3 Independently operated coworking spaces and the effects of the COVID-19 pandemic

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Introduction

The emergence of coworking spaces (CSs) in urban areas has attracted numerous social sciences and humanities studies. However, there is a lack of research on the effects of the COVID-19 pandemic on functioning CSs (Ceinar & Mariotti, 2021; Rossi & Mariotti, 2021). An abrupt change has been observed in implementing COVID-19 measures such as social distancing and hygiene measures and limiting physical interactions. These are core elements of life at CSs (Bouncken & Reuschl, 2016; Merkel, 2015). Physical interactions lead to knowledge sharing and innovation (Capdevila, 2015; Bouncken & Reuschl, 2016), supporting urban buzz. In CSs, knowledge may be transferred and acquired during informal meetings and various group events.

CSs enable face-to-face interactions (Spinuzzi, 2012) that lead to planned or serendipitous chats creating urban buzz (Capdevila, 2015). Buzz refers to a 'thick web of information, knowledge, and inspiration that circulates between a cluster's actors' (Bathelt, 2008). Buzz is typical for urban settings (Storper & Venables, 2004) with a high density of individuals. The same applies to CSs where a 'micro-local buzz' occurs (Capdevila, 2015). 'Buzz' has also been used to describe the setting of significant events, e.g. international trade fairs (Bathelt & Schuldt, 2008; Schuldt & Bathelt, 2011). However, in this respect, global buzz is more likely established between future partners (Bathelt & Schuldt, 2008), which constitutes knowledge interactions and helps to acquire information.

We concentrate our analysis on CSs that share common norms and focus on collaboration (Brown, 2017). Coworking spaces (predominantly corporate CSs) that are only theoretically engaged in collaboration (Micek, 2020) are excluded. Social interaction and knowledge sharing in corporate CSs are limited due to hierarchical relationships and organizational routines compared to independently run coworking spaces. On the other hand, independent CSs institutionalize social and professional offerings such as events, workshops, or networking services (Bouncken et al., 2018). Capdevila (2015) has argued

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that CSs host events that represent 'temporary clusters' (Bathelt et al., 2004; Bathelt & Schuldt, 2008) where 'external actors can participate and share external knowledge'. Following Capdevila (2015), we treat events as a beneficial milieu for generating buzz and, consequently, knowledge clusters (Pinch et al., 2003). In this research, events are understood as social practices that boost buzz on various micro-local scales and enhance social relationships. Thus, we argue that events form temporary micro-clusters, facilitate social interaction, and enable knowledge creation. Before the pandemic, the knowledge clusters established at CSs were mainly based on in-person meetings, whereas during the COVID-19 pandemic, the transition to more temporary virtual clusters may have been observed.

This chapter mainly addresses three research gaps that need to be filled. Firstly, although we acknowledge the traditional understanding of CSs as settings of community building, we go beyond this perspective and study events as a typical element of CS life that enhance knowledge relationships established during buzz. Secondly, we employ quantitative social media analysis, which is not common when analyzing CS operations. Thirdly, despite a few cases (Mayerhoffer, 2020; Belvončíková & Némethová, 2021), the CSs in the selected study area (capital cities of Central and Eastern Europe) have not been explored in depth.

This chapter also addresses the question of how the scale and scope of events organized by and in CSs changed between the pre-pandemic and pandemic periods. It is assumed that in-person events decreased, consequently being replaced by virtual events. Therefore, we study CSs operating in person and their scale and scope of events in both the pre-pandemic (from March 2019 to February 2020) and pandemic (from March 2020 to February 2021) periods. Since large cities attract the vast majority of CSs due to localization and urbanization economies, the chapter focuses on CSs operating in four capital cities in Central and Eastern Europe (CEE).

According to previous studies, CSs do not constitute a homogeneous group. Orel and Kubátová (2019) distinguish two types of CSs: (i) independently run CSs that focus on freelancers and micro-firms as their target group; and (ii) franchise-based CSs. Following Fiorentino's (2019) typology, the first type of CSs may be identified as 'social and start-up incubators' since they are supposed to increase the entrepreneurial and creative spirit of local communities.

With regard to the geographical scope of activity and the position of the CS provider (Bouncken & Reuschl, 2016), CSs could be divided into three categories:

i International CSs, which predominantly consist of open-corporate CSs (Bouncken et al., 2018) and are led by international coworking brands, where some are global operators – ImpactHub, Regus, HubHub, or WeWork – and a few operate internationally – WorkLand-Vabaduse (Estonia, Latvia, and Lithuania).

ii Nationwide corporate CSs, e.g. ClockWork (Poland).
iii Independently run (individual) CSs (Bouncken et al., 2018).

This chapter focuses on the third type, independently run (IR) CSs. We argue that such CSs do not receive support from their international owners and rely only on their own financial resources. On the other hand, IR CSs enhance the cooperative environment more considerably than internationally operated CSs since they primarily focus on providing flexible office space. In addition, formal and informal relationships between IR CSs and local communities should be more extensively developed compared to corporate CSs. One reason for investigating independently led CSs lies in their weaker economic performance. Therefore, IR CSs may suffer from pandemic measures more than corporate CSs. The COVID-19 pandemic has been a substantial shock for the organization of IR workspaces. Many of them have had to leave non-core activities to sustain themselves on the market.

The metropolitan areas of Bratislava, Prague, Tallinn, and Warsaw

The case study presented here focuses on major metropolitan areas specifically represented by several capitals in selected peripheral EU countries: Bratislava (Slovakia), Prague (Czech Republic), Tallinn (Estonia), and Warsaw (Poland). All these capitals have proved their role as global cities, being considered internationally recognized hubs in the network of advanced producer services and headquarters of transnational corporations (Taylor, 2010; GaWC, 2020). Specifically, the first group of the selected metropolitan areas consists of two 'Alpha -' global cities (Prague and Warsaw), Bratislava occupies the second group as a 'Beta -' global city, and the third group consists of Tallinn, ranked on the 'Sufficiency' level of global cities. This prerequisite gives the selected capitals a competitive edge for CSs development due to agglomeration economies and both Marshall-Arrow-Romer and Jacobs knowledge spillover. The role of the respective metropolitan areas in the formation of these global cities is further supported by their dominance in the respective national economies. Their power is measured by the city's percentage of GDP based on national statistical data. All capitals have a higher share of GDP than their share of the total population (see the following): Tallinn, 54.4%; Bratislava, 28.5%; Prague, 27.7%; and Warsaw, 17.6%.

The second factor of the preferred location of CSs in the respective metropolitan areas – localization and urbanization economies – is supported by the population size of these cities and their share of the countries' total population. The capitals occupy two city size categories by population. The first category contains large cities with more than one million inhabitants – Warsaw (1.791 million) and Prague (1.398 million); and the second – medium-sized cities – includes Bratislava (441,000)), and Tallinn (438,000), all as of 2020.

An analysis of the selected capitals' share of their countries' total population resulted in their division into two categories. The first category, with a percentage of total population up to 15%, comprises Warsaw (4.7%), Bratislava (8.1%), and Prague (13.1%).

On the contrary, the second category, with a share of total population above 15%, includes Tallinn (32.9%). The value of the outlier, Estonia, is related to its total population: 1.3 million as of 2020. It is ranked as one of the smallest countries in the EU by population size. However, all the capitals selected are the most prominent cities in their respective countries in terms of population. The findings may lead to the conclusion that the chosen capitals respect Zipf's empirical law on the rank-size distribution of cities.

These cities show a time lag in the development of CSs compared to Western Europe or the Nordic countries. A study of the development of CSs in the selected metropolitan areas revealed that the longest-operating CS in these cities is located in Warsaw (established in 2008; Smętkowski et al., 2019), followed by Prague (established in 2009; Mayerhoffer, 2020), and Bratislava (established in 2010). On the contrary, IR CSs commenced activity in Tallinn between 2016 and 2017, followed by Warsaw, where the first CS started operations in 2015.

Methods

We used mixed methods that combined both qualitative and quantitative data. Firstly, we produced a primary database consisting of the essential characteristics (location, size, year of establishment, type of ownership) of CSs operating in selected CEE capitals. Secondly, in-depth online interviews with managers or owners of CSs consisting of open- and closed-ended questions were carried out. All IR CSs in the respective capitals were asked to conduct interviews. This approach was used because a substantial share of CSs were closed while doing the research. We conducted 18 online interviews that lasted between 30 and 90 minutes. They represent almost half (43%) of the total number of IR CSs open between January and March 2021 in the cities studied. The goal of the interviews was to identify the scale of CS operations during the pandemic, particularly in terms of organized events. Next, to analyze the impacts of COVID-19 on events organized by CSs, inductive coding was done manually using ATLAS.ti software. Coding was done line by line to identify what sorts of events were influenced and how. Descriptive coding to summarize extracts using keywords was applied. The relevant codes were then grouped into three main categories based on the type of event mentioned: social events, educational events, and in-person events. Axial coding to find relationships and links between codes and categories was also applied. Finally, we studied the effects of the COVID-19 pandemic on the quantity of educational/social and in-person/virtual events.

Thirdly, to test the results of the qualitative analysis, the scale and scope of events organized by CSs in the pre-pandemic and pandemic periods was

studied. The Facebook news produced by these CSs was summarized in the secondary database. The following variables were collected in the database to conduct subsequent social media analysis:

i The number of internal in-person events that occurred on CS premises;
ii The number of external in-person events that occurred off CS premises but were (co-)organized by the CSs;
iii The number of virtual events.

To perform social media analysis, we began by calculating the total number of each event per category before and during the pandemic. Five types of events were then identified in this respect: educational, training-oriented, leisure-oriented, community-oriented, and other.

COVID-19-related restrictions

To identify countries with the weakest and strongest COVID-19-related restrictions, we used the Government Stringency Index (GSI; Our World Data, 2021) constructed by the Oxford Coronavirus Government Response Tracker (2021). This index is composed of the mean score of nine different metrics with values between 0 and 100. In case of variations in policies among subnational units, the index considers the most stringent among the administrative units. The average GSI (between 1 January 2020 and 15 February 2021) for Estonia is the lowest (41.4), which means that restrictions were the weakest in this country in our study. This score is lower than for Poland (53.2), the Czech Republic (50.8), and Slovakia (51.6). This difference is even more evident when considering only the second wave of COVID-19, when the average GSI of Estonia is 36.3, and the other three countries reached around 59 on average.

For the vast majority of the pandemic period in Estonia and to a lesser extent in Poland, CSs were open with restrictions applied to the number of desks and users. They also introduced safety precautions (physical distancing, masks, and hand cleaning). In the remaining two countries, CSs were closed for a more extended period in late autumn 2020 and winter 2020/2021.

CSs in the study area: an overview

In CEE countries, CSs are claimed to be primarily concentrated in the capital cities. However, such findings are related to the settlement system in any given country, as in Estonia. In the other countries involved in the study, the total number of CSs in capitals is significantly lower.

Independently operated CSs constitute a significant share of coworking spaces in three out of the four capitals. As the largest city, Warsaw has the most corporate CSs (Smętkowski et al., 2019). However, during the pandemic, the operations of CSs were substantially limited. The number of CSs

decreased during the pandemic by 65–75% except for Tallinn, where new CSs opened.

Effects of the COVID-19 pandemic on IR CSs events: a qualitative perspective

A network view of relationships between the various behaviours of IR CSs was used to present the data graphically (see Figure 3.1). Code nodes were automatically assigned a colour according to their groundedness and density. The groundedness of a code (i.e. the number of associated quotations, the first number in brackets in the node) increases the yellow tone of the node colour. Density (i.e. the number of links to other codes, the second number in brackets) increases the blue tone. The main sub-categories of events that were influenced by COVID-19 are highlighted with blue circles in Figure 3.1.

The results show that CSs often cancelled the events they planned to do or usually did. This was mainly the case for in-person events, relating not only to social events but also to educational events (Figure 3.2). 'The number of physical events organized in and through space has significantly decreased. We had to stop organizing weekly workshops and meetings for space members. Events such as chill arts, where people from the neighbourhood could come, also decreased significantly' (R42, M, Poland). Only one CS reported growth in in-person events (R12, Czech Republic). This same CS indicated growth in educational events, and another CS (R22, Slovakia) believed that the number of educational events was the same as before the pandemic.

With regard to informal virtual events, the impact of COVID-19 is somewhat inconclusive and depends on the characteristics of the CSs. Some CSs reported growth, some a drop, and some no change in informal virtual events (Figure 3.2). One CS (R22, Slovakia) mentioned that the impact on educational events was only temporary, since they were afraid that training via the internet would lack the necessary quality. However, they decided to try it after a while, and they are used to it now. Likewise, some CSs did not perceive the pandemic as entirely negative. For instance, one CS reported that they had time to prepare new educational activities.

Urban buzz in CSs

Until March 2020, IR CSs took advantage of local buzz and even attempted to go out and build relationships with local communities. 'Before the pandemic, we organized various events very often. Anyone from outside could come to the events – they were open and accessible to everyone' (R46, W, Poland). One of the Slovakian CS (R25, W, Slovakia) representatives revealed that 'before the

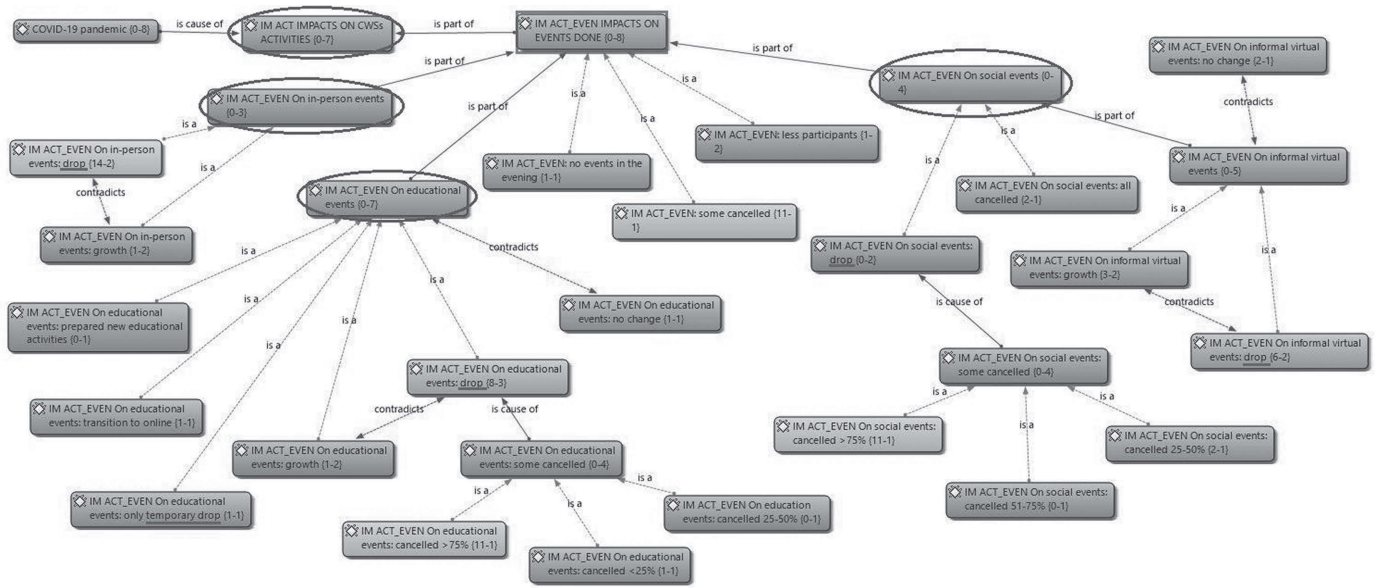

Figure 3.1 Network of relationships between the various attitudes of IR CSs towards the effects of the COVID-19 pandemic in selected CEE capitals.

Source: Authors.

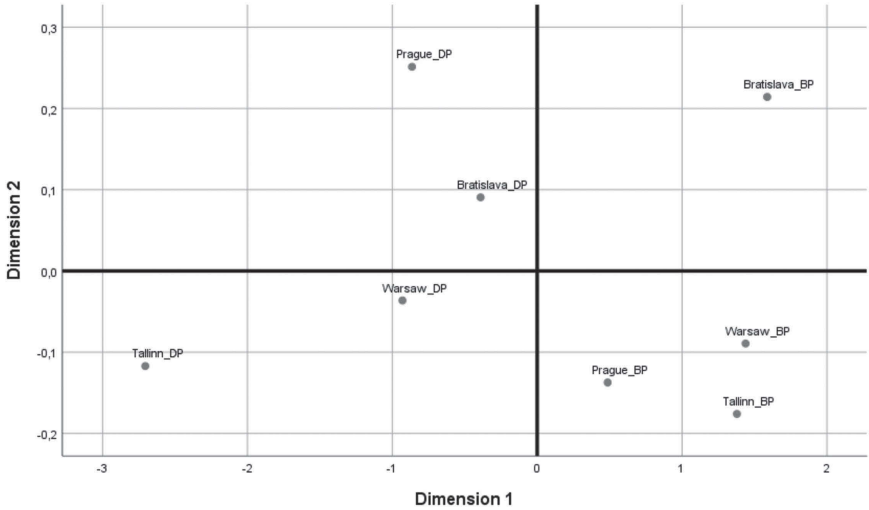

Figure 3.2 Perceptual map of stimuli coordinates versus principal component scores for selected CEE capitals based on event categories before and during the COVID-19 pandemic.

Source: Personal research.

Note: BP = Before the pandemic; DP = During the pandemic.

pandemic, collective breakfasts or evenings under the lamp had been made . . ., but such events have been radically limited.'

During the pandemic, CS managers had to cope with maintaining an internal community while operating at a distance. 'The CS's challenge was the community part: how to keep the community alive' (R32, Estonia). The scale of knowledge interactions decreased due to the reduced number of users and, in some cases, the temporary closure of CSs. In CSs that were open, the problem with the fluctuation of people arose: 'It destroys the atmosphere of coworking very much if people who had known each other changed. There was a community, and now there are 50% of new faces. Moreover, it is also banned to do community events to get to know each other, and everybody wears a mask' (R22, W, Slovakia). In sum, the urban buzz generated in CSs before the pandemic decreased and was only partly transferred to the virtual realm.

Effects of the COVID-19 pandemic on changes in IR CSs events: a quantitative perspective

Inconclusive information gathered in the interviews about the changes in the number of events was subsequently supplemented by quantitative research on

how the COVID-19 pandemic affected daily operations at IR CSs. The period from March 2019 to February 2021 was observed, with a division into two parts: (i) before the pandemic (from March 2019 to February 2020) and (ii) during the pandemic (from March 2020 to February 2021).

We analyzed 112 IR CSs operating in the second half of 2020 in the four CEE capitals studied. The distribution of IR CSs was as follows: 64 in Warsaw, 31 in Prague, 12 in Bratislava, and 5 in Tallinn.

Moreover, we observed the influence of effects of the COVID-19 pandemic on the existence of CSs, specifically:

1 Decrease in CSs open in most of the observed CEE capitals;
2 Increase in CSs not organizing any event posted on Facebook in every observed city.

After the pandemic began, the number of operating CSs decreased in all cities except Tallinn. For instance, Bratislava registered a drop in open CSs of 50%, whereas Warsaw and Prague registered a drop of 44% and 32%, respectively. In addition, since the outbreak of COVID-19, a decrease was also seen in the amount of event information on Facebook profile pages.

Due to variations in restrictions during the pandemic, we investigated CS activities by combining qualitative and quantitative research approaches,

Table 3.1 Overall characteristics of IR CSs and types of events on IR CS Facebook profile pages in selected CEE capitals before and during the COVID-19 pandemic (2020–2021).

Indicators/cities	*Bratislava*	*Prague*	*Tallinn*	*Warsaw*	*Total*
Number of interviewed IR CSs (Jan–April 2021)	5	5	2	6	18
Number of opened IR CSs during the COVID-19 pandemic (Jan–February 2021)	6	21	5	36	68
Number of IR CSs (March–May 2020)	12	41	9	58	120
Share of IR CSs (March–May 2020)	70.6%	75.6%	70.0%	44.6%	56.6%
Estimated share of CSs in capitals per total number of CSs in the country (March–May 2020)	31.1%	36.5%	62.5%	44.1%	40.9%
Indicators/cities	*Bratislava*	*Prague*	*Tallinn**	*Warsaw*	*Total*
Events before the pandemic					
Total number of events	551	131	91	347	1,120
Share of internal in-person events	90.7%	71.8%	83.5%	85.3%	86.3%
Share of external in-person events	8.2%	10.7%	14.3%	13.0%	11.0%
Share of virtual events	1.1%	17.0%	2.2%	1.7%	3.3%

(*Continued*)

Table 3.1 (Continued)

Indicators/cities	*Bratislava*	*Prague*	*Tallinn**	*Warsaw*	*Total*
Events during the pandemic					
Total number of events	118	141	137	197	593
Share of internal in-person events	62.7%	58.2%	29.2%	53.8%	50.9%
Share of external in-person events	4.2%	0.0%	0.7%	4.6%	2.5%
Share of virtual events	33.1%	41.8%	70.1%	41.0%	46.0%

Source: Personal research.

Note: * Data for Tallinn were collected both from Facebook profile pages and interviews with IR CS managers.

analyzing Facebook profiles and interviews. More specifically, the analysis focused on the event information posted on CS Facebook profile pages. The collected events were grouped into three categories:

1 Internal in-person activities that occurred at CSs;
2 External in-person activities that occurred outside CSs;
3 Virtual activities.

Detailed information about the analyzed events and indicators in the two periods is provided in Table 3.1.

Examining the categories of events between the two periods shows similar differences for all the cities investigated. The differences can be summarized as follows:

i Drop in internal in-person events;
ii Drop in external in-person events;
iii Increase in virtual events.

Along with the outbreak of the COVID-19 pandemic, Warsaw registered a drop in internal in-person events of 64%; Prague, 13%; Bratislava, 85%; and Tallinn, 47%. For external in-person events, Warsaw registered a drop of 80%; Bratislava, 89%; Tallinn, 92%; and Prague, 100% during the pandemic period. In contrast to the decline in all types of in-person events, an increase in virtual events was revealed. However, the findings document substantial differences between the selected cities.

The largest increase in virtual events occurred in Tallinn (+3,800%). Recognizable increases also occurred in Warsaw (+1,267%) and Bratislava (+550%), in contrast to the slight increase documented in Prague (+157%). The respective changes between the percentage of event categories in the selected cities before and during the pandemic are summarized in Figure 3.2 using the metric multidimensional scaling procedure (ALSCAL). This reduces the number of

dimensions – the three event categories – into a two-dimensional space. In this case, the procedure was based on a similarity matrix measured by Euclidean distance. The quality of the resulting perceptual map was confirmed by goodness-of-fit measure, provided here by Kruskal's STRESS (standardized residuals sum of squares) < 0.01, which proved a perfect fit between the distances derived in the ALSCAL solution and the original Euclidean distances in the similarity matrix. Interpreting (labelling) the dimensions in the mapping of external preference within the metric multidimensional scaling procedure is not straightforward. However, by examining the changes between the percentage of event categories in the input matrix (Figure 3.2) and the co-ordinates of the CEE capitals before and during the pandemic in the perceptual map, we assume that Dimension 1 is mainly defined by the share of virtual events and Dimension 2 is primarily defined by the share of internal in-person events and the share of external in-person events. Furthermore, the range of principal component scores in Dimension 1 (from -3 to 2) shows that the share of virtual events contributes to differences among cities more than the range of principal component scores in Dimension 2 (from -0.2 to 0.3). These findings support the idea that virtual events are important for adapting business models of IR CSs during the pandemic to sustain their activities and at least temporary urban buzz.

The differences between the selected cities stem from two reasons. The first is the different number of IR CSs across the cities. The second reason lies in a different approach to communication. For example, CSs in Prague organized online events even before the pandemic to some extent, while IR CSs in other cities did not organize such events on a large scale before the pandemic. The situation following the outbreak of COVID-19 could have forced them to focus on organizing virtual types of events.

Concluding remarks

In the period of disarray due to the pandemic, IR CSs had to meet the challenge to survive. Hence, their core activities were limited, and events were no longer the core of their operations. We conclude that the pandemic and resulting constraints have forced IR CSs to change their business model. Before the pandemic, CSs served as permanent physical knowledge clusters by organizing in-person events to support knowledge transfer and knowledge spillover. Our qualitative and quantitative research revealed that the pandemic has caused CSs to shift towards organizing and participating in temporary virtual knowledge clusters. Although the number of virtual events during the period under study grew, the increase was relatively limited.

It is well known that before the pandemic, CSs contributed to local and sectoral urban buzz (Capdevila, 2015), but this buzz decreased substantially during the pandemic. Moreover, it has not been replaced by a similar buzz emerging in the virtual space during events. Even though temporary virtual

knowledge clusters of similar industries developed for some events organized by CSs, the number of events dropped significantly as revealed by both qualitative and quantitative research.

The most important limitation of the study lies in the spatial scale of buzz, which was not investigated here. From what has been analyzed at trade fairs (Bathelt & Schuldt, 2008; Schuldt & Bathelt, 2011), future research should focus on the impact of urban buzz on the innovative and economic performance of CSs.

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