


From commerce to art: Transformation of intervention through the interactions of virtual and urban space in Karaköy

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Abstract

Having been subject to various spatial interferences amid rapid urbanization, Karaköy is one of Istanbul's central neighbourhoods whose identity has significantly transformed in the last years. This paper focuses on Karaköy's streets which were once the centre of trade, have now been replaced by artistic collective constructs. The study aims to document this transformation, considering various physical and social aspects of urban space, while highlighting a new form of "urban intervention" through virtual spaces. It questions how virtual environments can be considered as a mode of intervention in urban space and delves into the transitions from ordinary commerce places to artistic urban spaces. Validating user-space interaction, the technological interference of social networks with physical space creates virtual centres of attraction, improving the popularity of places. The field research focuses on the environs of Tersane Avenue, Mumhane Avenue and Ali Paşa Değirmeni Street in Karaköy, attending to spaces where commerce once took place –now replaced by artistic collective constructs and articulations. Captured virtual-spatial interventions are operationalized in three stages: First, functional transformations are analysed at the street-scale. This is followed by analyzing images and quantitative data extracted from social network databases. Finally, the up-to-date spatial analyses are constructed, and the intersections of virtual and urban spaces are evaluated. Findings show that the user experience and pleasure-based design elements bear the interaction between virtual and urban space, additionally, the virtual-spatial intervention encompasses the transformation of urban space beyond conventional practices aimed at structural and functional change.

Keywords: Karaköy, social network, transformation, urban intervention, virtual space

1. Introduction

In 2009, global smartphone shipments stood at 173.5 million, surging to 1.17 billion in 2023, as per Statista (2023a) Turkey witnessed a significant uptick in smartphone and location-aware app usage starting in 2010. Statista's data (2023b) indicates that the user base for social media has surpassed 4.7 billion and is on the upswing as the proliferation of social networking apps continues. Following to this trend social media applications allow users to widely share – in addition to their thoughts, activities, and photos – the locations they frequent with the 'check-in' feature (Li & Chen, 2009). Place notifications prevalently contribute to people's knowledge and experience about new places with immediate effect, removing the need to displace. Social networks thus play a role in certain places becoming more popular and attractive. Rapid developments in information technology induce conceptual changes regarding time and space. Public spaces where individuals physically come together and spend time are digitally reconfigured through social networks, becoming intangible and invisible entities in cyberspace. Here, the discussion about the ways social media is related to the design of the space comes into prominence (Abdel-Aziz et al., 2016). The seizure of physical space by digital networks blurs the boundaries between the real and the virtual space (Thompson, 2008). In social media networks, virtual spaces denote visual icons of physical

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space (Kellerman, 2016). However, such representations are made of perspectives emanating from imaginary worlds possessing fantastic objects (Appadurai, 1996). These social and collective spaces are illusionary, in that they provide mentally consumable images appealing to individuals' perception. Introduced by social networks such as Facebook, Twitter, Instagram, Tik-Tok, and Swarm, these virtual spaces easily enable accessible communication and faster organization, thanks to their collective action structure: Engendering a sense of familiarity among users (Humphreys, 2010), this structure is conducive to quickly breed confidence in the information that is circulated.

Individuals' relationship with place entails a sense of attachment (Waxman, 2006). Nowadays, the sense of place attachment implicates visual and perceptual priorities. The curiosity and sense of ownership in the virtual environment reconfigure visual perception that plays a crucial role in enlarging the user base. Drucker and Gumpert (2012) state that virtual networks generate a source of interaction dissociated from space. As "[m]odern life is lived in the interstice between physical and media space", they designate this interstice as an intervention between the physical and the virtual. Meanwhile, in addressing the relationship between human and environment, Rapoport (2016) emphasises the ways the semantic dimension of image, which concerns cognition and perception, shape individuals' understanding and behaviour in relation to their environment. The spaces where the physical and digital worlds converge and boundaries blur are called 'hybrid spaces.' These are where mobility and social practices intersect. Users who access the virtual environment with their mobile devices are open to new experiences and can be seen as nomadic figures, constantly moving and creating their own paths of experience De Souza e Silva (2006).

Recent research shows that image-based social media like Instagram influences urban experiences and perceptions. Its design impacts user interactions (Hochman & Manovich, 2013), while user-generated geo-tagged content provides valuable insights for urban planning (Ciuccarelli et al., 2014). Additionally, Instagram builds community connections and changes how urban spaces are explored (Gatti & Procentese, 2021), emphasising social media's role in urban perception. This study foregrounds the transformation of urban intervention forms and actors in the process, depending on the structural and functional articulation of the intervention. The research's hypothesis states that visibility and 'me media' posts constitute the most significant actors of this transformation. Me-media is a noun in the Collins English Dictionary (2024), defined as online services where users can publish their own content, such as blog posts, photos, personal profiles, etc. Additionally, it is to prompt a specific user to participate or to invite their engagement in a conversation. In determining the effects of social networks on spatial transformation, the observation of virtual spaces – which is created by social networks as recent instruments of spatial intervention in Karaköy – and their projections in the field becomes valuable. Although conventional urban interventions such as renewal, rehabilitation, protection, revitalisation, arrangement, cleaning, development, and renewal by filling in the gaps are still widely used, the last decade has proven that the virtual environment has also had an impact on urban spaces as a new form of public space. Gathering, sharing and being visible in a virtual environment through an urban environment has been a mutual effect Van Dijck and Poell (2015). Posting, hashtags, geotagging and creating a me-world on social media triggered and created multi-functional, out of common and attractive urban spaces as a new mode of urban intervention.

Today, smart cities are increasingly characterised by widespread computing and data-driven governance (Kitchin, 2014). Batty (2020) notes that real-time data and smart technologies are reshaping urban functions like transportation and utilities, improving the management of urban systems. However, Kitchin (2014) points out concerns about big data and smart urbanism, including privacy risks and technocratic governance. Schechtner (2017) emphasises the challenges in implementing smart city technologies and the need to bridge the gap between municipalities and tech developers.

The influence of information and communication technologies (ICTs) on urban environments manifests in nuanced changes in spatial, temporal, and material processes, rather than a binary distinction between virtual and physical spaces Crang et al. (2007). However, these emerging

technologies present opportunities for enhanced citizen participation in urban planning by means of participatory and visualization tools. Virtual platforms like Second Life can function as experimental arenas for assessing urban designs and constructing narratives Foth et al. (2009). The paper aims to document the transformation from being the centre of trade and financial circulation to artistic collective constructs, considering various physical and social aspects of urban space, while highlighting a new form of “urban intervention” through virtual spaces. Therefore, this study questions how virtual environments can be considered as a mode of intervention in urban space and continuously delves into the transitions from ordinary commerce places to artistic urban spaces that mainly serve social media through time. The main concern of this study is about the multi-functional, dynamic, and varying fabric of the area, which hinges on various forms of interventions at different scales including redevelopment, reconstruction and parcel-based renewal aiming for functional change. Thereupon it focuses on the transformation of urban intervention forms in Karaköy refers to the ability of current urban intervention forms in escaping physical and circumferential limitations. As having preserved its original multi-layered structure, Karaköy, as the study area, is continuously subject to rapid structural and functional transformations. In this virtual-spatial context characterised with people and information flows directed by social communication networks, this study demonstrates the emergence of a new image of ‘Karaköy’ arranged by cognitive and cultural signs.

The methodology indicates location-based social media applications as the last actors of these interventions and analyses data gathered from the field research conducted in Karaköy documenting land-use change as well as data from virtual spaces created by social media networks.

With reference to the variables and invisible actors pertaining to the transformation, it discusses not only on the physical dimension of the intervention, but also on its perceptivity in the virtual environment. In examining the transition from commerce to art in Karaköy, the study also examines urban layers, physical urban interventions and the change in the functional and social structure belonging to different periods. The interventions in the Karaköy are analysed along two different axes, namely Tersane Avenue and Mumhane Avenue, where commercial and artistic functions are concentrated parallel to the coast. The findings highlighted that Karaköy was launched and developed as a regular commercial place throughout history and faced several urban interventions. However, social media has become a considerably effective urban intervention mode to transform from commerce to art. Priorly dilapidated and occupied informally by inedible industry, a part of the field has been transformed into a local coffee area solely by the power of shared virtual posts.

2. Methodology

The transformation of urban intervention in Karaköy is observed under three headings: functional analyses of the transformation from commerce to art, the density analyses of the multi-functional articulation led by social media, and spatial analyses. Firstly, all the interventions that took place in the history of Karaköy are analysed on maps and then compared to the neighbourhood’s form in 2018. Historical land use data from old maps were meticulously compared with current conditions using a detailed comparative analysis. This comparison elucidates the functional transformations that the Karaköy area has undergone from the past to the present.

Next, virtual interventions are identified in connection with place notifications in 2018 on social media. For the social media analysis, we began by focusing on the Instagram, the most widely used platform for photo sharing and social interaction. We scanned the hashtags of all the locations in the Karaköy area specified in Table 2 and Table 3, and examined the number of posts associated with each location. Additionally, we delved into the number of shares for the same locations on Foursquare and Swarm applications, which allow users to comment, rate, and check in to indicate their presence at a particular location. The chosen venues are all located within the confines of the study area. These venues were analyzed based on the sequence of their check-ins and the use of hashtags. Based on the data obtained by examining the opening years of the venues, it is evident that all venues were established after 2011, following the declaration of Istanbul as the capital of

cultural heritage in 2010. Therefore, the analysis commences from 2011, with a focus on comparing the years 2018 and 2023.

Finally, the third section describes the ways virtual interventions intersect with spatial interventions based on the reflections from the field research conducted in 2023. Table 1 documents the process whereby data are collected and analysed concerning the transformation of urban interventions in Karaköy, including the examination of old maps and the relevant literature. The intervention forms are then evaluated based respectively on physical, functional, and social transformations. The study makes use of G. D'Ostoya map (1858), Marie de Launay map (1864), Huber maps (1887), Charles E. Goad (1905) insurance maps, Suat Nirven (1948) maps to trace physical urban interactions in Karaköy from the 19th and 20th century. The field research involves on site mapping relating to the functional and physical structure in addition to the determination and analyses of various quantitative data with regards to the use of space transitioning from commerce to art Pérez and Scott (2004). Virtual interventions pertaining to places entail the virtual and spatial interactions numerically computed based on place notifications in most-frequently used applications. Taking the form of common prompts such as 'I am/was here', place notifications denote not only an 'urban' engagement of individuals with space but also a 'virtual' one Quesnot and Roche (2015).

Table 1 Methodology and Data of the Research (Source: Authors, 2024)

Period of Analysis	Used Methodology	Used Data	Source of Data
Urban Interventions in 2018	Function-analysis (De Groot, 2006).	G. D'Ostoya (1858)	Map Collections, Atatürk Library, 2023
		Launay map (1864)	Map Collections, Atatürk Library, 2023
		Huber map (1887)	Map Collections, Atatürk Library, 2023
		Charles E. Goad (1905)	Salt Research, 2023
	On-site analysis by the authors	Map of Karaköy (2018)	Open Street Map, 2018
Density Analyses of Virtual Interventions in 2018	Social Media Analysis Martí et al. (2019).	SWARM	Authors applications and account
		Instagram	
		Foursquare	
	Digital Ethnography (Murthy, 2008; Prior & Miller, 2012).	Numbers of Cafés/Art spaces & years they opened.	Conducted by the Authors
Virtual & Spatial Interventions in 2023 through Spatial Analyses	Function-analysis (De Groot, 2006).	Site Analysis	
	On-site analysis by the authors	Photography	

The current spatial analysis focuses on the relationship between virtual and spatial interventions and the visual and design outputs of urban spaces in the context of the virtualization of space through spatial field research conducted by the authors. The first phase of the research includes the identification of structural and functional changes that characterise urban interventions on base maps from 2018. While functions involve cafes, hotels as well as institutions of art, worship and trade, ruined buildings are also found in the field. The base maps are then compared with the historic maps to show how the functions have transformed in the long term as a result of the interventions. By producing function diagrams of current uses in the digital platform and comparing them with historical maps, it is possible to compare the functional changes in the survey area based on the dates of the maps.

Once the functional changes have been identified on maps, the second phase overlaps the quantitative inputs from digital platforms with the social interaction spaces. For this step, the digital ethnography method is used which is a research method that uses digital technologies to study

human behaviour and culture in online and digital spaces. Digital ethnography is a qualitative research method that applies traditional ethnographic approaches to investigate online cultures and communities [Borkovich \(2022\)](#). It allows researchers to portray real-life cultures through digital storytelling, providing immersive experiences of other cultures [Underberg and Zorn \(2013\)](#). Digital ethnography includes various styles, such as social media ethnography, contextual digital ethnography, meta-digital ethnography, and cross-media ethnography, depending on the type of data collected and fieldwork conducted [Paoli and D'Auria \(2021\)](#). Researchers utilize mobile, multi-sited, or "un-sited" research methods, crossing spatial and temporal boundaries online to study diverse social-cultural groups in synchronous and asynchronous settings [Borkovich \(2022\)](#). This method yields profound insights into understanding the "how and why" of online behaviours and their impact on opinions, habits, and worldviews.

Conducting an urban analysis using digital ethnography involves using digital tools to collect and analyse data about urban spaces and their inhabitants. It involves applying ethnographic methods to the study of digital cultures, which includes social media, online communities, virtual environments, and other forms of digital media ([Murthy, 2008](#); [Prior & Miller, 2012](#)). This phase comprises the density analyses of multi-functional articulation in Karaköy based on data and information collected from Swarm; the most popular location-based application (over 10 billion place notifications in the last four years) released by Foursquare. The number of 'check-ins' for all cafes is calculated in direct proportion to the years in which these stores were launched. Through a digital ethnographic analysis, we can uncover the intricate interconnectedness of the virtual environment shaped by the community engaging with the Karaköy area. By scrutinizing hashtags and check-in data, we are able to discern how the area garners momentum in both the virtual and physical realms, with fluctuations in intensity over time. This approach also sheds light on the correlation between the inaugural years of physical spaces and the pace at which they establish a presence in the virtual environment. This analysis underscores the profound influence of social media on the metamorphosis of urban spaces. As individuals share their experiences online, they contribute to the evolving identity of a neighborhood, impacting both its popularity and physical development. The interplay between social media and urban space creates a feedback loop, where virtual representations drive physical changes, further stimulating online activity. This dynamic exemplifies how social media can expedite the transformation of urban areas, sometimes leading to rapid gentrification or reshaping the character of neighborhoods, as exemplified in Karaköy.

At the third stage of addressing the functional and spatial transformation of the Karaköy neighbourhood, several methods are employed in the field research, including photographing and site analysis ([De Groot, 2006](#)). This last stage of the research incorporates the study and assessment of visual materials as well as of spatial design originating from the most up-to-date virtual-spatial interventions of 2023, which displays a particular reflection of the digital environment on urban space.

3. Study Area

Known as Galata until the 1960s, the neighbourhood of Karaköy ([Figure 1](#)) refers to the port area within the Beyoğlu district of Istanbul ([Türker, 2000](#)). Following the Suriçi region, Galata had been considered as one of the city's central settlements, besides Eyüp and Üsküdar, until the 19th century ([Banoğlu, 2007](#); [Deleon, 2003](#); [Freely & Freely, 2016](#)). Given its trade port function established by the Genoese, the Galata region was protected against possible attacks thanks to the surrounding walls, the traces of which can still be seen today. The port area of Galata is located at the opposite of the historical peninsula that shores the Golden Horn. These two parts of the city have long harboured diverse structures and settlements ([Akın, 1998](#)), where Galata Tower, with its feudal appearance, constitutes the highest triangulation point.



Figure 1 The field research area (Source: Authors, 2023)

The streets that form the quay axis, in addition to those running perpendicular to the Karaköy Square and Galata Tower, are distinctive of this region sloping up to the north. Inhabited by people from various cultures and nations, especially from Europe, Galata exhibited a more cosmopolitan, modern, and dynamic image compared to Suriçi, Üsküdar and Eyüp in the Ottoman Era. Located at the intersection of the Ottoman and Western worlds, it was encompassed spaces pertaining to various lines of work, as practiced by sailors, traders, craftsmen, ship carpenters, caulkers, etc. (Çelebi, 1969; İnciciyan, 1977). While warehouses, small-scale depots and other commercial structures were located ashore, dwellings occupied the north and top parts of the region. Following the conquest of Constantinople in 1453 by the Ottomans, the trade rights, and the overall presence of the Genoese – who had contributed to instil a Mediterranean fabric in the area via the port and settlements – persisted for some period. As the Genoese started to retreat from the region, diverse populations came to settle here, marking a certain transformation. Today, Karaköy serves as a significant hub for both domestic and international passenger travel. Karaköy and the ancient peninsula are connected by the Galata Bridge, which also has a station for Karaköy and a tram line that runs between Baclar and Kabataş.

4. Results and Findings

4.1. *The Analysis of Functional Transformation in Karaköy*

The field research is composed of three interlinked stages: Firstly, based on the historical maps transformation and interventions of urban space and functions. Afterwards, in the physical analyses carried out in 2018, the transformation caused by urban interventions at the borders of Azapkapı and Kemankeş Karamustafa neighbourhood is observed in terms of the functional change at the level of buildings. Accordingly, the functional transformations at the Tersane Avenue and Mumhane Avenue – which are connected to Karaköy Square via axes parallel to the shore, extending along the east-west direction east-west direction – are analysed. To begin with historical analysis, building typologies and urban frontiers that had been constituted in relation to vital needs stand out in the seaport harbouring vernacular structure forms characteristic of the Middle Ages. This plan from the early 14th century demonstrates a grid design materialised by sets built at different elevations (Figure 2, a).

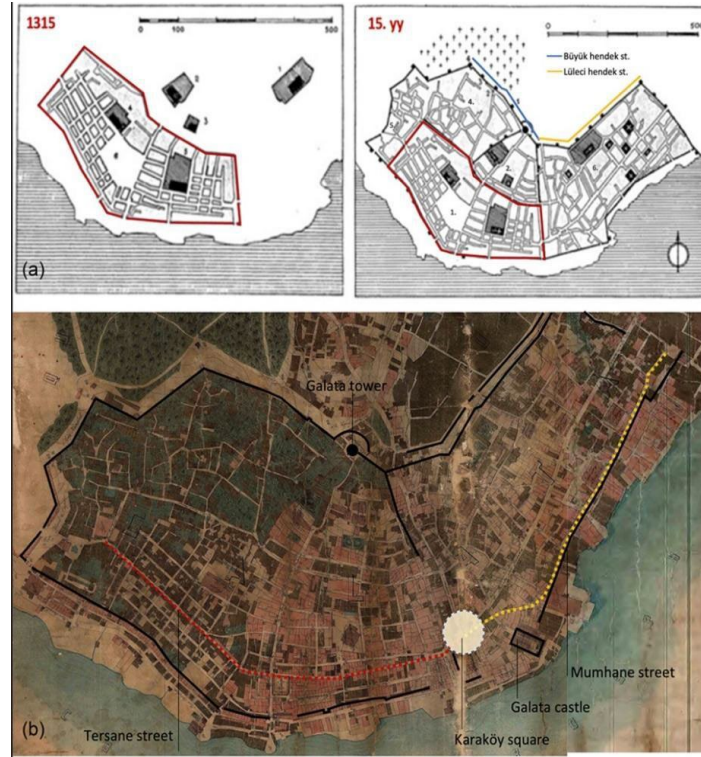


Figure 2 (a) Galata Tower and rampart borders in the Pera region of 14th and 15th century (Source: Sauvaget, 1934) (b) Tersane Avenue, Mumhane Avenue ve Karaköy Square in G. D'Ostoya map 1858 (Source: Atatürk Kitaplığı Harita Arşivi, 2023a)

During this period, the Genoese extended the borders of the Galata region along the ramparts and moats to the environs of Azapkapı-Şişhane-Galata Tower-Tophane (Akın, 1998). The urban design that arranges religious buildings and housing zones around the squares and within city walls can be still traced, as Büyük Hendek Avenue and Lüleci Hendek Avenue represent old axes once functioned as moats. Attached tower blocks as housing units that used to be located along these axes back then are now replaced by commercial arcades, small retailer shops (antique, pendant, electricity etc.), food and beverage shops (e.g., fast-food) and artistic coffee shops.

A large part of the Galata walls neglected since the 16th century was demolished in the 19th century (Hasluck, 1905). Following the foundation of Ebniye-i Hâssa Müdürlüğü (Directorship of Royal Buildings) in the 1830s, Karaköy was subject to a large-scale transformation in line with modernist efforts, where financial and commercial building stock grew. Contending that the entire commercial activity of Istanbul took place in here, Edmondo de Amicis (1878) writes that on both sides of the region existed narrow and mazy roads where taverns, merchant offices, workplaces and old houses were situated.

The urban interventions in the 19th century comprised intensive modernist transformations led by the 6th Municipal Circle. The physical changes related to these urban interventions of entail the extensive demolition of city walls, road width expansion, creation of new building blocks, the expansion of Karaköy Square and the renewal of Galata Bridge (Orçun Kafesçioğlu, 2016). G. D'Ostoya map, prepared between 1858-1860, shows that the port had yet to be built (Figure 2, b). This map illustrates Kemankeş Avenue and – although not yet existing – Mumhane Avenue, first street parallel to Bosphorus. The latter is circumscribed from the south by Galata Tower and city walls (Küçük & Mazlum, 2017). Tersane and Mumhane Avenues that are situated within Galata walls and connected to Karaköy Square in the east and west directions, appear as the two main axes defining the area on D'Ostoya's map. The walls and castle of Galata are still read as an urban historical trace. Kemeraltı Street and the Galata Bridge as the arteries that increase pedestrian and vehicle accessibility to the services of the area did not exist yet on D'Ostoya map compared to Huber's late 19th-century map.

In this map and study on the city walls, Marie de Launey, engineer of the 6th Municipal Circle, heralds the transformation of the area with the demolition of the walls: the provision of the accessibility of vehicles, the removal of blind alleys, the preparation of driveway projects and the increase in the commercial activity between the port region in Galata and upper neighbourhoods. Within the framework of the renewal of Mumhane Avenue, the municipality had the sheds located on both sides of the road removed, enabling its expansion. In F. Huber Map (1887), the abundance of roads, squares and buildings point out to spaces cleared following the removal of the city walls and the reclamation of the Karaköy Quay (Orçun Kafesçioğlu, 2016). While commercial buildings are organically situated along the wall line, in Mumhane Avenue, the settlements comprising commercial and housing units display a grid design (Figure 3, a).

Meanwhile, Goad's Map in figure 3 (b) (1905) indicates the region acquiring a new fabric with the quay construction. The land reclamation produced a straight shoreline and provided space for commercial buildings and customhouse. Defining Karaköy shoreline, Rıhtım Avenue, Kemankeş Avenue, Mumhane Avenue and Galata now called Necati Bey Avenue preserve their status of the main link shaft between Karaköy and Tophane region on the Suat Nirven Map (1948) (Figure 3, b). Besides the building blocks by the coast appearing as the first major change in the area, new building space is also indicated obtained by the land reclamation. The wards supplemented following the gradual obsolescence of Galata Tower's walls along Mumhane Avenue and the line of walls from the sea.

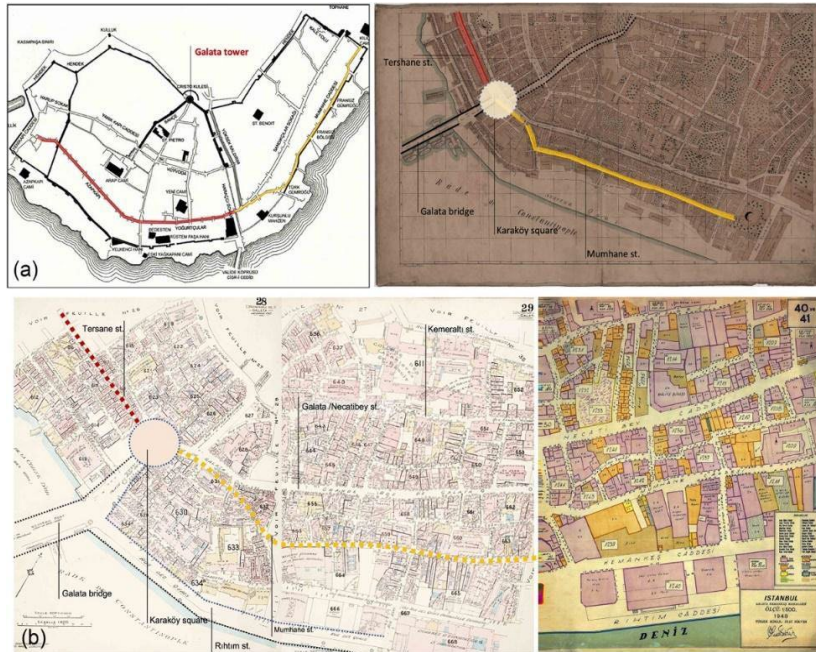


Figure 3 (a) The map of Galata walls (left) (Launay, 1864), F. Huber map, 1887 (right) (Source: Atatürk Kitaplığı Harita Arşivi, 2023b) and (b) C. E. Goad's insurance map, scaled 1/600, dated 1887 (left), S. Nirven map dated 1948 (right) (Source: Salt Research, 2023)

In line with Menderes' development plans in the 1950s, Kemeraltı Avenue was extended following the demolition of many historical buildings in Karaköy and Tophane squares, becoming one of the main arterial roads connecting Azapkapı, Tophane and the costs of Bosphorus. The daily vehicle traffic taking place currently shows that the Avenue still preserves its main transit road status. As a result of this transformation, Galata Avenue (now Necatibey Avenue) has become an axe of second degree. While the density of the traffic still persists, it maintains its commercial trade function at the small scale. Consequently, Karaköy still sustains its trade port function and its central transit status. Galataport, the urban transformation project completed in 2018, indicates the continuity of the morphological and structural changes in the region. "Gentrification" constitutes a part of the interventions, considering the increase in the number of hotels, coffee shops, design

studios and art galleries etc., which indicate the persistence of transformation in the physical and well as social structure of the region.

Second phase of analysis focused on the 2018 urban functional analysis. It is determined that there are 9 art spaces, 29 coffee shops, 6 hotels and 47 spaces sustaining their commercial activity on Mumhane Avenue and, parallel to it, in Ali Paşa Değirmeni Street. There exist 39 dilapidated buildings and 27 of them have been subject to renewal interventions. But for this study, crucial moments regarding the transformation of the past commercial activities in Tersane and Mumhane Avenues are investigated (Figure 4). The site analysis reveals that small-scale commercial functions on the ground floors have been replaced with consumption-oriented spaces like cafes, restaurants, and art spaces since 2011. Besides art spaces, many consumption-oriented spaces are redesigned by artistic works like graffiti, paintings, and other cultural images. The transformative effect of art has been observed through virtual and spatial interventions in Karaköy.

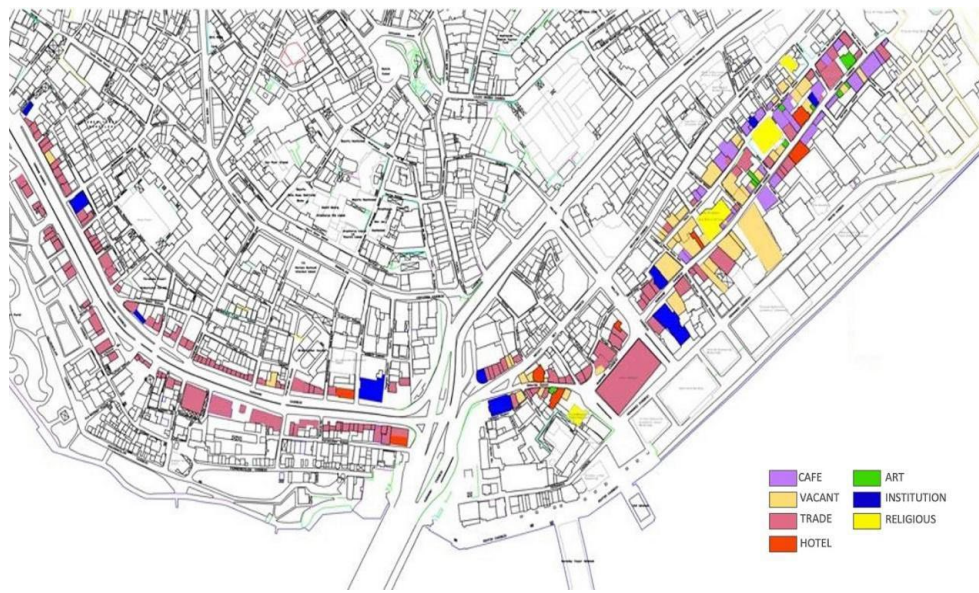


Figure 4 Functional analysis of Tersane Avenue and Mumhane Avenue (Source: Authors, 2018)

The transformation taking place in Karaköy along the axe of Tersane Avenue refers to a consecutive diachronic urban articulation. The intensity of the current commerce-oriented configuration in Karaköy is directly related to the neighbourhood's history. In the Ottoman era, the installation of Haliç Shipyard launched the development of structures related to shipbuilding in time. Housing units of workers used to be located at the section behind the shipyard (now, Kasımpaşa). As the shipyard region grew in time, buildings relating to this line of work started to settle from Hasköy to Karaköy Square. The commercial function concentrated along the shoreline is manifested by an ensemble of hardware stores coexisting side by side. While it appears new projects and initiatives have been intended for this region in the last years, the character of the region has rather been dominated by small-scale commercial properties and retail shops selling construction materials. On the other hand, the functional change brought by Haliç Port Project (Tersane Istanbul), which entails the renewal of the shipyard building, has caused serious debates in terms of the intervention's dimension and characteristics. In fact, the region populated by hardware stores has been under the threat of a similar intervention, due to the presence of stakeholders who are willing to see a similar transformation here. The functional analyses of the area in Tersane Avenue, which is close to Karaköy Square, show that the region mostly accommodates commercial buildings. However, despite being in the same neighbourhood and on the same axe with Mumhane Avenue, the transformations connected to social media cannot be observed in Tersane Avenue. This is because of functional as well as physical reasons: The buildings facing the road in Tersane Avenue altogether indicate a street hierarchy that renders shops more accessible to pedestrians. Although the avenue continues to serve as a commercial centre today, heavy vehicle and public transport traffic take precedence over sociability and public spaceness.

Urban interventions denote transformations and forms of structure that serve different purposes, including multiple variables and actors. They concern the transformation of unauthorised building areas, inadequate housing settlements and areas with other uses affected by natural disasters, dilapidated business centres, unhealthy and non-urban areas, historical spaces and conservation areas (Çağla & İnam, 2008).

Savage and Warde's framework for categorizing the phases of urban gentrification focuses on the visual changes in a specific area resulting from the influx of a new demographic group and the accompanying shifts in cultural norms. They argue that the gentrification process culminates in significant alterations to the area's economic dynamics. In their discussion of Zukin's analysis of the New York project, the authors emphasize the influence of cultural factors on the structure of residential environments (Savage & Warde, 1993). Sassen (1991) argues that gentrification, marked by the emergence of boutiques and art galleries, is not a new phenomenon but rather a result of people's growing purchasing power and desire for a different lifestyle. This transformation encompasses not just food, but cuisine; not only clothing, but designer labels; and not just decor, but authentic art objects. Castells (2000) further adds that in the new spatial logic of the information city, the concept of "places" is being displaced by the concept of "flows." As urban forms and processes become more globalized, consumption patterns, lifestyles, and forms are affected within the context of changing space-time relations. The case of Karaköy exemplifies a process involving targeted interventions at the individual level to rejuvenate declining commercial centers that have lost their original function, ultimately leading to gentrification. The forms of gentrification are primarily driven by changing consumer preferences and demand. This process, which is defined as 'back to the city movement' by Smith (1979), is shaped by the role of producers as well as the role of consumers.

Gentrification is both an economic process and a catalyst for social and cultural changes. It alters local culture and community identity through changing consumption habits. In Karaköy, the closure of small businesses has led to the rise of new art and commercial spaces, transforming the area's identity. This process transforms space into a commodity, fundamentally reshaping its commercial value and meaning (Lees et al., 2010). Mumhane Avenue and Ali Paşa Değirmeni street illustrate this, as it can be seen at an upper scale, also considering the process of the physical transformation in the area since the 2000s. While there is no sharp differentiation in terms of land-use at macro scale, functional differentiations are striking at the building level. Since 2011, shops that sell marine supplies, electronic appliances etc., representing small-scale commercial functions, have been replaced by coffee shops, where art and glamour act as fast-moving consumption. In addition, with the flourishing of art studios in the neighbourhood, Karaköy has turned into an utterly different place, as its old identity has slipped away. Another important finding from the field research conducted in Mumhane Avenue and Ali Paşa Değirmeni Street indicates the 27 dilapidated buildings that are going to be hotels. Despite designating large blocks as a result of parcels being accorporated, some of these buildings are not grouped at a specific point, but rather are scattered through the region.

4.2. The Analysis of Multi-Functional Articulation in Karaköy Based on Social Network

The second phase of the research concerns the analyses of multifunctional spatial articulation in Karaköy based on the data collected from social media networks. In the light of detailed studies and specific site analysis conducted in the field, different periods of transformation pertaining to buildings subject to functional change are reconsidered. As a result, particular inputs – other than conventional development planning, zoning, public works etc. – are found to trigger transformation in the region. For instance, the transformation in Mumhane Avenue conveys that social media users have a certain discretion for intervention. In this way, the form of urban interventions gets detached from the purview of concrete and formal decisions and becomes more affiliated with a collective social construct that instrumentalizes social interaction networks.

This step of the study contains the analysis of data collected from location-based social networks in 2018. Herein, Swarm, the application released by Foursquare with its place notifications exceeding 10 billion in four years, becomes the primary source of the study, providing the numbers of place notifications/'check-ins' associated with all the coffee shops located on the axes selected in Karaköy. These data are then evaluated in correspondence with the years these shops started to operate. Considering the number of place check-ins, it is argued that the popularity effect in social media contributes to the functional transformation and to the location choice of coffee shops in Karaköy (Ersoy et al., 2020; Lin et al., 2016). From 2010 to 2018 the number of commercial spaces (i.e., coffee shops and art studios) launched per year, every year the number of venues were doubled compared to the previous year (Authors, 2018). The check-in numbers in Karaköy based on the hashtags "karabatakkarakoy", "filbooks", "unterkarakoy" refers to 1.078, 3.310 and 1.524 number of signposts respectively, also reflect the relationship these places establish with the consumer by means of the 'art' they offer and identify their virtual impact radius (Instagram, 2018).

There are three coffee shops and a small parlour that produces and sells handicrafts, the latter being the first shop with the same function, which started business in the region in 2011. Prior to that, marine supply stores were instead located in their place. Meanwhile, 38 buildings appeared in 2018, all associated with art production and accommodating coffee shops. On the other hand, the check-in numbers these places received on Swarm seem lower, compared to the 7 stores opened before 2015 having the highest check-in numbers, as seen in Table 2. The comparison of store check-in numbers with opening years depicts that a variation exists in terms of check-in numbers among stores opened in the same year, but it is also found that relatively recent stores can elevate their 'check-ins' in the following years (Table 2). An overall linear increase in the number of check-in numbers of the stores is also observed, based on data collected from location-based social media networks. This implies that the popularity generated on social media has an impact on the location choice for stores, contributing to the functional transformation in Karaköy. The check-in numbers the stores receive are directly dependent on the 'art' they offer to the customer that has an impact in creating a gravity and thus in increasing their impact radius.

Table 2 The Number of Place Notifications of Coffee Shops and Art Spaces in Karaköy

THE NUMBER OF PLACE NOTIFICATIONS OF COFFEE SHOPS		
Place Name	Number of Place Notification	Opening Year
Karabatak	145,722	2011
Unter Karaköy	82,501	2012
Tükkan	79,037	2013
Ops	67,417	2012
Chez Moi	54,876	2015
Filbooks	44,234	2015
Mums	37,200	2014
Karaköy Çorba Evi	23.314	2011
Naif Cafe	18,175	2012
Galaporto Cafe	14,962	2015
Han Karaköy	14,573	2013
Starbucks Reserve	14,167	2017
Grigio	13,612	2017
Station	11,211	2017
Brew Cafe	6796	2013
Tahin	5466	2016
The Sia	3,738	2017
Levanten	2746	2018
İZ Kafe	1764	2016
Kemankeş	1706	2016
Pango Waffle	1677	2018
Berlin Line	766	2018
Lunapark	732	2016
Dreikopf Coffe	611	2018
infinity Lounge	283	2018

Kinoa Karaköy	169	2018
Deep Karaköy	156	2018
Korsanın Yeri	29	2018
PLACE NOTIFICATIONS PERTAINING TO ART SPACES		
Place Name	Number of Place Notification	Opening Year
Nice to Have	305	2018
Atölye 11	159	2011
BOU Art Design	78	2015
Pitane	35	2014
Sanat Karaköy	34	2018
Sanatorium	24	2012
Atelier Lal	7	2015

Coffee shops found in the area turn out to be places where art products are exhibited and sold, surpassing its original function. Although they contain diverse – also high valued – products such as jewellery, furniture and paintings, the check-in numbers of art/design spaces are much lower than those of coffee shops, as seen in Table 2. These quantitative data should not infer that the related places are simply not interesting, because the sale and marketing of such products is detached from the café ambience. The design of art places and coffee shops plays a role in the time spent (Broadway et al., 2018; Waxman, 2006; Waxman, 2022).

Based on the findings of spatial analysis, in Karaköy, sensorial experience-based consumption is used as a marketing strategy to influence consumers' five senses. This experience is dominating with the coffee shops, these- art and design-oriented places rather retain their singularity, diverging from the social and collective features of the former. The place notification numbers of these places, in addition to their impact radius on social networks, are lower than other consumption places, since they do not provide experiential activities, which would enable individuals and people to spend more time there and to form social environments Urban interventions have been operating indirectly via virtual spaces, albeit with strong effect. Attached with tags and 'hashtags', the circulation of photos and videos on social media platforms are instrumental in transporting urban space to the virtual dimension in a very quick and organised fashion. As venues are associated with instant experiences (e.g., eating and drinking in a certain place) with the help of such categorization, they gain a powerful ability in directing individuals and increasing their attraction. Physical spaces are thus redefined in the virtual environment by means of images, having cognitive implications for users (Zimmerman et al., 2022). Investors gravitate towards this ability in engendering popularity, which eventually informs their choice of location. In this way, they become actors of urban transformation as seen in Karaköy.

After Istanbul joining the UNESCO network of creative cities in 2010 indicates an intervention to the space at the global scale, contributing to exchange and consumption based spatial and experiential articulations. In the light of this, the study evaluates coffee shops in a context that foregrounds their identities other than their conventional commercial feature, as it detects an intention to create a divergence from the conventional café idea via the service offered. This effort directs these places to prioritise the spread of their familiarity on social media. Therefore, it proves the phenomenon of 'transformation of intervention' in the region through ever-changing actors-social media networks that enable collective organisation in virtual spaces. This approach, aiming to create a virtual supply and meeting demand, becomes a mandatory method for all the other 'consumable art' venues in the region. Photos, 'check-ins', 'hashtags', comments, and notifications pertaining to these places blend with the street, moving outside of the venues. Colours, plants, pictures, different furniture, and designs appear as elements that encourage the user to 'share'. Within the scope of the field research, the social media analysis shows how the cafes with the most location notifications are articulated to the physical urban space by means of tags/signboards and the virtual spaces on Instagram, another social media application with photo and location sharing features. Via the images prompted in the consciousness of individuals via the photos shared and circulated on social media, a cognitive and perceptual identity for Karaköy is created.

4.3. The Analysis of the Transformation of Karaköy Based on Virtual-Spatial Interactions

While Mumhane Avenue has restricted traffic, the most common feature observed in three pedestrianised streets parallel to each other is the purposeful placement of seating outside, belonging to coffee shops. At some points, seating is even spread out to the opposite sidewalk in streets, constituting an identity in the region (Figure 5). Moreover, the use of mobile heaters during the cold winter days enables clients to be the part of the street, contributing to their experience of these shops. Considering the vernacular pattern characterised by small-scale commercial buildings, interior spaces are expected to be reduced to dimensions that can only contain service items. Another striking aspect concerns differing seating arrangements. It is observed some shops prefer small and not-so-comfortable stools, corresponding to their order with the fast flow of clients. Meanwhile, Karabatak, launched in 2011, is the place that started the trend of single-seating units located side to side. The latter are directed from the sidewalk where the shop is located, to opposite walls adorned with ivy or graffiti, appealing to the eyes. In some places, the seating units even interfere with the pedestrian traffic. Public streets acquire aspects of an interior with seating groups, tablecloths, and illustrated walls.



Figure 5 Seating arrangements in Karaköy (Source: Authors, 2023)

In Mumhane Avenue, street art including graffiti and murals are other indicators of the spatial articulation from commerce to trade. In terms of the expression of political, societal, and artistic opinions, graffiti refers to drawings or illegal writing on surfaces like façade and walls found in public space. Murals are graphic artworks painted on the walls. The graffiti and murals painted on empty surfaces like walls and shutters of shops designate virtual-spatial interventions, even during night-time. In Mumhane Avenue, figures of popular culture like Charlie Chaplin, Barış Manço and La Casa de Papel, street writings, drawings of comics and characters give surfaces a particular spatial quality (Figure 6). Through popular, cultural, and abstract images, the street art in Karaköy is continuously articulated, redefining the area. On the streets of Karaköy, many artists, such as Leo Lunatic, have freely created street art, received awards, and collaborated with international brands (Pashayeva, 2018). All these visuals shared via social media posts that act as digital instruments are transported in the virtual space, increasing the popularity and attractiveness of a place. Contributing to the dissemination of topical, cultural and popular images found in venues that relate to consumption and art, location based social media applications render virtual-spatial interventions continuous.



Figure 6 The street art with graffiti and murals in Karaköy (Source: Authors, 2023)

One of the most significant effects of social media concerns the word 'Instagrammable' added to the dictionary. 'Instagrammable places' refer to 'iconic' and unique locations or destinations that appeal to visitors' eyes with their attractive and photogenic features, widely shared on social media platforms like Instagram. Figure 7 illustrates instances of interiors and exteriors designed in line with this purpose. These constituted Instagrammable places exhibit design elements in two-dimension as well as three-dimension. The former contains writings on the walls, pictures, designed boards and colouring among similar visuals. The latter corresponds to the embodied experience of the user in this space, as materialised in shared photos. The promotion of this experience is advertised via the articulation of individuals on these places circulating on social media – thus, via their demonstration effect - which establishes a connection between urban and virtual spaces. In this way, the sensorial and pleasure-oriented experience in urban space is transported to the virtual environment, motivating the users who have not yet tasted it, in situ.



Figure 7 Instagrammable places in Karaköy (Source: Authors, 2023)

Place is not just a physical space but also a sensorial and social structure. Changes in production systems, technological advancements, and the commodification of spaces reshape the sense of place, enhancing their appeal to consumers. Sense of place is directly related to how individuals experience spaces. Individuals create meaning by experiencing and interacting with spaces (Relph, 2009; Seamon, 2018; Tuan, 1975). Besides the design, product and service experience naturally constitutes another factor in contributing the integration of urban spaces with virtual spaces, as clients are encouraged to share theirs on social media. Figure 8 displays such experiences based on food and beverages offered in the urban space, along Mumhane street axe. In pedestrianised streets of Karaköy, the easy access to products such as mulled wine, sahlep, breakfast and mussels is provided, while this experience is improved with design elements. The exhibition and advertisement of products and services at storefronts primarily serves to connect urban and virtual spaces together.



Figure 8 Experiences based on food and beverages offered in the urban space, along Mumhane street axe (Source: Authors, 2023)

Data collected in 2018, nonetheless, indicates that this quick advertisement in situ does not contribute to the sales. Similar services with different products can be seen at the storefronts of several commercial spaces in Mumhane Avenue. This is also intended for the advertisement of these spaces in the virtual environment, as seen with pedestrians pausing and forming a crowd in front of the venues to take pictures and record photos.

5. Discussion

With its hybrid fabric owed to its history, Karaköy neighbourhood is open to rapid structural and functional transformations. The study evaluates this transformation characterised with specific temporal and spatial articulations, by referring to urban layers identifying different historical periods, traces of functional change, social media networks and virtual-spatial interventions. It argues that changing urban intervention forms also determine the involvement of different actors, in accordance with spatial and functional articulations. The concept of urban intervention which defines “collective urban knowledge”, is closely related to the concept of participatory design due to its “context-based” structure (Ataman & Tuncer, 2022). With this perspective, the paper

emphasises the new social and virtual actors of the intervention in Karaköy and it differs from other concepts like urban transformation.

This multi-actor urban intervention has resulted in the change of user profiles in parallel to new functional necessities in the area. The reference to functional transformation in Karaköy is documented with maps from different periods and supported by site analysis. The findings of the field research indicate that functional differentiation at building level is significant in Karaköy, while no sharp structural change in land-use at macro scale has been found. The study points out that small retailers are being replaced by cafes and coffee shops that enable the consumption of 'art' and 'culture' in a fast and glamorous fashion. In his work, Florida (2012) argues that there is a confluence between economic and technological innovation and artistic and cultural creativity. The rise of the creative economy has led to a closer integration of these domains, with a shift towards emphasizing experiences over physical goods. Today, the services that come with a product have been more important than the product itself. In addition, Florida (2005) asserts that talent, technology, and tolerance are the key factors for establishing a successful creative industry. Regions with competitive industries capable of swiftly mobilizing and attracting talent, resources, and capabilities have a distinct advantage in this regard. In this respect, Karaköy emerges as an advantageous location for the creative economy and industries due to its new trades, talent areas, and competitive environment.

Following its designation as the 2010 European Capital of Culture, Istanbul has emerged as a hub for architecture, innovative art, and creative culinary presentations. The city's urban planning and design center under the Istanbul Metropolitan Municipality prioritizes the development of cultural and creative industries to drive urban infrastructure and supports a gentrification policy for focal urban areas. The rise of cultural consumption and related industries has reshaped urban economies, with an increasing focus on cultural symbolism and spatial transformation. The consumption of culture becomes intricately linked with the generation of symbols and spaces, contributing to a shift in economic activities from manufacturing to the culture and creative industries (Göktürk et al., 2010). Furthermore, Zukin (2000) outlines that the culture industry employs various methods, such as leveraging traditional or historical indicators reflecting local identity and sensory product displays, to gentrify urban spaces.

Transformation takes place indirectly via the rapid dissemination of images in the virtual space, transcending conventional physical and functional interferences. A new image of Karaköy cognitively emerges herein and is used to stimulate the user-time-space interaction. This also affects the decision-making process concerning the transformation of the physical space and consumed products, whereby different stakeholders including shop-owners and landowners estimate the preferences of the masses. In this way, social networks intervene in the city, leading to more dynamic virtual-spatial transformations. Via photos, 'check-ins', 'hashtags', comments and notifications, sensory reactions, especially pleasure, are stimulated. Therefore, interiors and exteriors are reconfigured based on the dynamic preferences of the masses, while new trends appear in return, diversifying 'instagrammable places'. In today's cities, many spaces are encoded with artistic images and elements to create "insta-worthy" (a synonym of the "instagrammable") environments and entice users (Lobo, 2023). In other words, the goods, services, and the atmosphere offered by stores – as seen in seating arrangements, street art artefacts like graffiti and murals, visually striking boards advertising services offered in Mumhane Avenue etc. – constitute the indicators of 'instagrammable places', contributing to the familiarity of these places among users. This reveals the impact of social networks on physical urban space and users become the primary actors of this intervention.

José van Dijck and Thomas Poell (2015) describe virtual environment as a new type of public space over social media platforms that have collective and dynamic features. In observing the functional and spatial transformation from commerce to art, this study aims to reveal various forms of spaces re-designed in the virtual environment. Although Mumhane and Tersane avenues have not been subject to sharp structural transformations, we still see the development of a new identity

in the process, given new functions have appeared throughout history. Social media data analyses demonstrate that, apart from commercial and functional purposes, artistic concepts are collectively reconfigured and then consumed, further shaping virtual-spatial interventions. Supported with sophisticated software, contemporary communication tools have greater power in managing interaction: The familiarity of unknown or new places to users are enhanced through posts and location notifications on social media platforms. Tierney (2013) suggests that networking platforms have become intertwined with physical spatial organization. The generated proximity in space and time contributes to venues increasing their gravity in virtual space, by manipulating personal preferences. Cafe and art functions on Mumhane Street are salient in the virtual environment, indicating a significant effect on audiences, ensuring the sustainability of their artistic products and services. Prior to 2011, Mumhane Caddesi stood out with its security problem, showing a sharp difference between day and night times. Its transformation in its commercial axe has also influenced Tersane Avenue. Social media data analysed in the study have detected no place notification or photo sharing on this axe.

The advent of future hotels in Kemankeş Karamustafa Neighbourhood signals inevitably a future transformation: Accompanied with a new user profile, such functional articulation will eventually dictate a further modification in the products consumed and the consumption form. This process is likely to gain speed and intensify, as individuals' recognition and awareness are persistently being shaped via communication tools, underscoring the concept of familiarity. The intertwining of virtual environments with 'real' space will keep producing new intervention forms and new stakeholders.

Furthermore, the new stakeholders are the individuals of the consumer society of the recent period. The geographical area of study has undergone significant transformation, particularly in the Tomtom Neighborhood. The Istanbul Environmental Plan of 2009 designated Tomtom District as an "Urban and Regional Equipment Area". The pedestrianization project of İstiklal Street and the Tomtom neighborhood in the 1980s created a vibrant atmosphere akin to a 'Turkish SoHo', according to Tepeli Türel (2023). The renovation of "Tomtom Red" building in the heart of Tomtom led to the organization of cultural and art events. The 2011 BIENAL exhibition at the Karaköy Museum of Modern Arts had a substantial impact on the area's transformation. Research indicates that a similar transformation accelerated in Bomonti when a department of Mimar Sinan Fine Arts University relocated there in 2011 (Çağlayan et al., 2019). In recent years, the digital environment has significantly expedited the envisaged transformation process, resulting in the creation of a new historical layer.

6. Conclusion

The study observes the intersection of urban space and virtual space, and their relative impacts. It displays how physical and functional elements used in the design of urban space are composed in the virtual space to make places more attractive and how these elements are further exposed to change via interventions at the spatial level. The study also reveals that virtual and urban space will be more intensely intertwined over time, as the impact of virtual spaces on urban areas will gain more prominence. It thus proposes this practice will increasingly provoke the variation of design elements, leading to new interventions in urban spaces.

The case of Karaköy clearly exhibits that the existing diversity of a place stimulates virtual space in producing new design elements. As a result of the analysis of the two main pedestrian axes of Karaköy, since 2011 the remarkable functional and spatial change has been observed in 35 spaces. This study reached out that the urban intervention differs from conventional planning policies and is influenced by the participation of users through virtual space. Transformation takes place indirectly via the rapid dissemination of images in the virtual space, transcending conventional physical and functional interferences.

In this vein, further research can tackle the comparison of two different urban places, with the potential to offer more elaborate networks considering the intersection of urban spaces with virtual spaces. The main limitation of the study is that it deals with the transformation process of a single

urban space, whereby data are collected via locational photo-sharing for the spatial analysis. That virtual environments are subject to fast changes, even resulting in some of them becoming dilapidated, can impact the course of the study. Consequently, the study indicates the transformation of intervention from traditional planning and design decisions, via channels including social media networks and new actors. By pointing out the ways virtual-spatial interventions play a role in the transformation of urban space, it further proposes that virtuality can transcend material urban space.

The incorporation of digital technologies and virtual environments into urban planning and design is transforming conventional approaches to spatial intervention and public participation. Innovative platforms for social interaction and political organization are emerging through social media and advanced communication technologies (Barlas & Çalışkan, 2006). These advancements are altering social networks, perceptions of place, and community engagement in planning processes (Houghton, 2010). The blending of physical and digital environments presents both opportunities and obstacles for planners and designers, emphasizing the necessity for interdisciplinary collaboration to develop new theories and models (Yamu et al., 2017). Social media data are increasingly employed for urban analysis and modelling across various fields, providing new avenues for public engagement and dialogue. Nonetheless, challenges such as demographic biases and privacy concerns must be addressed when integrating social media data into urban planning (Lin & Geertman, 2019). These developments necessitate a reconsideration of planning and design practices to effectively respond to the growing influence of virtual-spatial interventions.

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Resume

Tuba Sari is an accomplished architect and academic, renowned for her expertise in architectural history, theory, and design. She holds a Bachelor of Architecture from Eskişehir Osmangazi University (2008), a master's in architectural design from Istanbul Technical University (2010), and a Ph.D. in Architectural History from the same institution (2017). During her doctoral studies, she served as a research assistant at ITU's Faculty of Architecture for six years, contributing to various academic and design initiatives. Since 2018, she has been an Assistant Professor at Bursa Technical University, where she teaches and researches architectural history, contemporary urban design, and emerging global architectural trends. A visiting lecturer at VSB - Technical University of Ostrava in 2024, Dr. Sari's research encompasses tall buildings, urban imagery, and the intersection of architecture and urban design. She also leads Atölye Hisar, a dynamic urban design studio in Bursa.

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Rümeysa Bayar is an accomplished urban planner and academic researcher with extensive expertise in urban and regional planning. She holds a bachelor's degree in urban and Regional Planning from Selçuk University (2009), a master's degree in urban development planning from University College London (2013), and a PhD in Urban Planning from Istanbul Technical University (2021), where her research focused on age-friendly cities and innovative spatial analysis techniques. In 2019, she furthered her academic experience as a visiting researcher at the University of the West of England, where she deepened her expertise in qualitative and quantitative research methods. Rümeysa combines her strong academic foundation with a commitment to developing inclusive and sustainable urban environments, contributing to the field through research, publications, and professional engagements.
