



Review

DIGITAL PUBLIC SPACE FOR A DIGITAL SOCIETY: A REVIEW OF PUBLIC SPACES IN THE DIGITAL AGE

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Abstract

What is the relation between digital technologies and public spaces? Are they capable of making each other successful, or is one driving the decline of the other? The path towards the digitalization of social interaction that came along with the digital revolution at the end of the 20th century does not necessarily have a beneficial consequence for urban public space, as social interaction no longer needs the support of, or to support (physical) public spaces. In other words, the digitalization of social interaction is driving the detachment of contemporary society from the use of their traditional urban public spaces. Consequently, new tools and technologies are being implemented in a number of public spaces in several cities, in order to align contemporary (digital) resources to the needs and wants of contemporary societies. This contribution offers a review of several developments that were implemented in a number of public spaces during the “digital age”. This review is performed by presenting a comprehensive framework of public space in the digital age, with a specific focus on key features that have been affected by digitalization: social interaction, political participation, and social activities.

Keywords: Public space, digital era, digitalization, urban space.

*Derleme***DİJİTAL TOPLUM İÇİN DİJİTAL KAMUSAL ALANLAR: DİJİTAL ÇAĞDA KAMUSAL ALANLARIN İNCELENMESİ****Özet**

Dijital teknolojiler ve kamusal alanlar arasındaki ilişki nedir? Birbirlerini desteklemekte midir, yoksa biri diğerinin önemsizleşmesine mi neden olmaktadır? 20. yüzyılın sonundaki dijital devrimle birlikte gelen sosyal etkileşimin dijitalleşmesine giden yol, sosyal etkileşimin kamusal alanların desteğine veya fiziksel olarak desteklenmesine artık ihtiyaç duymamasından dolayı, kentsel kamusal alan açısından yararlı bir sonuç oluşturmamaktadır. Başka bir deyişle, sosyal etkileşimin dijitalleşmesi, çağdaş toplumun geleneksel kentsel kamusal alanların kullanımından kopmasına neden olmaktadır. Sonuç olarak, çağdaş (dijital) kaynakları çağdaş toplumların ihtiyaç ve istekleriyle uyumlu hale getirmek için birçok şehirde çeşitli kamusal alanlarda yeni araçlar ve teknolojiler uygulanmaktadır. Bu çalışma, “dijital çağ” döneminde birçok kamusal alanda uygulanan çeşitli gelişmelerin bir incelemesini sunmaktadır. Bu inceleme, dijitalleşmeden etkilenen sosyal etkileşim, siyasi katılım ve sosyal faaliyetler gibi temel özelliklere özellikle odaklanarak, dijital çağda kapsamlı bir kamusal alan çerçevesi sunmaktadır.

Anahtar Kelimeler: Kamusal alan, dijital çağ, dijitalleşme, kentsel mekan.

1. INTRODUCTION

Public spaces are key to the development of urban settlements. In the particular case of European cities, Greek agora and Roman fora were the core of political, economic, commercial, religious, and social activity. The typologies of public space have evolved over time, partially due to political change, social lifestyle, as well as technological advances. Over the course of several centuries, the activities that were originally concentrated in one place such as the Agora or the Forum have been distributed around various locations, such as banks, shopping malls, markets, temples, public buildings, and all kinds of amenities and services. Paradoxically, even though the creation of new public spaces is among the great achievements of the new era (Madanipour, 2003), the society of the new era – of secular urban culture and the new capitalism – is putting public life at risk (Sennet, 1992), as it is damaging the culture of social interaction thus causing the decline of public life in urban spaces (Figure 1). In the observations described by Sennett (1992), this process is driven by the possibility of passing through urban spaces at high speed.



Figure 1. Beylikdüzü Özgürlük Square presenting signs of “the decline of public life in urban spaces” described by Sennett (1992): Abandoned public spaces, which are used only as walking pathways, except in special cases (festivals or seasonal markets). Source: Authors.

Sennett’s criticism of the automobile culture focuses on the possibility of driving instead of walking and therefore, interacting socially in public space. In this process, the automobile culture in western societies caused the decline of traditional streets and public spaces giving the “shopping mall” typology the upper hand as a space for economic, cultural and social interaction. Traditional walking streets and public spaces were, at that point, inconsistent with the needs of the modern lifestyle. Nowadays in the contemporary era of digitalization and technology, we are witnessing the emergence of another inconsistency between the way physical space is designed, and the demands of the society that makes use of it. As the world is digitalizing and technology is advancing rapidly, and as social interaction is moving to the sphere of the asynchronous and distributed presence of social media; are public spaces at risk of losing their meaning again?

Madanipour (2003) states that urban public spaces have become either residual spaces used for parking cars, or associated with specific single functions, such as tourism or retail. He describes the way several contemporary cities have therefore gone through a spatial and temporal dispersion of functions and a de-spatialization of some of its activities, which have created multiple, non-converging networks working against the cohesive, nodal role which the urban public space could play in the past. The technological innovation, the use of new transport and communication technologies that followed the industrial revolution, social polarization, the emergence of market economy, and the privatization of space are some of the causes of a fragmentation of the city that led to undermining its public spaces, fragmenting their connections, and making them lose their significance.

Against this background, this article offers a literature review on digitization in public spaces. In order to study the developments of public spaces in the digital era, several design interventions for public spaces in developed countries are presented.

2. PUBLIC SPACES IN THE DIGITAL ERA

New technological developments such as telecommunications, digital technology, electronics, social media, Wi-Fi and sensors have emerged and developed rapidly in recent years. New technology is creating interactions among two different environments; (1) the physical element with a local identity, and (2) the virtual reality in the digital realm (Albeera, 2019). As the use

of digital networks becomes an essential part of everyday life, a new digital layer is added to the existing urban landscape (López Baeza, 2021). In the digital age of social interaction happening on social media, knowing that we can use our smartphones to do shopping, order food, or read books, how can we be sure that public spaces will still be attractive? The new state of connectivity results in a disruption of physical presence as one can simultaneously exist and participate in many different places. The fifth dimension of space is occurring, in a fluid situation where the traditional spatial limits transcend to a more complex and fragmented situation. Public and private spaces are interpenetrating, altering definitively their original identities (Ampanavos & Markaki, 2014). Since the Industrial Revolution, society and culture have been subservient to technology. Instead, one of the compelling tasks of today's designers is to make technology serve culture and society (Bagdikian 1992). Mitchell (1996) poses the question of "How should virtual and physical public space relate to one another?" envisioning that public spaces today should be able to respond to changes and developments in the social relations of society.

In fact, the digitalization of public spaces should be more than just adding the free city internet and online information kiosks. The digitization of public spaces should be able to create a hybrid space; physical and digital. Procedural urbanism theories defend that successful public spaces are flexible and evolve over time according to the needs and wants of citizens. In this context, we have witnessed various exhibitions of digital art in public spaces in recent years. People's acceptance of such digital exhibitions can indicate a change in their preferences. Data walls, digital signage, digital games in public spaces, and digital public art have updated the look and feel of many public spaces. For example, artists do not just present their artwork in a small frame in an exhibition, but they can project their work in large-scale digital art formats (Figure 2).



Figure 2. Arco de la Victoria, Madrid, Artist: Krzysztof Wodiczko
(Source: www.krzysztofwodiczko.com)

Digitalization of urban spaces, especially public spaces, is a long-run process that became tangible in the 2000s, but its roots are at the beginning of the cybernetics age in the 1970s. The interaction between cyberspace and real space opens up the possibility of creating new spaces that are synthetic spaces that did not exist before (Mitra, & Schwartz, 2001). Foucault (1986) pointed out that the relations between spaces and "sites" are fundamental to the construction of

place in any community and the exercise of power within the community, arguing that “we live inside a set of relations that delineates sites.”

2.1. Social Interaction in the Digital Era

Increasing social interaction between citizens is one of the main goals of public spaces, with a direct impact on their quality. Nowadays, communication no longer needs to happen in the same place, or at the same time. The possibility of socializing through digital social media and messaging platforms has relieved us from the necessity of using physical space for co-presence, face-to-face interaction and direct synchronous communication. Regardless of their physical environment, people are in contact. Again, keeping public spaces in sync with the digital era needs to consider contemporary ways of socializing. For example, the use of open internet access points next to sitting places (incl. in restaurants or cafés) points towards the need for a digital infrastructure to be established as a key aspect of public spaces, similarly to traditional benches and fountains.

Still, the times in which we use digital or physical spaces for socializing – i.e. motivations, external conditions, needs, purpose, among others – are a matter of study in several disciplines. For instance, the need for socialization is met to some extent by the ease with which individuals can access friendship groups in cyberspace, while physical public spaces are still considered by individuals to be chosen for appointments and leisure. Access to cyberspace for different groups of society has enabled social interactions without barriers (distance access routes, urban traffic, etc.). People in cyberspace communicate more easily with strangers and different cultures rather than in real life, while, as Putnam (2000) pointed out in his discussion of declining civic engagement, diversity in a (physical) community reduces civic life. People bond faster in cyberspace than in real space.

Public spaces have a direct impact on a person's experience of the city. They are a true reflection of the diversity of an urban community that acts as the heart of the city (Deore & Lathia 2014). Therefore, if we want to have lively and vibrant public spaces, we must strive for the advancement of technology in creating spaces that are familiar to contemporary human beings.

2.2. Transforming Political Participation in Public Spaces in the Digital Era

In his milestone book, *The Structural Transformation of the Public Sphere*, Habermas (1991) develops the normative notion of the public sphere as a part of social life where citizens can exchange views on matters of importance to the common good so that public opinion can be formed. This public sphere comes into being when people gather to discuss issues of political concern (Velibeyoglu, 1999). Public spaces that have a platform for various social activities are often used by citizens. In the past, these spaces have witnessed a variety of political activities, including collecting votes for decision-making and forming government courts. Today, with existing digital media, political activities, civic movements and street protests have changed their forms. Public spaces have played a significant role in the political activities of protesters in recent years. For example, in the protests attributed to the Arab Spring, Tahrir Square in Egypt and Pearl Roundabout in Bahrain were playing a very prominent role. In Iran, Azadi Square in 2009 was a place for presidential elections, so that each candidate was inviting their fans to collect in this square to demonstrate their power. Public space becomes the meeting place of very large numbers of people unable (or unwilling) to engage in political debate, which can influence political processes. In these cases, the takeover of the public space is the outward expression of the revolution (Madanipour, 1998). These days, a kind of political

competition among the presidential candidates can be seen on Twitter, in a way that, they try to increase their popularity in the society by encouraging the citizens to support them. Today, people around the world can support or protest against the actions of governments by launching Twitter storms. Recent events in cyberspace, such as the protest against the death of George Floyd, the 2020 US election, and the terrorist attacks in France in 2015, all show that gathering of people in a square is no longer a symbol of civil protest, but has the potential of reflecting the unity of people in a society. The display of the flags of countries affected by terrorist attacks, such as France, Turkey or Canada, on the walls or in public places of cities shows the sympathy and unity between contemporary human beings in the digital age (Figure 3). The examples provided are events of political and social change in public spaces that have taken place in the digital age. The digitalization of cities and public spaces has changed the face of collective and political participation and has also influenced local government decisions in this area.



Figure 3. Sympathy from all around the world after Paris attack, 2015 (Source: www.jordandetmers.com)

2.3. Social Activities Transformation in Public Spaces after Digitalization

The digitalization of everyday activities and social interaction described above is connected to a change in the use of public space. This means that if we are eager to extend the role of public spaces as spaces for encounter, interaction, and urban life we should put our efforts into preventing the practical decline of these spaces and synchronize urban space in accordance with the latest technological advances.

Games: In recent years, digital games have gone beyond the screens of mobile phones and computers and have entered public spaces (Figure 4). The use of virtual reality head-mounted glasses has also elevated computer games attraction in a world between reality and the virtual. In addition, games such as Pokémon Go or other pervasive games may alter the social function of urban spaces when users engage in online gaming. In fact, the users of this type of game are exploiting spaces in the city, so specific areas in urban public spaces should be considered for these users (Nyaigoti, N. W., Moirongo, O. B., & Njuguna, M. B. 2013).

Digital façades and Floors: Digital displays are mostly used for advertising purposes in cities, but some of them also have non-commercial purposes. As a means of entertainment, they

provide many opportunities in public spaces for social interaction. These LEDs are commonly used in the city as advertising panels, daily news, weather, and display of artistic content. Some of these panels are also used as data walls by providing urban information, air pollution status, etc. to raise people's awareness of existing situations. Their content can significantly increase social activities and social interactions. The contents of these panels can be movies, news, sporting events, concerts, or other cultural shows. In addition, interactive games that engage different people and enhance social interactions can also be included (Albrecht, 2015). City Fireflies is one of these games designed for digital viewing in Madrid Medialab, Prado, and can be played by several users (Medialab Prado 2013). With the efforts of creative artists from around the world, digital floors have been able to present digital art to people (Figure 6). These digital floors are also used as interactive games in public spaces (Figure 5). On the other hand, this presentation of digital art and games is accessible to all members of society without any payable costs. Therefore, social participation in these spaces can be done regardless of social classification and integrate social ties between all sections of society.



Figure 4. Digital facade for a game in urban public space: City Fireflies at the digital facade of Medialab-Prado, Madrid, Spain (Source: www.medialab-prado.es)

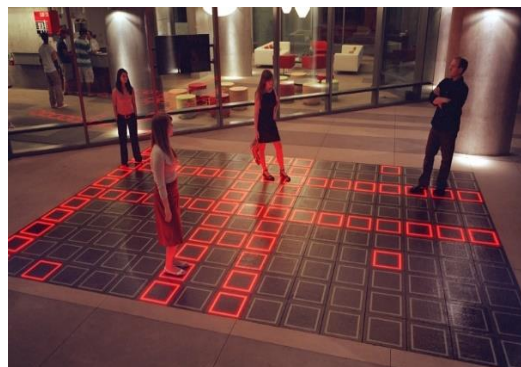


Figure 5. Electroland activated the entry area and facade of a Los Angeles apartment building with an interactive game (Source: <https://segd.org>)



Figure 6. Miguel Chevalier covers a square in Bangkok with a giant interactive carpet of light (Source: www.designboom.com)

Digital Playground: Children's presence in and movement through public space has declined in many parts of the developed world (e.g. Garrard 2009; Hillman et al. 1990). This can be attributed to a wide range of factors such as built environments, parents' concerns about city safety, social norms, or common ways of using technology. Because children, even in their offline times, do not show interest in playing in the streets and public spaces (Valentine, 1997). The digitalization of children's public space is, like in many other contexts, predominantly occurring through the widespread and often incidental use of personal mobile devices taking place around children's public play. This digitalization of children's public play spaces, enabled by developments in mobile device ubiquity and connectivity, operates within broader arrangements of mobile and intimate parental surveillance (Albrechtslund and Lauritsen 2013; Leaver 2017; Southerton et al. 2019). There are conflicts on the design of fenced and segregated playgrounds for children in public spaces in the old style or with modernized equipment. If the goal is to raise children by focusing on an active game and in a safe place, secure digital spaces with today's relevant equipment can address this parental concern (Figure 7).

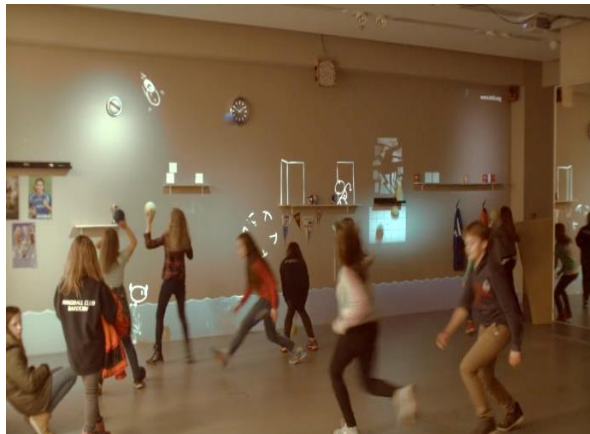


Figure 7. Digital playgrounds integrate virtual games into real environments (Source: <https://fitnessgaming.com>)

In sum, public spaces should be usable for all age groups. As Jacobs (1961) points out, urban vitality is generated by cities that have as much diversity as possible. Monofunctionality of spaces in a city creates monotonousness and reduces their invitation capacity and diversity in the city. If spatial diversity plans are done right, they will not cause chaos but will encourage people to spend more time in public spaces. Variety in the design of spaces has changed over time and the different policies of governments. Their design is part of an 'evolutionary design process' and these places need to be adaptable, flexible, and enduring in order to serve the

community well (Houghton, 2010). As mentioned during the article, after the digital revolution, these spaces have changed and transformed (Table1).

Cultural activities	Art	Digital public art
	Information	Data wall Digital signage
Social activities	Games	Digital facades Digital floors Digital playground
	Group actions	Watching movie, match, in public spaces
Political activities	Political meetings in the digital space Political support Political protests	

Table 1. Transformation of public spaces activities in digital era (Source: Authors)

3. DISCUSSION

The main goal of the digital transformation is to enhance the well-being and quality of life of the citizens (OECD, 2018). The public authorities have to engage regularly with national and international innovators, experts, and entrepreneurs in the technology sectors to learn about the social implications of new developments. They have to review how other governments in other countries have devised plans to meet similar challenges from the technological innovations (Tham, 2018).

The effects of the digitalization of cities are unpredictable. So governments can create a digital public administration by understanding how digital innovation can improve service to its citizens. Governments need to communicate to citizens the goals of digital transformation and how the digitization of cities and public spaces can affect their quality of life in various dimensions (Them, 2018). Governments can also help improve public services by supporting digital technology innovators through financial aid and providing a suitable environment. Training and operation of new digital devices should also be supported by the government to educate citizens about the rules of the new digital services. Public spaces of the past, therefore, should continue to be transformed and diversified with new ones.

4. CONCLUSIONS AND RECOMMENDATIONS

Public spaces, which in the past played a significant role in the social life of individuals with various purposes such as social and political participation, have declined in the eyes of experts in recent years. Since the second half of the twentieth century, the digital revolution has taken place, and because existing public spaces have been shaped by old patterns, they need to be updated. The digital revolution is known as the third industrial revolution that has led to progress in the public sphere as well. Digital technologies have evolved over time to change the lifestyle of contemporary humans. From this perspective, social interactions have taken on a new concept in the new era. Public spaces that have been used for social, political and cultural purposes in the past, have changed within the digital age. The advent of the digital world has

changed basic concepts such as the physical structure, creating a new kind of space that anyone can experience.

Art galleries are no longer in a closed space but are displayed in the streets openly. Digital games in public spaces enhance social interactions and are available to the general public. Political activities go beyond the neighborhood and the city and the people of the countries show their unity or protest against a single issue by supporting only one hashtag. Digitization of public spaces is a topic beyond free internet for parks, squares, and other urban spaces. If we cannot provide a proper public space system in the digital age, there is doubt as to whether we will have urban public space in future cities that can move forward with their contemporary technology and meet the needs of citizens in accordance with advances in technology. These places need to be flexible so that they can keep pace with technological advances and respond to changes in the digital age. Providing a platform for the digitalization of public spaces, with the cooperation of citizens and local governments in projects, can practically increase the potential of cities for digitalization. Creating a platform for citizen participation in the provision of urban services, which in public spaces increases the quality of urban facilities, can also play an effective role in elevating the function of these spaces.

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