

THE ROLE OF INTERNET RESOURCES AND SOCIAL MEDIA IN THE STRATEGIC DEVELOPMENT OF TOURISM

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Abstract: The article is devoted to the study of the influence of Internet resources, social networks in particular, on the dynamics of inbound world tourist flows. A 30-year dynamic series of the number of Internet users with 5-year periods has been studied. Modeling this indicator with a linear trend has made it possible to obtain estimates of the average annual increase in the number of Internet users for certain periods. An analysis of factors is provided, which has influenced the dynamics of tourist flows and growth quantity and users of the global network for the period 2005-2023. It is determined that social networks play a significant role in the growth of the number of Internet users, which has a more quantitative impact for them, and a qualitative impact on tourism. The influence of the emergence and development of social networks and the most popular tourist websites on changes in the number of travelers is analyzed. Quantitative assessment of this relationship using regression analysis methods is proposed. Methods of analysis and synthesis, generalization and comparison, modeling, correlation and regression analysis are used in the research process.

Keywords: inbound tourist flows, social media, website, Internet users, correlation and regression analysis

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Introduction

The influence of the global Internet on all spheres of human activity is undeniable. This was especially evident during the epidemic of 2019-2022, when working online became common practice for many people. The new format made it possible for businesses to offer goods and services far beyond their location, and for consumers - to compare and choose the best offers, physically located anywhere on the globe. The Internet became an online highway that united interested subjects in a matter of time and significantly shortened communication times. Internet technology has changed tourism and the hospitality industry the most, out of all areas of the economy.

The problems of tourism development are of interest to many scientists, but from the point of view of the topic of the article, studies that directly affect the state and development of tourism itself, and not its impact on the economy of countries or the world, deserve special attention. Among the tasks considered, it should be mentioned: definition and assessment of key external factors that affect the dynamics of outbound flows (Lvchenko, et al., 2021), research of the conditions and possibilities of sustainable development of the tourist destination (Bozhinova & Georgieva, 2023; Popova, et al., 2023; Petrova et al., 2022), conducting assessments of the impact of globalization processes on the development of the world tourism market (Trunina, et al., 2020) and the connection between regional support of the domestic market and the export potential of the national tourism industry (Petrova, et al., 2018). It is also worth mentioning the study of the impact of social networks on tourism (Buhalis & Inversini, 2014; Suanpang, 2020; Pateli, et al., 2020; Jarmusevica et al., 2019), Internet on consumer behavior (Kayumovich, 2019; Khusainova et al., 2021; Dong, et al., 2022; Sushchenko, 2022).

Accordingly, *the purpose of the research* is to study the role of Internet resources and social media on the development of tourism, namely, to establish the relationship between the global indicators of the total number of Internet users, the characteristics of social networks and the most popular tourist websites, and the volume of inbound tourist flows.

In order to achieve the set goal, the *following tasks* are solved: firstly, to evaluate the dynamics of the quantity and Internet users during the period between 1990 and 2022; secondly, to determine the factors that influence the growth / decline of users of the global network and the volume of tourist flows; thirdly, to single out the most significant social networks and analyze their influence on the development of world tourism; fourthly, to investigate and

evaluate the interrelationship of the main characteristics popular travel websites and volumes of inbound tourist flows.

The study uses an integrated theoretical-methodical and practical-analytical research toolkit, which is based on the use of scientific methods such as bibliographic analysis - for comparative analysis of the main scientific achievements of leading scientists, and deepening the research issues; general scientific methods of analysis and synthesis are used to substantiate the factors influencing the growth of the number of Internet users and tourist flows. The economic-statistical method of scientific research is used to collect information about the state and determine trends in the development of users of the global Internet, social networks and visitors to specialized tourist sites, and the method of correlation-regression analysis has made it possible to determine the level of correlation between the considered indicators and tourist flows and to obtain estimates of growth of Internet users depending on the time factor and sources used by tourists to choose a place of rest. The study uses a set of quantitative data, the main sources of which are the World Bank, the UNWTO; reports of leading analytical companies and academic literature, and information from relevant websites covering the development of tourism and the factors influencing it.

Results and Discussion

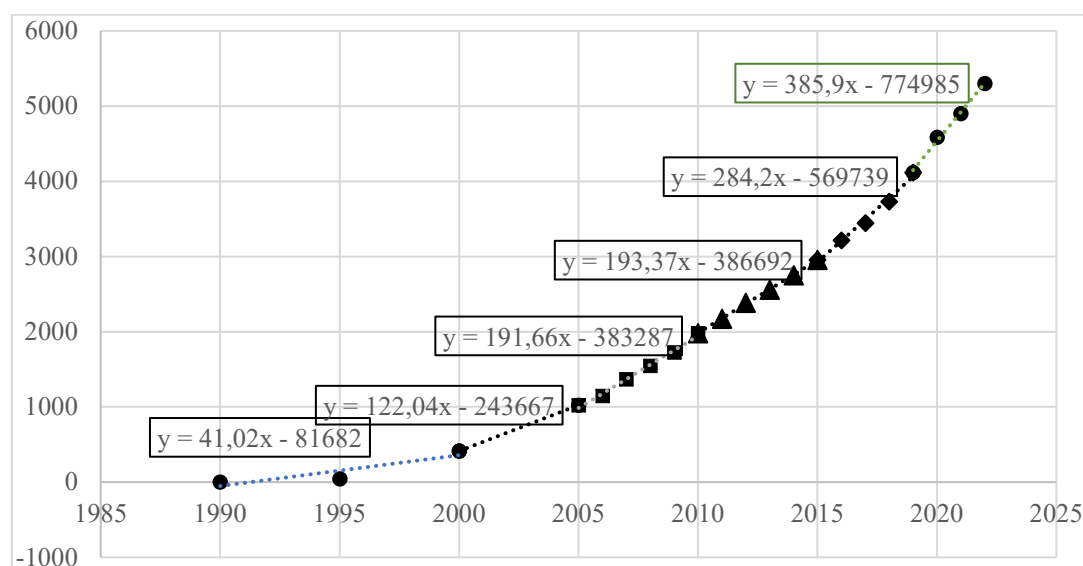
Over the last 30 years of active development and introduction of the Internet into almost all spheres of human life, the number of its users has reached 5.3 billion people. The creation of a number of Internet resources such as social networks or specialized websites, has largely determined the further development of world tourism, its qualitative and quantitative characteristics. The rapid pace of development and audience growth of social networks such as Facebook, YouTube, Instagram, TikTok and WeChat have contributed to the strengthening of their influence on the behavior of tourists, changes in the activities of travel companies, the expansion of the geography of travel, etc. The modern type of world tourism has been formed and continues to be transformed thanks to the introduction and use of Internet technologies: the methods and scales of communications, methods of searching, selecting and booking tours are changing, automation is becoming one of the most important factors in the successful functioning of a tourist enterprise. The emergence of such giants as Booking.com, TripAdvisor and Airbnb have transformed the traditional tourist market, adding to it the significant influence of consumers.

A significant and steady increase in the number of Internet users in the world can be traced throughout the period studied from 1990 to 2022, namely, from 2.6 million in 1990 to 5.3 billion people in 2022. The unevenness of the increase in the number of users is obvious: noticeable jumps are observed, that is, an increase in relation to the previous period of more than 100%. In 1994 - a jump of 112%, 1995 - 109% and 2005 - 147% should be named among the largest. At the same time, the highest growth rates of network users occurred in the period 1994-2005 (average value of growth at the level of 58%).

Modeling 5-year periods of the dynamic series with a linear trend and analysis of angular coefficients allows to estimate the absolute values of the growth of Internet users (Fig. 1).

In the period 1990-1995, the average annual growth in the number of users was 41 million people per year; between 1995 and 2000 - 122 million people; and since 2020, the average annual growth has been the largest and amounted to almost 386 million.

The leaders among the countries of the world in terms of the number of users (% of the total population of the country) in 2023 were the UAE, Saudi Arabia, Qatar, Ireland, Iceland, with a user rate of 99%. A comparison of the nature of the number of Internet users' dynamics and the dynamics of world tourist flows indicates certain coincidences, namely, the presence of jumps in both indicators in 1993 and 2005. In those years, there was an increase in inbound tourist flows by 76% and 21%, respectively.

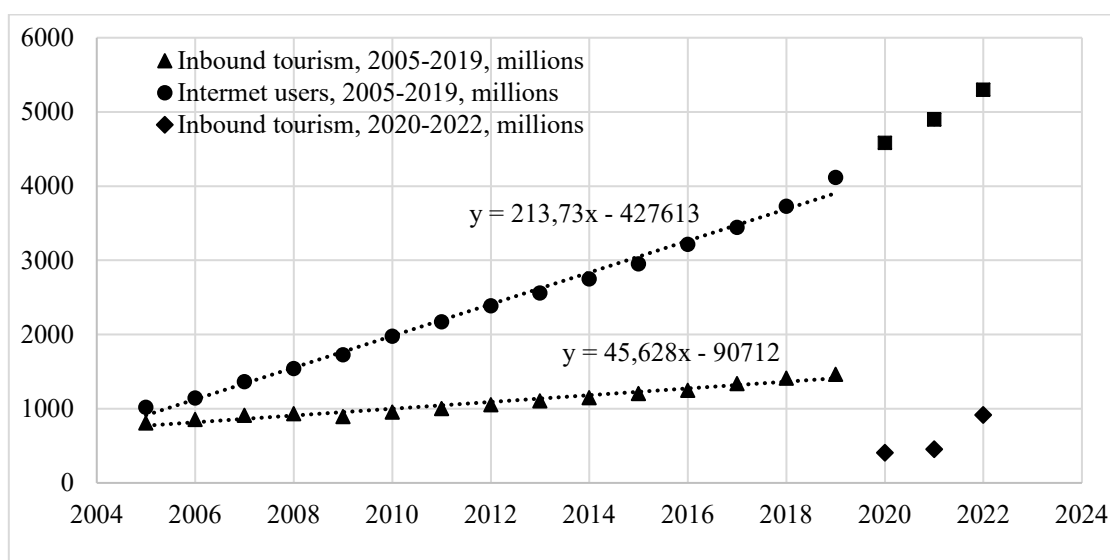


Source: (Statistics (n.d.))

Figure 1. Angular coefficients of linear models of the number of users in the world

The rapid development of the use of the Internet at that time was due to a number of factors, where information and communication technologies became decisive. In particular, in 1997, Bluetooth and wi-fi technologies were introduced, 1998 - the start of Google, 2000 was marked by the introduction of 2G, in 2003 - the appearance on the market of 3G. From the point of view of researching the connection between information and communication technologies and tourism, it should be noted that the following companies appeared in that period: Expedia (1996), Trip.com (1999), TripAdvisor (2000), Wikipedia (2001), Skype (2003), Facebook (2004), and Booking (2005). Accordingly, the entry of each of them into the market had an impact both on the number of users and directly on the development of tourism. It is necessary to take into account the fact that the external environment has also a decisive influence on the components under investigation. For example, a war or a terrorist attack negatively affects tourist flows; at the same time, the number of users, and especially requests, increases significantly. Indeed, during the specified period, the number of Internet users had always a positive increase, but the impact of crisis phenomena on the inbound tourist flow is always negative: in 1992 - reduction by 36%, in 2009 - by 3.9%, in 2020 - by 72.1%, in 2021 in comparison to 2019 - by 69%, and in 2022/2019 - decrease in tourist flow by 37.4%.

According to world statistics, the dynamics of the number of Internet users and the volume of inbound tourist flows during the period 2005-2022 (UNWTO (n.d. (a) is presented in fig. 2.



Source: Statista, n.d., UNWTO, n.d. (a)

Figure 2. Dynamics of global indicators of the number of Internet users and volumes of inbound tourist flows

The growth of both indicators is adequately modeled by a linear trend. Attention is drawn to 2005, where the values of these indicators are practically identical (1023 and 808.6 million, respectively). At the same time, the angular coefficients of the linear models in fig. 2 indicate an average annual growth of world tourist flows of almost 46 million people, and a similar indicator of growth in the number of Internet users is almost 214 million people. Thus, the rate of growth of the number of Internet users during 2005-2019 (before the start of the pandemic) is 4 times higher than the indicator relative to the volume of inbound tourist flows.

But starting from 2020, under the influence of the events related to the epidemic of COVID-19, the monotony of the trends of the dynamics of these indicators was sharply broken, namely, there was an approximately 70% reduction in the number of tourists and a sharp increase in the number of Internet users by 11.3%. The relative annual growth of these two indicators, between 2005 and 2022, is presented in fig. 3.

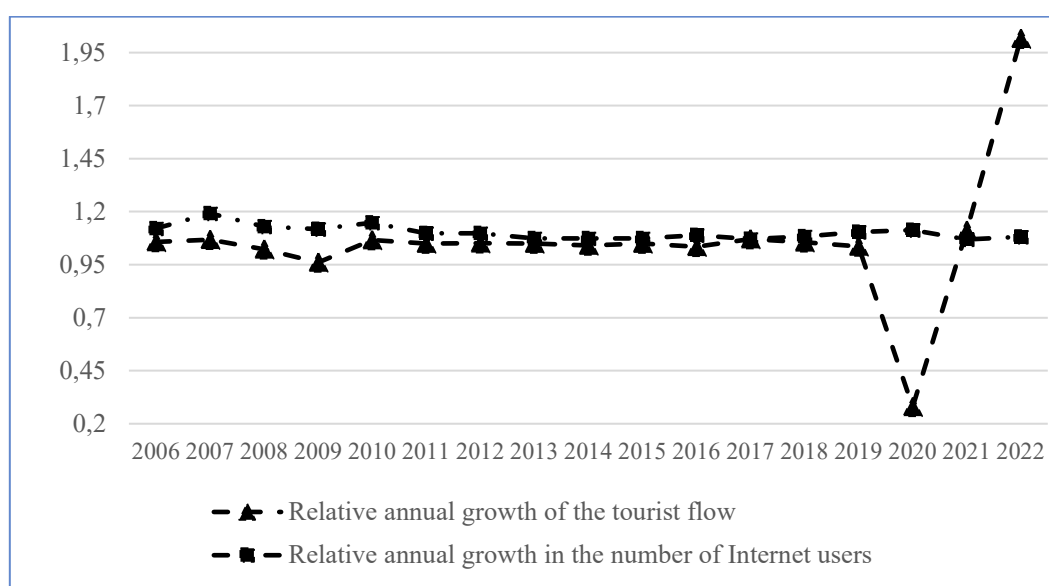


Figure 3. Dynamics of relative annual growth rates of the number of Internet users and the number of travelers in 2005-2022

Certain coincidences should be noted in the increase (or decrease) in the number of Internet users and the number of travelers compared to the previous period. Namely:

- *The growth of both indicators in 2007;*

The growth of tourist flows is explained both by the development of Internet technologies and the emergence of new Internet resources, and by a number of economic and political factors that influence the increase in

tourist demand. The former includes the invention and rapid popularity of the Facebook network in the period 2004-2006, the start of video hosting YouTube (founded in 2005) and the Twitter service (founded in 2006), the appearance of the first iPhone on the market (2007). Other factors that could trigger the activation of tourism are the holding of the Eurovision Song Contest in Finland, the accession of Romania and Bulgaria to the European Union, the inclusion of Estonia, Latvia, Lithuania, Malta, Slovakia, Slovenia, Hungary, Poland and the Czech Republic in the Schengen zone.

- *Reduction in growth of both indicators in the period 2008-2009 (for tourist flows, even negative growth).*

The economic crisis of 2008, which had negative consequences for most of the world's economies, should be considered as the main reason for the slowdown in the development of the analyzed indicators. Reduction in production, inflation, bankruptcies and unemployment became factors that restrained, including the development of tourism. The decline in demand was particularly felt in countries with high economic development, where international arrivals recovered much more slowly in subsequent years, compared to developing countries (UNWTO, n.d. (c)). The population of many countries are forced to reduce travel expenses; in 2008 there was a reduction in spending by 3.5% (relative to 2007) and another 9.8% in 2009 (Paulin, 2012). According to data from the World Bank (The World Bank, n.d.), spending on international travel in 2009 decreased by 9.2%, compared to the previous year and amounted to 935.75 billion dollars. Natural disasters such as the Sichuan earthquake (May 2008), Hurricane Gustav (August-September 2008) and the beginning of the swine flu pandemic (2009) should be mentioned among the reasons for the slowdown in the growth of tourist flows during that period. In the crisis period, there was also a reduction in investments in IT technologies - by 4.86% in 2009 (Sava, 2023). This period was characterized by a reduction in the annual rate of Internet users relative to 2008 (Finance, 2016) and a decrease in spontaneous activity was noted (Reuters, 2011).

- *A jump in growth for both indicators in 2010.*

The rapid growth of tourist flows during the period was expected - the so-called "delayed demand" worked. The recovery of the economy after the financial crisis prompted a significant increase in the number of travelers. The development of blogging contributed to the simultaneous increase in the number of tourists and the number of Internet users, namely, social media visitors. Travel blogs began to gather audience of millions. At that time, for example, Mark Wiens (since 2009 on YouTube), Anton Ptushkin (since 2008

on YouTube), Dmytro Komarov's "World Inside Out" (since 2010 on YouTube) started working. Significant growth in the number of users took place on the platforms: Twitter (almost 10 times growth), Facebook (7 times in three years), YouTube (almost 3 times). The implementation of the Instagram project (mid-2010) also added to the increase in the number of users, and subsequently, began to affect the number of visits to various corners of the world. For instance, a 20% increase in outbound tourism flow in China in 2010 was attributed to the significant influence on tourists of the Internet (Xu & Wang, 2014) and social networks (Hospitalitynet, 2011).

- *Stable situation with constant annual growth of both indicators in 2011-2015.*

During this period, there was a gradual increase in the number of users on the networks: YouTube (average annual growth of 27%), Twitter (average annual growth of 24%), Facebook (average annual growth of 22%), Instagram (average annual growth of 70%). The creation of the Snapchat mobile application, the activation of travel bloggers (Drew Binsky, Alyssa Ramos), the launch of the Chinese product WeChat - events that simultaneously contributed to the expansion of user opportunities and the growth of interest in travel. China's contribution to international tourism becomes quite noticeable, namely, during 2011-2015, the country's outbound tourist flow grew by 16% annually (UNWTO, n.d. (b)). It should be added that the stable annual growth of travelers during this period was also ensured by increasing the role of low-cost airlines, which began to successfully compete with tourist destinations charters (Shkurat & Zavydovska, 2020).

- *Reduction in the increase in the number of travelers, but a greater increase in Internet users in 2016 compared to the previous one.*

The decrease in the growth of incoming tourist flows can be explained by a number of unpleasant and even tragic events in 2015: plane crashes, terrorist attacks in Paris (attack on the Charlie Hebdo editorial office, terrorist attacks in the Bataclan concert hall and the Stade de France stadium, and others), military conflicts in Ukraine and Syria, the Russian-Turkish conflict in connection with Turkey's downing of a Russian military aircraft. The decrease in the growth of inbound tourist flows was largely due to the decrease in the number of tourists to the USA (by almost 2.5%), which was explained by the political climate in the country and the increase in the cost of tourist offers (Peltier, 2017). Therefore, the world events of 2015 have a significant impact on the reduction of tourist flows. On the other hand, a significant jump in the number of Internet users, in particular, social networks - more than 50% growth in Instagram, almost 30% increase in Facebook, 27.5% increase in

WeChat users - does not allow us to talk about its positive correlation with the number of travelers.

- *The opposite situation occurred in 2017 (noticeable increase in tourist flows and slowdown in the growth of Internet users).*

In 2017, the tourist flow increased by 7.1% compared to 3.4% in 2016. Let's analyze the reasons for this increase. The first should still be called delayed demand. Second, the world-class sports events that took place in 2016 (Olympics in Rio de Janeiro and the European Football Championship in France) intensified further trips. A significant contribution to the world indicators was made by the tourist flow from China (in 2017, China became the leader in terms of outbound flow in the world – 129 million tourists, which is 5.7% more compared to 2016). The lifting of visa restrictions also affected the growth of the tourist flow, for example, in 2017, Ukraine became visa-free and the outbound tourist flow from the country increased by 7.2%. It is also worth mentioning the increase in the number of flights in the world (BBC News Ukraine, 2018). Along with this, terrorist attacks continued in the world (Brussels, Nice, Orlando, Ankara, Istanbul), but the desire to travel and visit new tourist destinations did not hold back the demand, so the tourist flow was directed to safe places. A slight decrease in the global growth rate of Internet users (from 8.9% in 2016 to 7.05% in 2017) should most likely be explained by a certain degree of saturation. Moreover, in parallel, there is a slowdown in the growth rate of the number of the main social networks users, which will be discussed further.

- *A jump in the number of Internet users and a sharp decrease in travelers in 2019.*

The behavior of the investigated indicators, like many others, was determined by the beginning of the COVID-19 pandemic in that period. The total volume of inbound tourist flows decreased almost 4 times. Such changes encouraged the active development of domestic tourism. The adaptation of tourism and tourists to the existing conditions is impressive. At this time, virtual tourism was gaining great popularity - the opportunity to travel using modern computer technology and means of communication. Virtual tours to different corners of the earth, museums, theaters, concert halls replaced real trips for a certain time. As expected, there was a dramatic increase in demand for social networks and an increase in the total number of internet users.

- *The post-pandemic period with a sharp drop in tourist flows in 2020 and a significant increase in the number of Internet users.*

It is better to evaluate this period not relative to the previous period, but relative to 2019. In 2021-2022, the dynamics of tourist flows was at the level of 47% relative to 2019, where, according to forecast data (UNWTO, n.d. (a)), in 2023 it is expected to exceed the pre-pandemic level. Regarding the further dynamics of tourism development indicators and the number of Internet users, the following should be emphasized. The three-year long COVID-19 pandemic had the most significant impact on the world, radically changing people's lives, their style and habits. Work, that most believed could not be done remotely, was quickly adapted to the remote format, and the changes that had begun became irreversible.

The pandemic accelerated the digitalization of business and society around the world, and the use of modern information and communication technologies for further development of any enterprise turned out to be a necessary condition. According to research by YouGov (YouGov, n.d.) and published information by Statista (Hinton, 2023), the tourism sector has evolved as the impact of the pandemic has subsided, where there have been changes in the behavior and preferences of tourists:

- vacation expenses have increased (13% of the surveyed 19,000 tourists);
- the number of reservations and vacations increased (9%);
- increase in the duration of rest (10%);
- increasing the number of friends or family members while traveling (13%);
- increase in the number of employees on vacation (8%);
- increased demand for ecological tours (by 76%);
- 4% of respondents changed their place of work or residence to other countries (Booking.com, 2023).

A new type of working tourists has appeared - a "digital nomad" (the term was first used in 1993 (OED, 2020). This type of tourists, unlike business travelers, differs not only in the style of work, but also in the length of stay in another country and immersion in the local culture (Obert, 2022). The tendency to work and rest in unfamiliar places was called "workation", where the most popular countries according to data Culture Trip for this, more than 60 cities of the world, with Porto (Portugal), Valencia (Spain), Barcelona (Spain), Lyon (France) and Lisbon (Portugal) in the lead (Kasiyanchuk, 2023).

That is, the desire to rest and visit new countries did not disappear with the onset of the pandemic, it was transformed and became part of the deferred demand, which already in the middle of 2022 was higher than in

2019. An important role in this "closed" period was played by social media, which supported interest and willingness to visit relevant tourist locations and countries in the future.

General conclusions in this part of the study are as follows: Analysis of fluctuations in the growth of the number of users of certain social networks (Facebook, Instagram, TikTok) and the volume of inbound tourist flows show the absence of a clear correlation between these indicators. It is clear that a certain time must pass between the emergence of a certain enterprise or technology - log, after which they gain popularity. The most noticeable impact on the change (increase) of the tourist flow is given by the moment of emergence of this or that social network with a delay of 1 to 5 years. Thus, the emergence and sharp growth of the audience of Facebook (2004), YouTube (2005) and Twitter (2006) can be considered one of the main reasons for the 7% increase in the inbound world tourist flow in 2007. The addition of the American photo and video sharing service Instagram to the Internet immediately after the 2008 crisis became one of the impetuses for the growth of tourist traffic in 2010.

Further influence of social networks on tourism is connected with the appearance of audio and visual content (photo and video travel stories). Since 2010, publications about travel and various tourist destinations, both created by tourists themselves and by tourism organizations using visual content, have almost completely supplanted textual materials. It is also worth adding that the influence of social media was enhanced by writing, and especially by reading reviews, viewing reviews, and blogger recommendations. Thus, the family of social networks underwent not only quantitative changes in the direction of growth in the number of users and the number of social networks themselves, but also qualitative changes that affected the attitude of their audience to planning and choosing tourist routes. Therefore, in the period 2011-2019 the impact of social networks on global tourist flows was rather qualitative, which changed their structure and directions of movement.

For example, in 2015, 35% of Instagram users searched for and opted for tourist destinations through it (Biagiotti, 2017). The trend towards the use of social networks continued even after, when in 2023 almost 50% of users choose points to visit based on photos they see on Instagram (Escobar, 2023).

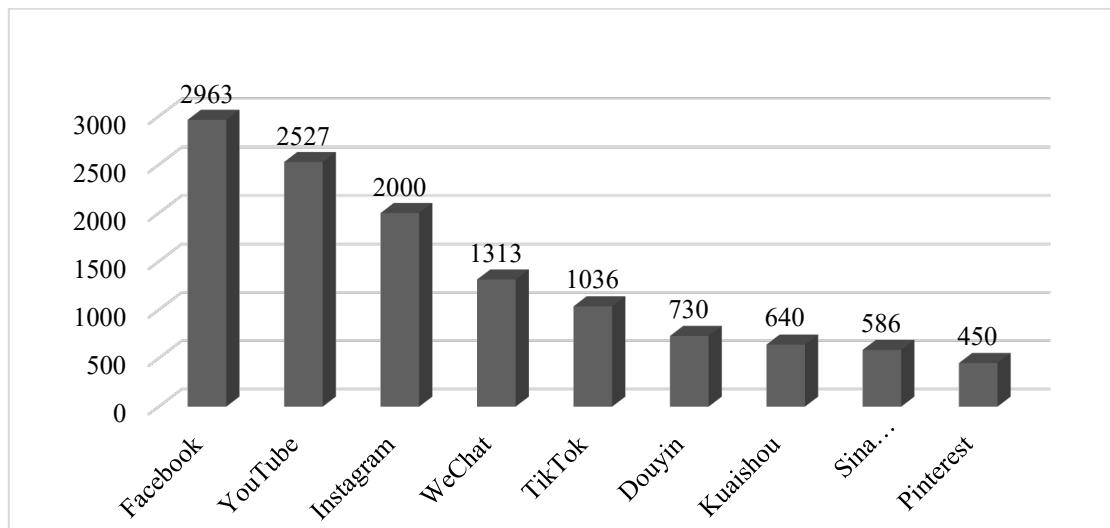
In 2018, the "travel" category was in 3rd place in terms of the popularity of requests on the Instagram social network, in 2019 the number of posts with this hashtag was 465 million, in 2023 (May) their number increased to 687 million (Lapidus, n.d.) At the same time, the same hashtag, but already on

TikTok, is gaining great popularity, reaching the mark of 94 billion views (Escobar, 2023).

As a vivid example of quantitative changes caused by the use of social networks can be attributed to visits to the Norwegian rock Trolltunga: a year before the launch of Instagram, in 2009, the number of visitors to this rock was only 500 tourists, and in 2019 already 167,000 tourists indicated their presence there in the publications of the network (Ellwood, 2019).

Another example - New Zealand, where the Tourism Board joined the trend of using social media to promote tourist destinations; where visitors were encouraged to post about their experiences on their profiles or on travel blogs; where top influencers exchanged posts for accommodation. The result of such promotion, with the use of social media, was a 14% increase in tourism (Miller, 2017).

We will analyze the influence of the main social networks of the world (as of April 2023) on the development of tourism. Fig. 4 presents the TOP-9 world networks by the number of users (DataReportal, n.d.). According to data from the DataReportal service, as of the beginning of 2023, social networks Facebook, YouTube and Instagram are still leaders in the number of users worldwide.



Source: DataReport, n.d.

Figure 4. World social networks by the number of users, million people (as of April 2023)

When analyzing the impact of social networks on the development of world tourism, special attention should be paid to the development of the Chinese Internet holding company "Tencent", namely the WeChat text and

voice message transmission system. The product was created in 2010 and launched at the beginning of 2011. In December 2016, about 889 million users were registered, and in April 2023, it was already used by 1,331 million people, most of whom, of course, are Chinese. But in general, WeChat is spreading in the Asian market, particularly among Japanese users, and has support for 52 languages (WeChat, n.d.).

Video conferences can be organized using WeChat, as well as call abroad to mobile and landline phones, send payments, pay in supermarkets, search for information on the Internet, read news, and play games. Undoubtedly, this application is able to influence the volume of tourist flows from China and other countries of the Asian region. Indeed, before the Covid-19 pandemic, China was the world's most important source of international tourist flows. According to CNN (He et al., 2023), in 2019, 155 million Chinese tourists spent more than a quarter of a trillion dollars outside their country, and about 12 million air passengers departed from China every month. During the pandemic, those numbers dropped by 95%. But the lifting of quarantine restrictions led to an increase in the number of bookings for foreign trips on the Trip website. com (TCOM) during the New Year 2023 by 540% compared to last year, and average booking costs jumped by 32% (Trip.com, 2023). Considering the fact that many Western Internet services (for example, Facebook and Twitter) are blocked in China, the WeChat application is used by literally all citizens of this country.

The next, fifth, position in terms of the number of users is occupied by the Chinese development of TikTok (1,036 million users at the beginning of 2023). The first name of the program for creating small video clips, Douyin, was renamed TikTok in 2016. However, the sharp increase in the number of users of this platform during 2017-2022 could hardly contribute to the growth of tourist flows, since from the very beginning it was designed for the youth, even teenage audience, and had appropriate content.

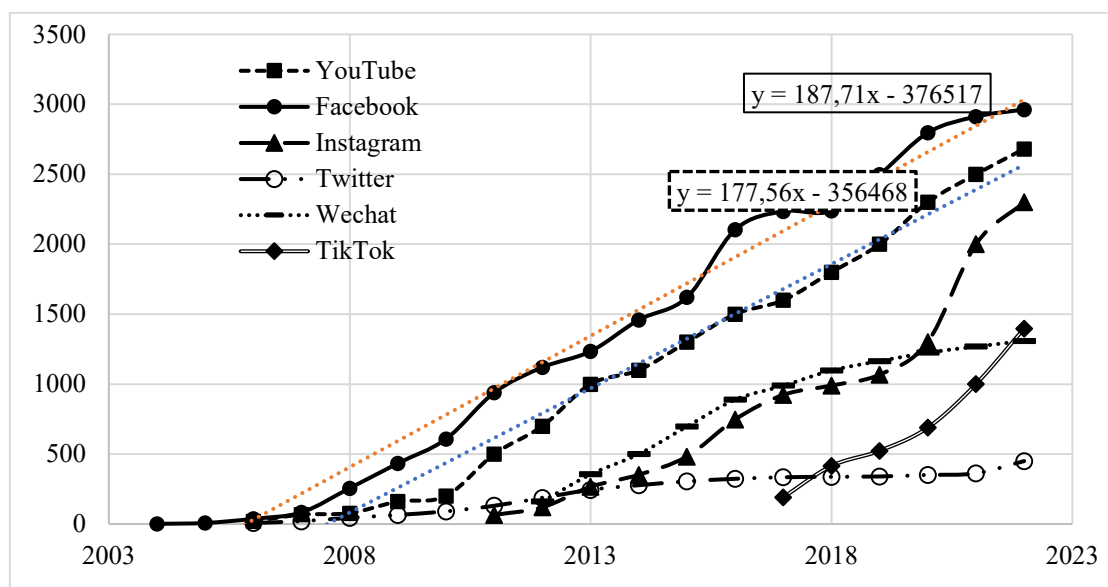
Next in the rating are social networks, the number of users which does not exceed 1 billion. Douyin is a program, on the basis of which the international application TikTok (blocked in China) was once created. There is an opinion (Senior, n.d.) that the Chinese Douyin is a testing ground for the development of the latest social network technologies. So, for example, Douyin is testing and implementing an automatic face recognition system that can determine the age of the user, the type of face (not Chinese), compliance with moral standards, the presence of political content, etc. Considering that the program is created for mainland China, it can be installed on a Chinese phone number, and the possibility of analyzing this network for the presence of tourist content is impossible, it is difficult to draw a conclusion about its influence on the formation of tourist flows.

Kuaishou is the second largest short video and live streaming platform in China. The network was launched in 2011, the number of users increased to 544 million within 10 years, and the audience to 640 million in 2023. Kuaishou has not yet gained much popularity outside of China. In other countries, the Kuaishou app is called Kwai. Age of users: 35% are 46 years old, 32% aged 25 to 34.

The Weibo platform is also quite popular in China. This network is effectively used to share images and content with a wide audience. The Weibo platform has a much smaller user base than WeChat, with about 260 million registered active users in 2016, and an estimated 100,000 active users in 2023 - 586 million. It is the social networks that are often used by Chinese tourists looking for information about their future trip.

The first version of the Pinterest social network site appeared in the USA in 2010. The service provides users with the opportunity to create virtual thematic boards with various images - pins, place them in thematic collections, and share them. At the end of 2011, the weekly audience of the service was 11 million people. In 2012, when Pinterest registration using email, Facebook and Twitter became available, the service had almost 12 million users. By the beginning of 2016, Pinterest had already more than 100 million subscribers, and in 2023 - 450 million.

Fig. 5 presents the dynamics of the number of users of some global social networks since their inception.



Source: Oberlo (n.d.); GlobalData (n.d.); Ruby, 2023

Figure 5. Dynamics of the number of users of social networks, million people

The conducted analysis of the dynamics and development of the main global social networks regarding their influence on the formation of tourist flows leads to the following conclusions:

- significant quantitative influence from social networks on the growth of tourist flows was felt at the time of their emergence as a social phenomenon (Facebook – average annual audience growth rate of 188 million, YouTube – average annual audience growth rate of 178 million) – Fig. 3 and Fig. 5;

- the further influence of social networks on the development of world tourism was mainly determined by their qualitative changes (the addition of photo and video content, the possibility of exchanging information of any format);

- as of April 2023, the audience of Chinese social networks (WeChat, Douyin, Kuaishou, Weibo) among those that were analyzed was about 3.2 billion, which is approximately 27% of those presented in Fig. 4.

The correlation between the two indicators (Fig. 6), analyzed with a high degree of reliability, confirms that during 2005-2019, the growth rate of Internet users was on average 4.5 times greater than the growth rate of inbound tourist flows. So, for every million Internet users, only about 220,000 people were added to the world tourist flow every year.

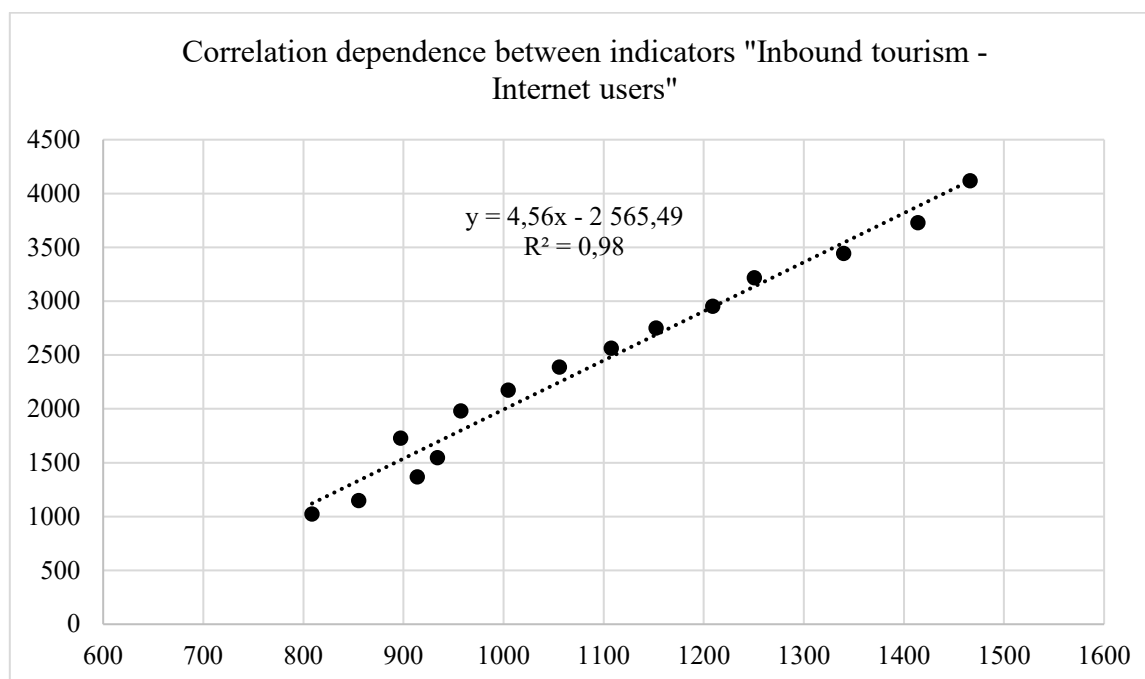
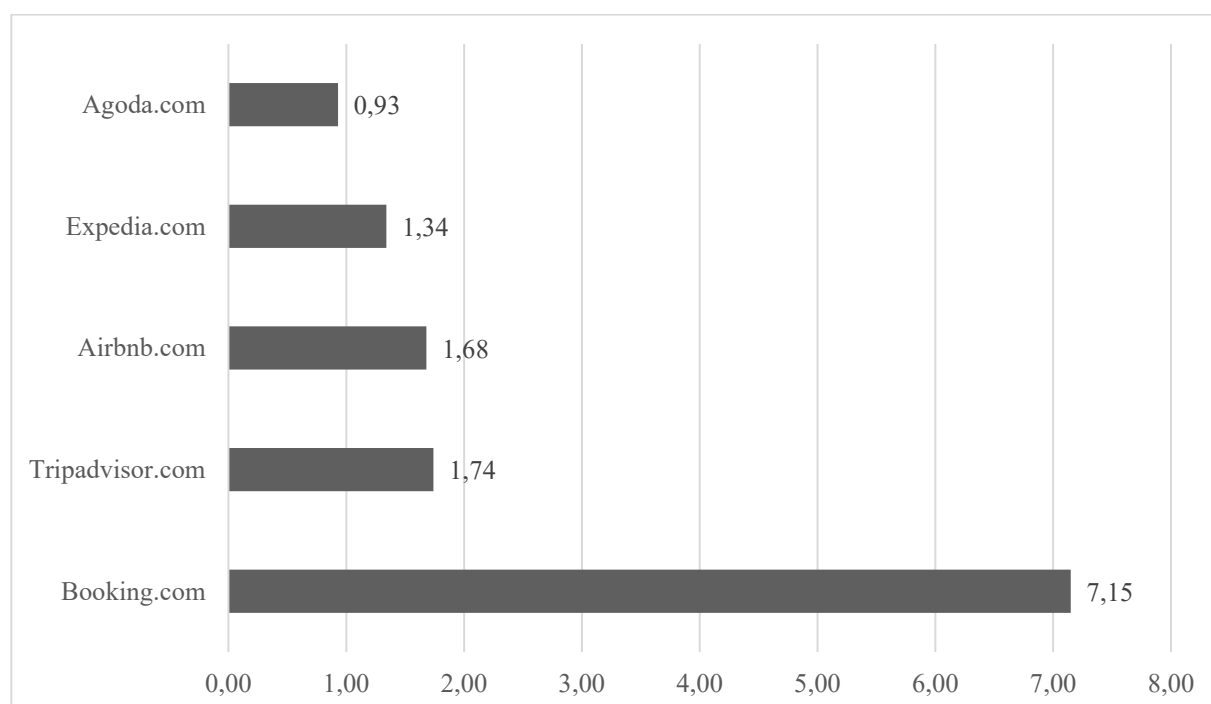


Figure 6. Correlation between global indicators of the number of Internet users and the volume of inbound tourist flow

In the context of the research topic, it seems logical to analyze a group of Internet resources that are actively involved in the development of tourism around the world. These are sites and mobile applications that allow you to search and book hotels, flights, accommodation from private individuals, receive recommendations for choosing restaurants, attractions and other tourist resources. The main sites related to travel and tourism are presented in Fig. 7. According to the data of April 2023, the largest share in the number of visitors belonged to the Booking.com platform (Fig. 7).

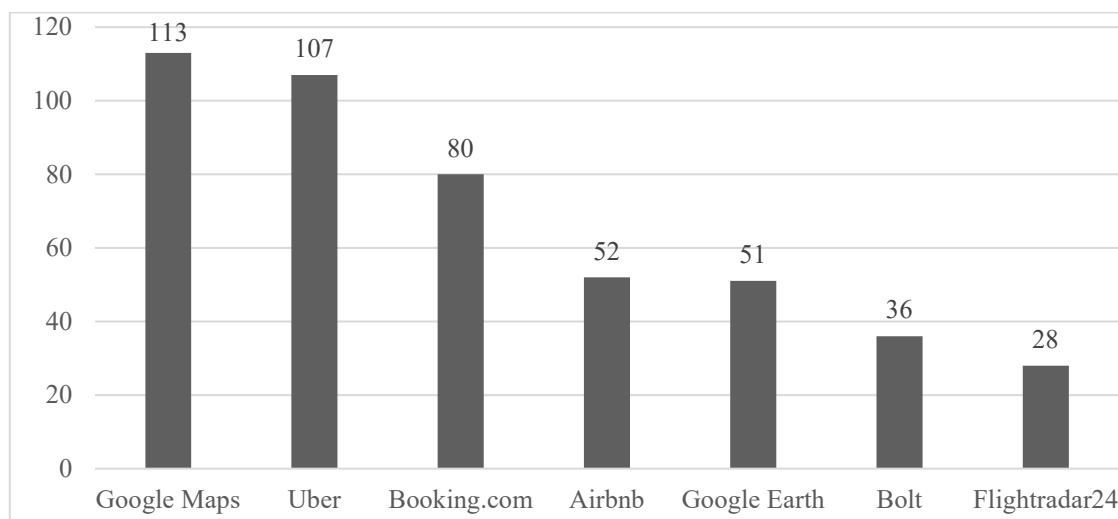


Source: Bianchi, 2023

Figure 7. The share of TOP-5 world travel websites by the number of visitors (April 2023), %

Analysis of visits to TOP tourist sites in 2023 according to Similarweb shows that Booking.com was also the most popular in May with 582.5 million visitors, TripAdvisor (179.9 million) and Airbnb (104.5 million) took the third place (Similarweb, 2023).

Among the TOP programs that were downloaded the most in the "Travel and tourism" category in 2022, the leading places also belonged to Booking.com and Airbnb (Fig. 8).



Source: Statista, 2023 (March)

Figure 8. TOP-7 most popular world tourist programs in 2022 by number of downloads, million

Moreover, for apps in the selected category, the retention rate, i.e. using the app after installation within 90 days, is higher compared to the average annual retention rate in 2022, 46% and 34%, respectively (Statista, 2023 (June)).

In order to carry out a quantitative assessment of the relationship between the indicator of the volume of inbound tourist flow and the factors of visitation of tourist sites, data on the first three platforms (Fig. 7) were selected for the purpose of constructing a 3-factor linear regression. Correlation evaluations of the data of a dynamic range of indicators in 2011-2019 were carried out:

- the number of users of the Booking.com website (x_1),
- the number of nights booked on the Airbnb website (x_2),
- the number of reviews and feedback on the TripAdvisor website (x_3),
- volume of inbound tourist flow (y)

The preliminary analysis of the matrix of the initial statistical data shows that the least significant factor in the construction of the 3-factor regression is the factor of the number of nights booked on the Airbnb website (x_2). Therefore, we limited ourselves to building a 2-factor linear regression model:

$$y = 1006,173 + 0,006x_1 + 0,542x_3, \quad (1)$$

where: y – the volume of the world inbound tourist flow (million people),

x_1 - the number of site users Booking (million people);

x_3 - the number of reviews and feedback on the TripAdvisor website (million people).

Fisher's test ($F = 159.63$) for this model is significant, the model is adequate, therefore the interpretation of the obtained parameters is as follows:

- increase in the number of site users Booking for 1 million people causes an increase in the volume of the world's inbound tourist flow by an average of 6 thousand people;
- growth in the number of reviews and feedback on the TripAdvisor site per 1 million people causes growth in the volume of the world's inbound tourist flow by an average of 542,000 people.

Such quantitative estimates of the impact of the operation of tourist sites on the volumes of tourist flows, in the presence of reliable initial data, can be used to forecast the number of travelers both in individual regions and worldwide flows.

Conclusions

The results of the conducted research indicate the existence of a certain connection between separate Internet resources and characteristics of the tourism industry. A comparison of the dynamics of the number of Internet users in the world and incoming tourist flows is made, with the determination of the influencing factors to replace them. Based on the results of the data analysis of the dynamic series of the total number of Internet users, the number of social networks users, visitors to tourist websites and the volume of world tourist flows, it is established that there is a certain correlation between these indicators. Estimates of the average annual growth of users of the global network in separate periods are obtained using the methods of simple regression analysis. Factors that could affect the change in the growth (positive or negative) of the number of travelers, the number of Internet users and visitors to specialized Internet platforms are discussed.

The paper examines the relationship between the emergence and development of social networks and changes, both quantitative and qualitative, that took place in world tourism. Quantitative estimates of the influence of travel websites, in particular Booking.com and TripAdvisor, on the change in the volume of inbound tourist traffic have been obtained with a certain degree of reliability. The obtained results will be useful for researchers in the field of tourism and practitioners involved in determining the impact of Internet resources on tourism.

The question of forecasting the volume of tourist flows depending on the impact of social media on them and special tourist platforms, as well as

an in-depth study of the influence of Internet users on the volume of tourist flows in a regional section will be the direction of further research.

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