

Nguyen Phuong Thao
Faculty of Commerce, Hospitality and Tourism

**ÖT KÖZÉP-KELET EURÓPAI FŐVÁROS SZÁLLODAIPARÁNAK
ÚJJAÉPÜLÉSE A COVID-19 UTÁN**

**REBUILDING HOSPITALITY AFTER COVID-19 PANDEMIC
IN CENTRAL AND EASTERN EUROPE**

Éva Szabóné Erdélyi PhD - Department of Methodology for Business Analysis

Klára Karakasné Morvay PhD - Department of Hospitality

Date of closing the manuscript: 7th, November 2022.

I. Contents

I.	Contents.....	1
II.	List of figures and tables	2
1.	Introduction	3
2.	Literature review	5
2.1.	Introduction on five Central and Eastern European cities.....	5
2.2.	Impact of the COVID-19 pandemic.....	6
2.2.1.	Global scale.....	6
2.2.2.	Central and Eastern European scale.....	7
2.3.	Big data.....	8
2.4.	Rebuilding hospitality.....	10
3.	Methodology.....	14
4.	Findings and data analysis.....	15
4.1.	Market Makeup.....	15
4.2.	Trended Data.....	18
4.3.	Types of Business.....	22
4.4.	Pipeline and development.....	27
5.	Conclusions.....	32
III.	List of references.....	36
IV.	Appendix.....	41

II. List of figures and tables

Figure 1: The map of selected major Central and Eastern Europe cities.

Figure 2: COVID-19 timeline in five CEE countries

Figure 3: Share of people who completed the initial COVID-19 vaccination protocol in five CEE countries

Figure 4: Number of Properties and Rooms in 5 CEE cities

Figure 5: Scale: Number of Rooms in 5 CEE cities

Figure 6: Location: Number of Rooms in 5 CEE cities

Figure 7: Size: Number of Rooms in 5 CEE cities

Figure 8: Top 12 Hotel Brands in five CEE cities

Figure 9: Supply and Demand in Prague

Figure 10: RevPAR in the five CEE cities

Figure 11: Revenue in the five CEE cities

Figure 12: Historic Occupancy Seasonality in Budapest

Figure 13: Historic ADR Seasonality in Budapest

Figure 14: Historic RevPAR Seasonality in Budapest

Figure 15: Segmentation: Group, Transient, & Contract RevPAR in 5 CEE cities

Figure 16: Number of Pipeline Properties and Rooms in 5 CEE cities

Figure 17: Budapest: Top 10 Hotel Companies by Number of Existing and Pipeline Rooms

Figure 18: Scale: Number of Pipeline Rooms in 5 CEE cities

Figure 19: Phase: Number of Pipeline Rooms in 5 CEE cities

Figure 20: Map of Hotels in Pipeline Project in Budapest

1. Introduction

The impact of the COVID-19 pandemic has been unprecedented on the hospitality and tourism industries around the world. According to the preliminary estimation of the UNWTO (2022a), international tourist arrivals in 2021 were 72% less than the pre-pandemic level in 2019. While Europe had the strongest pace of recovery worldwide at 19% international arrivals in 2021 owing to easing travel restrictions and vaccination rates, the future of tourism is uncertain with the appearance of the Omicron variant. While a number of academic literature have examined the current and future management strategies to restart tourism and hospitality in Europe, there has been little discussion about Central and Eastern Europe (CEE), particularly about its major cities with similar characteristics. This study focuses on Budapest, and its competitors, Vienna, Bratislava, Prague, and Kraków. Throughout this paper, the term CEE will refer to Central and Eastern Europe.

On one hand, a quantitative statistical analysis of datasets provided by Smith Travel Research (STR) was conducted on the selected markets during various timescales, from pre-COVID and during COVID periods to the future after the pandemic. The database of STR, a company tracking data on supply and demand for the hotel industry, is extremely valuable for the current study due to its collection of performance data from hotels worldwide, such as trended data, submarkets, and pipelines. On the other hand, the current study investigates how hotels coped with the pandemic and strategize for the future to restart hotel operations through semi-structure in-depth interviews with four hotel managers and brand managers in selected Budapest-based hotels. The research explores how the CEE region – particularly Budapest-based hotels – responded to the new situation and performed amid the outbreaks, as well as strategizes for the future to restart hotel operations and rebuild hospitality.

The principal aims of this study are as following:

1. Analyzing generally the market of Budapest and its competitor set in Central and Eastern Europe pre- and during the COVID-19 pandemic.
2. Gaining insights into the impact of the COVID-19 pandemic on the five CEE cities.
3. Evaluating the trend of destination recovery after the COVID-19 pandemic.
4. Gaining an understanding of the current and future management strategies of hoteliers in the markets with a focus on Budapest, Hungary.

5. Making practical and sustainability-oriented suggestions for hoteliers and related players to develop the hospitality industry after COVID-19 outbreaks in CEE and specifically Budapest, Hungary.

The main questions addressed to conduct the research in this paper are:

1. How hotels in Budapest and its competitor set in Central and Eastern Europe have responded to and have performed during COVID-19 outbreaks?
2. How has the COVID-19 pandemic had an impact on the five CEE cities?
3. What are the management strategies and trend of destination recovery after the COVID-19 pandemic in the hospitality industry in the targeted CEE cities?

It is expected that all cities were impacted negatively during COVID and had various unprecedented changes in operational strategies, supply, demand, and key performance indicators. The strategy for rebuilding hospitality in CEE regions is to invest in technologies that streamline operations, provide personalized travel experiences, sustain enhanced hygiene measures, and overcome labor shortages. The results reveal that hotel performance indicators significantly dropped during the pandemic and hoteliers quickly implemented operational changes to adjust to the circumstances. Additionally, data analysis plays an important role in defining management strategies and trends of hospitality recovery in the CEE area, specifically in the Budapest market. By making practical and sustainability-oriented suggestions to develop tourism and hospitality industries after COVID-19 outbreaks, the findings of this research are anticipated to be valuable to various tourism stakeholders, particularly destination managers, hoteliers, and other related players, to implement effective practices in the CEE region.

2. Literature review

2.1. Introduction on five Central and Eastern European cities

The group of major CEE cities was chosen for this study based on their geographical proximity, as well as their importance as the cultural, economic, and political center of their countries. While four out of five cities are the capitals, including Budapest, Vienna, Prague, and Bratislava, Kraków was selected for the study, instead of Warsaw, the capital of Poland, as it is the most popular tourist destination in the country and plays an important role in the expansion of international transportation links in the CEE region. While the target cities have similarities such as having beautiful historical architecture and easily accessible transportation with international airports and railways, there are differences among them, for example, the national currency and primary type of tourists.



Figure 1: The map of selected major Central and Eastern Europe cities.

This current study will reveal how the cities experienced similar negative impacts from the first COVID wave, when the travel restrictions were imposed on them, however, were able to perform differently afterward. One of the essential aspects of forecasting the future of restarting tourism is to investigate how the pipeline and events in each country would affect the industry. The detailed information and comparison of the selected cities can be found in Figure 1 in the Appendix.

2.2. Impact of the COVID-19 pandemic

2.2.1. Global scale

World Health Organization (WHO) defined coronavirus disease (COVID-19) as “an infectious disease caused by the SARS-CoV-2 virus”, which emerged in December 2019 (WHO, 2022a). The illness can be severe, leading to lasting health issues for those who recovered and more than 6.5 million deaths worldwide (worldometer.info, 2022). In March 2020, WHO announced COVID-19 a global pandemic, which put 96% of all world destinations under travel restrictions in the second quarter of the year (UNWTO, 2020). The application of restrictive measures has affected tourism and hospitality heavily with an unprecedented magnitude due to social distancing, closure of borders, suspension of flights, and various other courses of action. 2020 recorded a historic low level of international arrivals with a plunge of 72% over 2019 (UNWTO, 2022a). By the summer, the world experienced a moderate lifting of entry restrictions and more partial border closure. However, from September to the end of the year, many countries relaunched stricter travel regulations as a response to a spike in infected cases and reports of new variants. According to UNWTO, the year 2020 ended with a drop of 63% in export revenues from international tourism (-\$1.1 trillion) and a loss of \$2 trillion in Tourism Direct Gross Domestic Product (TDGDP) (2021). In the meantime, despite overall wary prospects of recovery, the development of the COVID vaccine started to raise hope for a potential “new normal” in the upcoming year, especially in the tourism industry (Yang, et al., 2021). The pandemic watched domestic tourism becoming the prime travel trend; however, it was not strong enough to accelerate the pace of recovery as many destinations depend greatly on foreign tourists.

In World Tourism Barometer, UNWTO suggested that international tourism would take from two-and-a-half to four years to restore to the position of pre-COVID (2021). The increasing vaccination rate worldwide from the beginning of 2021 has simulated the pace for tourism recovery with easing mobility limitations and growing traveler confidence. Whilst international tourism witnesses a strong recovery in the first half of 2022, tripling (+221%) in arrivals over 2021, it remains 54% below the level of 2019 (UNWTO, 2022b). As of May 2022, international tourists took approximately 250 million trips, which is three times as much as the number in 2021 of 77 million arrivals. Scenarios of tourism recovery in 2022 compared to 2019 level show the best result in Europe with 65% to 80%, followed by the Americas at 63% to

76% (UNWTO, 2022b). Despite its positive outlook for the years ahead, tourism suffers from several major drawbacks such as the challenges in the economy, labor shortage, and geopolitics of the Russia-Ukraine War.

2.2.2. Central and Eastern European scale

The COVID-19 pandemic as a health crisis disrupted the tourism sector in 2020 with travel restrictions from many countries. It is important to set a general agreement on the timeline of COVID-19 impact and response in the five CEE countries by evaluating each milestone. The results obtained from the preliminary analysis of the timeline are shown in Figure 2. In 2020, the first cases of infection emerged in late February in Austria and in early March in others. While Slovakia was the only country implementing the first health safety measures before its first case, Poland was the one announcing its state of emergency before having the first confirmed infection. The full national lockdown was introduced in all nations between the middle of March and the beginning of April, starting with Hungary and ending with Slovakia. The usage of masks was mandatory in most countries by the end of April, except for Hungary having the rule only in public transportation in Budapest (BKK, 2020). One possible explanation for the stricter launch of mitigation measures in Slovakia, Czech Republic, Poland, and Hungary compared to Austria is that the capacity of the healthcare system is weaker, according to Guasti (2020). Despite an uneven distribution of vaccines recorded across world regions, the five countries in CEE provided their citizens with the first doses around the same timeframe, from 23 December 2020 to 6 January 2021 (WHO, 2022b). Data from WHO in September 2022 shows that Slovakia has the lowest number of confirmed cases at 1.8 million with more than 20 thousand deaths (Figure 2). The highest numbers belong to Poland with 6.2 million confirmed cases and around 117 thousand deaths.

Country name	First case	First measures	State of emergency	Time from 1st case to emergency state	Full lock-down	Mandatory Masks	First COVID-19 vaccine dose	Confirmed cases (Sep 2022)	Deaths (Sep 2022)
Slovakia	06.03.2020	28.02.2020	12.03.2020	6 days	08.04.2020	25.03.2020	06.01.2021	1,838,466	20,429
Czech Republic	01.03.2020	06.03.2020	12.03.2020	11 days	15.03.2020	18.03.2020	23.12.2020	4,070,913	40,943
Poland	04.03.2020	10.03.2020	02.03.2020	- 2 days	24.03.2020	16.04.2020	23.12.2020	6,238,544	117,341
Hungary	04.03.2020	07.03.2020	11.03.2020	7 days	16.03.2020	27.04.2020 (Budapest)	23.12.2020	2,070,443	47,409
Austria	25.02.2020	10.03.2020	16.03.2020	22 days	16.03.2020	13.03.2020	30.12.2020	5,008,515	20,664

Figure 2: COVID-19 timeline in five CEE countries.

Source: ourworldindata.org (2022) and WHO (2022b) compiled by the author.

The peak daily share of the population receiving the first COVID-19 vaccine dose was between April and May 2021, including Hungary at 0.77%, followed by the Czech Republic and Austria at 0.61% (ourworldindata.org, 2022). From March to August 2021, Hungary leads the share of fully vaccinated people over the population with a higher number compared to other countries, then stabilizes until the present with the Czech Republic, Poland, and Slovakia (Figure 3). Additionally, in January 2022, the share of fully vaccinated people maintains from around 50% to 75%, including 75.98% in Austria, 64.32% in the Czech Republic, 62.62% in Hungary, 56.36% in Poland, and 49.82% in Slovakia (Figure 3). The increasing vaccination rate, easing travel limitations, and high demand for summer vacations contribute to a peak of international tourist arrivals in all CEE regions at 8.1 million in August 2021 (UNWTO, 2022c).

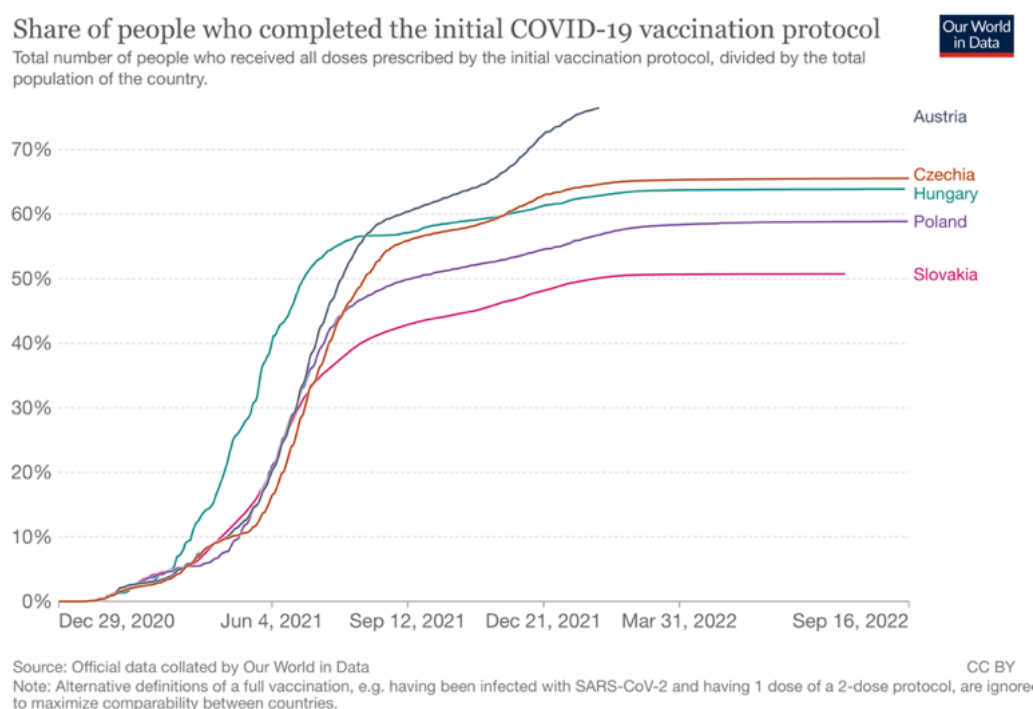


Figure 3: Share of people who completed the initial COVID-19 vaccination protocol in five CEE countries. Source: ourworldindata.org (2022)

2.3. Big data

Cambridge Dictionary defines big data as “very large sets of data that are produced by people using the internet, and that can only be stored, understood, and used with the help of special tools and methods” (2022). In 2001, Laney identified big data with three characteristics, including volume (as a vast amount of data), velocity (as the speed of real-time collecting and

analyzing data), and variety (as the structured, semi-structured, and unstructured data sources). Big data is seen everywhere as humans generate 2.5 quintillion bytes of data daily, coming from data-collecting sensors such as machine data, social data, and transactional data (Dobre & Xhafa, 2014). The total amount of data produced, recorded, copied, and used in the world has rapidly risen in the past ten years, climbing from 6.5 zettabytes in 2012 to 97 zettabytes in 2022, according to Statista (2022c). Additionally, the amount is expected to reach 181 zettabytes in 2025, which is nearly 87% of growth over the 3-year period (Statista, 2022c).

Big data plays a critical role in business strategy and development as it provides valuable insights for better and more accurate data-driven decision-making through various cutting-edge analyzing technologies. When the reliability of traditional data-collecting practices from accommodation providers and guest surveys is increasingly questioned (Law, 1993; Lam and McKercher, 2013), there is a heightened need for the effective utilization of big data to extract precise statistics and forecast tourism demand on time (Önder, et al., 2014; Mariani, et al., 2018). Tourism enterprises perceive big data analytics as a medium to improve operations, gain competitive advantage, optimize travel and pricing strategies, enhance service personalization, and eventually, drive revenue and profits (Mariani, et al., 2018; Mariani, 2019). As Mariani reminds us, in recent years, experts in the tourism and hospitality industries have had a growing awareness and adaptation of big data methods to gather, analyze, report, and visualize their massive data (2019).

Using big data analytics tools enables establishments to process their copious information, such as the data collected by STR from the global hospitality industry, to understand the market and competition, based on historic, current, and pipeline statistics (STR, 2022). The leverage of big data is mutually adopted by both companies and customers where they collaborate to create value in the industries, namely, GPS sensors in tourists' smartphones allowing marketers and service providers to identify well-liked routes, launch customized location-specific offers, and gain valuable insights into the customers' behaviors and preferences (Mariani, 2019). In line with this argument, several studies investigating the digital footprint of tourists and the use of tracking technologies in the industries have been carried out (Önder, et al., 2014; Raun, et al., 2016; Shoval and Ahas, 2016).

Sivarajah, et al. have reported that while big data has numerous benefits to organizations worldwide, it poses three main groups of difficulties, including data challenges related to its attributes, process challenges covering how data is collected and analyzed, and management

challenges regarding privacy, security, governance, and ethics (2017). In 2021, Weaver addresses “a crisis of analysis” within the tourism sector where big data analytics distances humans from agents determining their assessment of the world and regards them more as data points with actions depending on modeling and forecast. The freedom people have over their unrestricted options commences being ignored in a more data-directed future (Weaver, 2021).

Lack of data handling and ethics has existed as a problem in the hotel industry for many years (Yallop and Seraphin, 2020; PwC, 2016). High-profile breaches have made the sector be in the focus of media attention, driving tourists to be highly alert when using hotels and potential legal and regulatory issues (PwC, 2016). One of the worst data breaches on record in the hotel sector belongs to Marriott International in 2014 where up to 500 million customers’ data were stolen from Marriott-Starwood's IT systems, making the company face considerable financial penalties and several class-action lawsuits (Hotel Tech Report, 2022). Such incidents show that the hotel industry with an immense amount of personally detectable data is a target for potential cyber-attacks, which highlights the urgent need for the growth of comprehensive cyber security programs, annual protection audit cycles, and post-incident examinations (PwC, 2016). Rahmadian and coworkers demonstrated that the solution for data quality, data cost, and privacy concerns in tourism research is the collaboration among academic scholars, government, and businesses to guarantee data availability and decrease data cost (2021).

As Oracle Hospitality and Skift remind us, the connection between people to each other, and the travel destination is the spirit of the hospitality business (2022). When we comprehend how to utilize technology to accomplish this desire, such as using big data and data analysis tools, we can lead the industry to a flourishing future.

2.4. Rebuilding hospitality

With the unprecedented changes that have happened in the hospitality industry due to the COVID-19 pandemic, various establishments have investigated the trends in the sector and made suggestions on approaches to recovery. Technology has been identified as one of the major contributing factors to rebuilding hospitality (Amadeus, 2021; Oracle Hospitality and Skift, 2022). In 2021, Amadeus Hospitality published the “Rebuilding Hospitality: Trends in Demand, Data, and Technology That are Driving Recovery” report, delving into topics such as longer booking windows, new strategies to capture new guest segments and demand, investing in technology, personalized travel experience, and opportunities for recovery. Amadeus

incorporated the data collected from 688 hoteliers worldwide in March and April 2021 to provide readers with insights into current sentiment and plans in the industry (2021). In line with this argument, Oracle Hospitality and Skift published a research project to examine the future of hospitality in 2025, focusing on the four main themes of (1) guest-facing technology, (2) labor and operations, (3) automation and guest data, and (4) ancillaries, upgrades, and non-room revenue (2022). By surveying more than 5,000 consumers and 600 hoteliers globally, the report highlights the urgent need to upgrade technology and service models to fulfill guests' demands, improve operations, and grow revenue (Hospitality and Skift, 2022). Both reports investigate critical topics that have defined the industry during the peaks of the pandemic, as well as provide the readers with their calls to action and visions of the future of hospitality.

The report published by Amadeus shows that customer behavior plays an important part in predicting travel trends and identifying future operational strategies (2021). At the beginning of 2021, the number of global net reservations increased by more than 60% compared to the year before (Amadeus, 2021). The booking window trend changed significantly with 62% of worldwide bookings made within seven travel days at the height of the pandemic in April 2020 (Amadeus, 2021). However, the window was lengthened in the US and EMEA markets, which revealed a growth in confidence and tourists started to travel again (Amadeus, 2021).

Global hoteliers addressed that leisure, especially those who travel domestically would assist the recovery the most in 2021 (Amadeus, 2021). To capture the new trend of traveling for work-related purposes, it is suggested that hotels could try new product pivots and evaluate thoroughly their operational impact and financial benefits at scale (Amadeus, 2021). Another measure to capture demand is to get exposure on as many distribution channels as possible. It is worth mentioning that when the pandemic was in full swing, direct bookings became the prioritized channel for tourists, in which they could find more information and assistance on the latest travel and safety regulations (Amadeus, 2021). Due to the rapid changes in customer behaviors and demands, hoteliers must adjust quickly and accordingly. Indeed, in the face of the fast-changing external environment and strong competition, hotel enterprises are putting considerable effort into utilizing data-driven strategies to make decisions (Amadeus, 2021). Amadeus believes that depending merely on the usual historical data would provide hoteliers with limited value in the constantly changing market dynamics (2021). As a result, monitoring various reliable and extensive sources that include historical and forward-looking data is the key to gaining a comprehensive overview of the market (Amadeus, 2021). After understanding

the market, hoteliers use marketing strategies to promote their aligned products and reach target customers. In the survey conducted by Amadeus, most hotel managers agreed that digital marketing campaigns have helped them greatly during COVID time (2021). Therefore, many hotels worldwide have achieved excellent results using digital media tools to boost their numbers of bookings and rise direct bookings within their primary markets (Amadeus, 2021).

In the unprecedented times of the pandemic, many hotels resorted to property closure and staff reduction to optimize the financials due to travel restrictions and the plunge in demand. Various operational strategies were implemented, such as reducing daily housekeeping during stays, decreasing the number of services, and utilizing contactless technology (Amadeus, 2021). Nevertheless, it is important to acknowledge the labor crisis after COVID time. Staff shortages, wage inflation, and low staff-retention rate are affecting guest satisfaction levels negatively and posing a threat to decreased profitability in the future (Hospitality and Skift, 2022). The reputation of underpaying for long-hour shifts and poor work-life balance has hindered the prospects of potential new employees and the retention of talents in the industry (Shiji Team, 2022). Many people who got laid off decided to pursue a career in different sectors, which could provide them with higher salaries than what hotels could offer (Hospitality and Skift, 2022). Paradoxically, former workers are unwilling to come back to a growing workload that is created by the insufficiency of staff, which further exacerbates the problem (Shiji Team, 2022). Hotels are facing the challenge of how to have much more new hires to meet the demand of tourists which surges after the COVID-19 situation eased down. The hardship lies in attracting the right people quickly who have the right knowledge and skills to operate the hotels.

The opportunity for hoteliers is that they can make use of technology as a selling point to pique the staff's interest. According to Dan Kornick, chief information officer at Loews Hotels, the aim of technological automation is not to reduce personnel completely, but to facilitate the staff themselves in mundane and easily automated tasks, which frees them to provide better services to the guest with less stress (Hospitality and Skift, 2022). For example, the use of self-service options, chatbots, and destination experience platforms have skyrocketed during the pandemic due to its ability to streamline operations – including checking arrivals, viewing sales activities, or trading shifts online (Amadeus, 2021; Hospitality and Skift, 2022). It does not only secure social distancing at the peak of the pandemic via contactless services but also frees up the staff to deliver great hospitality via guest engagement once personal interaction is feasible in the hotels (Hospitality and Skift, 2022). Hoteliers worldwide align with this notion when

nearly 65% of the respondents of the Hospitality and Skift survey would integrate new technologies, namely, contactless and gamification, to attract and retain staff in the years to come (2022). Another positive outcome in the past two years is that numerous hoteliers have shifted their priority to technology optimization from emphasizing enhancing guests' experience to alleviating employees' workloads and burnouts (Shiji Team, 2022).

Investing in new technologies to optimize processes and guarantee guests' safety has been considered a long-term financial benefit (Amadeus, 2021). Many hoteliers have agreed that using technology to streamline operations is one of the strategies they would keep from COVID time or would apply in the future (Amadeus, 2021). Among the strategies that are expected to stay in the hospitality industry, safety and hygiene measures are believed to be critical as COVID-safe guest experience is the driving factor in attaining bookings and customer loyalty (Amadeus, 2021). It suggests that hotels should rethink approaches to normalize these regulations and keep them aligned with their brand experience (Amadeus, 2021). The argument is supported by Oracle Hospitality and Skift with around half the surveyed tourists preferring contactless check-in, check-out, and payment to remain in the hotels in the future (2022).

When in-person interaction is what people seek during their travel, multipurpose contactless technology and digital transformation could create a gap between the hotels and the guests themselves. It has been demonstrated that a focus on personalized experiences can bridge the gap, especially through the integration of technology and centralized data (Amadeus, 2021). Customers are interested in technology due to its power to personalize services and travel experiences, such as on-demand entertainment access, voice controls, and hotel access via personal devices (Hospitality and Skift, 2022). Notably, nearly half of all tourists agreed that they would be prone to stay in hotels with self-service offers, while they would also enjoy personal greetings occasionally (Hospitality and Skift, 2022). It confirms that a sense of connection and interaction among people has always been an important part of the hospitality industry. The preference to use mobile chat or talk to the staff in person might be subject to the stereotypes that youngsters would be more at ease with the former and older people would opt for the latter. However, in reality, individuals could change their minds about technology once they have the chance to be familiar with it, regardless of their initial impression (Hospitality and Skift, 2022). Thus, technology should be regarded as an option for the guests to contact the hotel through electrical devices, not a way to substitute the personal interaction itself entirely,

according to Gustaf Berman, executive vice president at Montage International (Hospitality and Skift, 2022).

Amadeus concludes that there are two domains that hoteliers should bear in mind to rebuild the industry from 2021 onwards, including data and technology (2021). Reliable data is the key to assessing which business strategies are working in the short and long term, which requires perspective and actions accordingly (Amadeus, 2021). Additionally, technology is an opportunity to optimize operations, benefit the hotel's bottom line through automated processes, and increase staff retention with improved working conditions (Amadeus, 2021). While critics raise concerns about a future of completely automated hotel experience without human interaction, which does not line up with tourists' desire, Hospitality and Skift encourage hoteliers to put a spotlight on finding the right tools to attain business goals, not to become stuck on what technology might signify (2022). Sanjay Sharma, head of IT at Jumeirah Group, draws our attention to the fundamentals that technology utilization needs to satisfy customers and make our operation invisible to coworkers and guests (Hospitality and Skift, 2022). By shifting the mindset around technology from staff replacement or an obstruction to an opportunity to seize, hoteliers can provide a seamless guest experience that results in more personalized services, efficient employees and operation, and profitability (Hospitality and Skift, 2022).

3. Methodology

In order to examine Budapest and its competitor set, a quantitative statical analysis of Smith Travel Research (STR) data basis was conducted. The database includes four parts for each chosen city:

1. Market Makeup: showing unique characteristics of the market through description of the size and structure (property and room counts, top brands, ...).
2. Trended Data: showing long term performance trends, including the impact of historic events, and the correlation among various metrics, such as occupancy, average daily rate & revenue per available room.
3. Types of Business: showing the trends and differences in seasonality and guest segmentations.
4. Pipeline and Development: showing the recent development history and the current pipeline activity (breaking down by phase, scale, and brand)

Based on the analysis of the abovementioned sets of data, the overall performance of the tourism and hospitality industries in the chosen cities during various timescales have been revealed. For instance, there are running 12-month data as of August 2022 and year-to-date data from August 2011 to August 2022.

Besides the data collected from STR database and the interviews, other databases will be used for secondary research to widen the knowledge on the topic, including UNWTO, Eurostat, The World Bank, Statista, World Travel and Tourism Council, European Travel Monitor, and European Statistical System. In terms of specific data for the targeted cities and countries, some examples of databases are Hungarian Central Statistical Office, Czech Statistical Office, Prague City Tourism, Visit Bratislava, Statistical Office of The Slovak Republic, Statistics Poland, Statistical Office in Krakow, Statistik Austria, and the City of Vienna. It is regarded that the collected data will usefully supplement and extend the analysis of the aforementioned research methods.

4. Findings and data analysis

This chapter will include the findings and results from analyzing the collected data through a quantitative statical analysis of STR data. The author will be able to answer the research questions and propose practical recommendations to drive the tourism and hospitality recovery of the target region in the future. OCC, ADR, and RevPAR will be used throughout this study to refer to occupancy, average daily rate, and revenue per available room, respectively.

The first section of this paper will examine the characteristics of the markets (Make Makeup). Section 2 begins by evaluating the supply and demand in the selected cities, and looks at how OCC, ADR, and RevPAR have changed in the past five years (Trended Data). Next, the third chapter investigates the historic seasonality of OCC, ADR, and RevPAR from 2016 to August 2022 in the five cities and points out the impactful events that have happened (Types of Business). The last section assesses the pipeline projects in the five cities and their current activity (Pipeline and development).

4.1. Market Makeup

In 2022, while Prague has the highest number of properties at 506 and the second highest number of rooms at 36,384, Vienna claims the reverse ranks at 418 properties and 40,756 rooms (Figure 4). One explanation for this phenomenon is that Prague has smaller properties with fewer rooms compared to Vienna with bigger properties (Figure 4). Budapest stands

in the third rank with 314 properties, which is 62% of that in Prague, and 26,485 rooms, which is 35% less than that of Vienna (Figure 4). As shown in Figure 4, Krakow and Bratislava are at the bottom in the number of properties and rooms, with merely 79 rooms and more than 5,700 rooms in Bratislava.

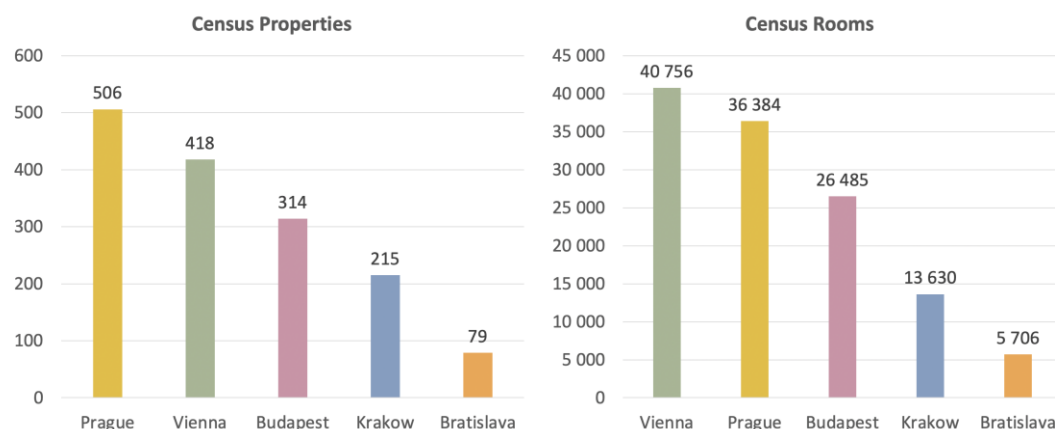


Figure 4: Number of Properties and Rooms in 5 CEE cities (Source: STR)

Most of the cities have the biggest number of rooms on the independent scale with more than 50% of the total number of rooms, including Prague at a whopping 66%, except for Vienna with 41% (Figure 5). The second highest number of rooms in Vienna (7,236 rooms), Budapest (4,260 rooms), and Krakow (2,007 rooms) belongs to Upper Midscale chains, along with Upscale chains in Prague and Bratislava (at 3,484 and 972 rooms respectively) (Figure 5). Additionally, the majority of rooms in the five cities are in the Upper Midscale class, followed by Midscale and Upscale (Appendix, Figure 2).

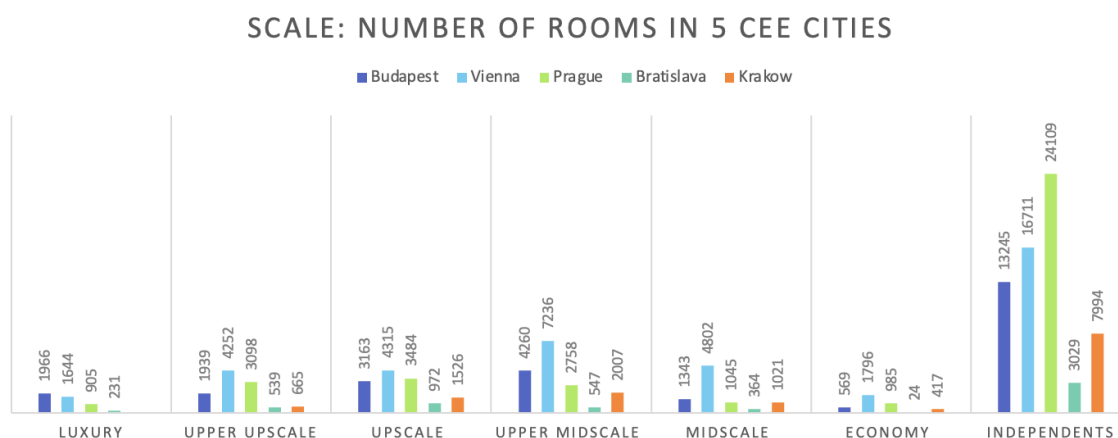


Figure 5: Scale: Number of Rooms in 5 CEE cities (Source: STR)

Most of the rooms and properties in the five cities are in the urban area, reflecting the location of the main tourist attractions (Figure 6). While the other four cities have their rooms in the suburban regions, ranging from 15,5% to 23,4% of the total rooms, Budapest is the only one with only 6%, indicating the strength in tourism of the city lies in the urban (Figure 6). Interestingly, Budapest has its own resort submarket with one 309-room property (Figure 6). The hotel is Aquaworld Resort Budapest which caters primarily to the guests visiting the Aquaworld Water Park nearby, one of the largest indoor water theme parks in Europe (Aquaworld Resort, 2022).

Location	Budapest		Krakow		Vienna		Prague		Bratislava	
Urban	24 268	91,6%	10 846	79,6%	32 411	79,5%	27 379	75,3%	4 144	72,6%
Suburban	1 582	6,0%	2 118	15,5%	7 307	17,9%	8 528	23,4%	1 209	21,2%
Airport	326	1,2%	548	4,0%	682	1,7%	401	1,1%	353	6,2%
Small Metro/Town			118	0,9%	356	0,9%	76	0,2%		
Resort	309	1,2%								
Total	26 485	100%	13 630	100%	40 756	100%	36 384	100%	5 706	100%

Figure 6: Location: Number of Rooms in 5 CEE cities (Source: STR)

Among 1,532 hotels in the five cities, establishments with a room count below 75 form the majority, while the ones with over 500 rooms are uncommon in comparison. This phenomenon could be explained by the fact that most of the city centers in CEE areas are crowded and have little space for big properties. Investors have the option to use ready-made buildings that are in the center as hotels, where the majority of tourists prefer to stay.

The highest percentage of room size in Bratislava belongs to “150 - 299 Rooms” at 47% with a maximum of 254 rooms/property (Figure 7). This room size also holds the first rank in Vienna (13,606 rooms, 33%), Prague (12,847 rooms, 35%), and Krakow (5,517 rooms, 40%). However, in Prague and Krakow, properties with less than 75 rooms are nearly as common as the first-ranked room size, including 33% in the former (12,051 rooms) and 38% in the latter (5,121 rooms) (Figure 7). Interestingly, in Budapest, the number of room sizes is not as dramatically different from each other as in the other four cities (Figure 7). For example, the highest number of room size is from 75 to 149 at 7,587 rooms, followed by “150 - 299 Rooms” with 7,013 rooms, which is only around 570 rooms less (Figure 7).

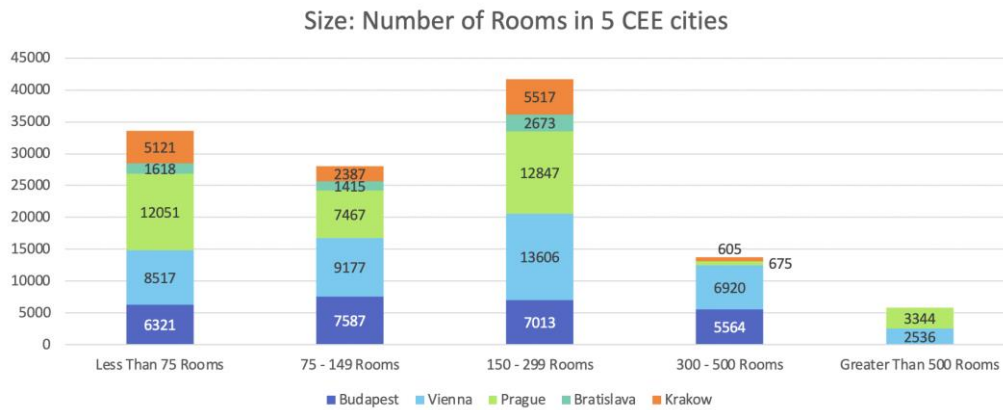


Figure 7: Size: Number of Rooms in 5 CEE cities (Source: STR)

The biggest names of hotel companies worldwide can be found in the five CEE cities, which are Accor with 9,578 rooms, Marriott with 5,833 rooms, and Hilton with 4,251 rooms (Figure 8). In Budapest, Accor is the leader holding a 21% market share among the existing brands, followed by Danubius, a Hungarian hotel group, at 11% market share (Appendix, Figure 3). The Vienna-based Verkehrsburo Hotellerie GmbH company, operating Austria Trend Hotels brand that specializes in business trips and events, is the second largest hotel establishment in the Austrian capital at 2,423 rooms (Figure 8; Austria Trend, 2022; Appendix, Figure 4).

Hotel Company	Rooms	Market Share
Accor Hotels	2518	21%
Danubius Zrt	1278	11%
Marriott International	1036	9%
IHG Hotels & Resorts	796	7%
Radisson Hotel Group	617	5%
Hilton Worldwide	546	5%
Minor Hotel Group Limited	483	4%
Ensana Health Spa Hotels	445	4%
Corinthia Hotels International	437	4%
Eurostars Hotel Company S.L.	368	3%

Figure 8: Top 12 Hotel Brands in five CEE cities (Source: STR)

4.2. Trended Data

In Prague, up until 2011, there was an important room supply growth due to the extension of the existing tourism establishments in addition to the opening of new hotels

(Figure 9). The year-on-year supply level started slowly declining from 2012 to 2018 because the hotel market was saturated by the beginning of 2020, which was marked by the pandemic (Figure 9). The same situation could be found in Budapest where the room supply stayed at around 6 million from 2012 to 2019, then dropped to an all-time low at 4.9 million in August 2021 (Appendix, Figure 5). In all five CEE cities, the room supply has drastically dropped due to the national lockdowns and the bankruptcy of many tourism businesses. A positive sign for hospitality recovery in Budapest is that the supply has grown to 5.9 million by August 2022, marking a 0,3% increase compared to pre-COVID time (Appendix, Figure 5). With Vienna and Krakow, both cities experienced a continuous rise in room supply from 2012 to the present with the exception of 2020 and 2021 due to COVID impact, as shown in Figure 6 and 7 in Appendix. Vienna holds the biggest supply growth of 5% compared to 2019 with over 9 million rooms as of August 2022 (Appendix, Figure 6).

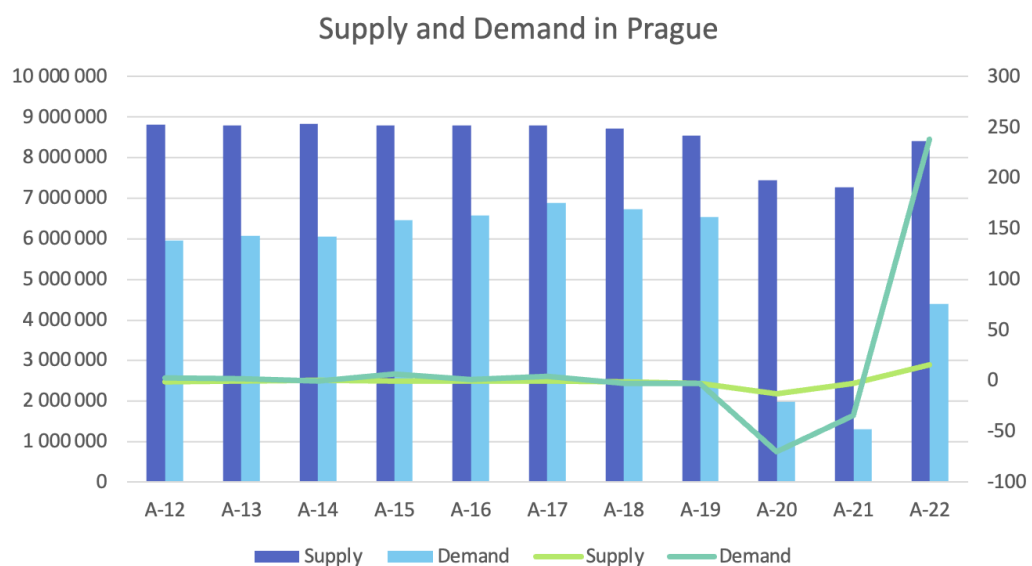


Figure 9: Supply and Demand in Prague (Source: STR)

Room demand in Prague reached its peak performance in 2017 at nearly 6.9 million and stayed stable during the next 2 years until the Corona crisis happened (Figure 9). Although it did not absorb the amount of the new supply, the number of visitors was still rising year on year (Figure 9). The room supply reflects the analysis before with a saturated hotel market getting affected negatively by the COVID-19 pandemic (Figure 9). The positive percent change in demand from 2014 to 2017 indicates that the market demand can be induced by higher-quality hotel products (Figure 9). Since March 2020, not only Prague but Budapest, Vienna, and Krakow also have suffered a dramatic negative influence in demand

due to Corona crisis, leading to a drop of around 70% in all cities (Figure 9; Appendix, Figure 5,6,7).

In 2020, Budapest recorded a considerable decline across its ten major source markets, including Germany (72.3%), the United Kingdom (77.9%), the Czech Republic (75.9%), Romania (74.4%), Slovakia (74.4%), Russia (73.9%), France (73.9%) and Poland (73.9%), according to Colliers (2020). To react to the crisis, many hotels in Budapest invested in service quality improvement or hotel refurbishment, which was delayed for years, such as Sofitel (Colliers, 2020). Additionally, there were hotels increasing their revenue through alternative service offers, namely, opening co-working spaces or using rooms as offices (Colliers, 2020). By the summer of 2022, compared to the 2019 level, the demand has recovered to 82% in Krakow, followed by 74% in both Budapest and Vienna, 71% in Bratislava, and just 67% in Prague (Figure 9; Appendix, Figure 5,6,7,8).

As shown in Figure 11, Budapest hotels had its RevPAR at 69 EUR, which was behind Vienna by 10.6 EUR, but ahead of Prague (68 EUR), Krakow (54.5 EUR), and Bratislava (53.1 EUR). The same order has been relatively the same as of August 2022 with the RevPAR in Budapest ranking second among the five cities (Figure 10). In terms of year-to-date occupancy rate in August 2019, the numbers were similar across the cities, with Budapest leading the market at 77,19% and closely followed by Prague (76,57%), Vienna (76,51%), and Krakow (74,84%) (Appendix, Figure 11). Interestingly, despite the challenges of the pandemic, hotels in Budapest performed quite well with the smallest drop in ADR of 9.5% from 2019 to 2020, and the highest increase between 2019 and 2022 at 15% (Appendix, Figure 11). The advantage of the exchange rate between the Euro and Hungarian Forint that international tourists bring to the city since travel restrictions have loosened could be at play.

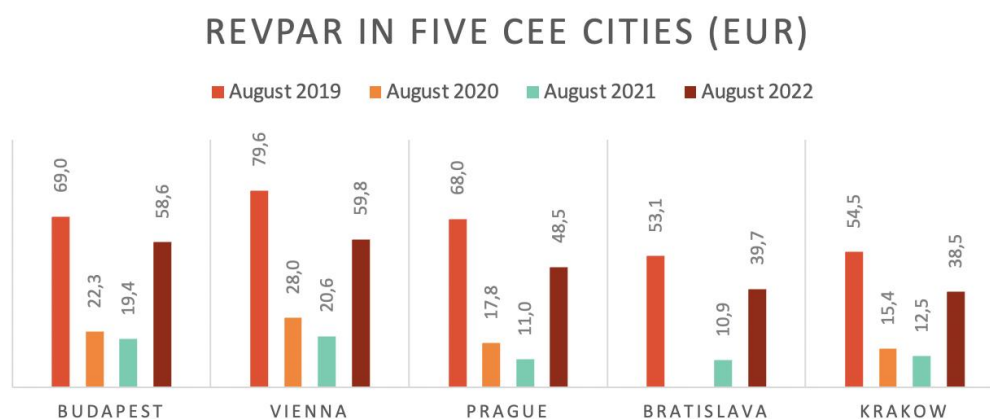


Figure 10: RevPAR in the five CEE cities (Source: STR)

STR Global recorded a Year-on-year increase in RevPAR in Prague, primarily driven by the growth of occupancy, while ADR was also positively increasing but still at a low pace. It is because additional taxes which were absorbed by the guest and hoteliers cautiously increased room rates to maintain market shares (Cushman & Wakefield, 2015 via Zavázal, J., 2016). 2015 and 2017 are the years with outstanding economical data for Prague, due to the European Athletics Indoor Championships hosted in the city in 2015, and a new government was elected in 2017 (Appendix, Figure 10). With occupancy continuing to increase year on year and the new hotel room supply, hoteliers in Prague resorted to rising ADR over the short and medium term, reaching its highest peak in 2018 with 89,38 EUR and then dropping to 61.64 EUR in August of 2021 due to Covid (Appendix, Figure 9; Zavázal, J., 2016).

The year 2020 finished with a tremendous drop in RevPAR, reaching -82% by July 2021, the occupancy has also dropped significantly, recording nearly -74%, which is the highest lowest for the last decade (Appendix, Figure 10). In August 2022, ADR in Prague reached 92,66 EUR, which is 4.4% higher than the same period in 2019, while RevPAR and OCC are still 29% and 32% below the 2019 level, respectively (Appendix, Figure 9).

Prague's yearly revenue kept increasing from more than 402 million EUR in 2011 to reach nearly 502 million EUR in 2015, which was a jump of 19.3% from the previous year (Appendix, Figure 13). Even though the revenue percent change started to decline from 2017, the actual revenue scored its best potential by the year 2018 with a revenue of more than 601 million EUR, which was maintained during most of 2019, at least until the

COVID-19 outbreak started impacting the tourism industry and bringing the yearly revenue down by -77.1% in 2021 (Appendix, Figure 13).

With the unprecedented impact that the COVID-19 pandemic caused, the year-to-date revenue in most of the major CEE cities plunged more than 70% compared to the previous year (Figure 11). While Vienna demonstrated its characteristics of a market leader by generating the highest revenue every year from 2019 to 2022 despite all the challenges, Budapest displays its resilience to have the least percent change in revenue compared to the 2019 level at -15% (Figure 11). Colliers points out that the introduction in 2020 of the 5% reduced rate of VAT for hotels in Budapest has given room prices more competitiveness, which further facilitates the tourism and hospitality recovery (2020). In Vienna, hotel managers overcome the crisis by negotiating with service providers to receive discounts, applying for governmental subsidies, and closing properties completely to reduce costs and save money (Strobl, 2021).

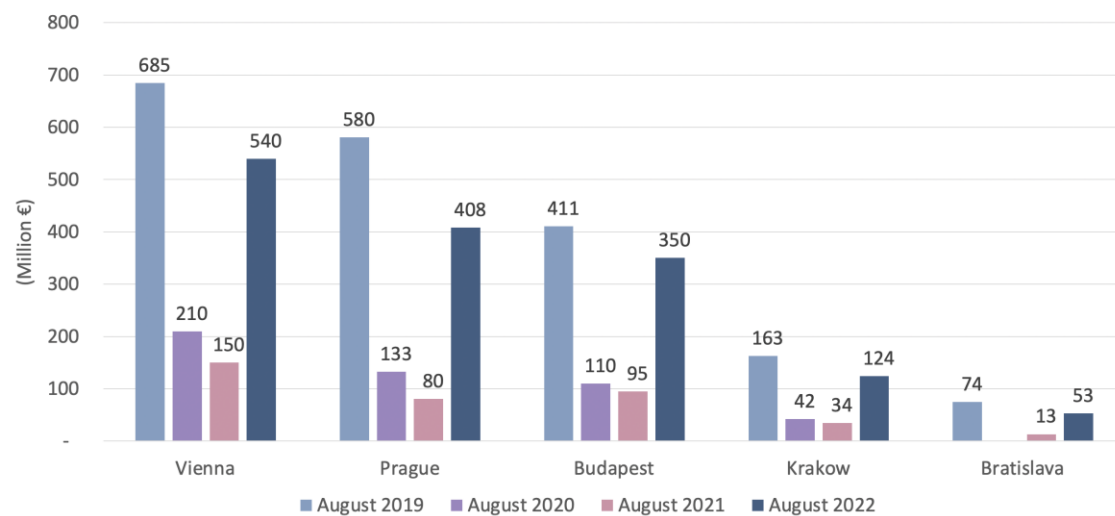


Figure 11: Revenue in the five CEE cities (Source: STR)

4.3. Types of Business

As the historic occupancy seasonality is similar in all five CEE cities, the paper will focus on the Budapest region and point out any special differences in other cities, including Vienna, Prague, Bratislava, and Krakow. In Budapest, from 2016 to 2019, the total yearly occupancy varied between 75,2% and 79%, with the lowest number belonging to January (at 55,3% in 2019) and the highest ones occurring in the summer peak, during August and

September (Figure 12). Before the pandemic hit the country in March 2020 which led to various travel restrictions and the national lockdown, the historic occupancy seasonality in Budapest was stable and had no significant changes (Figure 12). In 2020, Budapest attained an all-time high in occupancy at 59,7% in January and 63% in February, which was 8% and 0,7% respectively higher than the previous year (Figure 12). The trend was expected to sustain, and the city would have an overall growing yearly occupancy until COVID hit Hungary in the upcoming March.

By April 2020, the occupancy dropped in Budapest-based hotels dramatically to a historical low of 2,9% when all government constraints on coronavirus were in full swing (Figure 12). During the summer of 2020, it peaked at 20,1% OCC (Figure 12). While the result was much lower than pre-COVID time owing to a lack of international demand, the domestic market surpassed 2019 levels (CBRE, 2021). The OCC decreased to an average of 10,3% in the last four months of the year while the second COVID-19 wave hit the city and safety measures were reintroduced (Figure 12). The trend remained the same until May 2021 when the number reached 18,2%, then gradually increased to a 51,4% average in the fourth quarter of the year (Figure 12). This slight growth was attributed to the rollout of the COVID-19 vaccination program, in which all citizens were encouraged to take the first doses of the vaccine, and a gradual loosening of travel restrictions in the country. While the peak OCC number of 2021 in October at 53,7% is still 37,4% less than that of 2019, it was a positive sign for the recovery of the tourism and hospitality industry because the OCC grew by 328% compared to the year before (Figure 12).

At the end of December 2021, four out of the five CEE cities rolled out their vaccination programs, except for Slovakia having it the next month (Figure 3). In Vienna, the third lockdown was implemented by the government at the same time, resulting in an occupancy rate of merely 8.6% in January 2021 (Strobl, 2021; Appendix, Figure 14). With Budapest, the OCC keeps growing steadily throughout the year 2021 and hit an average of 67,4% in the summer peak from June to August, which is 79% of the OCC in the same period of 2019 (Figure 12).

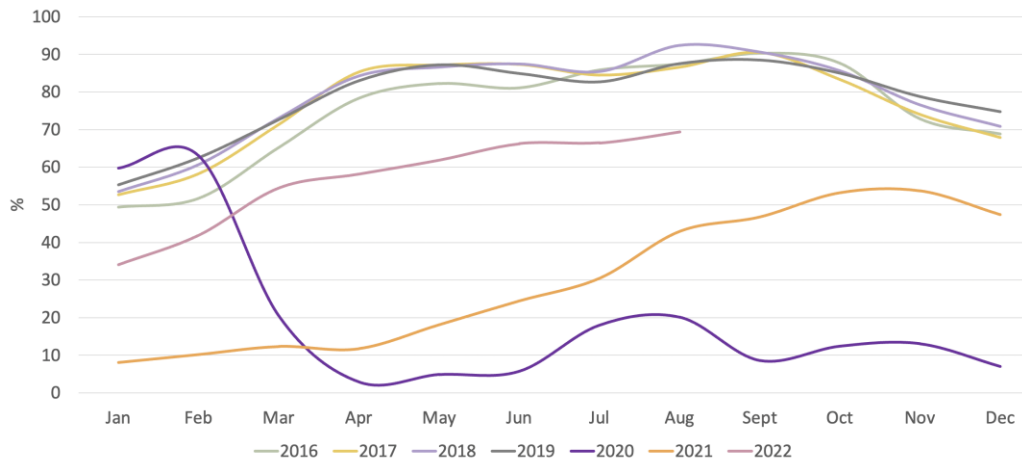


Figure 12: Historic Occupancy Seasonality in Budapest (Source: STR)

Every year since 2010, the total yearly ADR in Budapest increased until the pandemic stopped the trend abruptly. Overall, the ADR in Budapest was not affected considerably by the COVID-19 pandemic in the past few years. In 2019, the total yearly ADR was 90,82 EUR with an August year-to-date ADR of 89,37 EUR (Figure 13). Interestingly, from April to July 2020 when the first wave of infected cases eased down, ADR was higher than that of the same period in 2019 by 9%, hitting a peak of 110,57 EUR in April (Figure 13). The year 2020 ended with a total ADR of 81 EUR, which is nearly 10 EUR less compared to the level in 2019 (Figure 13). In the other four CEE cites, the ADR rate decreased more than that of Budapest, especially towards the end of 2020. However, when 2021 ended, their ADR returned to about 80-90% of the rate in 2019.

From the beginning of 2021, the numbers started to rise as travel confidence increased and many hotels reopened to welcome guests to Budapest. Whilst June was the only month to have a three-digit ADR in 2021 and the rate of the remaining months varied from 79,02 to 99,42 EUR, 2021 achieved an all-time high of total yearly ADR at 92,91 EUR, which is 2% higher than the number of 2019 (Figure 13). As of August 2022, the outlook for the total ADR of the year is positive with a year-to-date number of 102,82 EUR (Figure 13). Though there are other factors that influence the value of the rate such as inflation, this 15% increase in August year-to-date ADR of 2022 compared to 2019 is still an optimistic sign of the ongoing tourism and hospitality recovery.

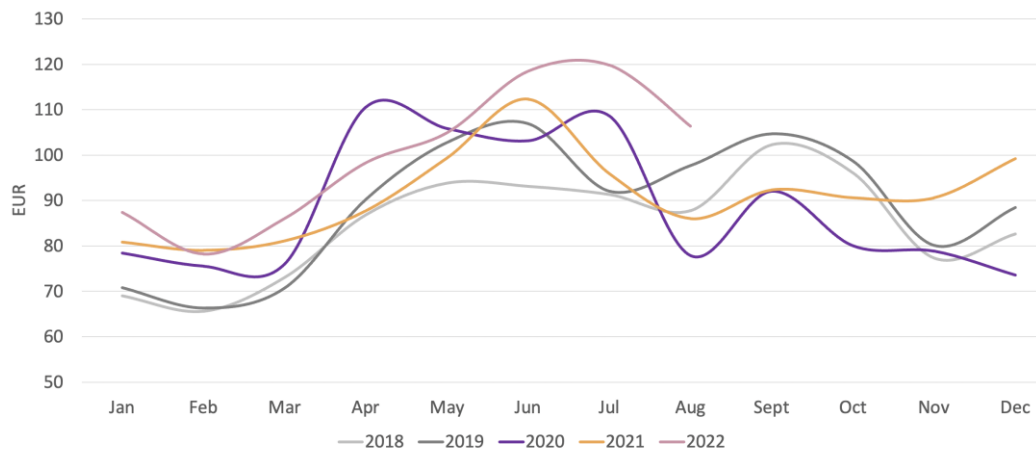


Figure 13: Historic ADR Seasonality in Budapest (Source: STR)

When looking into RevPAR seasonality to see the revenue the industry generated per available room, the result from 2020 to 2022 mirrors the historic occupancy seasonality (Figure 14). The RevPAR numbers demonstrated the negative impact of the COVID-19 crisis clearly, which is a dramatic drop in total yearly ADR from the peak of 2019 at 71,49 EUR to 17,65 EUR in 2020 (Figure 14). Similar to the trend of OCC in the first two months of 2020, RevPAR stood at 47,21 EUR on average, showing a rise of 17% compared to the same period in 2019 (Figure 14). While the ADR changed slightly in 2020, the RevPAR hit its lowest points with a range of 3,21 to 5,94 EUR in April, May, and June (Figure 14). This explains the phenomenon of such a high ADR in the same period, in which the demand was much higher than the scarce supply that hotels could offer during the national lockdown. The year 2021 witnessed a gradual recovery as hotels reopened after the second COVID wave. The RevPAR grew from a single-digit number to more than 47 EUR by the end of the year (Figure 14) and resulted in 229.1 million EUR in revenue (Appendix, Figure 15). While revenue in 2021 was 75% more than what hotels generated in the previous year at merely 130.8 million EUR, it is still 64% less than the total revenue in 2019 (Appendix, Figure 15). The trend continues in 2022 as international tourists have returned, who were the primary audience of the Budapest market pre-COVID. As of August, the year-to-date RevPAR is 85% as much as that of the 2019 level (Figure 14).

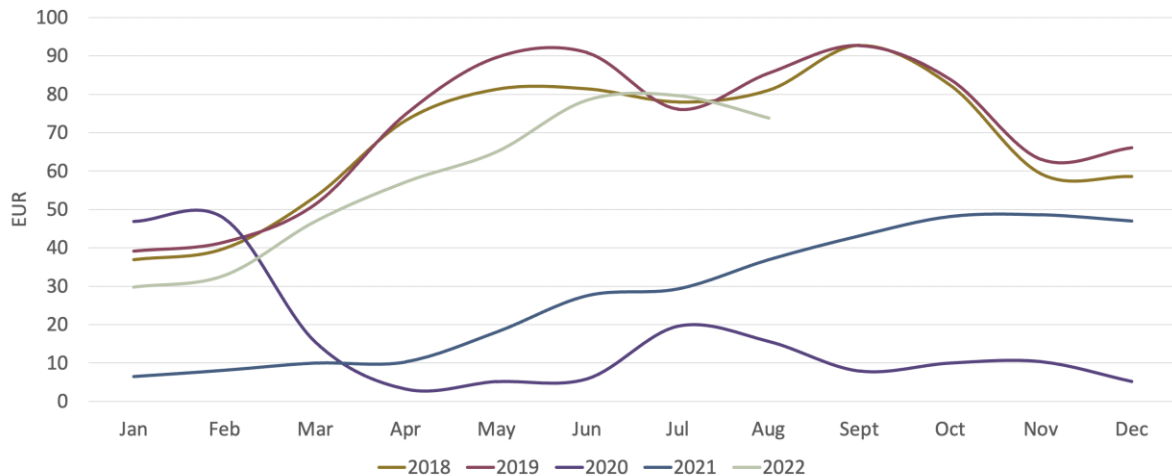


Figure 14: Historic RevPAR Seasonality in Budapest (Source: STR)

Regarding guest segments, most tourists in CEE cities are transient ones (Figure 15). The trend of RevPAR is the same in all cities where it increased pre-COVID, except for Prague, then declined significantly in 2020, and eventually rises to catch up with the 2019 level (Figure 15). Vienna and Budapest are the leaders in the number of transient RevPAR, where the former reaches 66 EUR, and the latter owns 59 EUR in August 2022 (Figure 15). In Krakow, while the OCC went down slightly in 2019 because there were many newly opened hotels and rapid growth of room supply (Horwath HTL, 2020), the RevPAR number went up by 11% compared to the previous year (Figure 15). The leisure and business domestic market have been motivated to travel due to the simulation of social regulations by the government, particularly the "tourist voucher" program, where PLN 500 or approximately 107 EUR is issued for each child, lasting until the end of March 2022 (Horwath HTL, 2020). However, the domestic demand could not sustain the business effectively during the summer as the number of international tourists, the primary audience of the city, was decreased significantly (Horwath HTL, 2020).

In terms of group tourists, Prague leads the competition in the recovery in the summer of 2022, followed closely by Budapest (Figure 15). Bratislava rose from the bottom rank pre-COVID to the third by August 2022, switching places with Prague, whose group RevPAR dropped from 16 EUR to merely 6 EUR in the same period (Figure 15). In regard to the contracted group, the RevPAR number has not been high yet. (Figure 15). Whilst Vienna and Prague experience a clear recovery after COVID, the rest is either stagnant or decreasing (Figure 15).

Overall, the leisure segment recovers faster than the corporate one, which could be explained by the preference for digital communication means over traveling abroad of many companies. All segmentations have been witnessed a substantial negative influence caused by the COVID-19 pandemic and in the process of recovering. However, the RevPAR numbers in all categories are still below the 2019 level as of August 2022 (Figure 15). According to Laurent Lassier, Head of Hotels Hungary, Budapest possesses high resilience owing to the equal combination of corporate and leisure tourists, along with the balanced individual and group demand (CBRE, 2021).

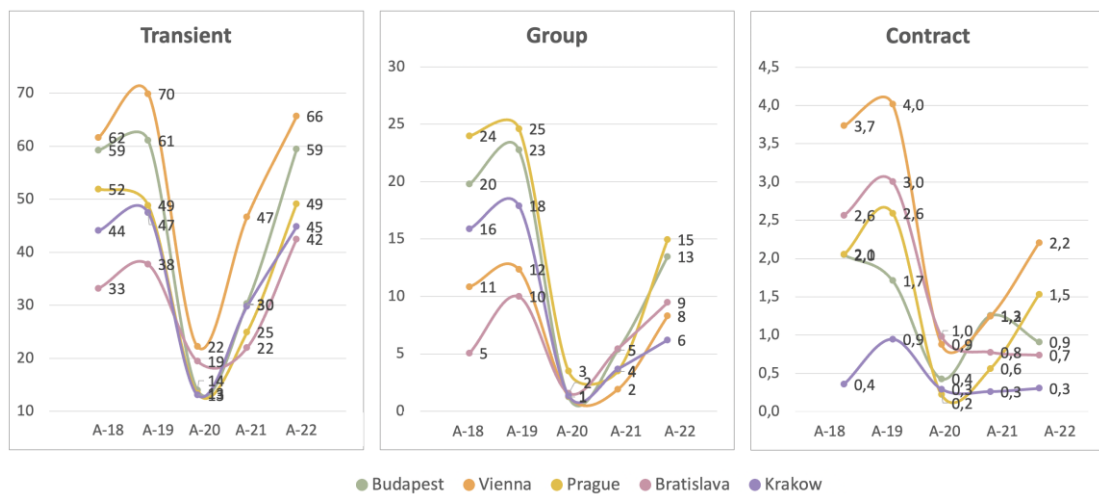


Figure 15: Segmentation: Group, Transient, & Contract RevPAR in 5 CEE cities (Source: STR)

4.4. Pipeline and development

In the pipeline projects, Vienna has the highest number of properties (38) and rooms (7,703), followed by Budapest with 34 hotels and 5,119 rooms (Figure 16). While the number of properties in Krakow places third among the five cities, Prague has the third-highest number of rooms at nearly 2,300 rooms (Figure 16). Bratislava places last with merely one property, which was abandoned in the pipeline (Figure 16). The city achieving the highest growth belongs to Budapest with a 19% increase in the number of rooms, followed by Vienna (16%), Krakow (15%), and Prague (6%) (Figure 16). With all Polish pipeline properties having under 300 rooms, investors and producers are clearly interested in small buildings that are separate and detached, which has turned into a niche contributing positively to the business outlook (Appendix, Figure 19; Horwath HTL, 2020).

	Vienna	Budapest	Prague	Krakow	Bratislava
Pipeline Hotels	38	34	13	17	1
Pipeline Rooms	6 703	5 119	2 290	2 061	162
Census Rooms	40 756	26 485	36 384	13 630	5 706
Growth in Rooms	16%	19%	6%	15%	3%

Figure 16: Number of Pipeline Properties and Rooms in 5 CEE cities (Source: STR)

Among the top 10 hotel companies holding the dominance of pipeline rooms, international names keep strengthening and widening their portfolios. Accor grows its total number of rooms by 33% to reach 3,736 rooms in the years to come and establish its leading presence in Budapest (Figure 17). A similar situation could be found in Vienna, Prague, and Krakow, where Accor adds more than 1,500 pipeline rooms in total and dominates the hotel chain market (Appendix, Figure 16,17,18). Five out of its seven pipeline hotels in Budapest belong to the midscale chain. More impressively, in Budapest, Marriott doubles its current number of rooms and outranks Danubius (Figure 17). It focuses on growing its portfolios from upscale to luxury scale to meet the increasing demand for better quality accommodation. Notably, the only two properties in the luxury chain both belong to Marriott.

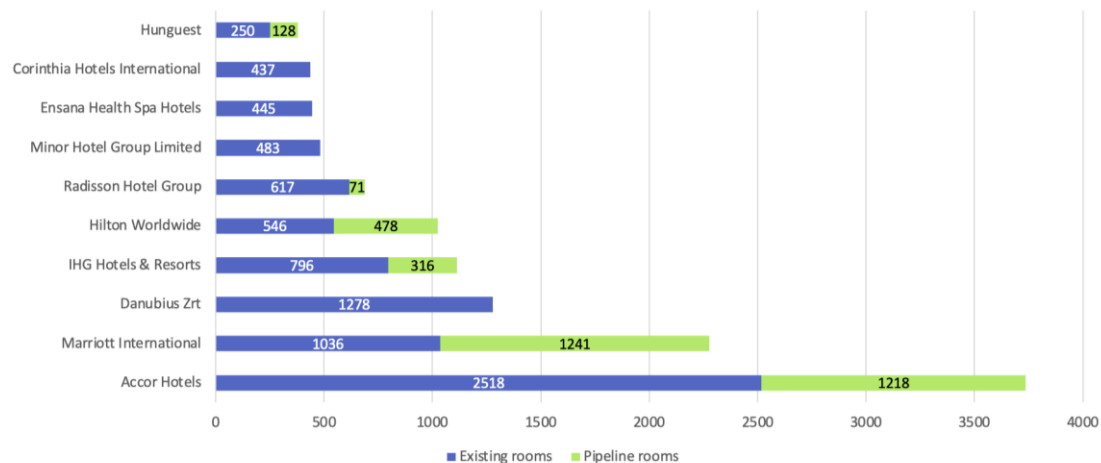


Figure 17: Budapest: Top 10 Hotel Companies
by Number of Existing and Pipeline Rooms (Source: STR)

In Poland, investors are motivated by the continuous increase in the level of ADR and OCC in main cities, such as Krakow (Horwath HTL, 2020). New brands and chains of

hotels come into the market quickly with international ones aiming to expand their portfolios in the country. In more detail, Hyatt Place, the first Polish Hyatt property, is tailored to meet the demand of multitasking for international tourists “from business trips to weekend breaks” (Appendix, Figure 18; Arena, 2022). Similarly, Hard Rock Hotel adds its first property in the Czech Republic with a 523-room hotel in Prague where Generali Arena, Lutna Park, and Prague Castle are nearby (Appendix, Figure 17; Reid, 2019).

Vienna's pipeline rooms are dominated by non-branded and individually owned properties, followed by upper upscale and luxury chains (Figure 18). As a result, hotels under international chain brands are present strongly in the pipeline, such as Rosewood, Mandarin Oriental, Radisson Red (Radisson), and Hampton by Hilton (Hilton). The success of the transformation of several buildings from hotels into residential properties in Vienna will rely on various aspects, such as location and planned implementation concept (CBRE, 2021). A change that emerges recently in the market is that international investors start to emphasize climate preservation and social influence made by hotels, as well as responsibility, sustainability, and what will attract tourists in the long term (Horwath HTL, 2021). Therefore, hotel investment in properties with sustainability as the utmost primary can be the way forward to recovery (Horwath HTL, 2021).

Vienna's pipeline rooms are dominated by individually owned properties, followed by luxury and upper upscale chains. Therefore, hotels under international chain brands are present strongly in the pipeline, such as Hampton by Hilton, Rosewood, and Radisson Red (Figure 18). In Prague, the highest number of pipeline rooms belongs to upper upscale and upscale hotels (Figure 18). Figure 18 shows tourists' increasing demand for properties with higher quality. Foreigners prefer more luxurious hotels, while domestic tourists are satisfied with lower-category accommodations (Severová, et al., 2021). For Budapest, it strengthens its number of rooms in the Upper Midscale and Midscale categories (Figure 18).

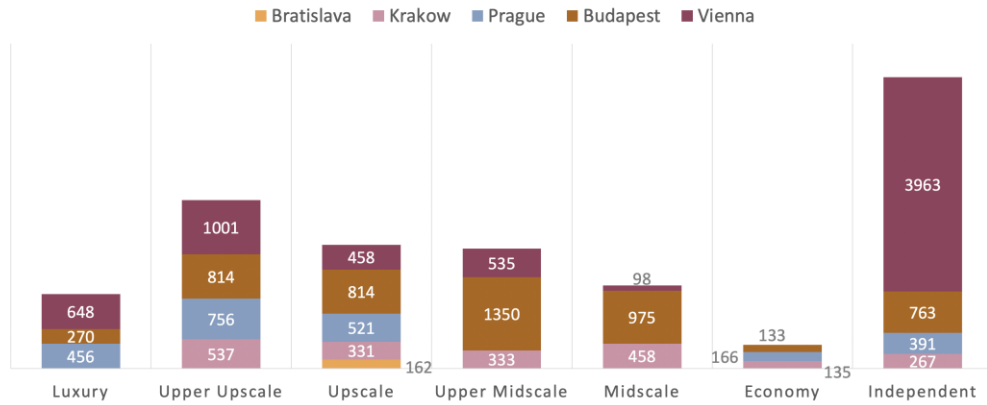


Figure 18: Scale: Number of Pipeline Rooms in 5 CEE cities (Source: STR)

While many pipeline projects are being continued despite the circumstances of the pandemic, some projects are deferred to an unknown period, which claims 7% of the total pipeline rooms in Budapest, 14% in Vienna, 25% in Prague, 17% in Krakow and 100% in Bratislava (Figure 19). A possible explanation for the phenomenon is that the growing development costs pose a threat to the progress, in which labor shortages, materials costs, and shipping delays are the primary factors (Cushman & Wakefield, 2022). The situation is anticipated to delay the increase in supply, which could help the hospitality recovery of the CEE region (Cushman & Wakefield, 2022). According to CBRE, pipeline projects in Budapest that are postponed or have delayed schedules in deliveries might be due to rising construction costs and uncertain touristic demand (2022). Among the five cities, Budapest, Vienna, and Bratislava experience project cancellations with one hotel/city, which could be attributed to funding issues as many other cities in the region (Figure 19; Cushman & Wakefield, 2022). Considering all the influencing factors above, Figure 20 in Appendix demonstrates that more than 40% of the total rooms in the pipeline across the five CEE cities has unknown opening date. The year 2023 will welcome the opening of 8 hotels with 1,465 rooms in Budapest, 9 hotels with 1,587 rooms in Vienna, 2 hotels with 664 rooms in Prague, and 6 hotels with 712 rooms in Krakow (Appendix, Figure 20).

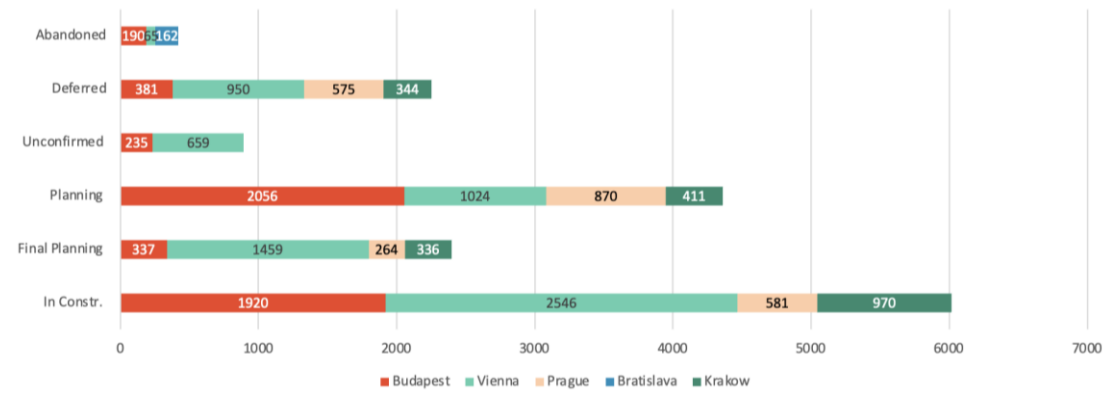


Figure 19: Phase: Number of Pipeline Rooms in 5 CEE cities (Source: STR)

Regarding the submarkets in Budapest, Pest owns the biggest number of hotels (16) and rooms (2,599) in the pipeline, which is displayed in Figure 20. The area also has the 167-room midscale hotel under the Accor chain near the Budapest Ferenc Liszt International Airport, which is in the final planning phase and scheduled to be open at the beginning of 2024. There are 14 hotels, of which 2 are luxury Marriot-branded ones, situated in the Budapest Center, where many main tourist attractions are (Figure 20). 57% of them are in construction and belong to a variety of brands, such as The Three Comers, Hampton by Hilton, MOXY, and Hyatt Regency. Since a well-connected and budget-friendly public transportation system is available in the city, even with a limited number of properties on the Buda side, tourists can reach the area from the Pest side in a short amount of time.

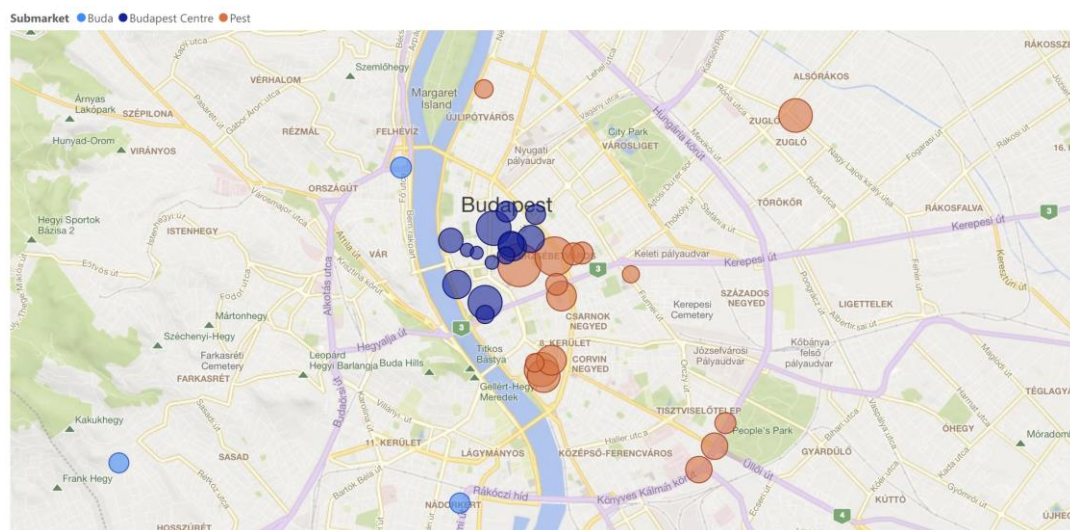


Figure 20: Map of Hotels in Pipeline Project in Budapest (Source: STR)

In Prague, visitors and industry players demonstrate the highest interest in the Old Town area due to the close distance to many significant attractions. Figure 21 in Appendix shows that two-thirds of the pipeline hotels in the Center area are mostly independent ones and have from 75 to 149 rooms/hotel. Two out of three luxury pipeline hotels are in the center region (Hradcany/Mala Strana/Stare Mesto), showing how investors respond to the increasing demand for higher-quality hotels for tourists. Prague's Surrounding, which is suitable for bigger properties, is diverse in terms of scale, from independent to upper upscale ones.

In the capital of Austria, the total number of pipeline rooms is balanced in both the city center and surrounding area, including 53% in the former and 47% in the latter (Appendix, Figure 22,23). However, the rooms are distributed densely in the center (Appendix, Figure 22). This is also a common phenomenon in the other three cities, which are Budapest, Prague, and Krakow, where the center areas attract investors and tourists the most (Figure 20; Appendix, Figure 21,24). It could potentially lead to over-tourism in the region, which enhances the need for better travel regulations and sustainable practices in the industry.

Hotel development near the airport can be a way to alleviate over-tourism and capture new demand as airport hotels can be convenient, time-saving, and budget-friendly. Several examples of new demand and audience are cargo pilots wishing to stay for a short amount of time near the airports, and businessmen having conferences in nearby hotels. Thus, developing the airport hotels and their conference facilities could result in more visitors to the cities. Additionally, airport development shows the effort of the cities to cater to international travelers – their primary guests, and further strengthen the tourism and hospitality industry, which is one of the most important factors for economic development in these CEE countries. Prague has not had any pipeline property in the airport yet (Appendix, Figure 21), whereas the other three cities all have. In more detail, Budapest has one hotel in the midscale chain; Vienna invests in three properties near Vienna International Airport; and Krakow will open two out of its three airport hotels in 2024 (Figure 20; Appendix, Figure 22,24).

5. Conclusions

This paper has investigated the performance of hotels in Budapest and its competitor set in Central and Eastern Europe before and during the pandemic. The impact of the COVID-19

crisis is shown clearly through various metrics, such as OCC, ADR, RevPAR, supply, demand, and pipeline projects. The analysis of STR data and in-depth interviews reveals the trend of recovery and management strategies to rebuild hospitality.

The five selected cities share many similarities, such as most of the properties in urban area with historical tourist attractions, a dominant number of international arrivals yearly, and the strong presence of international hotel chains. Overall, Vienna, Budapest, and Prague are the strongest markets among the five cities.

The first research question on how hotels in the target cities performed and responded to the COVID-19 pandemic is answered as follows: All five CEE cities hit all-time low records on all performance indicators, including OCC, ADR, RevPAR, supply, demand, and revenue. Different speed of responding measures occurred in each city. For example, Budapest had the highest vaccination rate, whereas Bratislava focused on COVID-19 testing. Many hoteliers decided to close their hotels to cut costs and renovate the facilities in the meantime. The domestic demand increased drastically compared to pre-pandemic level, but it could not compensate for the significant plunge in the number of international arrivals. Many innovative ideas were introduced to capture the demand, such as service quality improvement and alternative service offers.

The second questions on the impact of the COVID-19 pandemic on the five CEE cities is answered as follows: All five CEE cities were impacted drastically and experienced a significant drop in international demand. In Budapest, the absolute cancellation occurred instantly after the government announced the national lockdown, revealing the flexibility and challenges in handling refunds from many hotels. The CEE cities also received subsidies from the government, such as 5% reduced rate of VAT for hotels in Budapest and the 500-PLN "tourist voucher" for each child in Poland when people travel domestically. The increasing development cost and uncertain tourist demand have led to abandoned and delayed pipeline projects, which slows down the added supply that supports the hospitality recovery. The COVID-19 pandemic affected customers' behaviors significantly as they had shorter booking window. The labor shortage issue was exacerbated as ex- and potential employees could find jobs with higher salaries in other industries, many of which did not get hit as hard as the hospitality sector. In the summer of 2022, while all five markets improved their performance

significantly compared to the two years before, most of the metrics are still below the pre-pandemic level.

The third questions on the trends of recovery and management strategies to restart the hospitality industry in the five CEE cities is answered as follows:

Vienna is the leader in many aspects, whereas Budapest shows its resilience by having the top ranks in recovery KPIs. Regarding international hotel chains, Accor intensifies its portfolio through a significant rise in number of pipeline rooms, while many new names start entering the CEE market, such as Hard Rock Hotel in Prague and Hyatt Place in Poland. 2023 is the year when 25 hotels will be opened across the five cities. Upper upscale chain dominates the total pipeline rooms and luxury chains attract tourists with increasing demand on higher-quality hotels.

For hotels, crisis management plays a vital role nowadays, especially in the face of current crises such as energy, economy, labor, and war. It is suggested that revenue management in hotels should focus on (1) new markets (2) creating dynamic prices for each of them, and (3) be flexible with reservation and cancellation policies, especially when the booking window is getting shorter and shorter. Hotel investment that emphasizes environment conservation and the impact hotels have on the society is getting more and more importance. Additionally, investors with strong financial background are more likely to have the advantage to speed up the construction process and avoid inflation in development cost. Potential over-tourism in the centers can be alleviated by developing hotels near the airports to capture new demand. Investing in technology and digitalization helps saving manpower and optimize hotel operations.

For the government and destination managers, increasing the number of vaccinated people can enhance travel confidence in tourists. More subsidizing programs from the government would help hotels with the planning of business strategies, along with having more competitive room prices. With more big city-wide international events, the cities in CEE can stimulate the demand and attract more visitors. For example, Budapest hosts many sports events such as football matches, handball competitions, and international conventions.

Overall, it is expected that the UNESCO World Heritage Sites, accessible transportation from various European major cities, and great geographical advantage of little natural disaster

are some of the positive characteristics of these areas that attract tourists worldwide. Additionally, mobility restrictions, vaccination rates, and traveler confidence will be one of the primary factors inducing international travel. Creating a strategy for sustainable tourism that is considerate to public space and the cities' residents while fitting in with their overall development is the way to hospitality recovery. It is highly recommended that hoteliers invest in digitization, utilize big data analytics to make better business decisions, overcome labor shortage, and focus on environmental, social and governance strategies.

III. List of references

- anywhere.epam.com, 2022. *Big Data Analytics in the Tourism and Travel Industry*. [online] Available at: <https://anywhere.epam.com/business/big-data-in-tourism-and-travel> [Accessed date: 28/09/2022].
- Amadeus, 2021. *Rebuilding Hospitality: Trends in Demand, Data, and Technology That are Driving Recovery*. [online] Available at: <https://amadeus.com/en/insights/press-release/rebuilding-hospitality-research-report> [Accessed date: 29/10/2022].
- Aquaworld Resort, 2022. *AQUAWORLD*. [online] Available at: <https://www.aquaworldresort.hu/en/aquaworld> [Accessed date: 31/10/2022].
- Arena, J., 2022. *Hyatt returns to Poland with new Krakow hotel*. [online] Available at: <https://www.businesstravelnewseurope.com/Accommodation/Hyatt-returns-to-Poland-with-new-hotel-in-Krakow> [Accessed date: 07/11/2022].
- Austria Trend, 2022. *Austria Trend*. [online] Available at: <https://www.austria-trend.at/de> [Accessed date: 06/11/2022].
- BKK, 2020. *Kötelező az arc eltakarása a fővárosi közösségi közlekedésben április 27-től*. [online] (27/04/2020) Available at: <https://bkk.hu/hirek/2020/04/kotelezo-az-arc-eltakarasa-fovarosi-kozossegi-kozlekedesben-aprilis-27-tol.833/> [Accessed date: 18/09/2022]. Centre for Budapest Transport (Budapesti Közlekedési Központ).
- Britannica, 2020. *Vienna*. [online] (21/05/2020) Available at: <https://www.britannica.com/place/Vienna> [Accessed date: 10/03/2022].
- Britannica, 2021. *Prague*. [online] (06/10/2021) Available at: <https://www.britannica.com/place/Prague> [Accessed date: 10/03/2022].
- Cambridge Dictionary, 2022. *BIG DATA*. [online] Available at: <https://dictionary.cambridge.org/dictionary/english/big-data> [Accessed date: 18/09/2022].
- CBRE, 2021. *EMEA Hotels Market Update 2021*. [online] Available at: <https://www.cbrehotels.com/en/research/articles/emea-hotels-market-update-2021> [Accessed date: 07/11/2022].
- CBRE, 2022. *Hungary Hotel Figures Q2 2022*. [online] (10/08/2022) Available at: <https://www.cbre.com/insights/figures/hungary-hotel-figures-q2-2022> [Accessed date: 07/11/2022].
- CEIC, 2022. *Slovakia Visitor Arrivals*. [online] Available at: <https://www.ceicdata.com/en/indicator/slovakia/visitor-arrivals> [Accessed date: 01/10/2022].
- Colliers, 2020. *2021 Hotel Market Report for Hungary*. [online] Available at: <https://www.colliers.com/en-hu/research/2021-hotel-mr> [Accessed date: 06/11/2022].

Cushman & Wakefield, 2022. *The CEE hospitality sector in 2021*. [online] Available at: <https://www.cushmanwakefield.com/en/poland/insights/cushman--wakefield-summarizes-the-performance-of-the-cee-hospitality-sector-in-2021> [Accessed date: 07/11/2022].

Czech Statistical Office, 2020. *Selected data on tourism in the Capital City of Prague*.

Dobre, C. & Xhafa, F. (2014). Intelligent services for Big Data science. *Future Generation Computer Systems*, 37, pp. 267-281.

European Commission, 2022. *Shortlisted: Bratislava, Slovakia*. [online] Available at: https://smart-tourism-capital.ec.europa.eu/shortlisted-bratislava-slovakia_en [Accessed date: 10/03/2022].

Guasti, P. (2020). The Impact of the COVID-19 Pandemic in Central and Eastern Europe. *Democratic Theory*, 7(2), pp. 47–60.

Horwath HTL, 2020. *Poland Market Update*. [online] Available at: <https://www.hospitalitynet.org/file/152008876.pdf> [Accessed date: 07/11/2022].

Horwath HTL, 2021. *Austria:Hotel Market*. [online] Available at: <https://horwathhtl.com/publication/austria-hotel-market-2021/> [Accessed date: 07/11/2022].

Hotel Tech Report, 2022. *Marriott Data Breach FAQ: What Really Happened?*. [online] (26/01/2022) Available at: <https://hoteltechreport.com/news/marriott-data-breach> [Accessed date: 28/09/2022].

Laney, D. (2001). *3D data management: Controlling data volume, velocity and variety*. [online] (06/02/2001) Available at: <http://blogs.gartner.com/doug-laney/files/2012/01/ad949-3D-Data-Management-Controlling-Data-Volume-Velocity-and-Variety.pdf> Meta Group [Accessed date: 18/09/2022].

Lam, C. & McKercher, B. (2013). The tourism data gap: the utility of official tourism information for the hospitality and tourism industry. *Tourism Management Perspectives*, 6, pp. 82-94.

Law, C., M., (1993). *Urban Tourism: Attracting Visitors to Large Cities*. London. Mansell.

Mariani, M. & Baggio, R. & Fuchs, M. & Höepken, W. (2018). Business intelligence and big data in hospitality and tourism: a systematic literature review. *International Journal of Contemporary Hospitality Management*, 30(12), pp. 3514-3554.

Mariani, M. (2019). Big Data and analytics in tourism and hospitality: a perspective article. *Tourism Review*, 75(1), pp. 299-303.

Oracle Hospitality and Skift, 2022. *Hospitality in 2025: Automated, Intelligent.. and More Personal*. [online] Available at: <https://www.oracle.com/industries/hospitality/hospitality-in-2025-report/> [Accessed date: 29/10/2022].

ourworldindata.org, 2022. *Our World in Data*. [online] Available at: <https://ourworldindata.org> [Accessed date: 18/09/2022].

Önder, I. & Koerbitz, W. & Hubmann-Haidvogel, A. (2014). Tracing Tourists by Their Digital Footprints. *Journal of Travel Research*, 55(5), pp. 566-573.

Province of Vienna, 2021a. *Vienna in Figures 2021*. Statistical analyses on the City of Vienna.

Province of Vienna, 2021b. Vienna: Arrivals and bednights in all types of accommodation. Statistical analyses on the City of Vienna.

PwC, 2016. *Cyber and data security in the hotel industry*. [online] Available at: <https://www.pwc.com/m1/en/publications/documents/cyber-and-data-security-in-the-hotel-industry.pdf> [Accessed date: 29/09/2022].

Rahmadian, E. & Feitosa, D. & Zwitter, A. (2021). A systematic literature review on the use of big data for sustainable tourism. *Current Issues in Tourism*, 25(11), pp. 1711-1730.

Raun, J. & Ahas, R. & Tiru, M. (2016). Measuring tourism destinations using mobile tracking data. *Tourism Management*, 57, pp. 202-212.

Reid, J., 2019. *Hard Rock Hotel plans Prague opening for 2023*. [online] Available at: <https://www.busesstraveller.com/business-travel/2019/11/23/hard-rock-hotel-plans-prague-opening-for-2023/> [Accessed date: 07/11/2022].

Severová, L. & Sredi, L. & Prásilová, M. & Svoboda, R. & Soukup, A. & Dvůrák, M. & Pracharová, J., (2021). Change in the Structure of the Accommodation Capacity of the Czech Hotel Industry under Conditions of Economic Globalization. *The Sustainable Trade Issues and Policies*, 13(16).

Shiji Team, 2022. *Hospitality Staffing and The Labor Crunch: A Survey of Hoteliers and Industry Experts in 2022*. [online] Available at: <https://insights.shijigroup.com/hospitality-staffing-labor-shortage-survey-of-hoteliars-experts-2022/> [Accessed date: 31/10/2022].

Shoval, N. & Ahas, R. (2016). The use of tracking technologies in tourism research: the first decade. *Tourism Geographies*, 18(5), pp. 587-606

Sivarajah, U. & Kamal, M. M. & Irani, Z. & Weerakkody, V. (2017). Critical analysis of Big Data challenges and analytical methods. *Journal of Business Research*, 70, pp. 263-286.

Statista, 2022a. *Number of tourist arrivals in accommodation establishments in Budapest, Hungary from 2000 to 2020*. [online] (04/2021) Available at: <https://www.statista.com/statistics/986072/budapest-tourist-arrivals-in-accommodation/> [Accessed date: 10/03/2022].

Statista, 2022b. *Number of visitors to the city of Krakow in Poland from 2011 to 2021, by type*. [online] (12/2021) Available at: <https://www.statista.com/statistics/917187/krakow-visitor-numbers-by-type/> [Accessed date: 10/03/2022].

Statista, 2022c. *Volume of data/information created, captured, copied, and consumed worldwide from 2010 to 2020, with forecasts from 2021 to 2025*. [online] (08/2022) Available at: <https://www.statista.com/statistics/871513/worldwide-data-created/> [Accessed date: 22/09/2022].

STR, 2022. *Home*. [online] Available at: <https://str.com> [Accessed date: 29/09/2022].

Strobl, M. (2021). *The Impact of the Covid-19 Pandemic on the Viennese Luxury Hotel Industry*. Modul University Vienna.

UNESCO, 2001. *Historic Centre of Vienna*. [online] Available at: <https://whc.unesco.org/en/list/1033/> [Accessed date: 10/03/2022].

UNESCO, 2010. *Historic Centre of Krakow*. [online] Available at: <https://whc.unesco.org/en/list/29> [Accessed date: 01/10/2022].

UNESCO, 2012. *Historic Centre of Prague*. [online] Available at: <https://whc.unesco.org/en/list/616/> [Accessed date: 01/10/2022].

UNESCO, 2013. *Wieliczka and Bochnia Royal Salt Mines*. [online] Available at: <https://whc.unesco.org/en/list/32> [Accessed date: 01/10/2022].

UNESCO, 2021. *Frontiers of the Roman Empire - The Danube Limes (Western Segment)*. [online] Available at: <https://whc.unesco.org/en/list/1608> [Accessed date: 01/10/2022].

UNWTO, 2020. *COVID-19 related Travel Restrictions - A Global Review for Tourism*. World Tourism Organization.

UNWTO, 2021. *World Tourism Barometer*, 19 (1). World Tourism Organization.

UNWTO, 2022a. *UNWTO WORLD TOURISM BAROMETER JANUARY 2022*. World Tourism Organization.

UNWTO, 2022b. *IMPACT ASSESSMENT OF THE COVID-19 OUTBREAK ON INTERNATIONAL TOURISM*. [online] Available at: <https://www.unwto.org/impact-assessment-of-the-covid-19-outbreak-on-international-tourism> [Accessed date: 17/09/2022].

UNWTO, 2022c. *INTERNATIONAL TOURISM AND COVID-19*. [online] Available at: <https://www.unwto.org/tourism-data/international-tourism-and-covid-19> [Accessed date: 18/09/2022].

visitbratislava.com, 2022. *Tourism statistics in Bratislava - for the year 2021*. [online] Available at: https://www.visitbratislava.com/wp-content/uploads/2022/05/Statistiky-za-rok-2021_final.pdf [Accessed date: 01/10/2022].

WHO, 2022a. *Coronavirus disease (COVID- 19)*. [online] Available at: https://www.who.int/health-topics/coronavirus#tab=tab_1 [Accessed date: 17/09/2022].

WHO, 2022b. *WHO Coronavirus (COVID-19) Overview*. [online] Available at: <https://covid19.who.int> [Accessed date: 18/09/2022].

Weaver, A. (2021). Tourism, big data, and a crisis of analysis. *Annals of Tourism Research*, 88, 103158.

worldometer.info, 2022. *COVID-19 CORONAVIRUS PANDEMIC*. [online] Available at: <https://www.worldometers.info/coronavirus/> [Accessed date: 18/09/2022].

World Population Review, 2022a. *Bratislava Population 2022*. [online] Available at: <https://worldpopulationreview.com/world-cities/bratislava-population> [Accessed date: 10/03/2022].

World Population Review, 2022b. *Prague Population 2022*. [online] Available at: <https://worldpopulationreview.com/world-cities/prague-population> [Accessed date: 10/03/2022].

Yallop, A. & Seraphin, H. (2020). Big data and analytics in tourism and hospitality: opportunities and risks. *Journal of Tourism Futures*, 6(3), pp. 257- 262.

Yang, Y. & Zhang, C. X. & Rickly, J. M., 2021. A review of early COVID-19 research in tourism: Launching the Annals of Tourism Research's Curated Collection on coronavirus and tourism. *Annals of Tourism Research*, 91.

Zavázal, J. (2016). The Prague Hotel Market before and after the economic crisis in 2009. [Bachelor dissertation] *The Institute of Hospitality Management*.

IV. Appendix

City	General information	Geography features	Famous for	UNESCO World Heritage Site(s)	Tourism data
Budapest	The capital of Hungary 525 square kilometers 1.7 million residents Local currency: Hungarian Forint	Hilly Buda and flat Pest are separated by the Danube River and connected by a sequence of bridges.	Rich culture, thermal baths, spas, ruin bars, and historical landmarks, such as the Hungarian Parliament and Heroes' Square.	Year: 1987 Site: Banks of the Danube, the Buda Castle Quarter, and Andrássy Avenue Value: Exceptional urban landscapes and great value in depicting the history of the city.	Received 4,6 million arrivals in 2019, in which nearly 4 million are international (Statista, 2021a).
Vienna	The capital of Austria 415 square kilometers 1.9 million residents Currency: Euro (Province of Vienna, 2021a)	In northeastern Austria, where the River Danube lies between the Carpathians and the Alps mountains (Britannica, 2020).	Architecture, music, and high quality of life. Being the host of various international congresses and organizations, such as a UN headquarter.	Year: 2001 Site: Historic Centre of Vienna Value: its reflection of the development in Austrian and central European history, including medieval, Baroque, and the Gründerzeit phases (UNESCO, 2001)	Received 8 million arrivals in 2019, in which 80% are from foreign countries (Province of Vienna, 2021b)
Bratislava	The capital of Slovakia since 1993. 376.6 square kilometers 427,000 residents Currency: Euro (World Population Review, 2022a)	In southwestern Slovakia, lying on both banks of the Danube river.	Multiculturally-influenced history. Impressive historical monuments and relics, namely, the Castle of Bratislava.	Year: 2021 Site: Frontiers of the Roman Empire – The Danube Limes (Western Segment) (regions of Bratislava and Nitra) Value: A part of the much larger frontier of the Roman Empire that encircled the Mediterranean Sea (UNESCO, 2021)	Received 382,888 visitor arrivals in 2021 (CEIC, 2022). 52% of the number of visitors in 2021 is domestic (visitbratislava.com, 2022)
Prague	The capital of Czech Republic 496 square kilometers 1.3 million residents Local currency: Czech koruna (Britannica, 2021; World Population Review, 2022b)	Set on both banks of the Vltava River.	Rich history and architectural heritage, including the Prague Castle, the Charles Bridge, the Prague astronomical clock, and the Jewish Quarter (Josefov).	Year: 1992 Site: Historic Centre of Prague (including the Old Town, the Lesser Town, and the New Town) Value: Reflection of the great architectural and cultural influence since the Middle Ages. The area is home to numerous monuments, churches, and palaces, built mostly in the 14th century under the Holy Roman Emperor, Charles IV (UNESCO, 2012)	Received over 8 million arrivals in 2019, out of which almost 7 million are foreign (Czech Statistical Office, 2020).
Kraków	The oldest city and former capital of Poland 525 square kilometers 1.7 million residents Local currency: Polish złoty	In southern Poland, lying on both sides of the upper Vistula River.	Numerous monumental sites and historic buildings, namely, St. Mary's Church with colorful stained glass, the beautifully preserved Wawel Cathedral, and the 13th century Market Square of the Old Town.	Year: 1978 Site 1: Historic Centre of Krakow Value: One of the most outstanding examples of European urban planning, showing the process of continuous urban growth from the Middle Ages to the present day (UNESCO, 2010) Site 2: Wieliczka and Bochnia Royal Salt Mines Value: Illustrating the historic stages of the development of mining techniques in Europe from the 13th to the 20th centuries (UNESCO, 2013)	Received over 14 million arrivals in 2019, including 3.3 million international ones and 10.7 million domestic ones (Statista, 2022b).

Figure 1: Main characteristics of 5 Central and Eastern European cities.

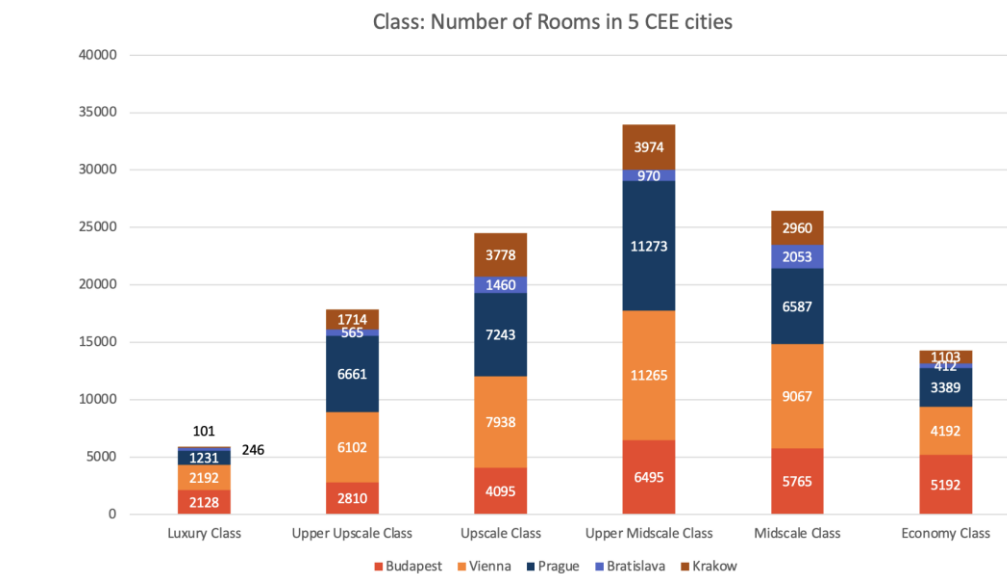


Figure 2: Scale: Number of Rooms in 5 CEE cities (Source: STR)

Parent Company	Rooms
Accor Hotels	2518
Danubius Zrt	1278
Marriott International	1036
IHG Hotels & Resorts	796
Radisson Hotel Group	617
Hilton Worldwide	546
Minor Hotel Group Limited	483
Ensana Health Spa Hotels	445
Corinthia Hotels International	437
Eurostars Hotel Company S.L.	368
Kempinski Hotels SA	353
Deutsche Hospitality	312
Sunflower Management GmbH & Co Kg	253
Hunguest	250
B&B Hotels	214
Wyndham Hotels & Resorts	209
DITO Hotel Management GmbH & Co. KG	201
Meininger Hotels	184
Four Seasons Hotels and Resorts	179
Barceló Hotel Group	179
The Three Corners	140
Hard Rock Hotel	136
ACHAT Hotels	134
A&O Holding GmbH & Co. KG.	114
Hyatt Hotels Corporation	110
Mamaison Hotels & Residences	106
Zenit Hoteles	97
TFE Hotels	97
easyHotel	57

Figure 3: Budapest: Number of rooms by Parent Company

Parent Company	Rooms
Accor Hotels	3935
Verkehrsburo Hotellerie GmbH	2423
Marriott International	2411
Motel One Group	1733
Hilton Worldwide	1476
Radisson Hotel Group	1297
Minor Hotel Group Limited	1043
IHG Hotels & Resorts	918
The Student Hotel	818
Deutsche Hospitality	733
ARCOTEL Hotels	665
Novum Management GmbH	484
Best Western Hotels & Resorts	479
Hyatt Hotels Corporation	446
B&B Hotels	437
A&O Holding GmbH & Co. KG.	417
Ruby GmbH	390
Gorgeous Smiling Hotels GmbH	383
HMG Hotel Management & Services	380
Derag Living Hotels	365
Melia Hotels International, S.A	253
SAS Louvre Hotels Group	247
Meininger Hotels	233
Lindner Hotels	219
Sunflower Management GmbH & Co Kg	213
DITO Hotel Management GmbH & Co. KG	198
Eurostars Hotel Company S.L.	182
Azimut Hotels Company	180
Kempinski Hotels SA	152
JUFA Holding GmbH	151
Dormero Hotels AG	143
TFE Hotels	134
Penta Hotels Worldwide GmbH	117
Rosewood Hotel Group	99
Starlight Suites Hotel	95
Wyndham Hotels & Resorts	75
Safestay PLC	52
Ascott International Management (2001) Pte L	48
VISIONAPARTMENTS	21

Figure 4: Vienna: Number of rooms by Parent Company

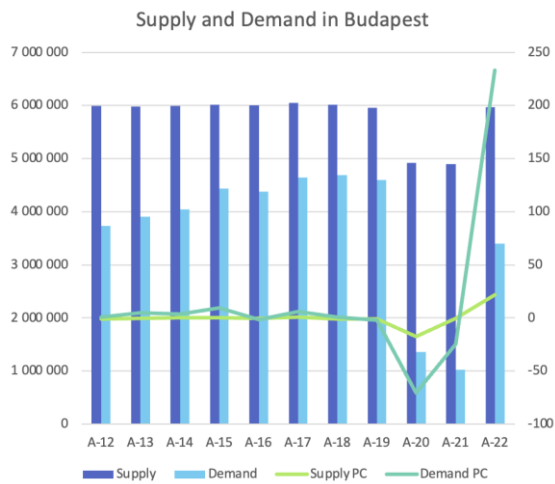


Figure 5: Budapest: Supply and Demand

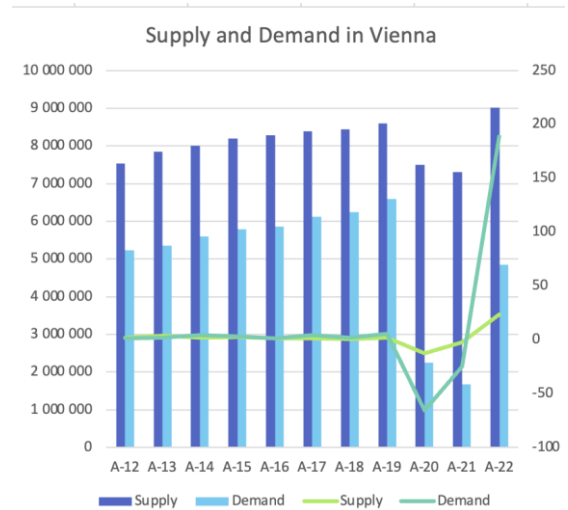


Figure 6: Vienna: Supply and Demand

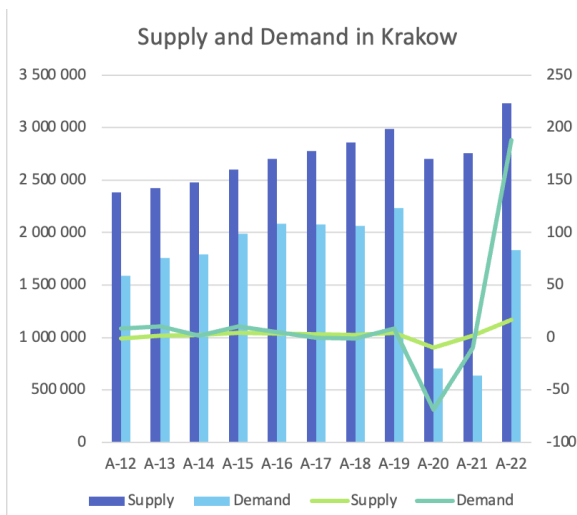


Figure 7: Krakow: Supply and Demand

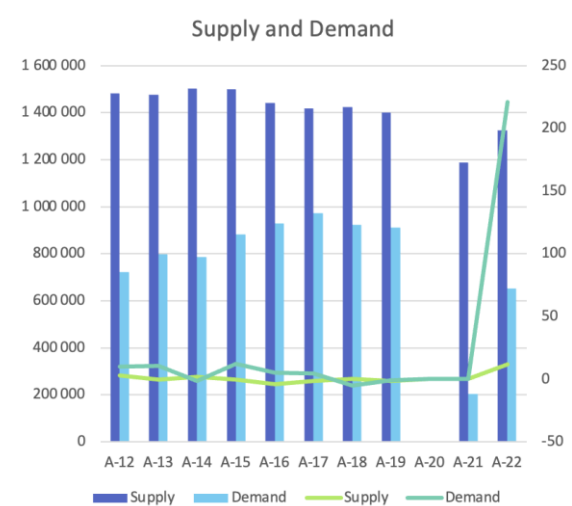


Figure 8: Bratislava: Supply and Demand

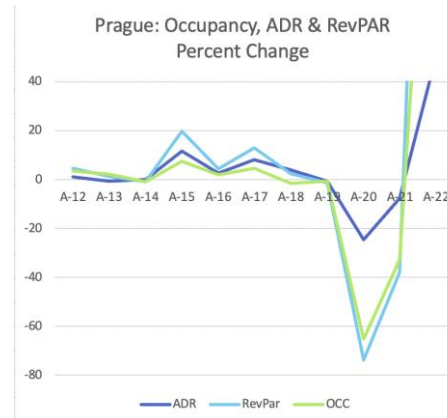
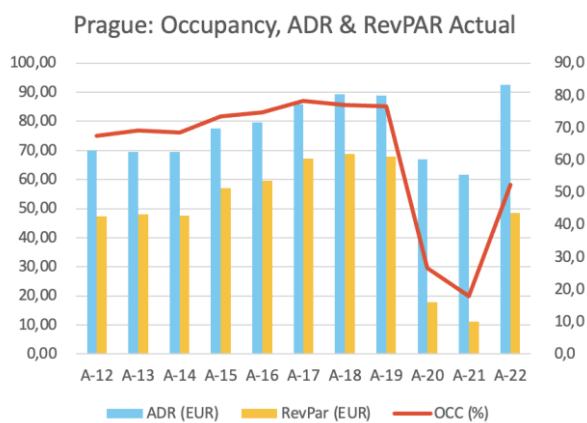


Figure 9: Prague: Occupancy, ADR & RevPAR Actual

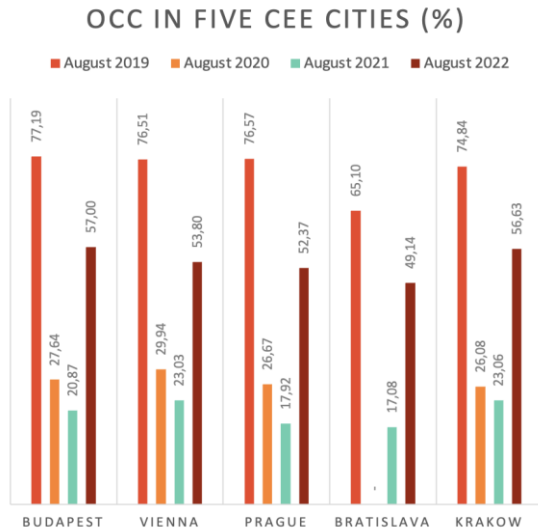


Figure 11: OCC in the five CEE cities

Figure 10: Prague: Occupancy, ADR & RevPAR Percent Change

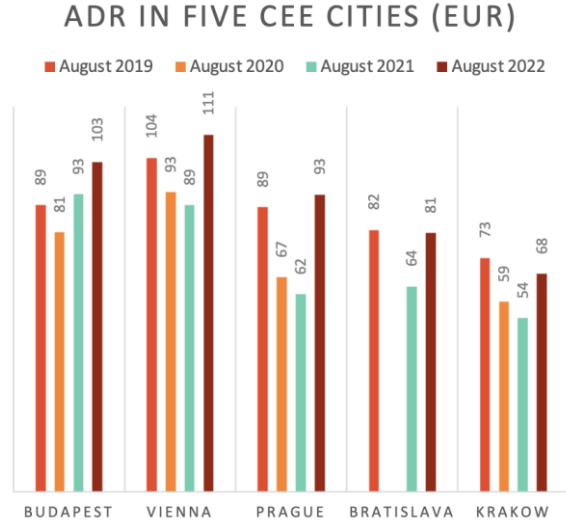


Figure 12: ADR in the five CEE cities

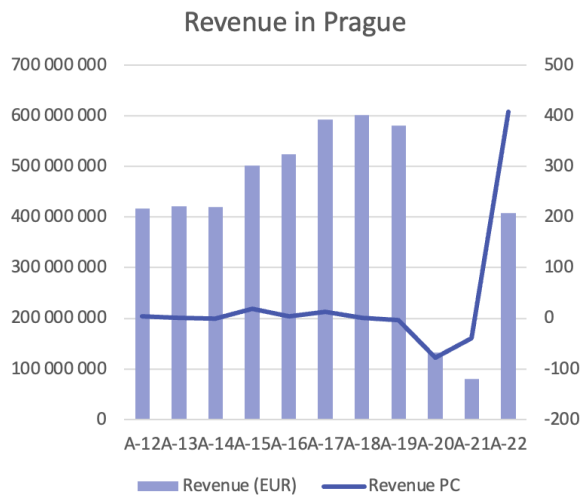


Figure 13: Revenue in Prague

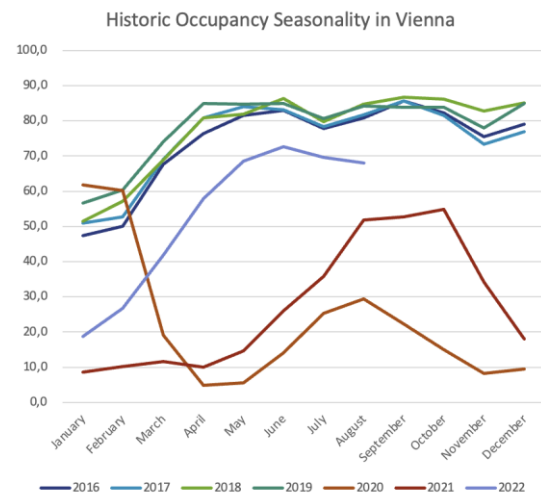


Figure 14: Historic Occupancy Seasonality in Vienna

	January	February	March	April	May	June	July	August	September	October	November	December	Total Year	Aug YTD
2018	28 483 903	27 397 671	41 321 570	54 937 657	63 207 081	59 752 796	59 158 105	61 491 555	68 051 690	62 426 529	43 607 710	44 421 477	614 257 744	395 750 338
2019	29 496 083	28 121 723	38 813 937	54 770 937	68 028 888	67 117 793	58 475 495	66 091 359	69 251 272	64 763 906	47 096 641	51 019 054	643 049 088	410 916 215
2020	36 012 655	32 993 646	11 908 652	1 460 300	2 376 328	3 029 100	11 705 338	10 433 109	5 220 550	6 512 747	6 148 028	3 028 307	130 828 760	109 919 128
2021	3 674 522	4 211 339	5 999 944	5 752 846	11 094 901	17 867 887	20 059 640	28 148 071	30 273 105	35 048 418	34 937 531	34 033 287	229 101 491	94 809 150
2022	21 819 654	21 687 127	35 482 700	42 536 616	50 189 872	59 034 544	61 884 091	57 365 451	41 644 264	46 658 026	44 124 628	29 882 517	419 648 500	274 456 281
Avg	21 447 523	20 614 688	26 967 230	34 427 856	43 719 875	42 579 947	43 054 898	41 644 264	46 658 026	44 124 628	30 822 363	29 882 517	419 648 500	274 456 281

Figure 15: Revenue in Budapest (Source: STR)

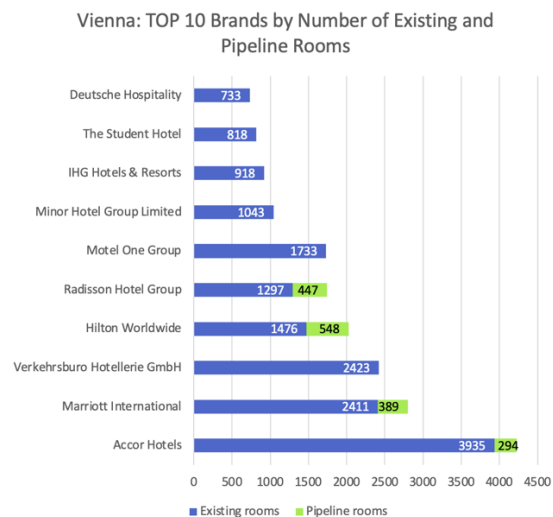


Figure 16: Vienna: TOP 10 Brands by Number of Existing and Pipeline Rooms

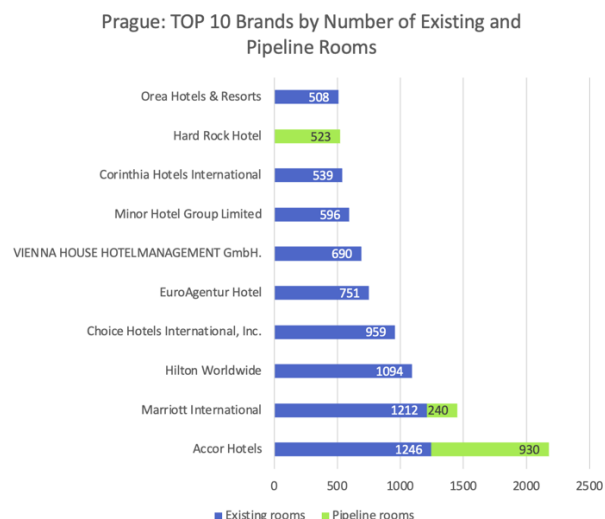


Figure 17: Prague: TOP 10 Brands by Number of Existing and Pipeline Rooms

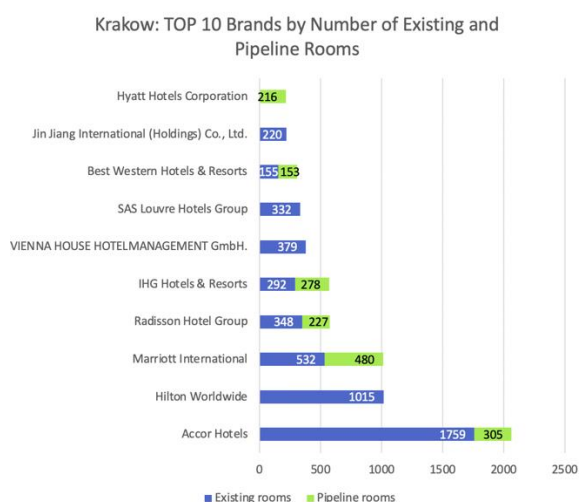


Figure 18: Krakow: TOP 10 Brands by Number of Existing and Pipeline Rooms

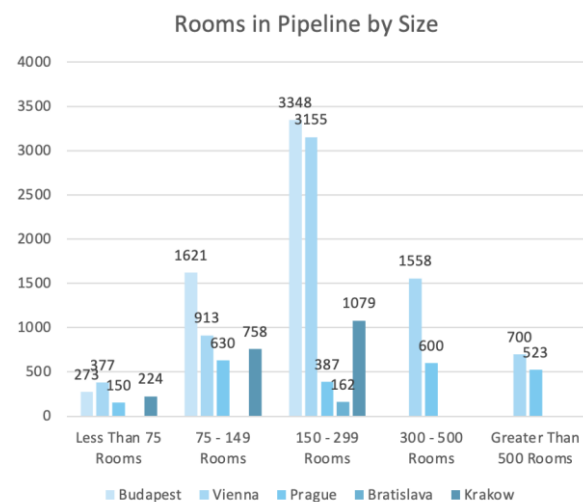


Figure 19: Size: Number of Pipeline Rooms in 5 CEE cities (Source: STR)

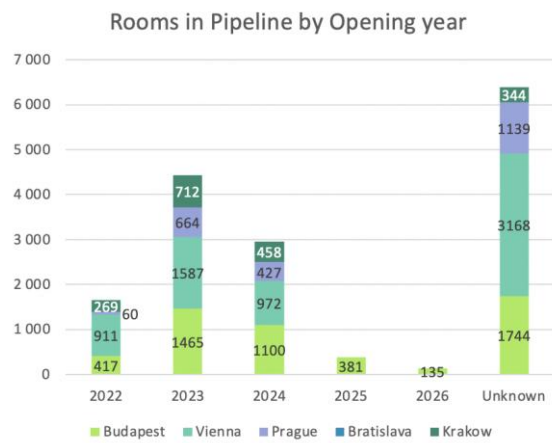


Figure 20: Opening year: Number of Pipeline Rooms in 5 CEE cities (Source: STR)

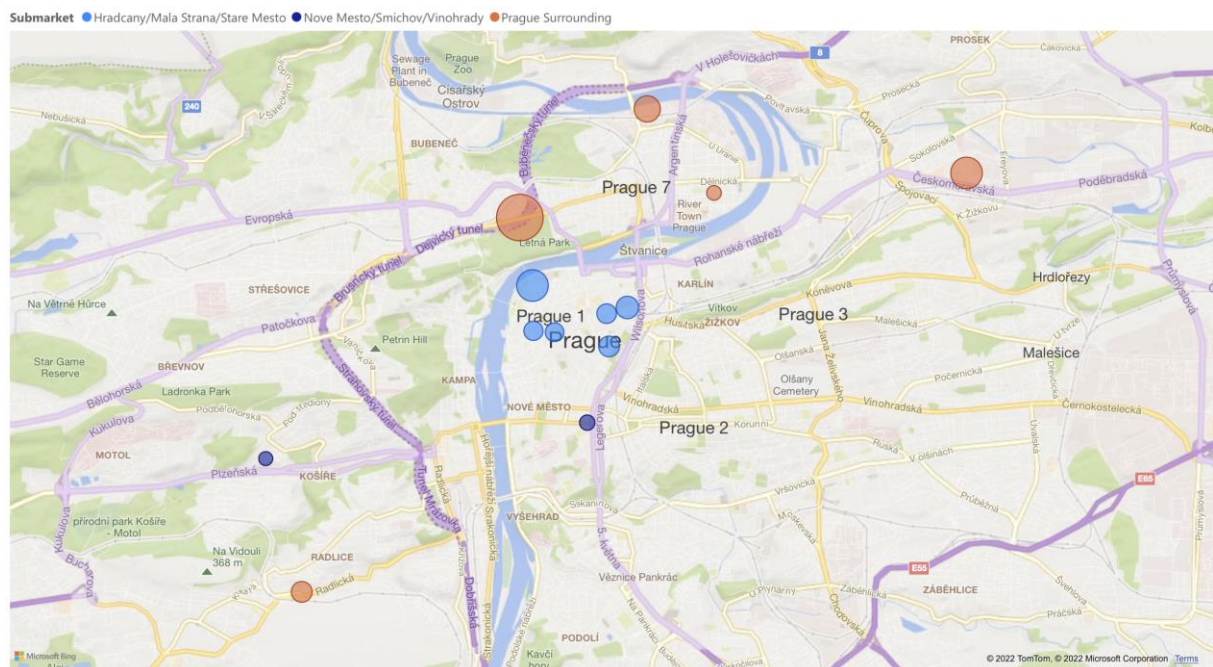


Figure 21: Map of Hotels in Pipeline Project in Prague (Source: STR)

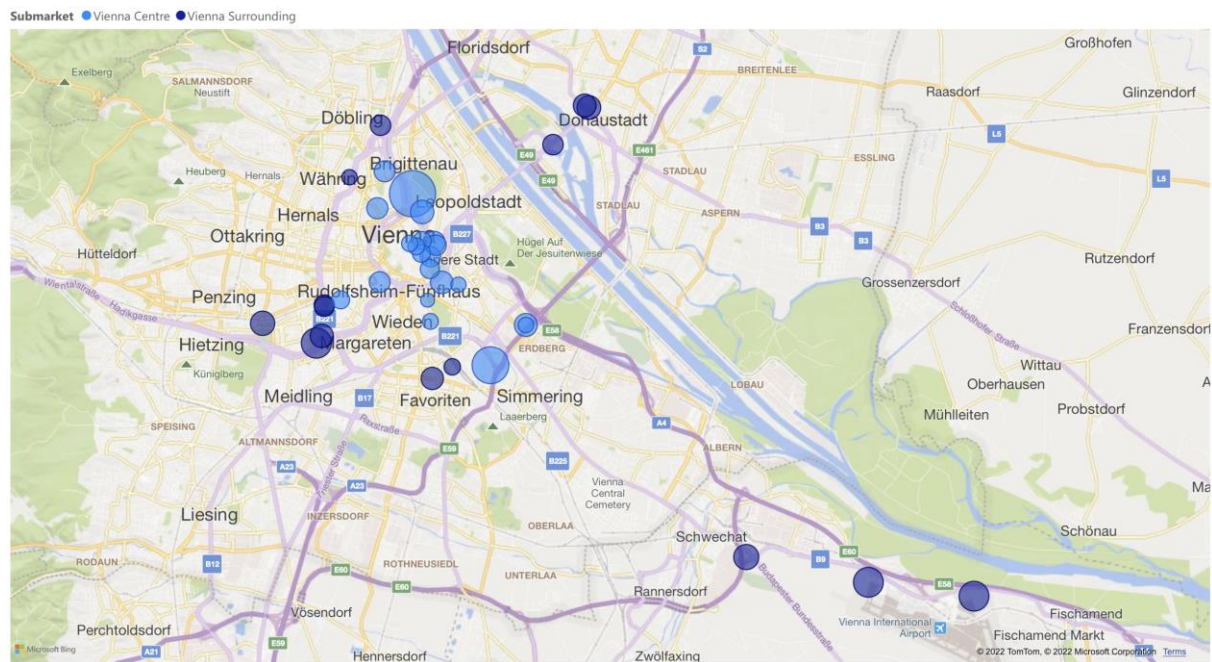


Figure 22: Map of Hotels in Pipeline Project in Vienna (Source: STR)

NUMBER OF PIPELINE ROOMS IN VIENNA

■ Vienna Centre ■ Vienna Surrounding

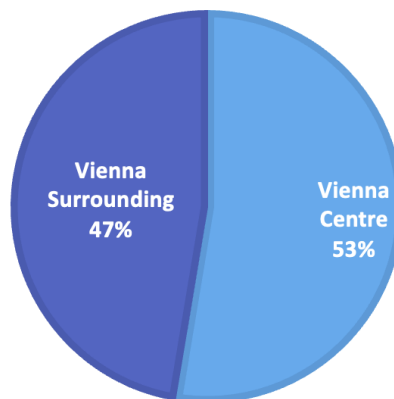


Figure 23: Number of Pipeline Rooms in 2 Submarkets in Vienna (Source: STR)

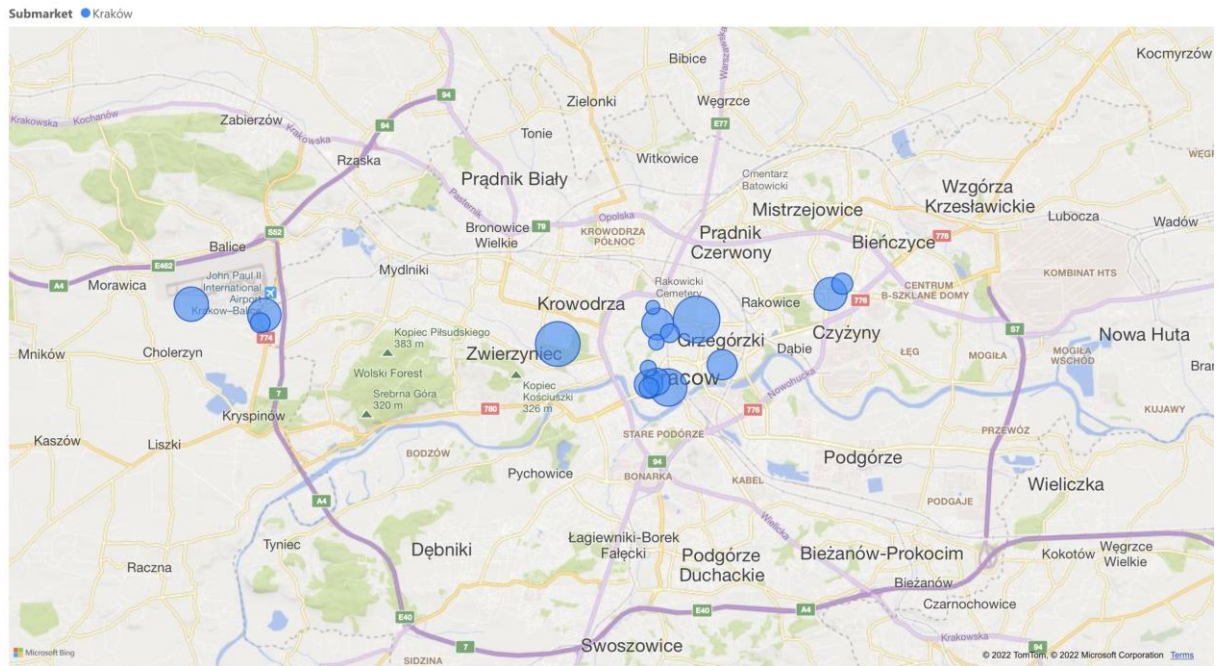


Figure 24: Map of Hotels in Pipeline Project in Krakow (Source: STR)