possible problematics of the area based on the above mentioned axis. In figure 3, some of these problems are presented, as for example, the lack of maintenance of urban equipment, problems of accessibility and issues of comfort. Specifically, the bad quality of some parts of the pavements as well as the lack of lighting infrastructure affected the comfort and safety sectors. Furthermore, the analysis revealed that certain parts of the street become empty after a given hour, while female empowerment and inclusion in the urban services are not promoted, like participating in small economic activities, or being offered activities targeted for them, even as they emerge as the main users.

On this behalf, the team made a number of suggestions that created more possibilities for new land uses with the main protagonist: the women of the neighborhood. According to the team's

Figure 2. Network of stakeholders for the case study on Korai Street in Chania, Greece (Source: Screenshot taken from the presentation of Team 2, formed by the students Andreas Petridis, Maroulina Kyriakidou, Panagiota Karagianni, and Paraskevi-Maria Kampouri)
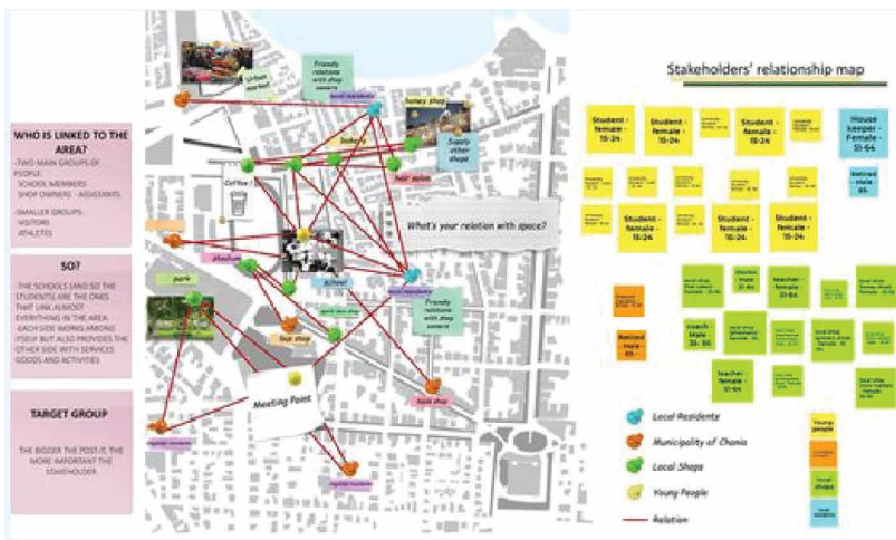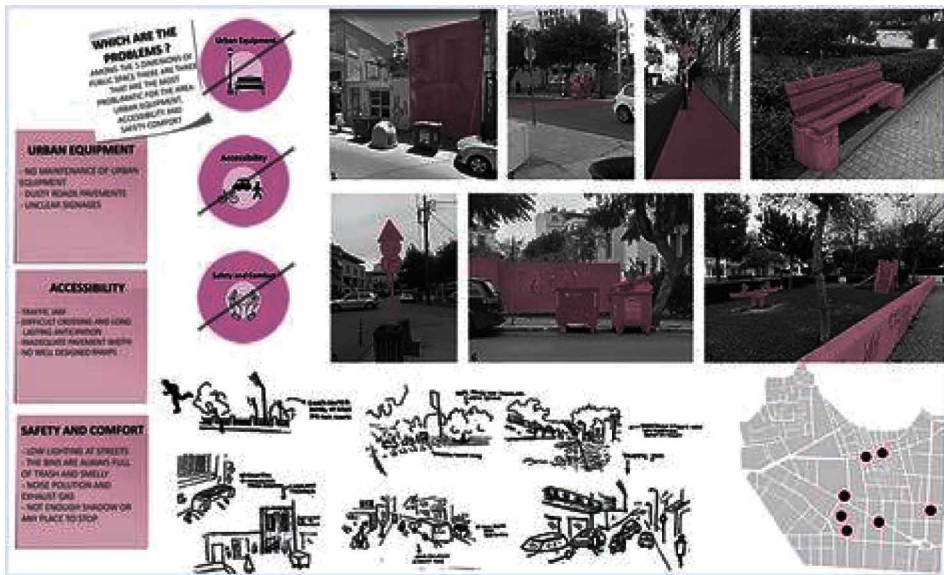
Figure 3. Diagnosis of problems for the case study on Korai Street in Chania, Greece (Source: Screenshot taken from the presentation of Team 2, formed by the students Andreas Petridis, Maroulina Kyriakidou, Panagiota Karagianni, and Paraskevi-Maria Kampouri)


proposal, the female users of the space could be more involved in creating associations that would link activities in the school and therefore reinforce actions in the evening. They also suggested placing a number of kiosks to offer amenities to women as for example for sanitary reasons, as funded by local municipality, and through tablets a reinforcement towards women's digital empowerment (Figure 4). These were designed accurately and located in the urban fabric, as part of the completion of their urban regeneration strategy.

At the end of their experience with Her City blocks, the participants of the workshops were asked to provide feedback on the use of the platform. As it can be inferred from the comments transcribed below, their answers emphasized diverse aspects connected to the usability:

- The access to the gathered materials: "*It is very positive that the surveys were ready and very rich in material. We would like to have more access to the stored material, as the process allows only the leader of the team to see all data.*"
- The benefit of learning from high profile institutions: "*It was a great experience to have guidance and learning tips from the specific instructors as they gave us great input and new ideas of a high level.*"
- The benefit of using ICT: " *Working with the platform is good and very enlightening on how easy it is.*"
- The benefit of using categories to organize the collection of data: "*The structuring in the 5 sectors –accessibility, safety, urban equipment, comfort, uses and users– helped to connect the urban data with action plans and structure the strategy.*"
- Difficulties to approach users of the public space during the collection of data: "*The citizens responded to our surveys mainly when listening that we are students from the Universities.*"
- The challenge of translating the points of view of users into design: "*We would need more bibliography that is connected to design issues because surveys were full of people's opinions and therefore less constructive from an architectural point of view.*"

Figure 4. Suggestions and strategies for the case study on Korai Street in Chania, Greece (Source: Screenshot taken from the presentation of Team 2, formed by the students Andreas Petridis, Maroulina Kyriakidou, Panagiota Karagianni, and Paraskevi-Maria Kampouri)
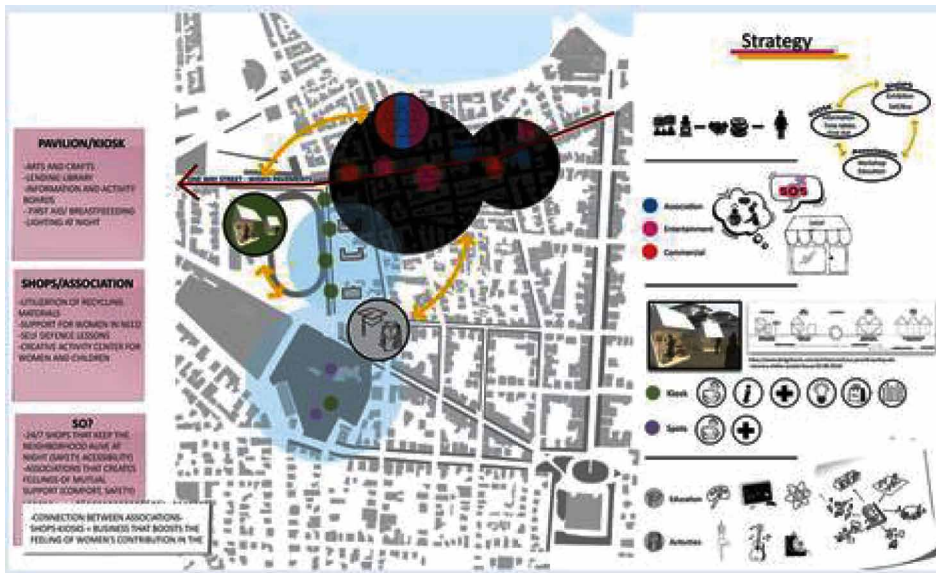
Opportunities and Challenges to Her City Implementation

The application of Her City blocks in Chania revealed a number of insights regarding its viability. In the first place, the experience showed that it can be a great program to raise awareness for the government and for civil society. Example of this can be the response of citizens to the Instagram initiative the students did so as to present alternative solutions to the design of the public spaces. Furthermore, new synergies are developed and more people get to have a voice about the situation in their neighborhood.

Also, it was useful to create on the ground evaluation of existing public spaces. In addition, the necessary technology (i.e., a smart phone with a camera and an audio recorder) was quite accessible for the participants. With KoBo it was possible to integrate different kinds of data and explain it in a simple way. As such, this technology can provide evidence to create programs for particular social groups (e.g., women, children, etc.). Issues of safety, accessibility and inclusivity can be studied, documented, analyzed, and eventually formed by visualizing the results of the interpretation of data in maps of different scales, from the city to the site specific. Another interesting finding was that the application of blocks 1-3 of Her City evidenced the link between design and social practices, a trait that makes this program very relevant to promote a more inclusive agenda. Furthermore, participants were very happy to be able to understand social bonds and synergies with the built environments and to learn that they can plan in a way that is more flexible and more inclusive. They were also feeling part of a bigger objective, as their ideas were actually responding to the big challenge of listening and including female voices in the process of planning, something that empowered them and brought them closer to a new understanding of their role in society. Generally, on both occasions, participants expressed their enthusiasm in the way urban studies can be approached today by collecting real time data, something that in their perception was much more complicated and required unreachable resources before.

Analyzing the information coming from the review of literature and the case study it was also possible to identify a few obstacles that could put the Her City Toolbox under pressure in the post-pandemic scenario. These can be classified into three broad categories: (a) the use and conception of public space during the pandemic, (b) the access to ICT, and (c) the implementation of the Toolbox itself.

1. The use and conception of public space during the pandemic.

First of all, it would depend on the approach that the government is taking to mitigate the pandemic but citizen participation in urban projects might not be in the priority list for some governments, since the turmoil of the health and economic emergencies surely would be getting more attention (Pew Research Center, 2022). In the second place, even if in Europe now this is very clear, in other places of the world it is not given that stakeholders will see the connection between access to public spaces and wellbeing during this period (Slater et al., 2020). In addition, there may be a residue of the fear of open spaces, which were seen as the locus of viral contamination at the beginning of the pandemic, when little was known about the forms of transmission of the virus SARS-CoV-2 (Lopez et al., 2021). This last situation is connected to a fourth aspect that could affect the deployment of initiatives like Her City, namely the tendency of families to restrict girls and young women's use of public space, arguing sanitary reasons. In some cities, like Lima and Panama City, also mobility limitations by gender have been put in place, — 'with men only allowed to leave the home on some days and women on others' (Dwyer, 2020), something that worsen the already negative women's perceptions of safety in public spaces and might lead to a further reduction in their freedom of movement when restrictions are gradually lifted.

2. Access to ICT.

A risk that Her City could be facing is the limited access to technology or Internet connectivity in developing countries. Gaps in access are gendered (Gupte & Mitlin, 2021); so, in many countries women and girls are actually less likely to own a mobile device or to have Internet than young men or boys. This fact could hinder participation in the initiative. Moreover, the digital divide refers not only to access but also to ability to use the technologies. It includes factors such as the availability of computers in the household, the number of devices available (need to share among many family members during lockdown), broadband costs and speeds, as well as digital skills. Also, there are connectivity issues in rural or mountainous areas, where the quality of data transmissions might be unpredictable.

3. The implementation of the Toolbox.

Her City platform is very easy to use and it offers technical support. Therefore, there are not high barriers of entry at the technical level. Even for the visualization of GIS data, UN-Habitat can organize workshops to teach the users of the Toolbox. The gaming platform Minecraft is also accessible, and it might only represent an inconvenience when the complexity of the area under study would require a considerable investment of time to be realized and the overall mission lasts shorter periods of time. In any case, when used for educational reasons it is a valuable tool that offers great insights to students.

The students of architecture that applied the Toolbox in Chania were able to detect difficulties related to the access of the data by all participants, the collection of direct information from citizens on site as a result of social habits, and the need to base the design solutions on a set of very diverse "people's opinions", an aspect that can be haunting for students not used to deal directly with citizens.

DISCUSSION

Stating the obvious, the COVID-19 pandemic has brought a series of changes to daily life that have a repercussion on the ways we conceive space. We have seen the increasing importance of private space, with the home as the new center of life for many people. At the same time, the physical movements – and connections to others – have been replaced or complemented by virtual linkages. We are seeing

a gain of virtuality at the expense of physicality. In this sense, the more than two years of pandemic could be considered a supercharged training period in the use of ICT.

There have also been changing conceptions of the city space and the practices that should be encouraged in it. Nowadays, crowds are stigmatized, and seen as dangerous. As a result, there has been an enlargement of personal space, even in cultures where hugging and touching was encouraged. In addition, in many cases the expansion of streets and pavements is requested to ensure that physical distancing is possible on pavements where we walk, jog, etc. Thus, open spaces are now more valued and there is much concern for the quality of air.

It is clear that all the aforementioned circumstances are already influencing urban planning and design and setting the scene for an ever more important role of technology in the design process. Now, urban planning transforms to become more personalized, in the sense that it acquires for the first time a repository of citizens' opinions, and data that enrich the overall process, and when processed, they might reveal synergies at the level of the ground that allow for more flexibility and urban adaptation. In addition to that, urban planning becomes more accessible to all, allowing for a deeper understanding of its role in contemporary society. In this new form, e-planning, with the support of technologies might solve problems of traffic, lack of uses, lack of infrastructure, important features in the redesign of any wide scale intervention. Luckily, such a drive for innovation also furthers opportunities for more inclusion and participation. For instance, there is an impulse that is moving the field of smart cities from technology-centric to citizen-centric. This change in mindset is making professionals more aware of the need to include all actors, not only as final users but also as co-designers. It is also changing their point of view, making them more able "to think in terms of wider social relations, alterity and interdependence" (Milan, 2020, p. 5).

Her City is a very relevant case study to understand the interrelation that exists between the city, new technologies, and possibilities for inclusion and participation in planning and designing public spaces. Although its inception predates the pandemic, it now stands as part of the initiatives that tackle the exclusions that were made more visible in this period.

Currently, there is more awareness about the vulnerabilities that previously stood hidden from the public opinion. This in turn elicits an urgency to act and solve matters that were somehow accepted as given. For example, young women and girls were seen as peripheral from the urban design process and now it is just fair to place them in a more central position, because "planning has a critical contribution to make to support women in being able to access the city" (Beebeejaun, 2016, p. 331).

As Gupte and Mitlin (2021) point out, there seems to be "a new attention to towns and cities in the context of the COVID-19 pandemic" (p. 223). This is an opportunity for initiatives like Her City, since societies are more aware now of the need for more livable and inclusive urban areas. However, as these authors also note, so far, the responses to the pandemic in the cities have emphasized technical aspects, downplaying societal conditions and structural factors. This is the main risk that all ICT based initiatives face. But there is hope, however, because they apply participatory methodologies that give voice to the people and let them share their lived experiences (Hunter et al., 2020).

Not less importantly, they are opening a conversation between professionals and citizens that will surely inspire more efforts for inclusion.

Although in global literature it seems that there is no established metric for counting the innovation of a toolkit nor a consensus of what frontier technology might mean exactly, it is well documented that technologies like the Her City might have an immense social impact since they offer possibilities for further connectivity and inclusion outside of regulatory and legal frameworks and work in parallel to existing systems of city administration (Kibala Bauer, 2020), while also augmenting all possibilities of building capacity of the human capital (Bashir et al., 2021). Under this perspective, and following the analysis, we argue here that Her City could be considered among these new, radical and forward-thinking technologies, groundbreaking from an urban planning point of view that can address large-scale challenges or opportunities in the design of public spaces.

CONCLUSION

This paper aims to be a timely reflection on Her City, a Global Utmaning and UN-Habitat initiative that fosters much needed female participation in the process of urban planning and design. Its main contribution is to reveal the opportunities that the platform brings and also to reflect on some challenges that it might face after the COVID-19 pandemic. Among these, we identified possible obstacles related to the conception of public space during the pandemic, the access to ICT, and the implementation of the Toolbox regarding the social context where it is applied during the pandemic.

Furthermore, we were able to gain insights about the application of Her City in a workshop that took place in Greece, where it was clear that the Toolbox can fulfill the functions of raising awareness for local governments and civil society, create on-the-ground evaluation of existing public spaces, integrate different kinds of data to visualize in maps of different scales, and directly study issues of safety, accessibility, and inclusion.

Her City is a tool that can give voice to the concerns and opinions of women and girls regarding the public spaces of their own communities. This is an important goal if we are to promote equality right in a moment in which it has suffered serious setbacks around the world. The early post-pandemic scenario is revealing itself a crossroads that could lead to an unwanted return to business-as-usual but, hopefully, it could also prepare the ground for more participatory urban design practices aided by digital tools.

CONFLICT OF INTEREST

The authors of this publication declare there is no conflict of interest.

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Vasiliki Geropanta is an Assistant Professor in Urban Planning and New Technologies at the Technical University of Crete, Greece. She holds a Ph.D. in Architecture, City, and Society from Sapienza University of Rome, and an M.A. in Housing and Urbanism from the Architectural Association, London, UK. She specializes in the field of smart cities and contributes to research and development projects on transforming human settlements and public space more inclusive, safe, resilient, and sustainable by bridging bottom-up processes, urban planning, and new technologies.

Elia Cornelio-Marí is assistant professor at the Universidad Juárez Autónoma de Tabasco, Mexico. She holds a Ph.D. in Communication, Technology, and Society from Sapienza University of Rome, and an M.A. in Media Studies from the University of Texas at Austin. She specializes in research about media and contributes to studies on the application of technologies in the urban space.