The Localization of Different Types of New Working Spaces in Central Europe

Oliver Rafaj, Lukáš Danko, Shifu Zhang, and Eva Belvončíková

Abstract This chapter deals with the emergence of six different types of working spaces in Central European cities. Coworking spaces (CSs), makerspaces, fab labs, hackerspaces, living labs, and corporate labs are legal entities that in scientific literature are referred to as new working spaces (NeWSps). This chapter provides a summary overview of the emergence of individual types of NeWSps for in 138 selected cities of Central Europe—specifically in Poland, Czech Republic, Hungary, and Slovakia—over the last 15 years. The results of our research showed that between 2007 and 2021, a total of 712 NeWSps entities were established in V4 countries, with CSs being the most represented (approximately 85% of the total number of NeWSps are coworking paces) and living labs the least represented. Our results further showed that the larger the number of inhabitants in cities and countries, the greater the number of established NeWSps in them. In the final part of the chapter we present examples of good practice for individual types of NeWSps from selected cities of the V4 countries.

O. Rafaj (✉) · E. Belvončíková
Department of Public Administration and Regional Development, University of Economics in Bratislava, Bratislava, Slovakia
e-mail: oliver.rafaj@euba.sk

E. Belvončíková
e-mail: eva.belvoncikova@euba.sk

L. Danko
Department of Regional Development, Public Sector Administration and Law, Tomas Bata University in Zlín, Zlín, Czech Republic
e-mail: danko@utb.cz

S. Zhang
Department of Architecture and Urban Studies, Politecnico di Milano, Milano, Italy
e-mail: shifu.zhang@polimi.it

I. Mariotti et al. (eds.), *Evolution of New Working Spaces*,
PoliMI SpringerBriefs, https://doi.org/10.1007/978-3-031-50868-4_11

1 Introduction

New working space (NeWSp) is a term that encompasses a wide range of places that enable working in a shared environment [9]. They are considered a new phenomenon that has been occurring mainly in cities over the last 15 years. CSs, makerspaces, fab labs, corporate labs, and other spaces, have been established in different cities around the world. Although this phenomenon is more visible and more studied in the Western parts of the world, especially in the US and Western Europe, these entities have also emerged in other regions as well. In this chapter we attempt to present a spatial evolution of NeWSps in Central Europe, specifically in Visegrad 4 countries (V4)—Poland, Czechia, Hungary, and Slovakia. These countries have several common characteristics, as they have all undergone economic transformation in recent times. However, there is currently a research gap in terms of published studies on localization of NeWSps in this geographic area. Although some articles, mainly about the localization of CSs, in this region were published, they almost exclusively focused on the capital cities and their comparison with other European cities (e.g., [10] for Poland and [2] for Czechia), or on selected areas of the country (e.g. [11] for Slovakia and [7] for Hungary). The authors of this chapter believe that this contribution provides one of the first comparative, comprehensive overviews of the localization of different workspaces and thus will help to reduce the existing research gap. This chapter deals with six different types of working spaces. The aim of this chapter is to present a spatial pattern of NeWSps within V4 countries during the last 15 years. For each of the selected types of NeWSps we also discuss one good practice from different V4 cities (see section chapter "University Hubs: Hybrid Spaces Between Campus, Work, and Social Spaces").

2 Methodology and Data

To fulfill our aim, we have created a unique database of six different NeWSps within V4 countries. The types of working spaces for which we obtained data were: CSs, fab lab, makerspace, hackerspace, living lab, and corporate lab. We collected data on cities with at least 20,000 inhabitants in V4 countries. We decided to process the analysis for cities with more than 20,000 inhabitants, as based on our data, they contain more than 95% of all identified CSs and other types of new working spaces. We developed a list of cities for individual countries based on statistical data on the number of inhabitants per municipality from the official databases of national statistical offices. Our final list consists of 138 cities.

To create our own database, we used two data collection approaches. The first approach was to collect data on entities from established webpages that collects data on different working spaces (such as CSs or makerspaces). We used data from Coworker.com and Regus.com and used these websites to enumerate all the existing entities in each city included in our list. The second approach consisted in collecting

data manually via the Google web search engine. In the search field, we gradually entered individual cities from the list along with the type of working space being searched for. For example, for finding all CSs in the city of Bratislava via the Google search engine, we wrote: Bratislava coworking, and then we entered all entities mentioned in the search results into our database.

In our dataset we collected 998 different NeWSps. Subsequently, we verified their actual existence through their official websites and FB profile pages. From their websites and FB pages we collected data on the date they were established. Since not all entities stated their date of establishment on their websites or FB profile pages, we dropped those lacking this information from our dataset. Our final dataset consisted of 712 entities.

3 Results

According to our results, the first working space established was a coworking space in Prague, the capital city of Czechia. It was founded in 2007. Subsequently, in 2009 the first working spaces were also established in Poland and Hungary. In Hungary, three different CSs and one hackerspace were formed in Budapest. In Poland, the first entity was a coworking space in Warsaw. In the case of Slovakia, the first entities were established in 2010: one hackerspace in Bratislava and one coworking space in Košice.

It is not surprising that a greater total number of established working spaces was found in Poland. Furthermore, our data shows that the total number of established new working spaces is strongly related to the size of the city population.

Pearson correlation coefficient between the number of established NeWSps and city population is 0.91. We also identified strong correlations between the number of established CSs and city population (Pearson correlation coefficient is 0.90), between the number of established corporate labs and city population (0.74), and between the number of established makerspaces and city population (0.66). On the other hand, no strong correlation was found between the rest of NeWSps types and city population.

Another clear finding is that the most common established NeWSps within all countries were CSs. On average, 85% of all established NeWSps within V4 countries were CSs. On the other hand, the least frequently established NeWSps were living labs. This finding came as a little surprise because we expected that the least common type of NeWSps would be corporate labs because of the financial difficulty of their establishment and operation. Table 1 is an overview of all types of NeWSps established within V4 countries during the last 15 years.

However, differences can be seen in the development trend of the emergence of NeWSps within V4 countries. The data shows that in Poland there were three significant "population booms" with regard to the establishment of NeWSps. The first wave of new establishments occurred between 2009 and 2010, second one in 2014–2015, and the last one in 2017–2019. In other countries, the development trends were more conservative. In Czechia, the most significant NeWSps population growth

Table 1 Number of different types of NeWSps per country established in the 2007–2021 period

Country	Number of						
	Corporate labs	CSs	Fab labs	Hackerspaces	Living labs	Makerspaces	Total
Czechia	0	116	3	5	0	9	133
Hungary	1	62	4	3	1	5	76
Poland	21	365	16	14	1	15	432
Slovakia	0	62	2	4	0	3	71
Total	22	605	25	26	2	32	712

Source Elaboration by the Authors

was in 2014–2019. In Hungary, the most visible growth occurred in 2016–2020. And in the case of Slovakia, the greater population boom was in 2016–2018. Figure 1 shows the development of NeWSps within V4 countries over the years.

Figure 2 shows the cumulative development of NeWSps within V4 countries during the observed time period. As mentioned before, it is not surprising that the highest number of established NeWSps between V4 countries was in Poland, since from the perspective of national population this is the largest country in the group.

Another interesting but equally expected finding was that the number of established NeWSps changed in the observed cities. Our data shows that the number of established NeWSps in cities is strongly related to their population size. In the case of cities in the V4 countries, a kind of clear pattern can be seen. The more inhabitants a city has, the greater is the number of NeWSps established within its territory. Our data collection showed that the most NeWSps were created in Warsaw (117),

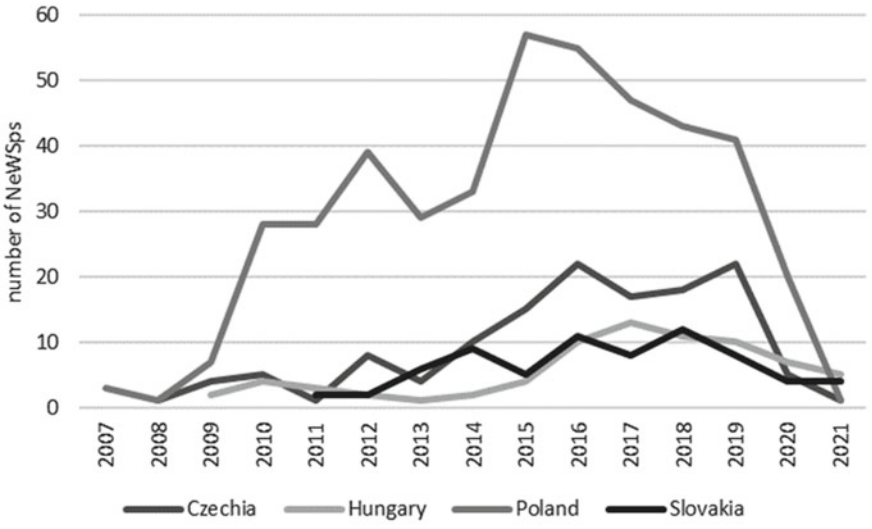

Fig. 1 Number of newly established NeWSps per year. *Source* Elaboration by the authors

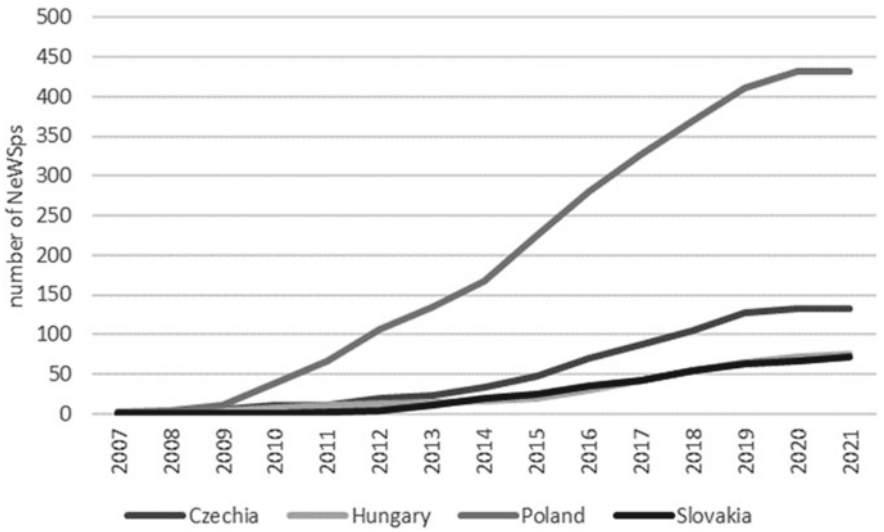

Fig. 2 Cumulative development of newly established NeWSps over time. *Source* Elaboration by the authors

Prague (48), Krakow (42), Budapest (41), and Wroclaw (38). In terms of total population, the largest cities in the V4 countries are Warsaw (1), Budapest (2), Prague (3), Krakow (4), Lodz (5), and Wroclaw (6). Figure 3 provides an overview of established NeWSps in all observed cities. The size of the bubble indicates the number of established NeWSps.

4 Examples of NeWSps in V4 Cities

This section presents best practices of NeWSps in V4 countries. We begin with coworking space as the most represented type. BASE4WORK Bratislava (founded in 2021) was selected as a best practice, as a jury of experts in the coworking movement awarded this space the Co-Working Space of the Year award by FRAME 2022. The award highlighted a picture of a thriving coworking movement in the capital city of Slovakia, in which this is a unique space attracting innovative and creative companies. It serves as a creative hub in a revitalized national cultural landmark. BASE4WORK Bratislava is designed as a flexible space with unconventional design solutions and space layout, for the benefit of workers and their comfort, with an emphasis on sustainability [1].

As for FabLabs, we present FabLab Budapest, which was founded in 2011 as a cornerstone of an international open innovation network involving more than 100 countries. More importantly, this space is not merely a manufacturing workshop but is rather a hub of digital manufacturing with a multi-stakeholder community. It

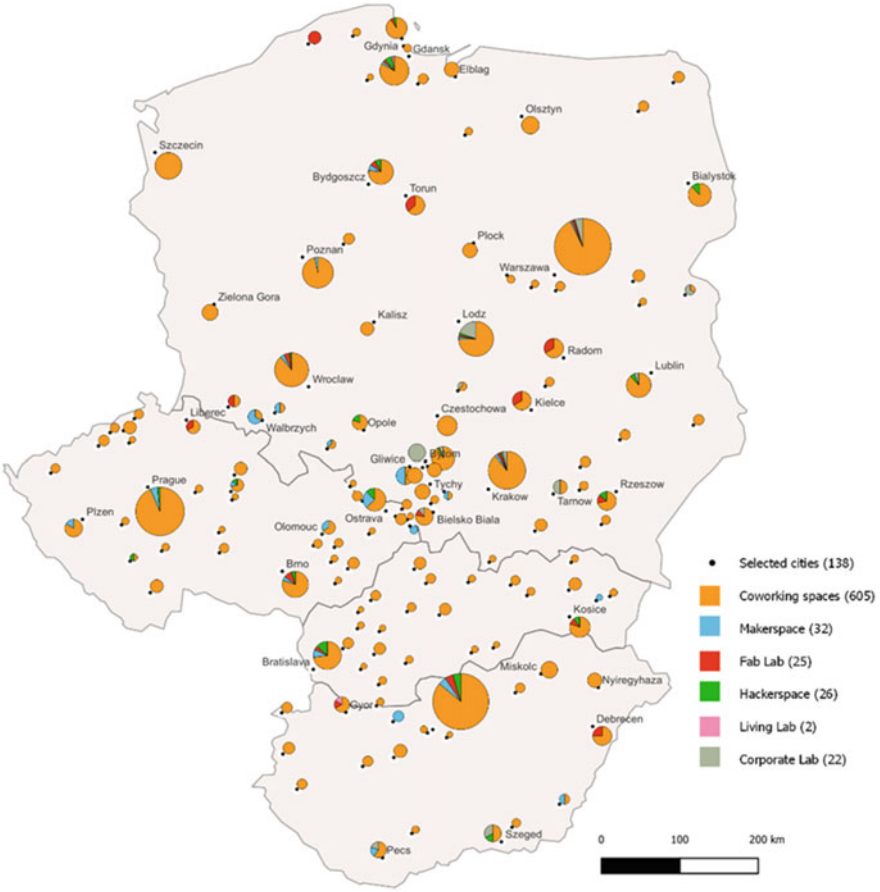

Fig. 3 Spatial distribution of newly established NeWSps in V4 countries between 2007 and 2021. *Note* For a better clarity of the figure, only cities with more than 100,000 inhabitants are assigned a name. *Source* Elaboration by the authors

provides state-of-the-art technologies and materials, with a great emphasis on talent development for prototyping and small-scale production. FabLab Budapest serves as a knowledge hub, linking experts with experience in managing complex innovative knowledge-based projects, investors, and individuals with entrepreneurial ideas.

Hackerspaces are currently on the rise with hackathons as a collaborative platform for programmers, software developers, designers, managers, and experts. This idea is intensified by Hackerspace Krakow, a collaborative NeWSp founded in 2012. Most importantly, this space is a true community-operated physical place where people learn, create projects and exchange knowledge. It signifies the idea of an open workshop primarily aimed at the local community, with a diverse portfolio of physical and virtual events to develop and work on projects and learn from each other. Hackerspace Krakow remains a vivid space with regular events to collaborate on

current topics in the IT field. Additionally, diverse activities carried out by this space are complemented with workshops focused on home automation and programming to disseminate knowledge among participants.

With the rise of the maker movement, we would like to present Futlab as one of the first and most complex makerspace in Prague. More importantly, Futlab is a grassroots initiative (bottom-up) with a focus on the Do It Yourself (DIY) approach, with open source and creative commons. The infrastructure is community based and environmentally friendly. Futlab is gaining traction as an educational center and a space for modern makers. This space is a learning platform where various workshops take place to share knowledge on DIY. Makerspace is about flexibility, and Futlab provides a variety of membership options to meet the needs of all users. The infrastructure includes a high-tech workshop with modern equipment for art, business, or just leisure activities.

The following paragraph is devoted to living labs which are open innovation ecosystems based in real environments, where communities nurture innovation to achieve sustainable impact. Most importantly, living labs generally engage diverse stakeholders in NeWSps to pursue open innovation to change the scenery. We present the case of Krakow Living lab, which was established in 2013 as a joint-venture between the Kraków Technology Park (KPT) and the Municipality of Kraków. Its being located in Krakow provides a buildup for collaboration between the living lab and hackers to share knowledge, experience, expertise, and contacts. Local critical mass has potential for testing products and services in the conditions in which they are used in real life environments. This platform develops concepts up to their implementation through testing and prototyping toward smart cities, with an emphasis on the Regional Innovation Strategy.

Lastly, as an example of a corporate lab, we present the company Creative Laboratory Ltd. It is a private company established in 1993 in Szeged, Hungary. This company is has developed and manufactured in vitro diagnostics (IVD) for clinical laboratories (B2C) and subcontracting partners for pharma- and biotech companies and universities in the framework of different research projects. The company has also developed in-house technologies in the field of drug discovery (B2B); it is a member of the Hungarian Biotechnology Association and has cooperated with several organizations of local and regional importance, such as Biological Research Center—Szeged, Goodwill Pharma Ltd. or Szeged University.

5 Conclusions

The aim of this chapter was to present the spatial arrangement of NeWSps within V4 countries during the last 15 years and present some examples, as good practices, for each type of NeWSps from different V4 cities. Similarly, to western European and North American countries, there has recently been a significant boom in the establishment of NeWSps in central European countries. Our data showed that 712 different NeWSps were established between 2007 and 2021 within the 138 cities of

V4 countries. The most common type of newly created NeWSps is coworking space (approximately 85% of all NWS). On the other hand, the least common type is living lab. In our research, we identified the establishment of only two living labs. Our research showed that patterns are similar in countries and in cities. Both in countries and in cities, the more the inhabitants, the more the NeWSps established. Interesting examples of different types of NeWSps include: the coworking space BASE4WORK in Bratislava, FabLab Budapest, Hackerspace in Krakow, Makerspace Futlab in Prague, Living Lab in Krakow Technology Park, and the Creative Laboratory Ltd. as a corporate lab in the city of Szeged.

We are aware that our research has several limitations and that it would be appropriate to describe our findings in greater detail. For example, it would be good to examine the localization factors of individual NeWSps in the V4 countries. But these limits, as well as topics for more detailed elaboration, give us a good reason for continuing our research.

Acknowledgements This chapter was supported by following grants and projects: (1) It was partly supported by a grant from the Ministry of Education, Science, Research and Sport of the Slovak Republic, Scientific Grant Agency VEGA, project no. 1/0249/22 'Coworkings and the impact of the COVID-19 pandemic—opportunities for urban economic development', (2) also, by INTER-EXCELLENCE, subprogram INTER-COST, LTC20047 'Regional development and public policy under creative economy: Mapping, knowledge sharing and management of New Working Spaces in the Czech Republic', (3) and by the Chinese Scholarship Council, no. 202006160029.

References

1. BASE4WORK. https://www.base4work.com/sk/
2. Bednář P, Mariotti I, Rossi F, Danko L (2021) The evolution of coworking spaces in Milan and Prague: spatial patterns, diffusion, and urban change. In: Orel M, Dvouletý O, Ratten V (eds) The flexible workplace. Human resource management. Springer, Cham, pp 59–78. https://doi.org/10.1007/978-3-030-62167-4_1
3. Corporate lab—Creative Laboratory Ltd. http://creativelab.hu/index_en.html
4. Fablab Budapest. https://www.fablabbudapest.com/
5. Futlab Makerspace. https://futlab.cc/makerspace/
6. Hackerspace Krakow. https://hackerspace-krk.pl/
7. Katon J (2017) Rural enterprise hub supporting rural entrepreneurship and innovation–case studies from Hungary. European Countryside 9(3):473–485
8. Living Lab Krakow. https://www.kpt.krakow.pl/en/laboratories/livinglab/
9. Mariotti I, di Marino M, Bednář P (eds) (2023) The COVID-19 pandemic and the future of working spaces. Routledge.https://doi.org/10.4324/9781003181163
10. Méndez-Ortega C, Micek G, Małochleb K (2022) How do coworking spaces coagglomerate with service industries? The tale of three European cities. Cities 130:103875. https://doi.org/10.1016/j.cities.2022.103875
11. Racek MHF, Holenka M (2015) Coworking spaces in Slovakia. Manage Rev 9(2):29–43