

MASTER'S THESIS

Tourism Analysis of Prague and Strategic Suggestion for
Future Development

Analýza turismu v Praze a návrh strategie budoucího
rozvoje

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**MASARYKŮV ÚSTAV
VYŠŠÍCH STUDIÍ
ČVUT V PRAZE**

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Abstrakt

Tato diplomová práce se zaměřuje na analýzu turismu v Praze s důrazem na udržitelný rozvoj turismu. První kapitola vysvětluje klíčové pojmy udržitelného rozvoje turismu a jeho význam pro budoucí rozvoj naší společnosti a přináší také stručný přehled historie a rozvoje turismu po celém světě a v Praze. Následující kapitola přináší analýzu turistických aktivit v Praze a aktivity místních úřadů a porovnává je se současnými mezinárodními standardy pro udržitelný turismus. Poslední kapitola přináší výsledky z předchozí analýzy a návrhy pro budoucí rozvoj turismu v Praze.

Klíčová slova

analýza, Praha, turismus, udržitelnost

Abstract

This Master Thesis focuses on analysis of tourism in Prague with emphasis on sustainable tourism development. The first chapter explains key terms of sustainable tourism development and its importance for future development of our society and brings a brief overview of tourism history and development worldwide and in Prague. The next chapter brings analysis of tourist activities in Prague and actions of local authorities and compares them with the current international standards for sustainable tourism. The last chapter brings outcomes from the previous analysis and suggestions for future development of tourism in Prague.

Key words

Analysis, Prague, Tourism, Sustainability

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Introduction

Tourism is a global phenomenon of major economic importance. It *“comprises the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes”* (UNWTO).

Especially the leisure time and the way we spend it has become one of the major criteria of the quality of our lives in our postmodern society. Even though travelling and tourism are not basic human needs, these activities have become a crucial part of the leisure time spending for more and more people from developed countries. Travelling has never been easier and more affordable than nowadays thanks to the technology, low-cost travel and accommodation options and the shared economy. For my generation of millennials, tourism is also not only the way how we relax and spend our holidays, but it has become part of our education. Travelling and meeting people from different cultures can be a great way how enhance your language skills, prevent racism and conflicts, create a diverse network of contacts, and also gain numerous social skills that are very valuable for all students planning to work for any international company (PAGE, 2019).

According to the World Travel and Tourism Council (WTTC), *“the global Travel & Tourism sector grew at 3.9% to contribute a record \$8.8 trillion and 319 million jobs to the world economy in 2018”* (WTTC, 2019). It means that tourism creates employment for 10% of the workforce worldwide, and it is responsible for one in five of all new jobs created in the world over the last five years. Travel & Tourism generates 10.4% of all global economic activity, and it is the second fastest growing industry after Manufacturing which grew by 4.0% in 2018.

The total number of people engaged in international tourism has been rapidly rising with the changes in our society, rise of the standard of living and demand for holidays after the World War II, and it reached 1.4 billion international arrivals worldwide in 2018, with 50% of these arrivals being in Europe, and Asia and Pacific being the fastest growing region (see Figure 1 for more details).

All these activities have undeniable positive financial effect on destinations, but it is not without its costs mostly environmental. Transportation causes around 75 percent of the CO₂ emissions generated by tourism. Massive tourism can also cause destruction of historical monuments and natural landmarks, increase of pollution, loss of the cultural identity of the place and community, increased prices on goods and services and congested human and vehicle traffic.

There is a global concern about sustainability of the continuing growth of human economic activity in general, concerns about sustainability of tourism as one of the

major global industries are no exception. These concerns have been part of the research since the 1990s, and *“the guiding principles of sustainable tourism have been developed based on the management of resources, the environment, the economy and society for the long term so that they are not compromised or damaged by tourism development”* (PAGE, 2019).

International Tourist Arrivals by World Region

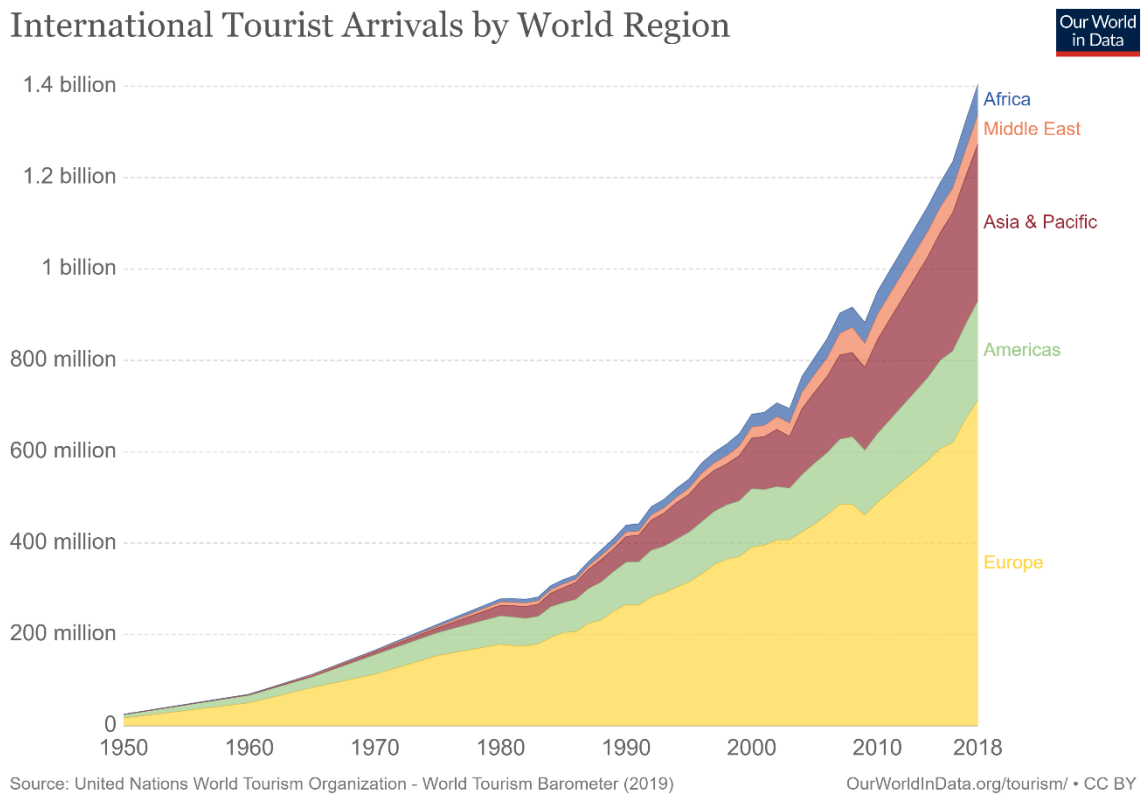


Figure 1: International arrivals by world region (UNWTO, 2019)

The United Nations World Tourism Organization (UNWTO) estimates that internationally there were just 25 million tourist arrivals in 1950. 68 years later this number has increased to 1.4 billion international arrivals per year. This is a 56-fold increase.

We can see similar trends in Prague, which has become one of Europe's most popular cities for tourists during the last two decades. Prague's absolutely unique collection of historical architecture, rich cultural life, convenient location just in the heart of Europe, delicious cuisine with a combination of worldwide fame of the Czech beer attracted more than 8 million visitors in 2019.

Prague also benefits the most from tourism out of the regions of the Czech Republic. One out of thirteen economically active citizens work in tourism in Prague, and the industry produced gross value added worth CZK 46 billion in 2017 (Český statistický úřad, 2019).

The topic of this thesis was chosen according to my personal preference and it was influenced by my personal experience in working in tourism in Prague since 2016. The number of visitors in Prague has been growing continuously since 2003 (except of one single year of 2009 when it decreased by 5%, thanks to the global economic recession) and there were no signs of changing this trend soon, when I started my analysis in September 2019. During the last few years, volume of tourism in Prague has grown to the state that was bringing also lots of issues. Human congestions at the most popular streets and sights, a thread of loss of the local identity and creation of a "tourist ghetto" in the historical part of the city instead, and many complains about noise are a few examples of issues that have been discussed in the media and the public as well.

The situation completely changed in March 2020, when the unprecedentedly strict measures were implemented by national governments in Europe as a response to the coronavirus global pandemic. Just on a course of few days, most of the tourism industry had to stop all its activities. The current situation might change the trend of tourism growth in the future as well, which was one of the key assumptions at the beginning of my analysis.

This thesis describes the situation in tourism by the end of 2019 and it does not try to outline the situation in tourism in late 2020 which is impossible to predict at the moment of writing this thesis. The analysis and outcomes of this thesis might become beneficial, in case the tourism industry will recover and get back on track, which is one of the possible scenarios.

State of art

1.1 Tourism history and development

Tourism is not a recent phenomenon. People have been travelling since the beginning of the civilization, but for the very long time tourism was only practiced by the privileged ones, who had both resources and free time to do so, and it took many centuries, innovations and reforms in our society for tourism to become such a widely accessible and mass activity. In this chapter, I will describe different forms of tourism throughout historical eras, both globally and in Prague, and also point out the major milestones of technological innovations and social changes that allowed tourism to grow up to its current form.

1.1.1 Ancient tourists

Societies of ancient Greece and Rome consisted of a group of freemen and a group of slaves and other people, who were required to do all the work. Ancient Greeks created a concept of the *"leisure lifestyle"* with a focus on philosophy, self-development, music and art. This concept of leisure is one of the key elements, upon which tourism is based. Greeks also organized the very first big event of tourism by creating Olympic Games in 776 BC.

Romans had even greater influence on development of tourism. The ancient Roman Empire spread over almost entire known world and maintaining such a large territory required lots of travels for the movement of military and administration. Many tourist destinations were created during this period including spas, baths and resorts, so Romans are considered to be the founders of recreational and health tourism. They also built some of the oldest European roads mostly for military purposes (RUX, 2014).

1.1.2 The Middle Ages

The Church had a major role in education and forming societies during the Middle Ages. Christianity and the development of monastic orders formed a fast-growing trend of pilgrimages. The most popular destinations for pilgrims were Jerusalem (the holy city of all three great monotheistic religions), Rome and Santiago de Compostela. Monasteries were also providing accommodation, before this role was taken by cities and town, which were growing rapidly during this period. The quality of roads was very poor during this time, which made travelling very slow and created a demand for accommodation and hospitality services (PAGE, 2019).

Another group of travellers in Europe were merchants. All the important routes were connecting newly developed towns, and merchants had to follow them and pay tolls for storing their goods at the designated storage areas.

1.1.3 Early development of Prague

One of the important towns on the merchant routes was Prague, originally founded during the 9th century AD. Prague was growing on the both banks of the *Vltava* river, and the first solid stone bridge (Judith bridge) was founded there in 1172, securing Prague as a necessary stop for all the travellers through the neighbouring area.

The biggest growth of Prague and its golden time was during the reign of Charles IV, the first Czech king to become the Holy Roman Emperor. Charles chose Prague to be the capital city of the whole Empire, and thanks to his work, the city was developed greatly. After the foundation of New Town in 1348, Prague became one of the largest cities in Europe by its area. Kingdom of Bohemia was an independent state within the Holy Roman Empire until 1526, when it was incorporated into the Austrian Empire. Czechs lost their sovereignty, and Vienna become their official capital city, which resulted in losing the importance of Prague both as a capital city and tourist destination (RUX, 2014).

1.1.4 Early Modern period

The "*Early Modern period*" was the period between the Middle Ages and the Industrial Revolution - roughly 1500 to 1800. It is characterized by ground-breaking changes of social, cultural and economic aspects. The important historical milestones are the European Renaissance and Protestant Reformation. It was a change from the Middle Ages' model of agricultural production to economic model of capitalism (especially in the Netherlands and England), personal freedom and the beginning of formation of a free society in general.

All these changes resulted in a new trend of travelling in pursuit of culture, education and pleasure mostly available to wealthy, aristocratic and privileged classes. The new circuit of key destinations, mostly in Western Europe, is called "The European Grand Tour". It had multiple routes, but the most common one was starting in England, and going through France or Belgium, Germany and Switzerland towards Italy. The journey usually took 2 or 3 years, and the young aristocrats were accompanied by their tutors, guides, servants and coachmen. Travelling was still very slow, mostly done by horses with carriages or by boats through the canals (PAGE, 2019).



Figure 2: English Aristocrat on the Grand Tour (Pixabay)

1.1.5 Industrial Revolution

Industrial Revolution was a transition from previous agricultural society to new industrial processes in Europe and the USA during the last third of the 18th century and the 19th century. One of the key innovations was the invention and increasing use of steam power. The Industrial Revolution began in Great Britain, and many of the technological innovations were of British origin. Building a railway network in Europe and introduction of steamboats had a massive effect on the development of tourism.

Travelling before this revolution was only accessible to ones who could spend months or years on a single journey, because travelling used to be so time consuming. On the other hand, travelling by train opened new opportunities for much shorter trips, even day trips, so travelling became available not only to aristocrats but also to the new upcoming middle class of clerks, lawyers, engineers, doctors and other liberal professions.

It was a period of discoveries of new types of destinations, especially baths and coastal resorts started to be very popular. It is quite interesting that spending free time by the beach at the coastal destination is quite a new phenomenon starting in the late eighteenth century in many European and North American countries as a new form of tourism. People used to believe that the oceans are controlled by supernatural forces and they used to avoid the coastal areas. It was only after the influence of poets, artists and the romanticism movement that people started considering visiting these areas and thanks to the organized tourism, coastal destinations started to develop.

The eighteenth century also witnessed a growth of bath destinations used for a health tourism. Destinations such as Spa in Belgium, Bath in England, Vichy in France, Paeffers in Switzerland, Baden Baden in Germany and Karlovy Vary in Bohemia all started to be popular during this time. Bohemia has become one of the "spa superpowers" that was visited by many elite members of politics or arts including the Russian tsar Peter the Great.

Another major breakpoint was creation of package trips. The first trip was organized by a train from Leicester to Loughborough in England by Thomas Cook in 1841, it included a return train ticket and a small snack. Thomas Cook established his travel agency in 1845 and created a foundation of a modern mass tourism. The company grew within three decades into the most famous travel agency in the world with a worldwide network. The agency started organising overseas trips in the 1850s and passenger cruises on the River Nile in the 1880s. Thomas Cook company had been operating until September 2019, when they declared bankruptcy after 178 years of being the biggest British name in holiday booking (PAGE, 2019).

1.1.6 Industrial Revolution in Prague

One of the prerequisites of industrial revolution was the abolition of slavery, in our lands made by the Emperor Joseph II in 1781, that allowed a free movement of people. People were moving to cities to work in factories that were massively opening during this period. Before the introduction of railway system in continental Europe, there was no "fast" way how to travel.

The quality of roads in the Czech lands and the Austrian Empire used to be very poor. The first road, with a better-quality surface, was built by the end of the 18th century connecting Prague with *Jihlava*, and later extended to Vienna. Post service undertook a big development during the 17th and 18th century, originally only used for the royal mail, the post services were also extended for transporting passengers, especially after the invention of a suspension carriage which provided more comfort. The speed of travelling was slowly increasing, and the first regular scheduled express post carriages were introduced in 1750 (RUX, 2014).

The first rail connection of Prague was a horse-drawn railway between Prague and *Lány*, opened partially in 1828, together with Budweis - Linz horse-drawn railway, they are considered to be the two oldest public railways in continental Europe.

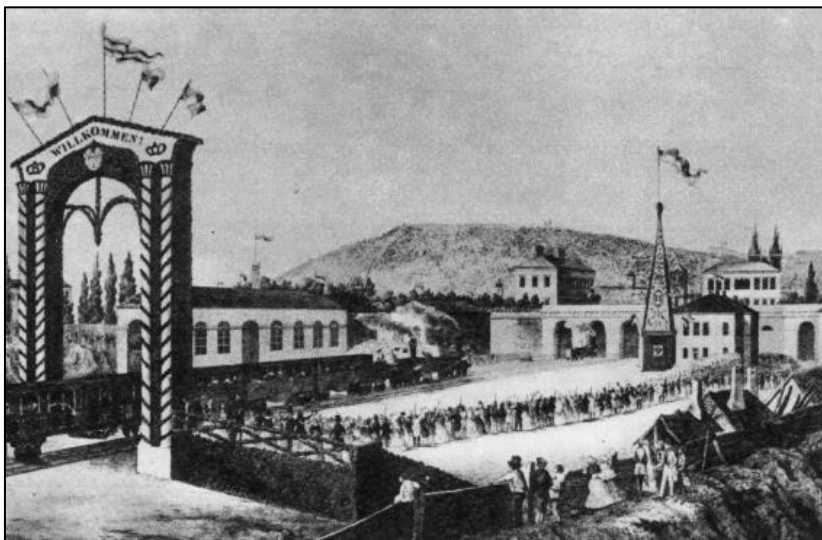


Figure 3: First train arriving in Prague in 1845
(Wikimedia Commons)

The first steam train arrived in Prague in 1845 from Olomouc, this railway was built by the Emperor Ferdinand Northern Railway company as the last part of Vienna - Prague rail connection.

In 1865, Prague also got its steamboat transport, when the Prague steamboat company (*Pražská paroplavební společnost*) started operating its first boat "*Praha*" on the Vltava river. One of the major events of this period was the General Land Centennial Exhibition hosted in Prague in 1891. Sights, such as the *Petřín* tower, the Industrial Palace or the *Křižík's* light fountain, were constructed for this 100-year anniversary since the first industrial exhibition held in 1791 in Prague (RUX, 2014).

1.1.7 Inter-war period

Coastal tourism and even overseas trips for elites were quite established for members of the middle and upper classes of Western society by the 1900s. The rise of international trade also created a demand for business travels, as well as travels to manage foreign colonies. Outdoor activities also became widely popular such as shooting and hunting or cycling (PAGE, 2019).

The First World War had a huge effect on leisure travel and basically interrupted its continuing growth. It was also a period of massive changes in human society and a rapid technological progress. One of the areas that was developed greatly was aviation. Air travel saw a huge growth after the war and many exotic destinations that were only accessible by a multi-week ferry voyage before, could be reached by a single flight. According to Page "air travel increased from 1 million miles flown in 1919 to 70 million miles in 1930 and 234 million miles in 1938 on the eve of the Second World War". The number of car owners was also rising which provided opportunities for the owners to make their own trips. People were also focusing more on their leisure time spending after they had gone through the horrors of the war and this was a good impulse for international travel industry, which was then stopped by the global economic crises in the late 1920s and 1930s.

1.1.8 Inter-war period in Czechoslovakia

After the World War I, in October 1918, the independent Czechoslovak Republic was established, and Prague gained its title of the national capital once again. The First Republic, as this period between the two world wars is called, was another golden time in the Czech history. The economy of Czechoslovakia was in the world's top ten thanks to having a $\frac{2}{3}$ of all industrial production from the former Austrian Empire on the Czechoslovak territory. There were big social changes after the war, and people had new technologies for households (vacuum cleaners, cookers, etc.) that expanded the amount of their free time. Relaxation and entertainment are no longer considered to be inappropriate, but they have become regular activities of daily lives. At this point all five basic prerequisites for the emergence of mass tourism have been met in Czechoslovakia:

- freedom of movement
- leisure time
- free capital
- infrastructure for travelling
- motivation

Last 30 years before the World War I witnessed a big development of the hotel industry with the first luxury hotels opened in spa resorts, such as Karlovy Vary or also in Prague. Lots of hotels in Prague were transformed into the state offices after the war, but 1920s brought another wave of hotel opening, especially next to the transport hubs, such as railway stations (RUX, 2014).

Visitors of Prague could also use services of licensed tour guides. Already in 1881, there was 7 guides with a special licence for guiding foreign visitors, 4 guides had a station on *Hradčanské náměstí* in front of the Prague Castle, and 3 guides had a station on *Staroměstské náměstí*. Travel agencies usually had their own tour guides.

Since 1924, there has been an official course for tour guides organized by the city council and the foreign union. Candidates had to prove their proper knowledge of the Czech history, history of Prague, city orientation and a foreign language and pass an exam, which is a paradox situation comparing to these days that in 2020 no examination is needed for becoming a tour guide in Prague (ŠTEMBERK, 2009).

The main means of transportation of this period is still railways, but we can also see the first rise of car usage after 1918. This is also the first period, when the aviation is used by public. The very first flight was done by Ing. Kašpar from Pardubice to Prague in 1911, and by 1923, Czechoslovakia had its own airline company called *Československé aerolinie* (ČSA). ČSA was operating only national flights in 1920s, and in 1930s, they also started operating international flights. In 1937, ČSA moved its fleet to newly open Prague Ruzyně Airport (Václav Havel Airport Prague today). The air transportation has developed rapidly during 1930s, flight times are shortened, and the ticket price has become competitive with the first-class train tickets.

Czechoslovakia was hit hard by the economic recession in later 1930s, but the tourism industry was already quite well established. There were 4 million people participating in domestic tourism by 1937, with an average length of stay of 5 days. At the same time, Czechoslovakia received over half a million international tourists, staying 8 days on average (RUX, 2014).

1.1.9 Post-war tourism in the Eastern Bloc (1945-1989)



Figure 4: Division of Europe during the Cold War
(Wikimedia Commons)

Europe was divided into 2 parts after the World War II in 1945. Czechoslovakia, with other countries of Central and Eastern Europe, has become a part of the Eastern Socialist Bloc lead by the Soviet Union (USSR) with the communist regime. On the other side, there were countries of Western Europe with the capitalistic society, and a great financial support from the USA to rebuild their economy. This period of the conflict of two world superpowers, the USA and the USSR, is also called the cold war.

There was no entitlement for travelling for the citizens of the Eastern Bloc during this period. Borders to the Western Europe were closed, and the government was strictly investigating everybody who wanted to apply to go abroad. Czechoslovak citizens could get a passport, but it was only valid for travelling to other "friendly" socialist countries. Czechoslovaks could only travel quite freely to Eastern Germany, Bulgaria and Romania. For travelling to a Western country, citizens needed to obtain a special "exit clause", which was almost impossible to get for an average person, or to travel with a designated travel agency.

On the other hand, incoming tourism to Czechoslovakia had no heavy restrictions, and was welcomed, because it was bringing lots of foreign exchange to the government. Citizens of the Western countries had no problems to obtain a permit to enter Czechoslovakia, they just needed to have a valid passport, pay for the entry visa, and they had to exchange a certain amount of money for Czechoslovak Crowns, and spend that amount in the country. Despite these relatively open rules for visitors, Prague has never really had any substantial number of international visitors before 1989. Most of the international visitors were from other Eastern Bloc countries, and most Western visitors were coming to Prague for business purposes, or to visit their relatives. One of the few hospitality facilities built for visitors from the West, or Middle East, was the Intercontinental Hotel, opened in 1974. Another popular location for international visitors, was the famous brewery and pub *U Fleků*, which was also hosting meetings of Eastern and Western Germans in Prague (RUX, 2014).

1.1.10 Post-war tourism in the Western society

Even though the tourism development in the Eastern Bloc was very slow because of the political regime, the post-war period saw a huge development of tourism in the West. Many of the current trends in tourism has their origin in the post-war period, especially the rise in demand for holidays, introduction of jet airlines and personal car ownership. There was a growth in income, leisure time and opportunities for international travel. Weekly working hours have dropped under 40, thanks to the mechanization of production, social reforms and a pressure from labour unions. People had more free time, more money, and also higher motivation to escape from the regular daily routines, because of the life in densely populated urban areas and stressful jobs. The tourism industry, producing recreational services in a mass range, has been created (PAGE, 2019).

Factors such as: transportation improvements (bigger and more efficient aircrafts, high speed trains), innovations by tour operators (new holiday brochures and ways of selling their products, buying via internet), more information of about destinations available (media, brochures, guide books) and increased promotion of destinations by governments promoted the development of mass tourism in the Western world in the post-war period, mostly in the 1960s, 1970s and 1980s. It was all possible thanks to the rise of the living standards, shorter working hours (see figure 5 below) and rapid development of airline industry and personal car ownership.

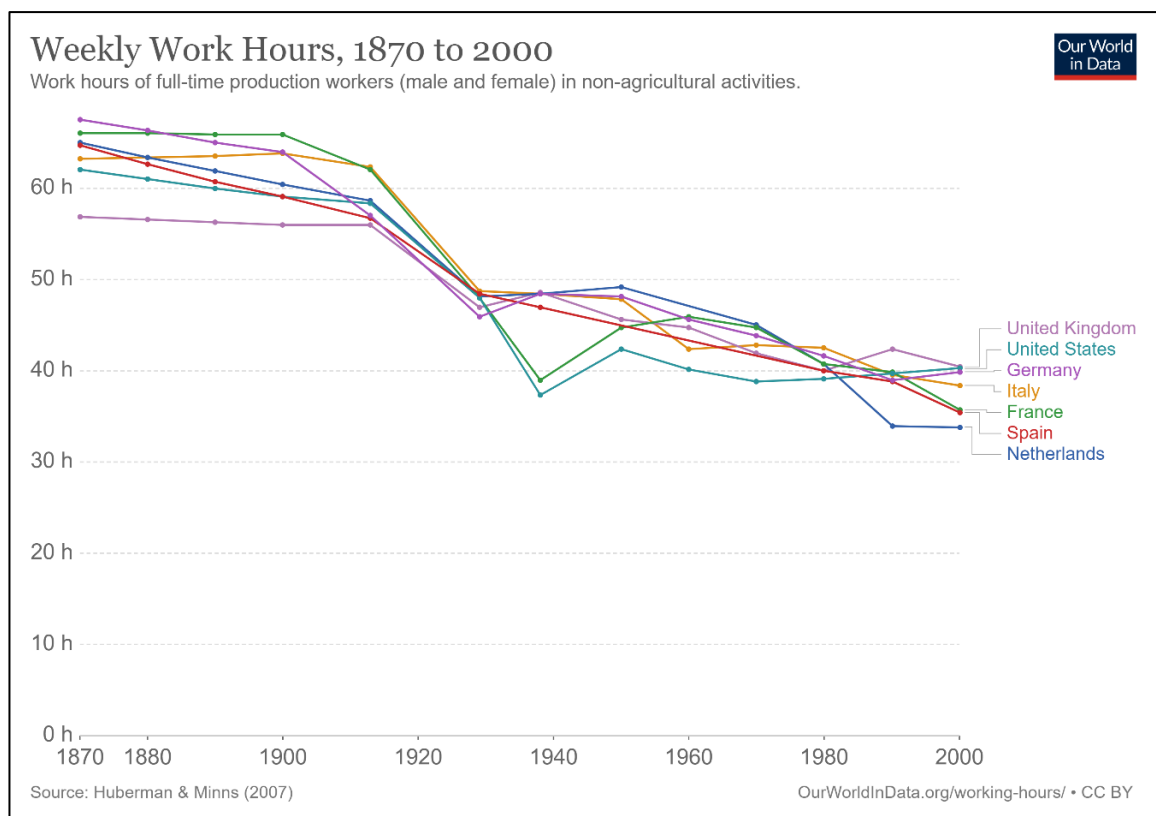


Figure 5: Weekly work hours (OurWorldInData.org)

1.1.11 Tourism in Prague after 1989

The communist regime in Czechoslovakia collapsed during the Velvet Revolution in November and December 1989. People wanted to have freedom and opportunities of the Western Europe, so on the 4th of December 1989, the borders to the West were opened, and people could start travelling freely. A hunger for international travels of Czech people started a new trend of low cost travelling to the Western countries, since people couldn't afford Western services, because the gap in salaries was too high. By the late 1990s, Czech salaries have risen enough, so local travel agencies started creating international charter flights for tourists.

Western travellers also started visiting Prague to have a taste of the former Eastern Bloc, but the quality of local accommodation and services was really low, so lots of local inhabitants started their business in tourism and the number of travel agencies was booming. Because of the lack of hotels, many Prague citizens started offering accommodation for tourists in their flats to make some extra money, which may be a parallel to the current situation with short-term rents of flats via Airbnb and similar services (RUX, 2014).

The main boom of international tourism in Prague started after 2000, when Prague received over 2 million international visitors. The quality of local hotels and restaurants has also risen tremendously, and many new tourist attractions have appeared, including boat trips, specialized guided tours, music festivals, new museums or organized day trips outside of the city.

Important milestones for tourism during 2000s include:

- The Czech Republic joining the European Union (EU) on the 1st of May 2004, which allowed all the EU citizens to visit the Czech Republic without a passport, as one of the EU cornerstones is a free movement of persons within the Union, established by the Treaty of Maastricht in 1992 (European Parliament).
- The Czech Republic signed the Schengen agreement on 16 April 2003 and started its implementation years later, on 21 December 2007. Schengen area is a zone of European countries without no internal borders, and border controls while travelling from Schengen country to another by land (Schengen Visa Info).

1.1.12 Current trends in tourism

Even in the 21st century, tourism has been still evolving and the tourism industry has been coping with many new innovations. One of the key innovations is a transfer of most reservations and arrangements to the digital space. Tourism has never offered as many services and has never so accessible as nowadays. Customers can arrange all their trip within a few clicks using their smartphone, from a flight ticket and hotel room purchase to the most personally customised experiences and guided tours and even connecting with other same-minded travellers to share the same interests.

The raise of low-cost airlines and budget accommodations (such as youth hostels or shared units) made continental travelling very inexpensive and massively popular among students who can benefit from many international programmes and student exchanges. Many students also use the summertime or the time between the university graduation and starting a full-time job (so called "gap year") for longer trips to visit as many destinations as possible and to get international experience.

Tourism is not only accessible to younger generations, but it also offers numerous opportunities customised for seniors, mostly organized package trips. Since the number of countries that have active generation of retired citizens with enough energy and resources to travel, is raising, seniors are the fastest growing group of travellers. Thanks to the demographic trends of population aging, postponing starting a family and continuing improvement of healthcare systems, we can expect this trend to continue (PAGE, 2019).

In Europe, a specific type of urban tourism utilising efficiently maximum of free time of working professionals, have appeared. So called "city breaks", when a person or group visits another European major city for a weekend or a few nights, have become a new separate tourism product. A specific type of a "city break" or "weekend getaway" are stag or hen parties, which are organized trips of a group of friends or wider family before the wedding. They are very popular in the UK or Germany and the most popular destinations are the major cities from the former Eastern Europe (Prague, Budapest, Krakow, Bratislava) because they offer diverse night life, cheap alcohol and minimum restrictions comparing to the Western European cities (Dumbrovská, et al., 2014).

More and more travellers are also engaging in Ecotourism, which is a specific type of tourism focused on spending time in the natural environment without damaging it or disturbing habitats. It involves visiting fragile, pristine, and relatively undisturbed natural areas, intended as a low-impact and often small-scale alternative to standard commercial mass tourism. Ecotourism is one part of a bigger group of travelling activities focused on responsible behaviour of all parties involve, which is called **sustainable tourism**.

Prague has become well established target of international visitors and one of the most popular urban destinations in Europe. It is regularly announced as one of the world's top cities to visit by travel bloggers and travel websites such as Trip Advisor. In 2019, the city received over 8 million visitors and the volume of tourism, especially in the historical centre, raises lots of discussions about its sustainability.

1.2 Sustainability and tourism

"Sustainability focuses on meeting the needs of the present without compromising the ability of future generations to meet their needs" (investopedia.com). It is an important concept for maintaining similar opportunities and resources for future generations as we have nowadays. Companies, governments and individuals are advised to consider long-term consequences of their actions and not only focus on short-term profits. In the recent studies the term "sustainable development" has also been used widely. The tourism sector has developed a set of guidelines for both destinations and hotels and tour operators to align their activities with the concept of sustainability.

1.2.1 The 2030 agenda for sustainable development

The United Nations (UN) organization was established after disasters of the Second World War in 1945 to secure the world peace. Nowadays, UN has 193 member states and provides a platform for discussion and guidelines for the main global issues.

Main focus areas of UN are:

- maintaining international peace and security
- protecting human rights
- delivering humanitarian aids
- upholding international law
- **promoting sustainable development**

"Improving people's well-being continues to be one of the main focuses of the UN. The global understanding of development has changed over the years, and countries now have agreed that sustainable development – development that promotes prosperity and economic opportunity, greater social well-being, and protection of the environment – offers the best path forward for improving the lives of people everywhere" (United Nations).

In 2015 UN adopted the new 2030 agenda for sustainable development which defines 17 Sustainable Development Goals (SDGs) and 169 associated targets that should be implemented by local governments, companies and individuals immediately to create a better world by 2030 (see figure 6 for more details).



Figure 6: Sustainable Development Goals (UN, 2015)

Tourism has the potential to contribute, directly or indirectly, to all the goals. It has been included as targets in Goals 8, 12 and 14. Following goals are directly connected with cities as tourism destinations:

GOAL 8: DECENT WORK AND ECONOMIC GROWTH

Tourism creates numerous new job opportunities as one of the fastest growing industries. These new jobs can offer decent work and professional development for people that struggled with finding these conditions in different sectors of economy. According to SDGs target 8.9 *"By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products"*.

GOAL 11: SUSTAINABLE CITIES AND COMMUNITIES

"A city that is not good for its citizens is not good for tourists". Sustainable tourism can boost development of cities with a focus on green infrastructure, accessibility and protection of local environment, cultural and historical heritage. It can also solve a problem with over tourism in certain cities by dispersing visitors and opening new interesting locations.

GOAL 12: RESPONSIBLE CONSUMPTION AND PRODUCTION

A tourism sector that adopts sustainable consumption and production can play a significant role in accelerating the global shift towards sustainability. As set in Target 12.b of Goal 12, it is crucial to *"Develop and implement tools to monitor sustainable development impacts for sustainable tourism which creates jobs, promotes local culture and products"* (UNWTO).

1.2.2 Sustainable tourism development

Making tourism sustainable is a long evolving journey, it is not a destination. That is the reason I find a term "*Sustainable Tourism Development*" more precise in this case. UNWTO describes Sustainable Tourism Development as: "*tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities*" (UNWTO).

It is very important to put our focus on all the parties involved:

- **Tourists:** Visitors of a destination should get a great experience from their visit. They should feel safe and welcomed and get relaxed, educated, enriched by encountering new cultures, and rewarded by supporting local economies without disturbing local citizens or destroying cultural identity of the place and community.
- **Tourism industry:** Travel agencies, hotels, transport providers and tour operators run profitably their businesses and share their profit with a local economy. They provide employment with a decent remuneration, and their activities respect local communities and authorities.
- **Host communities:** Local citizens are not negatively affected by tourism. On the contrary, locals benefit financially by providing services for tourists, and a destination profit from the tourism is used for protecting the environment, improving local infrastructure and investments in education and other services for locals.
- **Environment:** All the activities of tourism have the highest respect for the natural environment of a destination. Tourists and businesses limit their consumption of natural resources, usage of plastics and a waste production. Biodiversity of a destination is protected, and the profit is also used for nature conservation.

Put in simple words, sustainable tourism cancels all the negative aspects of mass tourism without changing its financial benefits. It generally embraces smallness of a scale (smaller groups of tourists, not creating congestions), education of tourists, localism (supporting local businesses, respecting local culture) and environmental conservation.

If the principles of "*Sustainable Tourism Development*" are applied properly, tourism may have only positive effects on destinations, locals and tourists, so it makes everybody involved happy.

The sustainability of tourism has three independent aspects: social, environmental, and economic.

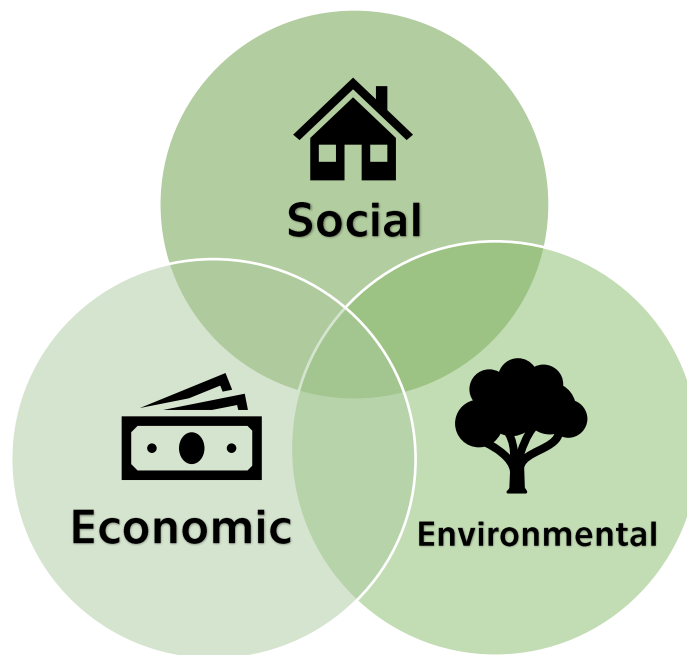


Figure 7: Aspects of sustainable tourism

1.2.2.1 The social aspect

Sustainable tourism respects the socio-cultural authenticity and enhance the historic heritage, authentic culture and traditions of host communities, conserve living cultural heritage and traditional values, and contribute to inter-cultural understanding and tolerance. Thanks to the sustainable tourism, the quality of jobs in the tourism sector is improved, professional training is available and new professional development opportunities for local residents are created. The social aspect is especially important in developing countries, where tourism has such a huge economic impact that the authenticity and traditional local culture might be sacrificed for the needs of tourists arriving to these countries.

1.2.2.2 The environmental aspect

Sustainable tourism supports the conservation of natural areas, habitats and wildlife, and minimize a damage to them. The proper usage of resources, including energy, water and waste, is optimised and the carbon footprint and pollution caused by tourism in the destinations they visit is reduced. This is aspect is primarily important in coastal and mountain destinations, where the natural sites are the main attraction for visitors and changing the local eco-systems or damaging the natural monuments could result in irreversible changes in local environment.

1.2.2.3 The economic aspect

Sustainable tourism ensures long-term economic operations, providing socio-economic benefits to all stakeholders that are fairly distributed, including stable employment and income-earning opportunities and social services to host communities, and contributing to poverty alleviation. Tourists' money stays in the destination they visit, and the economic gains are shared with businesses and individuals that usually do not benefit from tourism.

Sustainability in tourism on long-term requires a balance between economic, social, and environmental sustainability. The need to make economic growth and sustainable development consistent also has an ethical dimension (SOFRONOV, 2017). The most significant challenges for sustainable tourism are:

- improving the quality of jobs in tourism
- preserving natural and cultural resources
- limiting negative impacts at tourist destinations, including the use of natural resources and waste production
- promoting the wellbeing of the local community
- reducing the seasonality of demand
- making tourism accessible to all (European Commission)

1.3 Measuring the sustainability of tourism

With the rising awareness of sustainable activities and guidelines in the tourism sector, there are also several international institutions and agencies that have been working on the tools for measuring sustainability. In this chapter, I am presenting an overview of the most recognized measuring tools for the sustainable tourism from both public and private initiatives with a focus on their similar aspects and differences.

1.3.1 Indicators of Sustainable Development of Tourism

"Indicators of Sustainable Development for Tourism Destinations: A Guidebook" is one of the first documents published on this topic. It was created in 2004 by UNWTO (before called WTO), which has been promoting the use of sustainable tourism indicators since the early 1990s. It suggests the use of indicators as essential instrument for destination management and policy makers. Each destination should choose their own indicators, as they see their relevance, and follow and evaluate changes of those indicators to see impacts of their actions (World Tourism Organization, 2004).

Indicators are connected to major sustainable issues, ranging from the management of natural resources (waste, water, energy), to development control, satisfaction of tourists and host communities, preservation of cultural heritage, seasonality, economic leakages or climate change.

1.3.1.1 Indicators for urban tourism destinations

UNWTO describes applications of indicators in different destination types (e.g. urban destinations) with numerous examples and case studies. Urban tourism has only recently been recognized as a topic for research and sustainability issues are not yet developed extensively in the field of urban tourism, compared to other forms of tourism (like rural or coastal tourism). We can divide the urban tourism into 2 main forms:

- **recreational tourism** (with a clear focus on cultural attractions and educational aspect)
- **business tourism** (with a focus on MICE, which stands for Meetings, Incentives, Conferences and Exhibition)

You can see an example of indicators for both forms of urban tourism at the Table 1 below:

Issues	Suggested indicators
Recreational tourism	
Sustainable tourism enterprises	% of businesses that have adopted environmental management procedures
Resident attitudes towards tourism	Local satisfaction level with tourism in the city questionnaire
Presentation of cultural knowledge	Number and percentage of guided tours and/or publications which show new and unconventional attractions.
Business tourism	
Range of services available	Number of conference rooms and their capacity
Solid waste management	Volume of waste generated and % of waste recycled
Location relative to amenities	Number of key services in or adjacent to facility (e.g. bank, post office, taxi stand, travel assistance, pharmacy, souvenirs etc).

Table 1: UNWTO example of sustainability indicators (UNWTO, 2004)

These indicators are presented as suggestions and there is still the main decision left for the destination management to choose appropriate indicators that are significant for their destinations and that are possible to track and evaluate.

1.3.2 Global Sustainable Tourism Council (GSTC)

The GSTC is an independent and neutral organization that represents a diverse and global membership, including UN agencies, NGO's, national and provincial governments, leading travel companies, hotels, tour operators, individuals and communities – all striving to achieve best practices in sustainable tourism. It provides sustainability guidelines for travellers, certification bodies, hotels & accommodations, tour operators and destinations. The GSTC establishes and manages global sustainable standards, known as the GSTC Criteria. There are two sets:

- Industry Criteria for hotels and tour operators
- **Destination Criteria** for public policymakers and destination managers (Global Sustainable Tourism Council, 2020).

1.3.2.1 GSTC Destination criteria

The GSTC Criteria for Destinations (GSTC-D) are the outcome of work of many experts and they consider the numerous guidelines and standards for sustainable tourism from every continent. They reflect certification standards, indicators, criteria, and best practices from different cultural and geo-political contexts around the world in tourism. The first version of GSTC-D was published in 2013 and after a couple of testing projects and feedback gathering, the newly updated GSTC-D version 2.0 was released in December 2019.

GSTC-D are the minimum that any tourism destination should aspire to reach. They are organized around four main themes:

- sustainable management (11 criteria)
- socio-economic impacts (8 criteria)
- cultural impacts (7 criteria)
- environmental impacts (12 criteria)

Each section has 2 or 3 sub-sections for the sustainability criteria and every criterion relates to its performance indicators which are designed to provide guidance in measuring compliance with the criteria. Application of the criteria will help a destination to contribute towards the 2030 agenda for sustainable development and the 17 Sustainable Development Goals. Every criterion is also represented by 1 or more SDGs, to which it most closely relates (Global Sustainable Tourism Council, 2019).

GSTC itself does not provide a certification of sustainability for destinations or businesses but it does manage accreditation for certification bodies according to processes that comply with international standards and good practices.

You can see an example of a GSTC criterion from the Section A, which gathers criteria measuring sustainable management, at the Figure 7 below:



Criteria	Indicators	SDGs
SECTION A: Sustainable management		
<u>A(a) Management structure and framework</u>		
A1 Destination management responsibility The destination has an effective organization, department, group, or committee responsible for a coordinated approach to sustainable tourism, with involvement by the private sector, public sector and civil society. This group has defined responsibilities, oversight, and implementation capability for the management of socio- economic, cultural and environmental issues. The group is adequately funded, works with a range of bodies in delivering destination management, has access to sufficient staffing (including personnel with experience in sustainability) and follows principles of sustainability and transparency in its operations and transactions.	a. Documentary evidence showing relevant make-up and responsibilities of the group. b. A financial plan and budget showing current and future funding sources. c. Evidence of links and engagement with other bodies. d. Records of permanent staff and contracted personnel, indicating relevant experience. e. Management guidelines and processes, which demonstrate awareness and adherence to sustainability principles and transparency in operations and letting of contracts.	 

Figure 8: Example of GSTC Criterion (GSTC)

The main progress from the UNWTO indicators is a presence of list of performance indicators that are already defined for GSTC-D users to measure their performance. Applying GSTC indicators still requires a thorough work from destination tourism managers and adaptation to local conditions but the implementation of such a process should be much faster and effective than before GSTC were created. GSTC also links each of suggested criteria with corresponding SDGs supported.

1.3.3 The European Tourism Indicator System (ETIS)

The European Union has also been developing a system for measuring the sustainability of tourism for its members. The EU followed on work of UNWTO and GSTC and used their guidelines as base materials. The European Commission has developed a European Tourism Indicators System (ETIS) as a simple method for measuring sustainability performance. The first edition of ETIS was launched in 2013, and more

than 100 destinations across Europe (non from the Czech Republic) implemented and tested ETIS and provided the Commission with feedback about their experience. The current edition was published in 2016 with a document called "ETIS toolkit for sustainable destination management", which is a fully tested system with more realistic set of core indicators for destinations. It contains 43 core indicators and an indicative set of supplementary indicators.

ETIS toolkit suggests using the seven-step guide to the implementation of the European Tourism Indicator System:

- **Step 1: Raise awareness**
 - It is important to communicate the decision to commit to sustainable tourism to as many stakeholders as possible.
- **Step 2: Create a destination profile**
 - ETIS provides a profile form, which is the key starting point to implementation.
- **Step 3: Form a Stakeholder Working Group**
 - The collection of organisations and individuals in the destination with an involvement and interest in the tourism industry from both the private sector and the destination management organisation.
- **Step 4: Establish roles and responsibilities**
 - The local destination coordinator has to navigate stakeholders towards an agreement on setting targets, acting and planning how to achieve them.
- **Step 5: Collect and record data**
 - Destinations can themselves choose the most relevant indicators they wish to adopt and monitor to meet their needs. Access to the relevant data is crucial, so the most important thing is to start collecting them as soon as possible.
- **Step 6: Analyse results**
 - Online destinations datasheets are recommended for data analysis and for findings and defining the necessary actions.
- **Step 7: Enable ongoing development and continuous improvement**
 - It is important that the indicators and the data are regularly reviewed and that additional supplementary indicators are included when possible, as appropriate to the destination (European Union, 2016).

Data and methodology

After understanding how tourism has become such an important part of the global economy and that the sustainability of tourism has been promoted by various international organisations and agencies, it is important to describe the sources of data used in the following analysis and discussion, and the methodology used for the data analysis and comparisons.

The aim of this analysis is to bring relevant data and to show the real volume of tourism in Prague and its development during the latest period. The urban tourism development is examined in the period of 2012 to 2018 (in some categories to 2019, if the date is already available). Choosing this period has two main reasons. Firstly, there has been a similar studies conducted for Prague analysing a period of 2003 to 2011 by Dumbrovská (2003) as her Master's Thesis and then as *"Comparative Analysis of Tourism in Prague, Vienna and Budapest"* science article focusing on comparison of Prague with Vienna and Budapest which were chosen for their similar tourism volume, history and culture. Secondly, since the tourism volume in Prague has been still growing and Prague has become one of the seven most visited cities in Europe, it is important to analyse the latest data and compare them with other most visited cities in Europe.

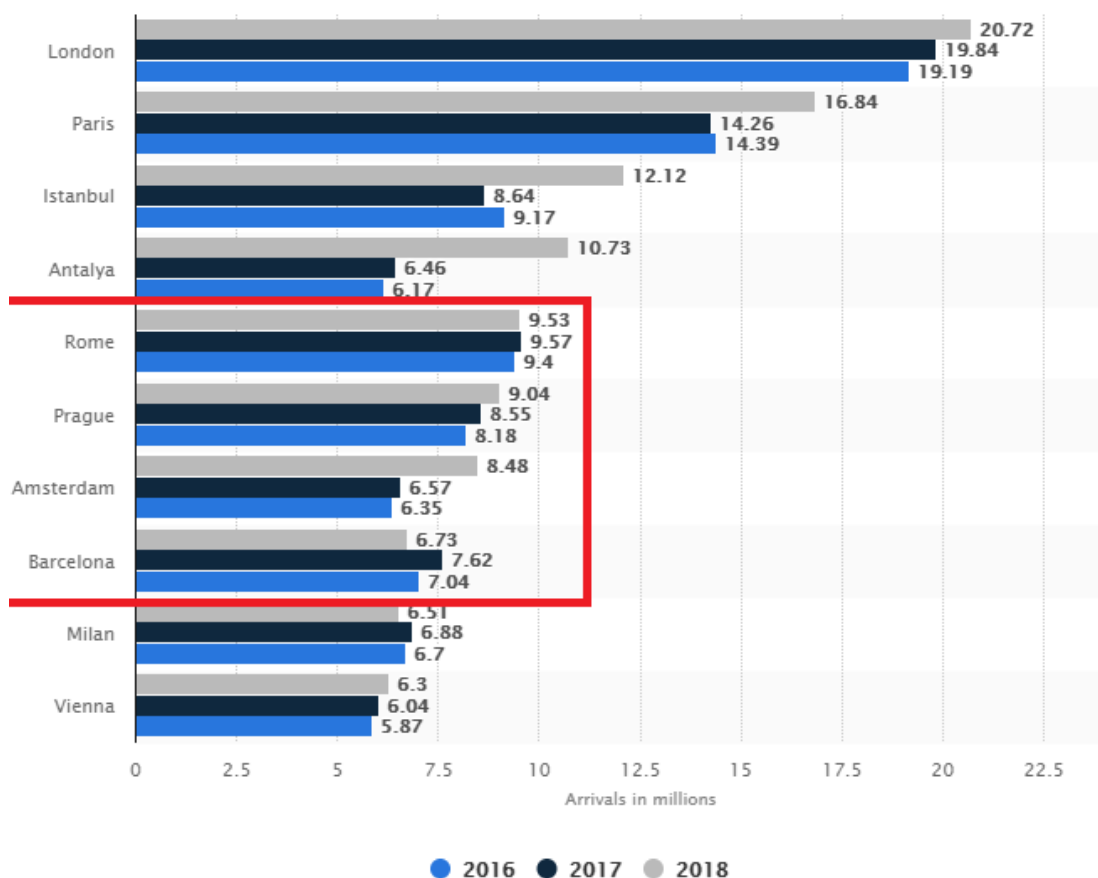


Figure 9: Leading city destinations in Europe from 2016 to 2018, by number of international arrivals (statista.com, 2020)

The second part of my analysis focuses on comparing tourism statistics of Prague with cities of Roma, Amsterdam and Barcelona. I have chosen these destinations for a couple of reasons. Firstly, they all have similar volume of tourism as Prague and they have been all rated in top ten European destinations in the period of 2016-2018. The only European destinations that received more international tourists, are the three megacities London, Paris, Istanbul and Antalya, which is mostly a coastal "beach resort" area with slightly different type of tourism than classical urban destinations and it also only got to the top ten list in 2018. Prague, Rome, Amsterdam and Barcelona are also national or important regional capitals with high economic importance and opportunities to attract visitors during all seasons. Secondly I have not decided the use the same approach as Dumbrovská (2013) with choosing destinations in the same region of Europe that went through a similar historical development but quite contrary destinations in the countries that became part of the capitalistic European block after the World War II, so the modern tourism industry started developing there much earlier than in Prague that only open to international tourism after 1989. I also plan to observe possible differences of Prague's later appearance on international tourism scene and to look for any useful aspects of tourism from those earlier developed destinations that could be used as inspiration for Prague.

1.4 Statistical data and surveys

Data used in the analysis part (chapter 4) describes the volume, progress and effects of tourism on the urban destination. I am using data relevant to the tourism in Prague and compare them with chosen destinations that handle similar volume of tourism: Rome, Amsterdam and Barcelona. Since qualitative data connected with tourism in observed destinations are mostly not available, I am using strictly quantitative data describing analysed aspects.

Urban tourism is a quite specific area of tourism which brings several obstacles for getting relevant and comparable data from different cities or destinations. Generally used method is to measure tourism using statistics provided by local collective accommodation providers about number of visitors and the number of nights spent in those accommodation facilities.

Main problems often relate to the area that is covered for the data collection. In some destinations, such as Barcelona, the city has defined designated areas, both within and outside of the city proper that receives majority of tourists and the statistical data related to these areas. Other cities, such as Prague or Rome, provide statistics only related to the whole city area, which is quite vast in these destinations and not evenly covered by tourism. All the destinations chosen for my research lies in the EU countries so they should follow the same EU regulations about the methodology for collecting data that is comparable but each destination sorts its data into their chosen subcategories that need to be analysed and the incomparable data must be skipped before the main analysis and comparison.

1.4.1 Sources of statistical data

I have created several datasets for data processing and comparisons. Data was extracted from regional statistical offices (details below) with a focus on the same methods of gathering and time sequences.

Prague

The main source of data for Prague database of the Czech Statistical Office (*Český statistický úřad* [ČSÚ]). Specifically, I have used ČSÚ as a source for data about:

- population of Prague (number of registered inhabitants on the 31st of December each year)
- accommodation capacity (number of collective accommodation facilities and beds on the 31st of December each year)
- number of visitors and overnights in official collective accommodation facilities each year (divided into domestic and international visitors)
- seasonality of arrivals – number of visitors and overnights each month during a year
- nationality of visitors
- net use of beds and rooms in percentage in hotels and boarding houses
- number of conferences held in Prague

Other statistics are regularly published as yearly reports by Prague City Tourism (PCT). These reports provide a summary of incoming tourism in Prague every year and they use data from the same sources as ČSÚ.

Rome

Statistical data about tourism in Rome was gathered from the Italian National Institute of Statistics [ISTAT] database (available from: dati.istat.it). ISTAT provides annual surveys that quantifies, at municipality level, the number of establishments, bed places, bedrooms and bathrooms for hotels and similar accommodation, the number of establishments and bed places for the other collective accommodations. The survey is currently carried out according to the European Regulation 692/2011 concerning European statistics on tourism.

ISTAT provides statistics about accommodation capacities in two categories: “hotels and similar accommodation” and “holiday and other short stay accommodation”, which includes also campsites, recreational vehicle parks and other seasonal facilities so this category has not been counted into my analysis dataset (Italian National Institute of Statistics).

Amsterdam

Statistics Netherlands' database (available from: opendata.cbs.nl [CBS]) provides a wide range of country's statistics that are similar to the Czech ČSÚ. I have used this database to get data about Amsterdam's accommodation capacities, number visitors (divided into domestic and international visitors) and the city population and land area.

CBS lists accommodation capacities in two main categories: "hotel / boarding house / youth hostel" and "leisure accommodation" (which covers facilities such as campsites or holiday parks). For my analysis, only capacities from "hotel / boarding house / youth hostel" category were counted, since "leisure" category contains specific seasonal facilities that are not comparable with other destinations (Statistics Netherlands).

Barcelona

Barcelona is a destination with one of the best sustainable tourism management. Barcelona City Council [BCC] (available from: ajuntament.barcelona.cat/turisme) provides excellent statistics about the city's tourism development. They publish extended (150+ pages) yearly reports about local tourism activities including data about different accommodation types, tourism demand, infrastructures, tourist profile and their expenses and even surveys targeting local inhabitants about their satisfaction with a tourism in their city. All the statistics are very detailed, and they represent a great inspiration for all other examined destinations.

Statistics about accommodation capacities are listed in following categories: "hotels", "guesthouses and inns ", "tourist apartments", "homes for tourist use", "campsites", "rural accommodation" and "youth hostels". For my comparative analysis, categories of homes for tourist use, campsites and rural accommodation have not been counted for their inconsistency with other destination statistics.

Barcelona even collects data about rental tourist apartment (mostly represented by Airbnb company and a global market) which has been the fastest growing category of accommodation types, and yet very rarely measured or regulated area in most of destinations. In Barcelona, rental tourist apartments represented 39% of all accommodation capacities within the city area in 2019 which brings a clear image of underestimated numbers of tourist that are registered by statistical offices using only data from official collective accommodation facilities. Because this data is not available from other analysed destinations, I have only used it for discussion purposes but not for a comparison with other destinations (Barcelona City Council).

1.5 Tourist function indicators

Tourism has been traditionally measured by simple statistics such as number of arrivals or number of employees working in the industry. Since the 1970s, there has been couple of scientists working on development of indicators that would compare these simple numeral statistics with characteristic of destinations and local conditions. There is a list of the most common tourist function indicators and their explanation.

1.5.1 Definition and origin of used variables

- Land area [S]
 - official land area of the city, taken from the city statistics
 - measured in [km²]
- Population [P]
 - official number of city residents published by local statistical office
 - valid on December 31st of the observed year
- Tourist arrivals [Nt]
 - value of total number of tourists arrived at the destination during the observed period
- Tourist overnights [No]
 - value of total number of nights spent by tourists at the destination during the observed period
- Number of beds [Nb]
 - total number of beds claimed by registered accommodation facilities within the city area

1.5.2 List of tourist function indicators

Defert-Baretje's index

First applied by French geographer Pierre Defert and then modified by French explorer Rene Baretje, Defert-Baretje's index measures tourist intensity comparing accommodation capacities of the destination with its population and the land area using the following formula:

$$DTFI = T(f) = \frac{Nb}{P} * 100,000 * \frac{1}{S}$$

where DTFI = T(f) represents Defert-Baretje's tourist function index or Baretje-Defert's indicator, N_b is the number of beds, P is the number of local residents, and S is the surface of researched area, represented in km². In our case it represents number of beds in accommodation per 100,000 inhabitants and 1 km².

Charvat's index

It demonstrates the intensity of tourism development as a consequence of urbanization using the following formula:

$$Tch = \frac{No}{P}$$

where T_{ch} is Charvats' index, N_o is the number of overnights and P is the number of local residents. Number of overnights might be excellent economic indicator, with possibility of pointing to the positive and negative impact of tourism on specific area.

Schneider's index

Schneider's index that is also called „tourist turnover intensity index“ has been used in several studies to determinate the tourism intensity. This ratio has the advantage of balancing the number of incoming tourists against the number of inhabitants. According to McElroy (2003), it is the most common measure of tourism's socio-cultural impact. It can be calculated based on the following formula:

$$Ts = \frac{Nt}{P} * 100$$

where T_s is a Schneider's index, N_t is the number of tourists, and P is the number of local residents. This indicator reflects the intensity of tourist saturation.

Tourist Density Ratio (TDR)

TDR is defined as the percentage of tourists to the land area (Tourist arrivals/ km^2).

$$TDR = \frac{Nt}{S}$$

According to McElroy & De Albuquerque (1998), this measure would be a good proxy of both environmental impact and social effects of tourism on a destination.

Analysis and results

This chapter presents the analysis of tourism in Prague using data and indicators described in the previous chapter. It is structured into four parts. First part presents available capacities of Prague that can be used by tourists. Part 4.2 analyses tourism demand and its growth. Part 4.3 presents chosen aspects for tourism sustainability evaluation and the last part focuses on comparison analysis of Prague with chosen destinations of Rome, Amsterdam and Barcelona using tourist function indicators.

1.6 Prague tourism capacities

Tourism capacities represent the supply part of a tourism industry in Prague. The main limitations are an accommodation capacity for visitors and transportation capacity, represented mostly by international connections regarding to the distribution of visitors. Since the number of visitors in Prague has been growing rapidly during the last two decades, there also might be efforts of the local government to limit the number of visitors.

1.6.1 Accommodation

Prague offers a great range of accommodation options in all categories for its visitors. According to the Czech Statistical Office, by the 31st of December 2018 there was 816 collective accommodation facilities (a collective accommodation facility is considered to be a facility with at least five rooms and ten beds for tourism purposes) with 93,169 beds available in Prague with 66.3% of net use of beds that year (Prague City Tourism, 2020).

data valid as of 31.12.2018		Number of facilities	Rooms	Beds	Places for tents and caravans
Accommodation facilities total		816	42,487	93,169	
of which	Hotel *****	46	6,066	11,949	.
	Hotel, motel, hotel *****	222	16,927	34,448	.
	Hotel, motel, hotel ***	214	10,791	24,286	15
	Hotel, motel, hotel **	15	600	1,799	.
	Hotel, motel, hotel *	4	52	132	.
	Hotel garni ****, ****, ****, *	30	1,072	2,368	.
	Guesthouse	97	1,029	2,530	.
	Campsite	21	193	561	1,107
	Cottage settlement
	Tourist hostel	46	1,314	4,431	.
	Other	121	4,443	10,665	.

Table 2: Capacity of Collective Accommodation Facilities (Czech Statistical Office)

In addition to these official accommodation facilities, there are also other facilities widely used by tourists not fitting into any categories of collective accommodation (they don't have at least five rooms or ten beds for tourism purposes). The most popular are the private rental flats or rooms offered through Airbnb service. The city of Prague doesn't receive any official data from these providers, but according to their research using a public data from AirDNA database, there was 11,145 units (80% full flats, 19% free rooms in shared flats and 1% shared rooms) available for a short-term rent listed on Airbnb in May 2018 (Institut plánování a rozvoje hl. m. Prahy, 2018).

After looking deeper into the statistics about private rental flats in Prague available at Inside Airbnb open database (Inside Airbnb) and AirDNA database by the April 30th 2020, we can actually estimate a capacity of this type of accommodation.

There is 11,231 units available for rent in Prague with an average capacity of 4.5 beds and 54% of these units are available full time (meaning available for booking online at least 181 days a year). It means there is around 27,291 beds available for short-term tourist rents, which represents 29% of total official capacity (official number registered by ČSÚ is 94,444 beds by the of 2019).

Data source	Units available	Avg unit capacity	Full time avl	Total capacity
AirDNA	11,231	4.5	54%	27,291

Table 3: Airbnb capacity calculation (data from AirDNA)

1.6.2 Transportation

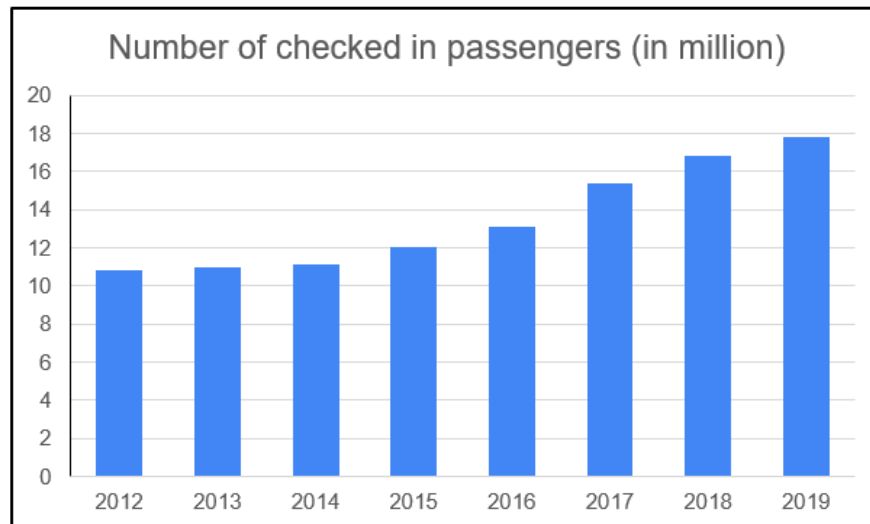
Prague benefits from its location right "in the heart of Europe" and it is well connected to other regions and countries by the highway system for cars and buses, railway network and it also has an international airport on the edge of the city.

1.6.2.1 Prague international airport

Prague international airport is located in Ruzyně neighbourhood and it has been named after the president Václav Havel since 2012. It was originally opened on the March 1st 1937 as one of the most modern airports of that time. Nowadays it has three operating terminals:

- Terminal 1
 - flights to/from countries outside of the Schengen area
 - check in capacity of 1950 passengers/ hours
- Terminal 2
 - flights to/from countries within the Schengen area
 - check in capacity of 2500 passengers/ hours
- Terminal 3
 - private and charter flights
 - check in capacity of 70 passengers/ hours

In 2019, the airport checked in 17,804,900 passengers which was a historical record number and 6% increase comparing to 2018. The airport is connected directly with 165 destinations by 71 airline companies. The most popular destinations are London, Paris, Moscow, Amsterdam and Frankfurt (Václav Havel Airport Prague).



*Figure 10: Number of checked in passengers
(data source: Prague Airport annual reports)*

The number of passengers using Prague Airport has been growing rapidly during the last few years and it is now one of the fastest growing airports in its category (15 to 25 million passengers) and also one of the best rated. Václav Havel airport Prague received a prestigious Airport Service Quality Award in 2018 and 2019. Capacity of the main airport runway has been reaching its limits because of the growing traffic, therefore a project of construction of new parallel runway has been introduced. There has been also discussions about opening the second airport outside of the city that would mostly handle low-cost carriers but no real project has been assigned to that (Václav Havel Airport Prague).

1.6.2.2 Main railway station

Prague Main railway station ("Hlavní nádraží" in Czech) was opened in 1871 at the location of the former city fortification wall. It was also called "Wilson station" after former President of the United States Woodrow Wilson. It is the busiest railway station in the Czech Republic with a passenger flow around 71,000 a day (Portál hlavního města Prahy).

Prague is connected by railway to the neighbouring countries by three national railway transit corridors (NRTC). You can see the routes of NRTC at the figure 11 below.

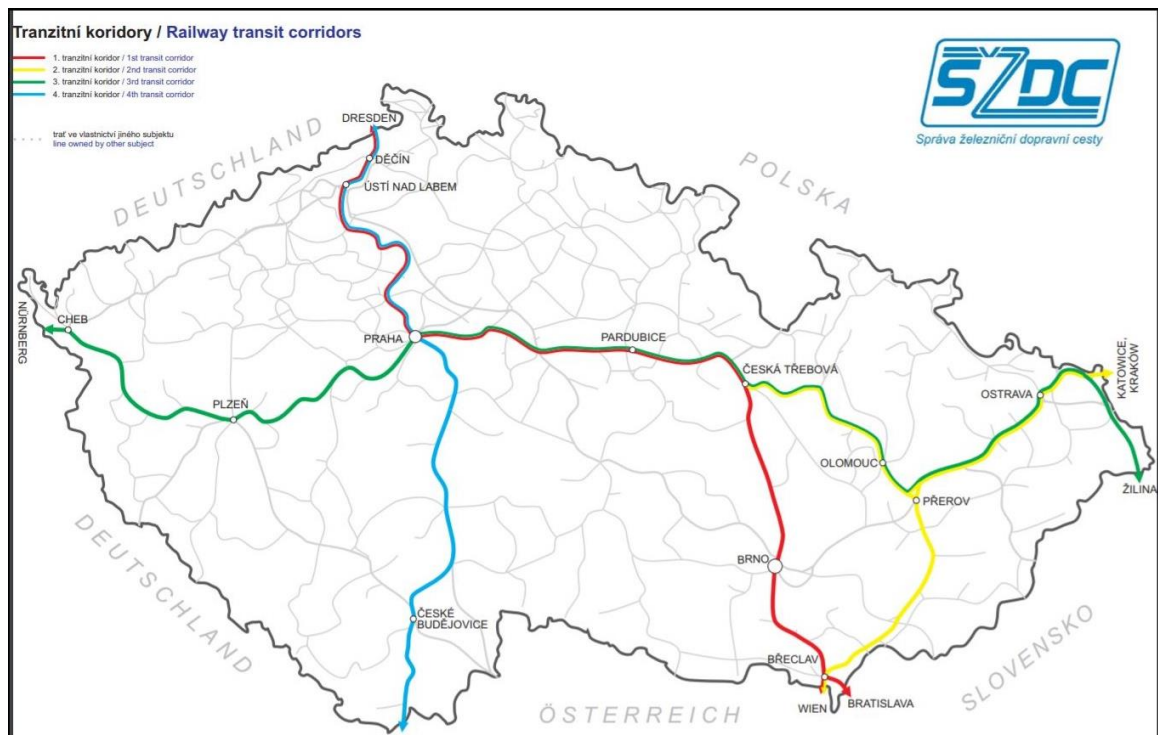


Figure 11: Map of railway transit corridors (source: SŽDC)

- **NRTC 1** - connecting Prague with Germany northbound (State of Saxony) and southeast towards Austria and Slovakia
- **NRTC 3** - connecting Prague with Germany westbound (State of Bavaria) and eastbound with Poland and Slovakia
- **NRTC 4** - connecting Prague with Germany northbound (State of Saxony) and southbound with Austria

According to the data from Eurostat, there was 5,791,000 passengers transported by international rail connections in 2017 in the Czech Republic. Passengers travelling from/ to Prague can reach directly destinations such as Dresden, Berlin, Nuremberg, Munich, Linz, Vienna, Bratislava, Budapest, Krakow, Katowice, Warsaw, Žilina or Košice by day trains or even use long-distance night trains to reach Zurich, Moscow and seasonally also Croatia (Czech railways).

1.6.2.3 International bus terminal

Prague is also connected by several international bus connections. Most of the bus companies use centrally located Prague Florenc bus terminal, which handles over 10 million passengers a year on the national and international bus routes and is currently used by more than 100 bus providers.

1.7 Tourism demand in Prague

In this chapter, I am presenting an analysis of current demand of tourism in Prague and its growth since 2012. Results of this time series loosely follow on analysis made by Dumbrovská (2013) which used data until 2011. Since Czech statistical office (ČSÚ) changed its methodology for data collection in 2012, we can not directly compare qualitative data outcomes from these two analyses, but we can compare growth trends from individual data series.

	2012	2013	2014	2015	2016	2017	2018	2019	Growth index 2012=100
All accommodations	845	856	757	797	795	787	816	817	97
Hotels	512	527	517	534	532	526	531		104
Total beds	92,246	92,052	87,961	91,059	91,887	90,891	93,169	94,444	102
Guests	5,726,454	5,899,630	6,096,015	6,605,776	7,127,558	7,652,761	7,892,184	8,044,324	140
Overnights	14,443,143	14,654,282	14,750,287	15,917,265	16,796,384	18,055,838	18,249,084	18,479,653	128
Average stay	2.5	2.5	2.4	2.4	2.4	2.4	2.3	2.3	91
Net use of beds	53.9	53.8	54.3	55.1	63.5	67.0	66.3		123

Table 4: Summary of tourism growth in Prague 2012-2019 (data: ČSÚ)

Figure 12 represents a summary of different tourism measures which are then analysed more in detail in following subchapters. We can see a continuous growth of number of guests (visitors) in Prague during the whole time series with a total growth of 40% since 2012 (between 2003-2011 it grew by 70%). Total number of nights spent in Prague by these visitors grew by 28% which naturally resulted in a decrease of average stay by 9%. The total number of accommodation capacity (total beds) grew only by 2% and the number of accommodation facilities even dropped by 3% which was probably caused by a consolidation of accommodation capacities and their better use (mostly between 2013 and 2014 when the biggest drop occurred) which resulted in more efficient use of those remaining capacities represented by growing net use of beds since 2013 in total by 23% of the original use (or by 12.4% of the actual total net use).

1.7.1 Growth of visitors and their profile

Number of visitors is one of the key parameters for measuring tourism. Data from ČSÚ about number of visitors are collected only from official collective accommodations which bring us to the same assumption about their incompleteness as in the case of accommodation capacities at the section 4.1.1. Statistics about arrivals might lack even bigger part of the actual tourism volume than the calculated 29% in case of accommodations because over the visitors staying in short-term rental flats there are also one-day visitors and visitors accommodated by their friend or relatives (Dumbrovská, 2013). The official registered growth of visitors is presented at the figure 13 with a division to local visitors (residents) and international visitors (non-residents).

Visitors growth 2012 - 2019						
Year	Residents		Non-residents		Total number of visitors	Growth 2012=100
	Absolute	Growth 2012=100	Absolute	Growth 2012=100		
2012	806,997	100	4,919,457	100	5,726,454	100
2013	851,674	106	5,047,956	103	5,899,630	103
2014	780,961	97	5,315,054	108	6,096,015	106
2015	890,941	110	5,714,835	116	6,605,776	115
2016	1,016,796	126	6,110,762	124	7,127,558	124
2017	1,090,243	135	6,562,518	133	7,652,761	134
2018	1,221,478	151	6,670,706	136	7,892,184	138
2019	1,240,583	154	6,803,741	138	8,044,324	140

Table 5: Prague growth of visitors 2012-2019 (data: ČSÚ)

We can see the growth of international visitors for every single year of the data series and finally reaching 38% since 2012. The growth of local visitors is a bit more turbulent because of the 9% drop in 2014 followed by a rapid growth resulting in total 54% growth of local visitors which is more than the international growth.

This fact is reflected in a small change of the ratio of domestic/ international visitors visible at the figure 14. Prague has always attracted majority of international visitors and this majority only changed from 86% to 85% during the monitored period. Considering the current global situation, this ratio will probably change in the near future more in favour to local visitors.

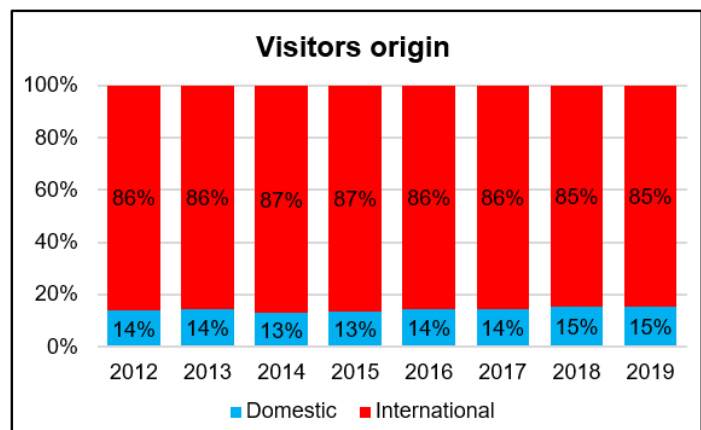


Figure 12: Visitors origin (data: ČSÚ)

Year	Growth 2012=100	Overnight stays	Avg length of stay	Residents			Non-residents		
				Absolute	Growth 2012=100	Avg	Absolute	Growth 2012=100	Avg
2012	100	14,443,143	2.5	1,506,098	100	1.9	12,937,045	100	2.6
2013	101	14,654,282	2.5	1,597,351	106	1.9	13,056,931	101	2.6
2014	102	14,750,287	2.4	1,368,554	91	1.8	13,381,733	103	2.5
2015	110	15,917,265	2.4	1,576,176	105	1.8	14,341,089	111	2.5
2016	116	16,796,384	2.4	1,778,681	118	1.7	15,017,703	116	2.5
2017	125	18,055,838	2.4	1,923,556	128	1.8	16,132,282	125	2.5
2018	126	18,249,084	2.3	2,116,084	141	1.7	16,133,000	125	2.4
2019	128	18,417,751	2.3	2,107,691	140	1.7	16,371,962	127	2.4

Table 6: Prague growth of overnights 2012-2019 (data: ČSÚ)

Growth of overnights (average length of stay) was slower than growth of visitors in both categories of local and international visitors, as seen at the figure 15. Total growth of overnights of local visitors was 40% for the 2012-2019 period with a drop in 2014. Average stay of local visitors dropped from 1.9 to 1.7 nights for the respective period it has been constantly around 0.7 nights lower than average stay of international visitors. This difference has a simple explanation. Local (Czech) visitors travel to Prague for more different occasions and via shorter distances that gives them opportunity to return more often. International visitors have to invest more into the travel times and costs and lots of them only visits Prague once, so they want to explore all the sights at once which requires more time.

The current nationality structure of international visitors is presented at the figure 16. Since Prague's opening to international tourism in 1989, citizens of our biggest neighbour Germany, have been the biggest group of international visitors in Prague. Russians and British are also well-established visitors of Prague and during the last decade number of Americans and later also Chinese and Korean visitors has been rising a lot.

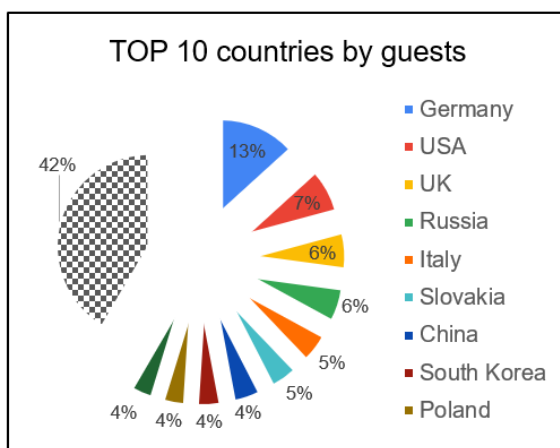


Figure 14: TOP 10 countries visiting Prague in 2019 (data: ČSÚ)

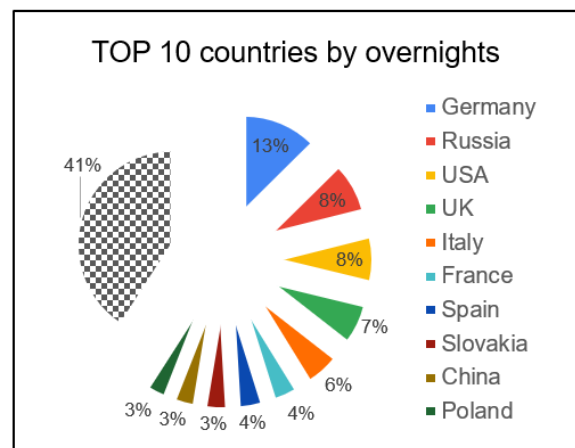


Figure 13: TOP 10 countries by overnights in Prague in 2019 (data: ČSÚ)

Average overnights		
country	max	min
Russia	3.5	
Israel	3.3	
Malta	3.2	
Cyprus	2.9	
Denmark	2.8	
Spain	2.8	
Italy	2.8	
Austria		1.9
Slovakia		1.9
China		1.8
South Korea		1.7

Figure 15: Countries with max and min overnight stays in 2019 (data: ČSÚ)

Interestingly, there are quite big differences between travel patterns of different nations in Prague, especially in the time they spend in the city. Traditionally, countries that like to spend the longest trips in Prague are Russia (3.5 nights on average, it justifies their higher ranking in top countries by overnights), Israel and Malta.

On the opposite South Korea (only 1.7 nights), China, Slovakia and Austria spend the shortest trips in Prague out of all countries.

1.8 Sustainable tourism analysis

Sustainability is an important aspect of the future of tourism and it has to be considered in every tourism analysis and decision-making process. As I explained in the chapter 2.3, there has been a couple of guidelines for measuring the sustainability of tourism developed by internationally recognized institutions. They all suggest for destinations to create and measure their own metrics but there is no universal way how to quantitatively evaluate sustainability. For this reason, I have decided to identify several aspects that have clear positive or negative effect on sustainability and analyse their variation.

1.8.1 Seasonality of tourism

One of the typical aspects of tourism is its seasonality. People prefer to travel during the best season according to the weather conditions, local holiday or in case of special events. Seasonal differences created congestions in the main season and lack of using resources (mostly accommodation facilities) during the low season. Urban destinations do not suffer from seasonality as much as for example coastal resorts, thanks to their ability to organize indoor events and entertainment all year long, but it is still in the best interest of urban destinations to work on minimizing big seasonal differences in the tourism volume.

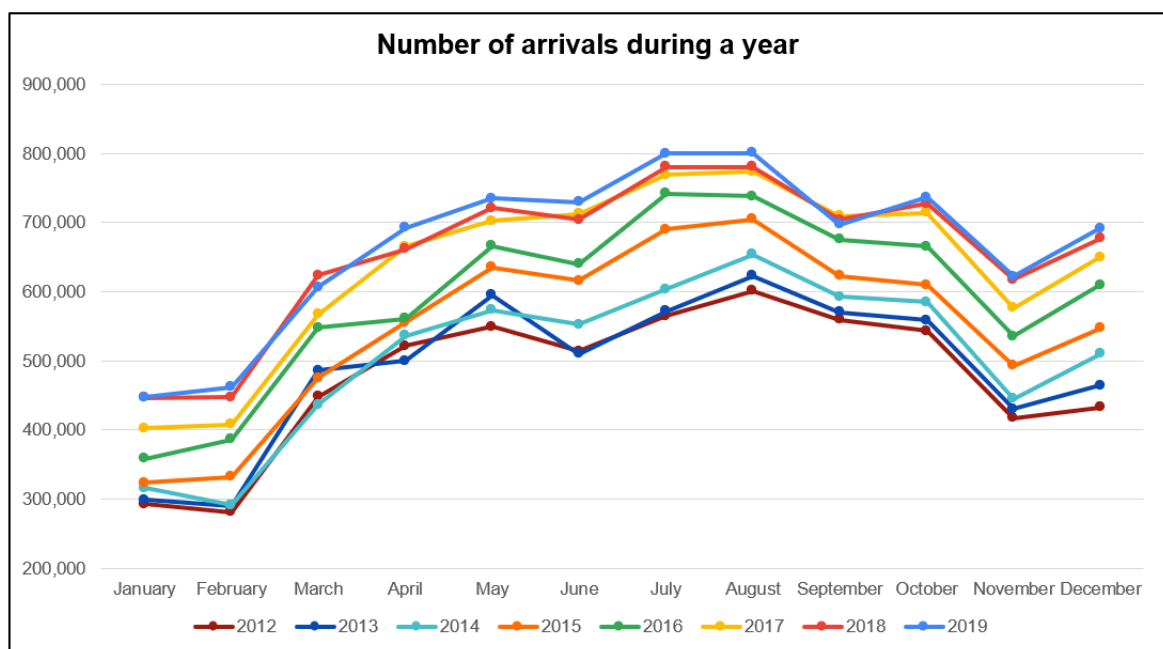


Figure 16: Monthly arrivals during a year in Prague (data: ČSÚ)

As you see at the figure 13, monthly volume of visitors in Prague grows every season in correspondence with a yearly total growth with only minimal micro seasonal trends. The busiest and least busy months follow main European seasonal trends making the highest season during summer and lowest in winter months with an exception of December.

During the analysed period, the highest number of visitors come during July and August, with August having the absolute highest number of arrivals in all years except of 2014. Since 2014 the difference in number of arrivals in July and August has been negligible. The absolute lowest number of arrivals was in February from 2012 to 2014 and since 2015 the least popular month has been January.

The actual difference between the tourism volumes in highest and lowest season is actually a great candidate for sustainability indicator that should be measured, followed and evaluated.

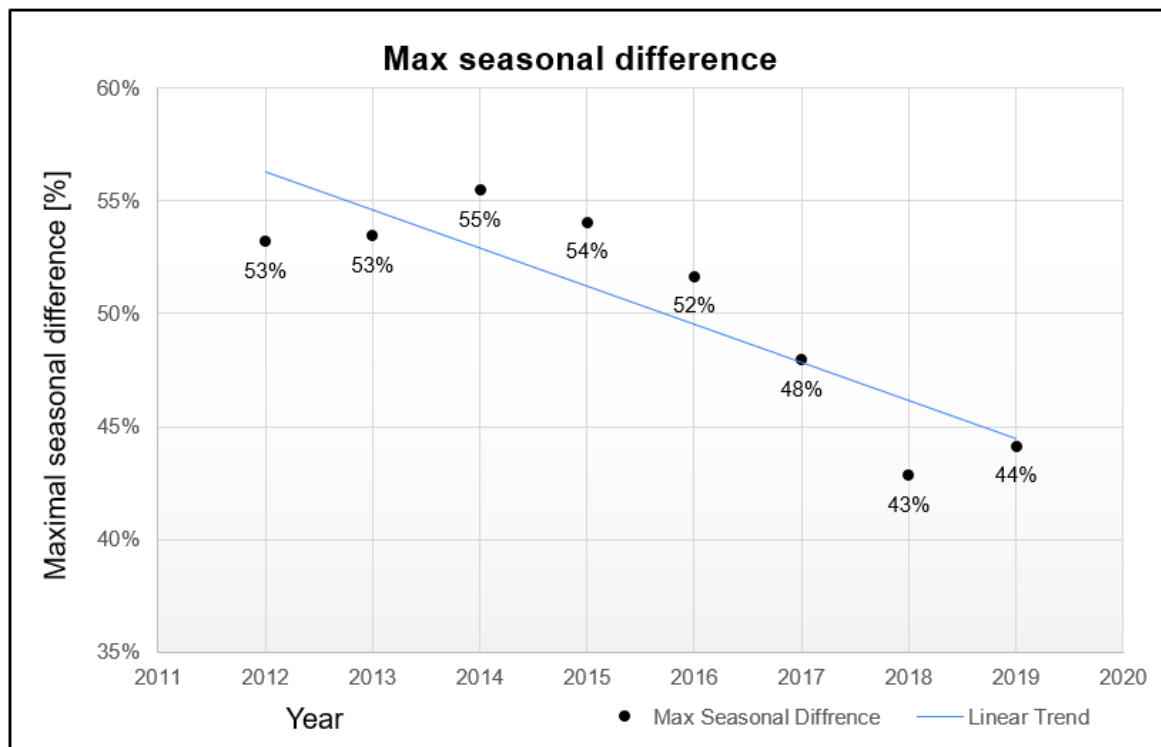


Figure 17: Maximal seasonal difference (data: ČSÚ, self-modified)

Figure 14 represents a progression of maximum seasonal difference during the reporting period. Presented values are calculated as a ratio of numerical difference between the busiest and least busy month of the year over the number of arrivals during the busiest month:

$$DIFF_{max} = \frac{arrivals(max\ month) - arrivals(min\ month)}{arrivals(max\ month)} = 1 - \frac{arrivals(min\ month)}{arrivals(max\ month)}$$

In ideal case there is no seasonality, which means that *arrivals (min month)* would equal to *arrivals (max month)* and the final value of *DIFF_{max}* converges to 0. At this setting, decreasing trend of *DIFF_{max}* that can be seen at figure 14 has positive effect on seasonality and its sustainability.

1.8.2 Use of accommodation capacities

Second chosen indicator for sustainability evaluation is the use of accommodation capacities. Big advantage of this indicator is the simplicity of its measuring and evaluation. Net use of beds and rooms have been already measured by the Czech statistical office as part of their data collection from collective accommodation facilities and release in the annual statistics of tourism, so there is no need for any further data processing. The parameter itself is a good evaluation of effectiveness of accommodation sector. The presented value of net use of beds is calculated as the ratio of the number of overnight stays for the observed period and the product of the average number of beds available with the number of operating days. The resulting value is given as a percentage (multiplied by 100).

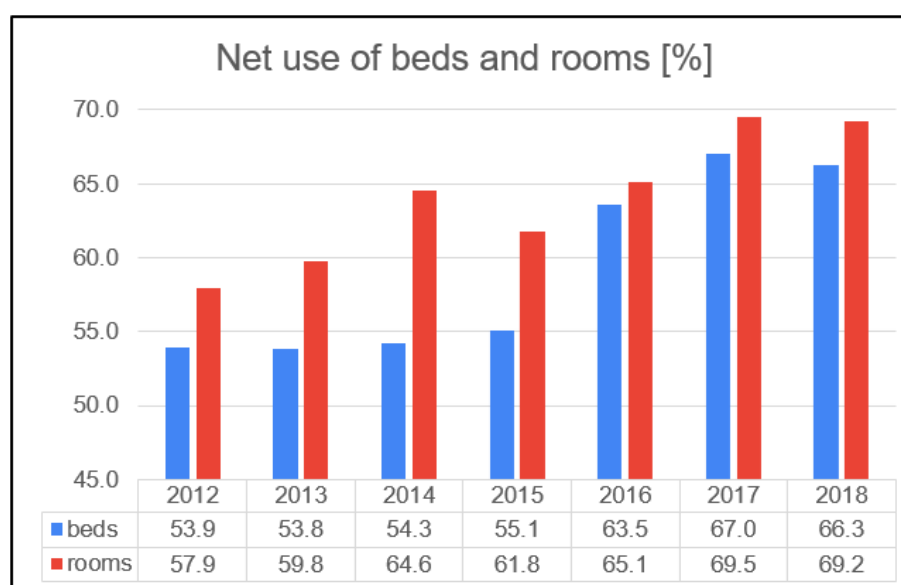


Figure 18: Net use of bed and room in Prague (data: ČSÚ)

We can see the overall growth of net uses at the figure 18 showing total growth of 12.4% in case of bed use and 11.3% in case of room use during the observed period. It is interesting that during the period of 2012-2014 we can see quite significant growth of net use of rooms but almost no growth in case of net use of beds. This means that accommodation providers managed to align their room offer better with a demand during that period but there was an oversupply of room with more beds. This inconsistency was probably noticed, and proper changes were implemented during the period of 2015-2017 that witnessed a rapid growth in net use of beds.

Higher net use of beds has undeniably a positive effect on sustainability. Better use of available beds and rooms generates more profit for the accommodation facilities owners which can be shared in form of better working environment and compensation for employees working in these facilities. That improves both the economic and social aspects of sustainability of these businesses. Better use of current resources also decreases needs of construction of new buildings for tourist accommodation or need of turning residential buildings and flats into tourist rental units.

1.9 Comparable analysis

In this chapter, I am comparing data about tourism in Prague with tourism data in Amsterdam, Barcelona and Rome.

	Prague	Amsterdam	Barcelona	Rome
City area [km2]	496	219	101	1,285
City population 2018	1,308,632	862,965	1,650,358	2,856,133
City pop. density [residents/ km2]	2,638	3,940	16,340	2,223
Metropolitan area [km2]	4,983	2,580	636	5,352
Metropolitan population 2018	1,999,732	2,457,296	3,239,337	4,257,056
Metro. density [residents/ km2]	401	952	5,093	795

Table 7: Characteristics of chosen destinations (data: ČSÚ, CBS, BCC, ISTAT)

As we can see at the table 7, characteristics of chosen destinations vary significantly. Rome is by far the biggest destination by both its population and land area. Barcelona is very unique by its high density of its population which is more than six time higher than population density of Prague. All these differences play a significant role in application of tourist function indicators which compare destination characteristics with the flow and volume of tourism.

Number of visitors and their growth, 2012=100								
	Prague		Amsterdam		Barcelona		Rome	
2012	5,726,454	100	5,738,000	100	6,648,148	100	9,028,094	100
2013	5,899,630	103	6,025,000	105	6,609,918	99	9,028,094	100
2014	6,096,015	106	6,670,000	116	6,728,640	101	9,180,620	102
2015	6,605,776	115	6,826,000	119	7,090,244	107	9,786,485	108
2016	7,127,558	124	7,271,000	127	7,484,276	113	10,094,433	112
2017	7,652,761	134	8,261,000	144	7,656,747	115	10,299,016	114
2018	7,892,184	138	8,577,000	149	8,050,151	121	11,131,197	123

Table 8: Visitors growth (data: ČSÚ, CBS, BCC, ISTAT)

Total volume of tourism has been comparably similar in Prague, Amsterdam and Barcelona during the last few years. Volume of tourism in Rome is about 30% higher than in other destinations. All the reported destinations have seen a growth of visitors during the followed period with the highest growth in Amsterdam (49%) and slightly lower in Barcelona and Rome (around 20%). A trend of length of stay of these visitors is represented at the figure 19 below.

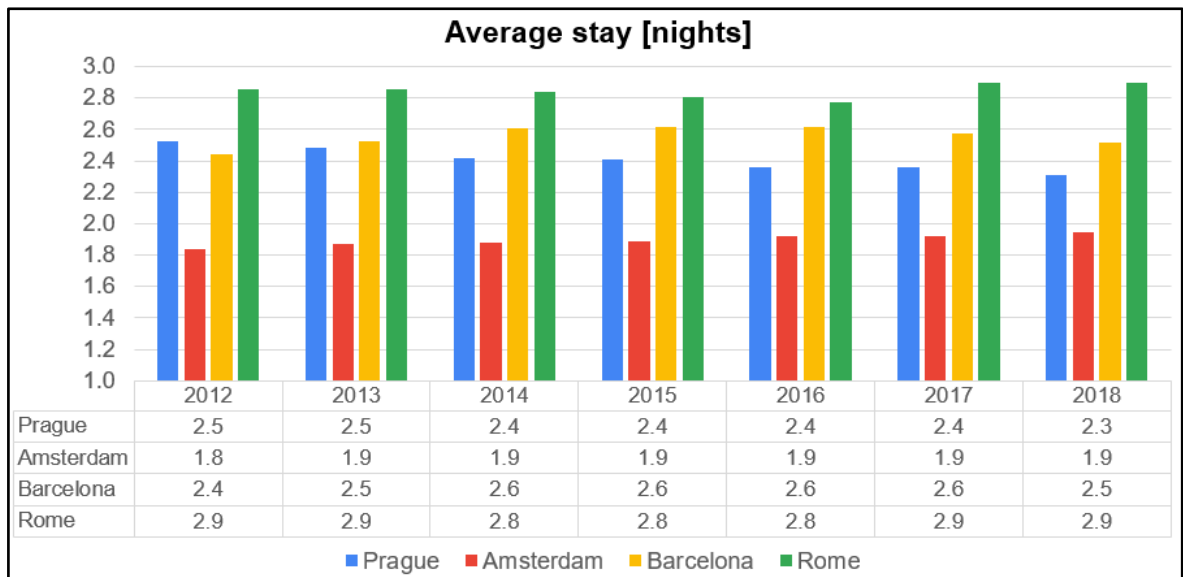


Figure 19: Comparison of average stay of visitors (data: ČSÚ, CBS, BCC, ISTAT)

We can see that Rome is not only a destination with largest area, population and number of visitors but these visitors spend more time in Rome (almost 3 nights on average) comparing to visitors of other followed destinations. Prague and Barcelona have had a similar average stay of their visitors during the observed period (around 2.5 nights), the difference trends of their growth, as the trend in Prague has always been decreasing contrary to Barcelona's growing trend between 2012-2017. Amsterdam has had the absolute lowest average stay from observed destinations (below 2 nights on average).

1.9.1 Application of tourist function indicators

In this chapter I am applying the tourist function indicators described at the chapter 3.2 for comparable analysis of chosen destinations. As mentioned at the previous chapter, chosen destinations have some significant differences in certain local characteristics which also create big differences in the results of their application into the tourist function indicators calculation. For this reason, I have decided to present each indicator using two complimentary tables (figures). One figure for demonstrating comparable values of indicators and their development throughout the reported period and one table summarizing growths of these indicators which might be used as more objective outcomes for analysis results and their discussion.

Defert-Baretje's index

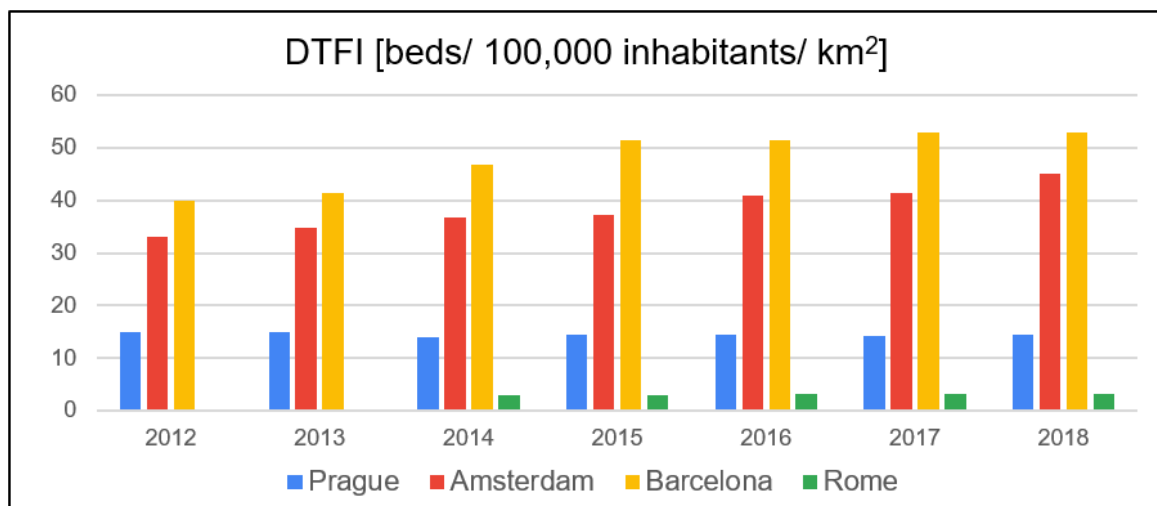


Figure 20: Results of Defert-Baretje's tourist index

DTFI growth, 2014 = 100				
	Prague	Amsterdam	Barcelona	Rome
2012	106	90	85	
2013	106	95	88	
2014	100	100	100	100
2015	103	101	110	101
2016	103	111	110	105
2017	101	113	113	106
2018	102	123	113	110

Table 9: Defert-Baretje's tourist index growth

Charvat's index

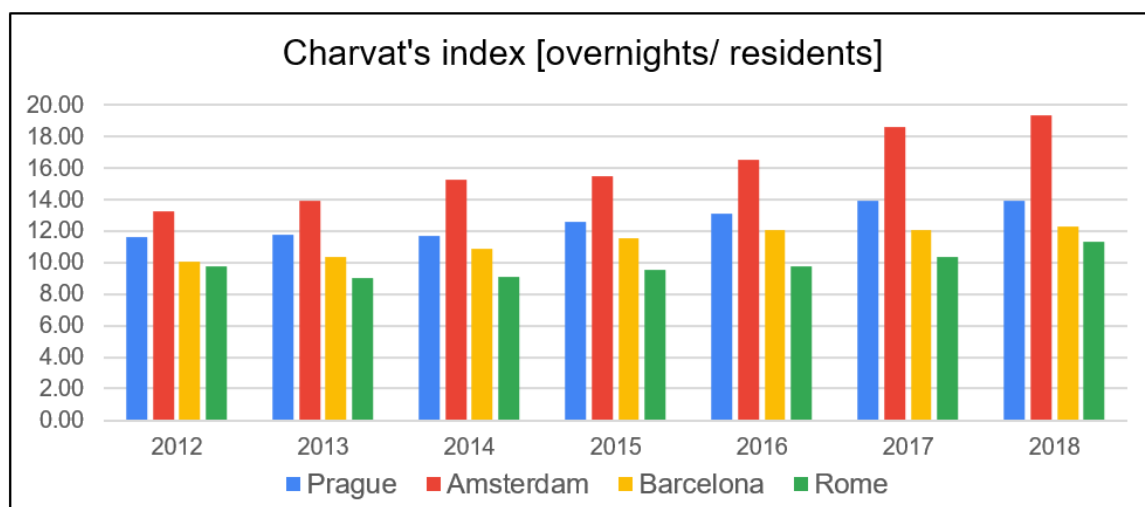


Figure 21: Results of Charvat's index

Tch growth, 2012 = 100				
	Prague	Amsterdam	Barcelona	Rome
2012	100	100	100	100
2013	102	105	103	92
2014	101	115	108	93
2015	108	117	115	98
2016	113	125	120	100
2017	120	140	120	106
2018	120	146	122	116

Table 10: Charvat's index growth

Schneider's index

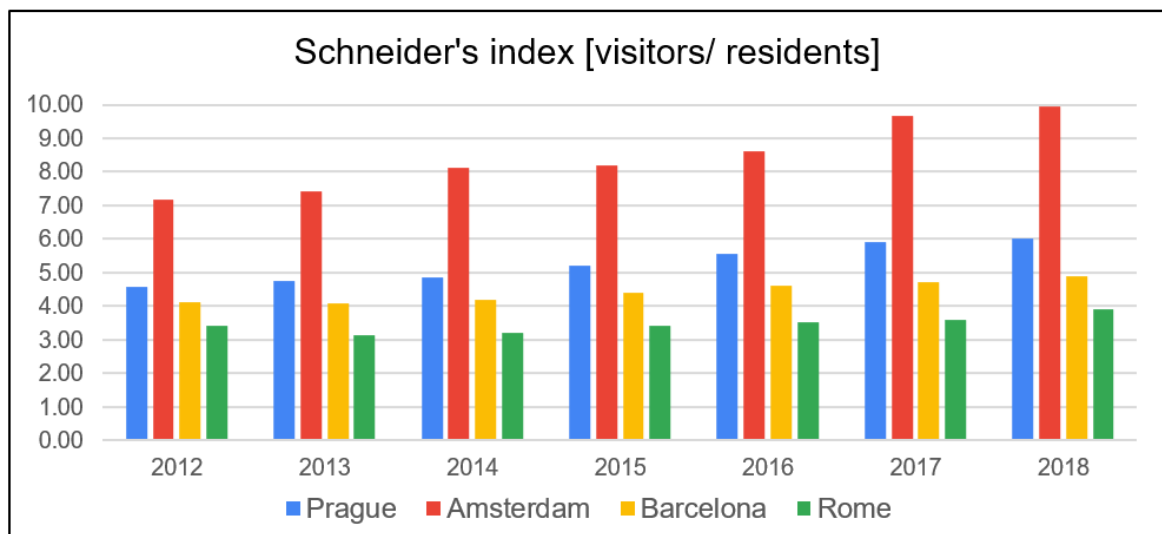


Figure 22: Results of Schneider's index

Ts growth, 2012 = 100				
	Prague	Amsterdam	Barcelona	Rome
2012	100	100	100	100
2013	103	104	99	92
2014	105	113	101	93
2015	113	114	107	100
2016	121	120	112	103
2017	129	135	114	105
2018	131	138	118	114

Table 11: Schneider's index growth

Tourist accommodation density

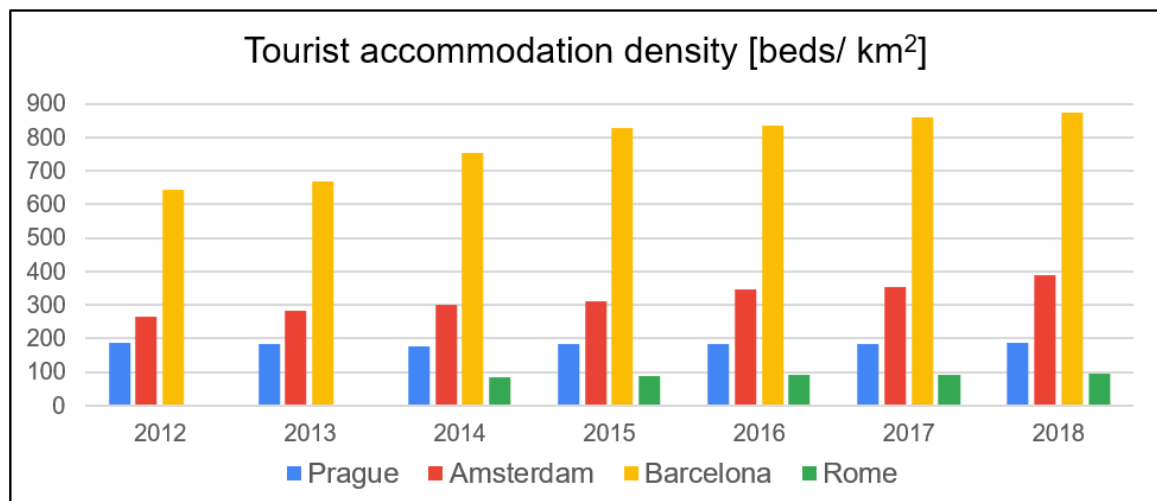


Figure 23: Results of tourist accommodation density

TAD growth, 2014 = 100				
	Prague	Amsterdam	Barcelona	Rome
2012	105	87	85	
2013	105	93	89	
2014	100	100	100	100
2015	104	103	110	101
2016	104	114	111	105
2017	103	117	114	106
2018	106	129	116	109

Table 12: Tourist accommodation density growth

Tourist density ratio

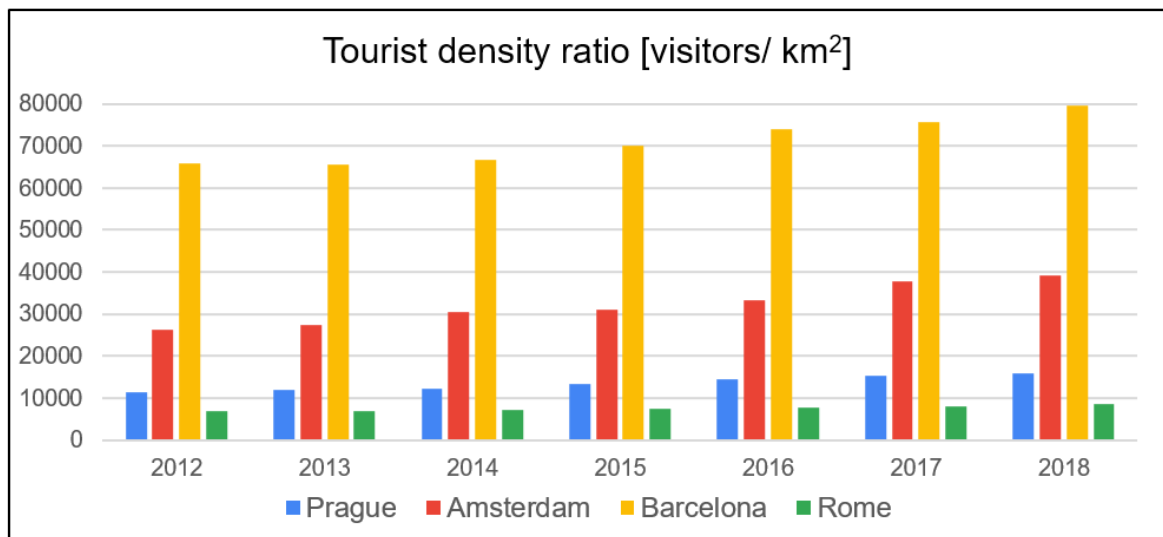


Figure 24: Results of tourist density ratio

TDR growth, 2012 = 100				
	Prague	Amsterdam	Barcelona	Rome
2012	100	100	100	100
2013	103	105	99	100
2014	106	116	101	102
2015	115	119	107	108
2016	124	127	113	112
2017	134	144	115	114
2018	138	149	121	123

Table 13: Tourist density ratio growth

Discussion & conclusion

Dumbrovská, Fialová (2014): analysis of Prague x Vienna x Budapest 2003-2011: tourism volumes in Prague and Vienna are similar, Budapest around a half. Tourism in Prague grew by 70% during 2003-2011. Tourism intensity indicators are highest in Prague. Prague and Budapest have quite low bed occupancy (around 40% in 2003). Vienna has the lowest seasonality differences. Lowest months in all destinations are February and November (need of special products during this period). There is a need for further research of tourism (data from accommodation providers are underestimated, not counting visitors staying at their relatives or rented apartments).

Net use of beds – growth results, compare to results of Dumbrovská about 2003-2011.

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List of Abbreviations

BCC	Barcelona City Council
CBS	Statistics Netherlands
ČSA	Československé aerolinie
ČSÚ	Český statistický úřad
DTFI	Defert-Baretje's tourist function index
ETIS	European Tourism Indicator System
EU	European Union
GSTC	Global Sustainable Tourism Council
ISTAT	Italian National Institute of Statistics
MICE	Meetings, Incentives, Conferences and Exhibition
NGO	Non-Governmental Organization
NRTC	National Railway Transit Corridor
PCT	Prague City Tourism
SDGs	Sustainable Development Goals
TAD	Tourist accommodation density
Tch	Charvat's index
TDR	Tourist density ratio
Ts	Schneider's index
UN	United Nations
UNWTO	United Nations World Tourism Organization
USSR	Union of Soviet Socialist Republics
WTO	World Tourism Organization
WTTC	World Travel and Tourism Council

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