INTERACTION BETWEEN CREATIVE CLUSTERS AND THE BUILT ENVIRONMENT: DIGITAL TECHNOLOGIES VERSUS URBAN BUZZ

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ABSTRACT
Creative class supports the local urban development process with their social, cultural, and physical acts in the built environment while promoting the urban buzz. Because of the ongoing COVID-19 pandemic, the involvement of digital technologies in creative industries is inevitable. The study compares the conventional working model and online working process to clarify how digital turn affects the interaction between creative clusters and the built environment in consideration of social sustainability. Firstly, this paper looks at the social interactions in creative clusters, and investigates how creative class engages with the physical environment in the office environment. It also takes a step further and focuses on how digital turn takes place in this pattern by applying a case study through online surveys in İzmir, Turkey. It contains Architecture and Interior Design firms as a significant part of creative industries located in İzmir. The online survey was applied in order to get information about the space preferences of the creative clusters, and figure out the major differences between conventional working model and online working model in terms of social sustainability. The findings of this study provide insight about impacts of digitalization on creative clusters in the urban environments. It is seen that environmental behaviors of the creative class have direct effects on the process of the local urban development. Using digital technologies for communication has eliminated the surprise factor and damaged the use of urban-buzz areas where creative class meet their social and cultural needs. This study suggests that, during this adaptation period to the changing model, precautions should be taken in the earlier stages for the city development. Finding alternative ways to cooperate with creative class should be developed to keep the urban buzz alive in terms of social and cultural activities.
Keywords: creative class, creative clusters, social sustainability, local urban development, digital technologies, urban buzz, environmental behaviors.

1 INTRODUCTION

This paper provides research about social interactions in creative clusters and how the involvement of digital technologies in communication changes the dynamics of the relationship between the creative class and the built environment. Creative industries are an essential part of growing cities, especially considering principles of sustainability. Those industries can be defined as a growth sector that is embedded into the local urban environment with economic, social, and physical aspects. According to the Department for Digital, Culture, Media and Sport (DCMS) [1], creative industries rely on an individual's creativity, skill, and talent to create jobs and produce wealth through the generation of creative work. Florida [2] classifies those individuals as the creative class and defines them as "people in science and engineering, architecture and design, education, arts, music, and entertainment whose economic function is to create new ideas, new technology, and new creative content". This article embraces Florida's definitions for creative class concept. As a result of creative class' space preferences, creative clusters are formed in the cities. Creative clusters are a type of urban quarter that has a high concentration of cultural activities and creative industry companies [3]. In this study, while creative class refers to the people who work in creative industries, creative clusters refer to the co-location of creative industry

companies which are supported by social, cultural, and economic aspects within the built environment.

In this context, this paper starts with a literature review that introduces creative industries, creative class, and creative clusters in detail. Secondly, it discusses urban buzz and creative spill-overs as a representation of social interactions within the city landscape. Urban buzz can be defined as an entity that is produced by people's social interactions in the city environment, and it represents the liveness of the urban space. As an aspect of urban buzz, creative spill-overs refer to the positive impacts on the social and physical environment formed by creative industries.

Later, the study focuses on the involvement of digital technologies in creative industries. Creative industries can have the benefits of digital technologies in developing new ideas, research and development processes, and marketing strategies. Especially after the COVID-19 pandemic, working online and digitalization have become a new challenge for maintaining face-to-face social interactions, therefore its reflections on the environment to create urban buzz arises as a new research topic.

As the last part of the literature review, this paper forms a framework to analyze those changes in terms of social sustainability. Social sustainability is strongly related to people, well-being, community and healthy lives. According to Woodcraft et al. [4], social sustainability can be identified as a process for creating sustainable, successful places that promote wellbeing by understanding what people need from the places they live and work. Within this framework, this study examines Architecture/Interior Design firms in İzmir as a case study. An online survey is applied to compare people's earlier social experiences in the physical work environment as "conventional model", and their new experiences during the online working process as "changing model." After evaluating the survey results, this research compares two models and focuses on conclusions.

2 LITERATURE REVIEW

2.1 Creative clusters and the built environment

The creative class was first mentioned in 2002 by Richard Florida. Florida [2] defines creative class as people whose economic function is to create new ideas, new technology, and new creative content. He states that those creative people have the power to reshape the world as a result of their creative actions. On the other hand, creative industries are defined as industries whose main activities relate to individuals' creativity, skills, and talents. Those industries include both work and living, creating and consuming cultural and creative production. They have a potential for wealth and job creation through the generation and exploitation of intellectual property. DCMS groups creative industries as thirteen sub-sectors such as advertising, architecture, art and antique market, crafts, design, fashion, software, music, etc. [1]. As a result of the space preferences and locational decisions of creative class, creative industry companies can form creative clusters in specific urban environments. Creative clusters can be considered as a communication network for people who work in creative industries, share common goals, and contribute to the economy. UNESCO [5] states that those clusters are the geographic concentration that pools together resources into networks and partnerships to cross-stimulate activities, boost creativity, and realize economies of scale.

According to KEA [6], creativity comes from the combination of ability and environment; it is related to the people's capacity to think with imagination and challenge the existing. Creative industries have characteristics that prove to be conducive to innovation. Cities

provide an ideal environment for the expression of creative abilities such as local cultural resources including cultural institutions and organizations, cultural heritage, festivals, and social events. Based on earlier studies, it is seen that creative industries tend to settle in particular places that create centers for culture, innovation and creativity; mostly in old industrial districts. They support local urban development by being a part of economic growth. According to Davis et al. [7], those industries are embedded into the local urban environment and political economy, because their production creates symbolic value that can facilitate place-making. Creative clusters emerge in specific urban frameworks and central areas [8]. Dronyuk et al. [9] point out that in creative clusters, an open and creative environment for communication and cooperation emerges, and as a result, new forms of interaction occur as an alternative to social capital. Such clusters help to carry out urban regeneration. Therefore, the importance of the built environment for creative clusters cannot be disregarded. Storper & Venables [10] explains that space gives rise to creative milieus by helping to form identity, credibility, lifestyle, and entertainment along with providing proximity that can foster face-to-face contacts and networking, and transfer tacit knowledge. They also point out the source of a local buzz economy is the communication and information exchange between different actors in the urban space.

2.2 Urban buzz and creative spill-overs

Besides the explicit relation with economic growth, creative clusters that generally emerge in specific urban frameworks offer strong possibilities to urban development by affecting the local environment and creating the urban buzz through space preferences. As a part of social sustainability, urban buzz comes with the advantages of the spatial concentration of people and activities. Those areas are powerhouses of innovation, creativity and unconventional lifestyles [11]–[13]. The concept of urban buzz is based on intensive social interactions in a compact urban space, predominantly through physical face-to-face contact. As a part of the city, those areas provide possible networking opportunities for people to share their knowledge and experiences. Arribas-Bel et al. [13] suggest that urban buzz districts are the combination of buzz producers such as restaurants, theatres, entertainment centers, recreation parks; and buzz consumers such as visitors and residents. Even the definitions of urban buzz and creative clusters show that the relationship between those two concepts is quite integrated. Creative clusters can be a source of urban buzz, as well as urban buzz districts can provide spaces for those clusters. In this dialectic, urban development comes as a result of this beneficial relationship. Social interactions of these clusters are highly important to keep the urban buzz alive, help to maintain social sustainability, and transform cities into creative and sustainable cities.

Cultural and creative spill-overs can be considered as another aspect of urban buzz. In the Cultural and Creative Spill-overs Europe Report [14], those spill-overs defined as "the process by which an activity in the arts, culture and creative industries has a subsequent broader impact on places, society, or the economy through the overflow of concepts, ideas, skills, knowledge and different types of capital". Scott [15] points out that, firms can economize their spatial interlinkages to achieve the multiple advantages of labor markets, and utilize information flows and innovative potentials by clustering together. According to Creative Economy Report [16], the spill-over effect is the overflow of concepts, ideas, and knowledge from the creative industries. Those industries have a broader impact on the economy and society.

KEA [6] suggests that cities need to identify the culture and creative resources available and contribute to economic growth, social development, and innovation to support creative

spill-overs. Local developers need to intervene in new relationships, initiate new connections between different fields and sectors. It is highlighted that, the local social fabric and the infrastructure provide a basis for new ideas, new interactions that lead to the invention of new forms of urban planning, new services, and new jobs. Innovation policies should support creative spill-overs as an integral part of the policy. Social aspects cannot be ignored, in the process of formulating policies to promote local creative economies and maximizing spill-overs.

2.3 The use of digital technologies in creative industries

A digital turn represents the arising use of digital technologies in daily life. Digital technologies are getting more involved with the sectors of the economy every day, and they have a significant impact on all aspects of people's lives. According to IDEA, KEA, and SMIT [17], it has been one of the most influential factors that affect creative value chains, especially in the last decade. Digital technologies lead to a constant emergence of new services, relying on innovative business models. The KEA report [18] states that the digital era represents both a challenge and an opportunity for innovation and growth in creative industries. Digitalization supports crossover innovations by challenging existing balances and sectoral relations by providing alternative models to create, produce, promote or distribute [17]. Especially after the COVID-19 pandemic, most of the stakeholders needed to change their working approaches, and they were forced to embrace digital technologies. Although there are several benefits of the use of digital technologies in creative industries, this turn in the working style has significant outcomes in social and urban life.

The evaluation of digital technology allowed users to easily access a variety of new digital technologies and tools. In this new digital economy, the ability to create social experiences and networking are now important factors of competitiveness. Social networks such as WhatsApp, Skype, Discord, Zoom, Microsoft Teams, and social media applications like Instagram, Twitter, Facebook allow people to communicate whenever and wherever they want. Those kinds of online platforms are important for several reasons such as exchanging experiences, achieving working opportunities, and finding new partners [18]. Those digital spaces are complementary to have creative innovations.

2.4 Social sustainability

Social sustainability has been neglected compared to environmental and economic sustainability until the 1990s. Woodcraft et al. [4] defines social sustainability as a process for creating sustainable, successful places that promote well-being, by understanding what people need from the places in which they live and work. According to the OISD definition, social sustainability stems from actions in key thematic areas, encompassing the social realms, encompassing the social realm of individuals and societies, which ranges from capacity building and skills development to environmental and spatial inequalities. It blends traditional social policy principles with emerging issues concerning social capital, economy, environment, notions of happiness, well-being and quality of life [19].

Later, Polèse and Stren [20] define social sustainability as a development that is able to occur by balancing the evolution of civic society. Social integration, cultural diversity, and equity play the most important roles in social sustainability. Polèse and Stren's [20] definition includes the importance of social aspects on the physical environment. On the other hand, Chiu [21] identifies three interpretations for social sustainability in terms of the built environment. The first interpretation is that social sustainability is affected by social norms

and values. The second one suggests that ecological and environmental sustainability should be supported by social sustainability. And finally, as a more environmentally oriented approach, final interpretation refers to maintaining and improving the well-being of people for all. Therefore, social sustainability requires a combination of those interpretations based on the environment and people [21], [22].

Social sustainability outcomes cannot be measured in the same way that many environmental outcomes can. It is challenging because of the complexity of the issue and a lack of theorists in the field [23]. The measurement system for social sustainability is still a debatable subject. As one of the pioneers of creating a framework for measurement, Dempsey et al. [24] address this issue through a detailed exploration and define the concept of social sustainability within the urban context. They categorize contributory factors as non-physical factors and predominantly physical factors, depending on the literature review. Non-physical factors include education and training, social justice, participation, and local democracy; health, quality of life and well-being, social inclusion, social capital, community, safety, mixed tenure, fair distribution of income, social order, social cohesion, community cohesion, social networks, social interaction, the sense of community and belonging, employment, residential stability, active community organizations, and cultural traditions. On the other hand, physical factors include urbanity, attractive public realm, decent housing, local environmental quality and amenity, accessibility, sustainable urban design.

Berkeley Group and Social Life [25] takes a step further and creates a framework for the measurement of social sustainability in their report called "Creating Strong Communities" in 2012. In this study, Berkeley Group and Social Life's framework was used to measure social sustainability. This framework consists of three major dimensions: *amenities and social structure, social and cultural life, voice and influence* [4]. Those categories which include 13 different indicators, can be defined as:

1. Amenities and social structure: This category includes physical infrastructure (public transport, shops, etc.) and social infrastructure (community activities, etc.). It aims to capture previous attempts through design and services.
2. Social and cultural life: It refers to social capital and illustrates how people experience development. The main issues are; sense of belonging and local identity, relationships between neighbors and local social networks, feelings of safety, quality of life and well-being, etc.
3. Voice and influence: This category includes engaging residents in designing a new community in terms of empowering the community. It focuses on shaping the future by people's potential.

3 METHODOLOGY

This study is conducted as a case study in İzmir, Turkey. According to Seçilmiş, İzmir takes the 4th place in the settlements of creative industries in Turkey. Leading subsectors in Turkey are advertising, architecture, design, and movie industries [26]. In recent years, the number of employment initiatives and creative industries are in rapid increase in Turkey, compared with the traditional sectors. According to the İzmir Development Agency Report [27], approximately 6% of the creative clusters in Turkey have been working in İzmir. The three occupational groups with the highest share in the creative industries in İzmir are handcrafts (27.9%), advertising-marketing (27.7%) and design (11.5%) professions.

This study contains Architecture and Interior Design firms as a significant part of creative industries located in İzmir. Data were collected from 10 different companies that recently started working online. As a research method, an online survey consisting of open-ended and multiple-choice questions was conducted to the selected sample. The questions in the survey

were classified into 3 categories according to the Berkeley Group/Social Life's social sustainability framework [25]: Amenities and Social Infrastructure, Social and Cultural Life, and Voice and Influence. Subcategories are revised by the researcher to analyze creative clusters in detail (see. Fig. 1). The conventional model and the changing model were compared in each category.
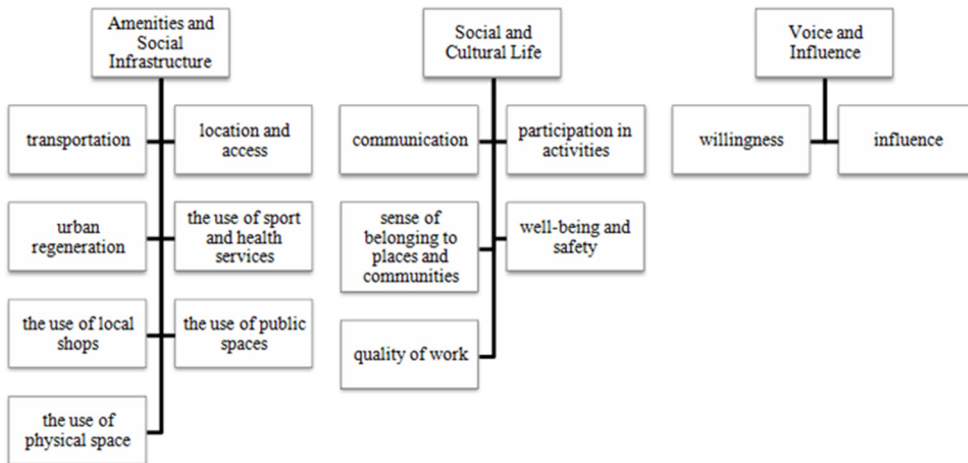

Figure 1: Framework for measuring social sustainability.

4 DATA ANALYSIS AND FINDINGS

In the evaluation of the survey results, office locations of the participant companies were divided into three main groups as central locations, semi-central locations, and rural locations, according to the distance from the city center and population density. The majority of the companies (five out of 10) were located in the central locations. Creative industries usually transform industrial and redundant areas and locate in cultural and economic quarters. In the İzmir Case, the Alsancak region is often preferred by creative clusters. This data supports previous literature on creative industry settlements, and shows that architecture and design companies often choose to be close to the buzz-areas.

The majority of the companies (eight out of 10) have been working online for 1 year, due to the COVID-19 pandemic. Although some of the companies closed their offices and embraced the home-office style, architects and designers are still attached to their offices during the process of online working. The most important part in the case of architecture and design firms is that construction site visits do not allow people to work fully online. There is an increase in construction site visits since some co-workers started to meet on those sites rather than the office to discuss ongoing projects.

In previous studies, the source of the urban buzz is associated with intensive social interactions in a compact urban space through face-to-face contacts. After the COVID-19 pandemic forced people to embrace digital technologies, the role of the office is now changed. The home-office working style has unattached creative class from their office buildings while creating independent co-workers that can work from different locations. Thus, the urban buzz is threatened in terms of maintaining the necessary interactions between creative clusters and buzz producers (restaurants, theatres, entertainment centers, recreation parks, etc.). The mobility and the physical interactions of creative clusters with urban areas

that contribute to urban buzz might lose their dominance due to the decrease in the use of offices. This changing work style can cause damage to local urban development, in consideration of both economic and social aspects of sustainability.

4.1 Amenities and social infrastructure

In the first category, the participants were asked to rate the importance of amenities and social infrastructure elements from 1 (insignificant) to 5 (highly important) in order to understand space preferences of creative clusters, and their relationship with the physical environment in the conventional working model. Secondly, participants were asked to evaluate the importance of those categories in the changing model based on their online working experience (see Table 1). If the average score of the answers is 4 or more, those elements are evaluated as important elements for creative clusters' space preferences.

Table 1: Evaluation of amenities and social infrastructure by participants.

Category	Average score for conventional model (working from the office)	Average score for changing model (online working)
Transport infrastructure (public transportation and private transportation)	4.5	3.8
Access to public services (health services, education services, etc.)	3.4	4.2
Social security and safety	5	5
Access to public spaces and recreational areas	4.8	4.5
Access and proximity to cultural and leisure facilities (museums, galleries, cinemas, pubs, cafés, restaurants, shopping facilities, etc.)	4.5	3
Tolerance and open mindness (minorities, low income groups, gender, immigrants, etc.)	4.8	4.5
Social network opportunities	5	4.5

Based on the results on Table 1, it is seen that almost all categories have an impact on the space preferences in the conventional model. In urban buzz areas, location and access to buzz producers take an important place. Almost everyone stated that they evaluate their offices' proximity to public spaces, recreational areas, and cultural and leisure facilities as a factor that affects their space preferences. The creative class forms their network and boosts their creativity via cultural activities by sharing their knowledge and experiences. Especially in central locations, the benefit of the location promotes new possibilities for networks while keeping the urban buzz alive. Dynamism is seen as an advantage for creative clusters in the conventional model. Stores, restaurants, and entertainment centers are the most used places as buzz producers in almost every region. Also, almost all participants stated that they frequently use the public spaces around their offices. Five out of 10 people stated that they meet with new people who contribute to their network in local areas. Therefore, these results support the previous literature on creative clusters' interactions in buzz areas in the conventional work model. When the working styles are compared, it is seen that the major changes happened in two categories. While access to public services becomes more important, access to cultural and leisure facilities is evaluated as less important because of

online working. Nevertheless, this survey is applied during the COVID-19 pandemic. These results might be reflecting temporary changes.

In the second part of the category, open-ended questions were asked to get more information about the changes during the online working process. According to the results, the mobility of creative class affects urban buzz closely and stimulates urban communications through inevitable contacts. The use of technologies reduced mobility of the creative class due to the lack of necessity to move in the changing model. The time spent on the road before is labeled as "extra time". Participants stated that they are evaluating this "extra time" for doing personal activities such as doing sports, doing housework, being busy with hobbies, etc. However, a minority of the participants remarked working online can be more time-consuming in consideration of lacking quality communications.

4.2 Social and cultural life

In this category, the participants were asked to compare selected social and cultural life aspects in the conventional and changing models. Multiple choice questions were supported with open-ended questions in order to evaluate personal perspectives about the changes in the social and cultural life. Survey results show that there is a considerable amount of decrease in social interactions due to the lack of spatial engagements during the online working process (see Table 2).

Table 2: Evaluation of social and cultural life by participants.

Category	Average number for conventional model (working from the office)	Average number for changing model (online working)
Efficiency of communications	4	3.4
Interest in social activities in the region	3.4	1.9
Feeling of loneliness level	1.5	4
Feeling of safety level	4.3	4.4
Creativity level	4.2	3.9
Productivity level	4.2	3.7
Efficiency of team works	4.1	3.4

Based on the open-ended questions, it is seen that while face-to-face communications are decreasing, phone calls have increased along with the use of digital technologies. There is a certain decrease in the efficiency of the conversations among the creative class and their clients. These numbers show more serious differences in the quality of group actions and teamwork between co-workers. Working together in this changing model is not considered as productive as it used to be. Although it is easier to be able to communicate anytime and anywhere in the online working style, the changing model is not ready to replace face-to-face interactions in terms of efficiency. Participants labeled face-to-face discussions as more sincere and productive. However, as a negative feature, they highlighted that communication time decreased during the transition to the changing model. Social interactions between people in the online working process are more active and dynamic, and easier to access. But they still have a long way to catch up with the quality of face-to-face interactions. The major difference is that spontaneous meetings that provide unexpected networking opportunities and business deals have almost ended. Creative thinking, which is one of the key factors for

the creative class, can be boosted through the surprise factor. Scheduled meetings eliminate the effect of surprise and create a more predictable lifestyle while causing negative effects on creative thinking.

Participants confirmed that social flow and shared knowledge in the physical environment have an impact on their level of creativity. This level declines for every participant after switching to the online working model. This shows that in the areas where the urban buzz is strong, creative clusters are affected by creative spill-overs, and they have a higher rate of success in consideration of creativity and productivity. A decrease in face-to-face social interactions reduced the overflow of ideas, knowledge, and skills. Some participants pointed out that knowledge spill-overs among creative clusters have come to the point of disappearing. Almost all of the participants stated that the disappearance of face-to-face meetings negatively affected the possibilities of exchanging ideas.

Even though the changing model does not have a direct negative impact on the quality and the amount of work done by the creative class, it affects employees indirectly in consideration of social aspects. In the conventional working model, knowledge spill-overs usually took place in a close physical environment around the offices by business dinners, cultural activities, entertainments, etc. In the absence of these activities, it is inevitable to see great changes in the daily flow of social and urban life. Nevertheless, those changes also have a negative impact on people's well-being due to the fact that they become distant from socialization and psychological relaxation. Participation in the local activities, cultural events of the associations and chambers are also decreased at a significant level. Although these results cannot be evaluated without considering current pandemic conditions and limitations, people's interest in participating in cultural activities is not like before due to the use of digital tools.

In addition, the most significant difference in social and cultural life was seen in people's level of loneliness. While people rarely felt lonely during office hours in the conventional model, the lack of face-to-face meetings in online work made people feel lonely. The survey results indicate that factors such as people's well-being, the feeling of loneliness, and happiness need to be supported with physical interactions. Even though there is a constant communication network in the changing model, the quality of the interactions is more important than the quantity of the interactions.

4.3 Voice and influence

In this category, open-ended questions about willingness to participate at local organizations and community engagements were asked to the participants. In order to measure their commitment to the region where their creative clusters are located, their contributions to the regions, and differences after embracing the changing model were questioned. In the urban areas where people choose to be working instead of living, local development strongly depends on the actions of creative class. Those people's influences on their cluster help to create a positive local identity and make those places desirable. Based on the results, the creative class' sense of belongings were seriously damaged for their office areas while it was increasing for places where they live due to the online working. All participants stated that they started to lose their connection with their geographical clustering for working environment. If digital technologies will take over the face-to-face interactions' place, urban developers need to adapt their strategies to fulfill the needs of creative clusters and attract them to the region while offering new possibilities to make them feel a part of the region. Local engagements are the core of creative clusters. Depending on the new situation of online working, losing connection and attachments might change the idea of creative clusters. It

should be investigated in a longer period whether online working will change the whole concept of creative clusters and the need for office spaces. However, it is seen that people start to lose their loyalty to the region where they work. This causes a negative effect on the sustainability of the city.

5 DISCUSSION & CONCLUSION

This research shows there is a close relationship between creative clusters and the built environment of the city in consideration of social interactions. According to the case study conducted in İzmir which is a developing city within the scope of creative industries, it is seen that creative clusters often settle in central locations where urban-buzz is strong. This study contributes to the previous literature, and it proves that engagements of creative clusters can be considered as one of the key elements for achieving sustainable cities. This relationship has direct impacts on both individuals' well-being and local urban development.

This research underlines that amenities and social infrastructures are essential elements for the space preferences of creative clusters. Those elements form a direct relationship between creative clusters and the city environment. On the other hand, the use of digital technologies has an impact on the necessity of physical offices. Depending on creative clusters' transformation into a new online reality, adoption of online working styles reduces the importance of the elements that connect creative clusters to the environment. Survey results show that disengagement between creative clusters and the built environment did not happen yet, although amenities and social infrastructure started to become less important in the changing work model.

As a conclusion, creative class meet their social and cultural needs in urban-buzz areas while creating the urban-buzz in central locations by their interactions with each other and their close physical environment. Strengthening this dialectic should be in the consideration of local urban planners to achieve more sustainable and creative cities. In those locations, creative spill-overs are formed indirectly as a result of creative clusters' direct interactions with the physical environment.

Since the COVID-19 pandemic started, a digital turn is on the corner. The new changing model has its advantages and disadvantages. Digital technologies such as information and communication technologies (ICTs) became a part of daily life after the pandemic. Whether improvements in digital technologies will reduce the importance of physical space is highly discussed by many researchers. However, temporarily or not, the change is on the edge. Beyond the economical perspective, continuity of social interactions is adapting into a new, digital model.

As a result of the inclusion of digital technologies which dissociated the creative class from urban life, urban planners need to adapt their strategies to this new normal. In this research, it has been observed that some of the sub-sectors of creative industries such as architecture and interior design firms cannot fully adopt an online working style due to the active visits to the construction sites. Although, this digital turn still limits their social interactions. The use of digital technologies for communication has eliminated the surprise factor, causing people to communicate more regularly and frequently. But even if communication becomes easier and unnecessary time losses such as the time spent on the road decrease, quality and efficiency of the interactions are not the same as it was in the conventional working model. During this adaptation period to the changing model, precautions should be taken in the earlier stages for the city development and the well-being of the creative class. Urban developers need to find new ways to cooperate with creative class and provide spatial opportunities for social and cultural activities to keep the urban buzz

alive. The chambers and associations of these creative industry sectors also need to take action as much as the urban planners.

Due to the continuous innovations in technology, the adoption of digital technologies will increase day by day. Although participating in social events is not as easy as it used to be because of the ongoing pandemic, attachment to urban buzz locations needs to be increased, especially for creative clusters. This research indicates that interactions between creative clusters and built environments cannot be disregarded to achieve sustainable cities. In further studies, the number of the participants can be increased in order to get more accurate results. Since the need for offices is changing by the use of digital technologies, long-term changes on the concept of creative clusters and how it affects city life can be investigated as a broader topic.

REFERENCES

[1]   Department for Digital, Culture, Media and Sport (DCMS), *The Creative Industries Mapping Document*, DCMS: London, 2001.

[2]   Florida, R.L., *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community and Everyday Life*, Basic Books: New York, 2002.

[3]   Zheng, J. & Chan, R., The impact of 'creative industry clusters' on cultural and creative industry development in Shanghai. *City, Culture and Society*, **5**(1), pp. 9–22, 2014.

[4]   Woodcraft, S., Hackett, T. & Caistor-Arendar, L., *Design for Social Sustainability: A Framework for Creating Thriving new Communities*, The Young Foundation: London, 2011.

[5]   UNESCO, *What are Creative Clusters?* 2006. http://portal.unesco.org/culture/en/ev.php-URL_ID=29032&URL_DO=DO_TOPIC&URL_SECTION=201.html. Accessed on: 20 Dec. 2020.

[6]   KEA, *Smart Guide to Creative Spillovers to Assist Cities Implementing Creative Spillovers*, 2015. https://keanet.eu/publications/the-smart-guide-to-creative-spillovers/. Accessed on: 15 May 2021.

[7]   Davis, C.H., Creutzberg, T. & Arthurs, D., Applying an innovation cluster framework to a creative industry: The case of screen-based media in Ontario. *Innovation Policy in the Creative Industries*, **11**(2), pp. 201–214, 2009.

[8]   Rivas, M., *From Creative Industries to the Creative Place: Refreshing the Local Development Agenda in Small and Medium-Sized Towns*, URBACT, 2011.

[9]   Dronyuk, I., Moiseienko, I. & Ml, J.G., Analysis of creative industries activities in European union countries. *Procedia Computer Science*, **160**(2019), pp. 479–484, 2019.

[10]   Storper, M. & Venables, A.J., Buzz: Face-to-face contact and the urban economy. *Journal of Economic Geography*, **4**(4), pp. 351–370, 2004.

[11]   Glaeser, E., Kallal, H.D., Schinkmann, J.A. & Shleifer, A., Growth in cities. *Journal of Political Economy*, **100**(6), pp. 1126–1152, 1992.

[12]   Nijkamp, P., XXQ factors for sustainable urban development: A systems economics view. *Romanian Journal of Regional Science*, **2**(1), pp. 1–34, 2008.

[13]   Arribas-Bel, D., Kourtit, K. & Nijkamp, P., The sociocultural sources of urban buzz. *Environment and Planning C: Government and Policy*, **34**(1), pp. 188–204, 2016.

[14]   Tom Fleming Creative Consultancy, *Cultural and Creative Spillovers in Europe: Report on a Preliminary Evidence Review*, London, 2015. https://www.culturepartnership.eu/en/article/cultural-and-creative-spillovers-in-europe. Accessed on: 15 May 2021.

[15] Scott, A.J., *On Hollywood: The Place, the Industry*, Princeton University Press: Princeton, 2005.

[16] UNCTAD & UNDP, *Creative Economy Report, the Challenge of Assessing the Creative Economy Towards Informed Policy-Making*, 2008.

[17] IDEA, KEA & SMIT, *Mapping the Creative Value Chains – Study on the Economy of Culture in the Digital Age*, 2017. https://keanet.eu/publications/mapping-the-creative-value-chains/. Accessed on: 15 May 2021.

[18] KEA, *Impulse Paper on the Role of Cultural and Creative Sectors in Innovating European Industry*, 2009. https://keanet.eu/publications/impulse-paper-on-the-cultural-and-creative-sectors-innovating-european-industry/. Accessed on: 15 May 2021.

[19] Colantonio, A. & Dixon, T., *Measuring Socially Sustainable Urban Regeneration in Europe*, Oxford Institute for Sustainable Development (OISD), Oxford Brookes University, 2009.

[20] Polèse, M. & Stren, R.E., *The Social Sustainability of Cities: Diversity and the Management of Change*, University of Toronto Press: Toronto, 2000.

[21] Chiu, R.L.H., Sustainable development: A new perspective for housing development. *Proceedings of the 21st Century: Challenge and Commitments Conference*, 2004.

[22] Weingaertner, C. & Moberg, Å., Exploring social sustainability: Learning from perspectives on urban development and companies and products. *Sustainable Development*, **22**(5), pp. 122–133, 2011.

[23] Palich, N. & Edmonds, A., Social sustainability: Creating places and participatory processes that perform well for people. *Environment Design Guide*, pp. 1–13, 2013. http://www.jstor.org/stable/26151925. Accessed on: 15 May 2021.

[24] Dempsey, N., Bramley, G., Power, S. & Brown, C., The social dimension of sustainable development: Defining urban social sustainability. *Sustainable Development*, **19**(5), pp. 289–300, 2009.

[25] Bacon, N., Cochrane, D., Woodcraft, S. & Brown, J., *Creating Strong Communities: How to Measure the Social Sustainability of New Housing Developments*, The Berkeley Group, 2012.

[26] Seçilmiş, İE, Türkiye'de yaratıcı endüstrilerin kümelenmesi. *Ege Akademik Bakış*, **15**(1), pp. 9–18, 2015.

[27] İzmir Kalkınma Ajansı, *Türkiye'de yaratıcı endüstrilerin İİBS-2 bölgeleri düzeyinde analizi: İzmir'e Bir bakış*, 2021. https://izka.org.tr/. Accessed on: 18 May 2021.