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# Affirmation of Passenger Traffic Flows on the Danube Corridor – Perspective of River Cruise Tourism

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## ABSTRACT

Cruise tourism as a propulsive branch of tourism is being increasingly affirmed in the field of river transport. Accordingly, the main research problem in this paper is the analysis of the possibility of further affirmation and growth of passenger flows on river cruises on the Danube as the backbone of river traffic in the European Union. In the context of the defined research problem, the paper analyzes: relevant geo-traffic and socio-economic characteristics of the Danube, relevant indicators of passenger flows on cruises on the Danube – intensity, structure, dynamics and distribution of passenger traffic flows. Based on the aforementioned content, the further dynamics of passenger flows on cruises is concluded and forecasted, and the guidelines and factors of valorization of cruise tourism along the Danube Corridor are highlighted.

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## 1 Introduction

River passenger traffic has recently been almost entirely oriented towards river cruises, which are constantly increasing in terms of passenger numbers. River cruises represent a significant potential for further growth of tourism, and thus passenger traffic and the use of rivers for tourism purposes. The Danube Corridor is one of the most popular river cruise routes in the world. Consequently, this study analyzes and elaborates on the factors of formation of the passenger flows on Danube cruises in regard to its specific attributes and the conditionality of their distribution.

In particular, the basic elements of the formation of passenger flows on cruises on the Danube are analyzed, which also predetermine the demand and supply of cruise services on the Danube. Among the listed elements are passengers (tourists) who are also the subject of cruises, service providers, i.e. Danube cruise ship operators that form and maintain cruise lines with a specific fleet of river cruise ships and river cruise ports.

Passenger flows are analyzed based on of specific data in relation to the volume of passenger traffic, i.e. intensity of passenger flows on cruises to individual Danube basins, according to the structure of passengers in relation to their origin, age category and socio-economic status. The existing interest market of river cruises on the Danube is especially analyzed, as well as the positioning and importance of cruises on the Danube in relation to other markets of river cruise tourism. Recognizing the diversity of influencing factors in the formation of passenger flows on cruises on the Danube, this study emphasizes the geo-traffic positioning of the Danube region and socio-economic factors and guidelines that could contribute to the valorization of the region in the context of river cruise voyages.

In conclusion, the contribution of this research paper is reflected in the analysis of relevant indicators of the formation of passenger flows on cruises on the Danube in relation to which possibilities of further development and affirmation of cruises in the Danube region are elaborated.

## 2 Geo-traffic and socio-economic characteristics of the Danube region in the context of river cruises

The Danube macro-region covers 14 countries, including nine EU member states. More than 100 million people live within the region, a fifth of the European Union’s population. The backbone of the Danube macro-region is the Danube river, which has the status of Pan-European Corridor VII. Namely, the Danube is considered the most important European river because it is an integral part of the Rhine – Main – Danube trans – European navigation system, which connects the Atlantic and Mediterranean and connects Eastern and Western Europe (Maglič&Poletan – Jugović, 2013, p. 1).

The uniqueness of the Danube River lies in the fact that in the sovereign territory of the European Union, it is the largest and longest navigable river connecting a significant number of EU Member States. Namely, the Danube connects as many as nine EU member states: Austria, Bulgaria, the Czech Republic, the Republic of Croatia,

Germany (Baden – Württemberg and Bavaria regions), the Slovak Republic, Slovenia and Romania. In addition, the Danube connects five European countries that are not member states of the European Union, namely Bosnia and Herzegovina, Montenegro, Serbia and Ukraine (Odessa, Ivano – Frankivsk, Chernivtsy and Zakarpatya regions) (Agh, 2016, p. 2). From the territorial aspect, the Danube is navigable from the south of Germany, more precisely Kelheim, to Romania, more precisely Sulina. The length of the waterway is 2414 km. The countries within the aforementioned navigable part of the Danube are Germany, Hungary, Croatia, Serbia, Romania, Bulgaria, Moldova and Ukraine. The territorial overview of these countries which are located within the Danube macro – region is presented on Map 1.

The countries belonging to the Danube macro-region differ greatly in terms of the macro-economic situation, however, the Danube River, as a strong link, creates the potential for their further integration and stronger economic growth. Differences in the macro-economic situation of the EU member states are sharp, while macro-economic



**Map 1** Territorial coverage of the Danube macro-region

**Source:** Sielker, F., Vonhoff, K.: *Introduction: Research in the Danube*, Danube Strategy Research Network, Leibniz, 2013, p. 10.

**Table 1** Passenger cruises traffic intensity on the Danube (in 000)

	Number of Passengers (in 000)					
	2012	2013	2014	2015	2016	2017
Danube upper basin	328	493	486	535	564.7	595.5
Danube delta	82	84	89	83	86.9	97.7
<b>Total</b>	<b>410</b>	<b>577</b>	<b>575</b>	<b>618</b>	<b>651.6</b>	<b>693.2</b>

**Source:** European Commission: *Market Observation for Danube Navigation – Results in 2017*, Danube Commission, Budapest, 2018., p. 15.

differences between member states and non EU member states are even sharper. The differences are geographically spread in the northwest – northeast direction, and it is predicted that efforts to achieve equilibrium will continue until 2050 (Gal, Z. et al., 2013, p. 6).

The macro-economic disproportion of the Danube macro-region is reflected in the passenger traffic flows within the river cruise tourism in the context of their intensity and spatial concentration. The intensity of passenger traffic flows on cruises on the Danube in the period from 2012 to 2017 is shown in Table 1.

The data in Table 1 indicates that in the period from 2012 to 2017, there were intensive growth dynamics of passenger traffic on cruises on the Danube, of as much as 69 %. However, in connection with the aforementioned intensive growth dynamics, it should be pointed out that it mainly refers to the area of the upper Danube basin. The ratio of disproportion to the concentration of passenger traffic flows of river cruise tourism between the upper Danube basin and the Danube delta is six to one (6:1). This means that 82 % of passenger traffic flows on river cruises on the Danube refer to the upper Danube basin. The reason for this is the location of the upper Danube basin, which is incorporated into the sovereign territory of economically highly developed countries such as Germany and Austria, which have a wider and more developed range of tourism supply side than the middle and lower Danube basin.

The Danube basin is the second largest river basin in Europe, with a total area of 801.463 km<sup>2</sup> and a total length of 2888 km (ICPDR, 2011, p. 7). The average altitude is 468 m with a maximum altitude of 3873 m. In the north-western region, the strong influence of the Atlantic climate brings large amounts of precipitation, while the eastern regions have a continental climate with less precipitation and usually cold winters (Vigiak, O. et al., 2017, p. 5). In the context of the analysis of passenger traffic flows on cruises on the Danube, an important factor is the geological structure of the basin and the slope of the Danube river basin. In relation to the above two abiotic parameters, six classification groups of the Danube are distinguished (Sommerhauser, M., 2003, p. 7):

- Mountainous part (river length 2888 – 2497 km) – covers the area from the mouth of the Brigach and Breg river to the mouth of the Lech river (average slope = 101 cm/km);
- Upper Danube basin (river length 2497 – 1794 km) – covers the area from the mouth of the river Lech to the linkage of the Danube – Mosonia near Gonyu (average slope = 40 cm/km);
- Middle Danube basin (river length 1794 – 1048 km) – covers the area from the mouth of the river Raab to the cataract at the Iron Gate (average slope = 6 cm/km);
- Cataract area (river length 1040 – 941 km) – covers the area between the two borders, after 100 km there is an altitude difference of 28 m (average slope = 28 cm/km);

- Lower Danube basin (river length 941 – 80 km) – covers the area from the Wallachian lowlands to the Danube delta (average slope = 3.9 cm/km);
- Danube delta (river length 80 to 0 km) – (average slope of a few millimetres per kilometre).

The geological structure of the Danube is analyzed with the aim of achieving the safest possible navigation through the river. The upper basin of the Danube has the characteristics of a mountain river and therefore, due to the presence of a large height difference, it is not suitable for cruising. However, due to the fact that the river is being exploited as efficiently as possible, the navigability of the upper Danube basin in relation to the height difference is achieved through the construction and maintenance of river sluice gates. The middle basin of the Danube is safe for almost all types of vessels along the entirety of its length. The only problematic part in regards to cruising is in the area of the Đerdap National Park. In this area there is a mountain gorge and a cataract, which is why navigation is complex and subject to strict rules and safety precautions. Safety measures regarding cruising through the aforementioned part of the middle basin of the Danube have been additionally tightened by the use of modern navigable equipment, by the taming of the river by means of the Sip canal and a certain number of river sluice gates. The lower Danube basin, which stretches through Bulgaria and Romania, is the safest for cruising due to the smallest slope indentation of the basin.

Therefore, these two countries are aiming to intensively exploit the corresponding part of the Danube at the state level in the context of river cruise tourism. In addition, these countries perform certain hydraulic works on the lower Danube basin, through which they aim to make navigation safer and more efficient, especially because the lower Danube basin is subject to low water levels.

### 3 Structural analysis of passenger flows on cruise voyages in the Danube region

It is important to evaluate the structural analysis of passenger flows on cruise voyages in the Danube region on the basis of three elements that also represent three key development aspects, namely: passengers, passenger lines and ships, and passenger ports. Passengers in regard to their characteristics represent the demand side for cruises because they can be used to analyze the profitability of river cruise tourism in terms of its market success. Another developmental aspect is the technical-technological characteristics of cruise ships. This is due to the diversity of the Danube basin and the differences in the demand of the age group of passengers. The third developmental aspect is the distribution of ports on the Danube river. This aspect can be analyzed from the point of view of fleet acceptance and passenger accommodation through commercial social programs.

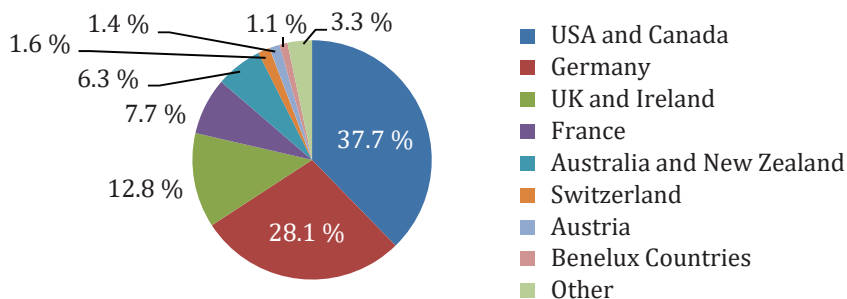
### 3.1 Passenger structure on cruise voyages on the Danube

The analysis of demand as well as the potential for cruises on the Danube region is based on the analysis of the current state of the main indicators, which are intensity, structure and dynamics of passenger traffic on cruises on the Danube. The analysis of these indicators, based on specific data, provides valuable conclusions about the current market of interest, the structure of passengers and the intensity of passenger traffic. Regular monitoring and processing of these data enable the identification of general and structural trends in passenger traffic, assessment of economic effects in the passenger transport sector, cruise tourism, river cruise shipping and the preparation of medium – term forecasts based on econometric models. The structure of passengers on Danube cruise voyages according to the origin of passengers in 2018 is denoted in Graph 1.

Based on the data from Graph 1, it can be concluded that in the structure of the interest market for cruises on the Danube, the most important market is the USA and Canada with a share of 37.7 %, which is a total of about 618.800 passengers using river cruises in Europe. They are followed by Germany (344.000 passengers, with a

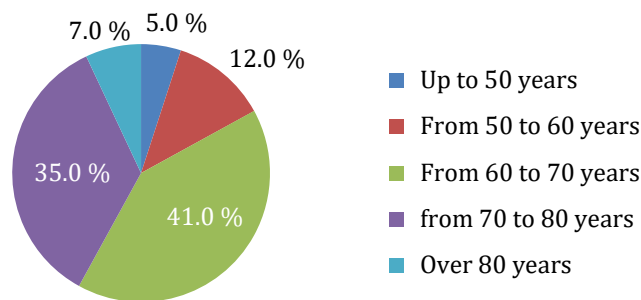
share of 21 %) and the United Kingdom (210,000 passengers, with a share of 12.8 %). Other markets that have a smaller share and importance in the structure of passengers on the cruises on the Danube are: France, Australia and New Zealand, Austria and Switzerland. The UK market shows significant growth (31 %), while the two main markets (North America and Germany) are growing at a similar rate (14.3 % and 14.7 % respectively). There is a trend in regard to the increasement of the number of passengers from new markets such as Asia, Scandinavia, Russia and Eastern Europe. This segment is growing by 41 %.

The potential of cruise tourism in the Danube region is also significantly analyzed from the aspect of monitoring the consumer habits of passengers. This activity is a complex phenomenon that is influenced by various factors, among which the most influential are cultural, social, psychological and age. They create an opportunity to identify the tourism demand side in the market in order to effectively implement the supply side. The monitoring of consumer habits of passengers in the function of analysis of cruise tourism on the Danube can be carried out from the aspect of age structure of passengers and their socio – economic status. The structure of passengers on Danube cruises by age groups in 2018 is stated in Graph 2.



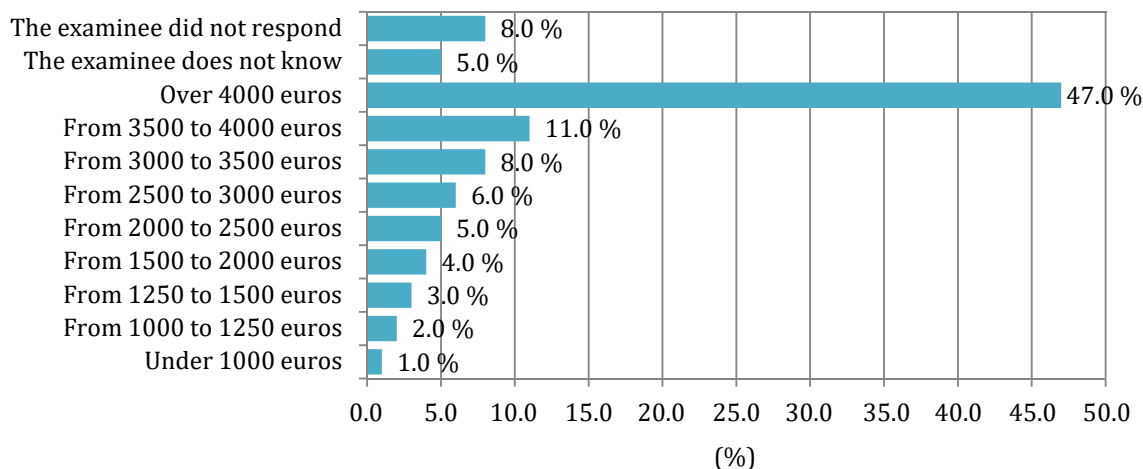
**Graph 1** Passenger structure on Danube cruise voyages according to the origin of passengers in 2018

Source: Central Commission for the Navigation of the Rhine: *Inland Navigation in Europe – Market Observation*, CCNR, Strasbourg, 2018, p. 118.



**Graph 2** Structure of passengers on Danube cruise voyages according to age groups of passengers in 2018

Source: Interreg Danube Transnational Programme: *Lot No 2 – Study of the Development of the Cruise Tourism in the Danube Region*, Sofia, Ministry of Tourism of Bulgaria, 2019, p. 66.



**Graph 3** Socio-economic status of passengers on the Danube cruise voyages

**Source:** Interreg Danube Transnational Programme: Lot No2 – Study of the Development of the Cruise Tourism in the Danube Region, Sofia, Ministry of Tourism of Bulgaria, 2019, p. 67.

The data from Graph 2 indicates that the average age of passengers on cruise voyages on the Danube is 67 years. The stated age group of passengers (from 60 to 70 years) makes up a share of 41 % of all passengers. It is also important to note that after the aforementioned age group with a share of 35 % in the total structure of passengers, a group of passengers over 70 years of age is represented. As a result, the demographics of the elderly account for the largest share of cruises along the Danube Corridor.

Price is one of the biggest barriers to attracting new passengers to the river cruise tourism market. Many tourists who have taken a river cruise package consider it an expensive vacation option. The current price is high compared to the general prices of travel arrangements. The high prices can be explained through the value chain of river cruise tourism. It is extremely long and economically abundant. On average, the value chain links approximately 25 business entities, organization and administrations that add value through mutual business in the process of preparation and realization of final products and services for river cruise tourism. The consequence is high cruise prices in the Danube region. Based on the economic abundance and dominant age groups, it can be concluded that from the point of view of socio-economic background, passengers on the Danube can be categorized as retirees with a high level of cash income. The socio-economic background of passengers on the Danube cruise voyages is stated in Graph 3.

The data from Graph 3 indicate that the largest share is occupied by the socio economic classification group of over 4000 euros of monthly income with a share of 47 %. The next classification group holds the amount of 3500 to 4000 euros with a share of 11 %. The third place is occupied by the classification group in the amount of 3000 to 3500 euros with a share of 8 %, while the fourth place is

occupied by the classification group in the amount of 2500 to 3000 euros with a share of 6 %. The remaining five classification groups are less represented with a share of 5 %, 4 %, 3 %, 2 % and 1 % respectively.

### 3.2 Technical-technological characteristics of ships for cruise voyages on the Danube

Compared to sea and ocean cruises, river cruises have certain specifications, which are related to the waterways and vessels (ships), the characteristics of the voyage plan, the equipment of the ship and the program of the voyage itself. River cruise voyages are distinguished from sea and ocean voyages by being performed near land. Their stops are frequent and ships usually overnight in ports. River cruise ships are considerably smaller than ocean and sea ones. They are designed in a specific way to keep their draft as small as possible so that they can enter narrow and shallow areas. The consequence of this type of construction is limited and small space, which does not allow such a variety of services as on sea and ocean cruise ships. This is the reason why the passenger accommodation capacity is much smaller in river cruise ships than in sea and ocean cruise ships. However, the stated lack of smaller capacity is sought to be compensated by a combination of construction characteristics of the ship and active social programs with the aim of creating a friendly and “leisure” atmosphere among passengers.

The fleet of cruise ships on the Danube is from the aspect of technical – technological characteristics, of limited capacity due to the physical characteristics of waterways. The dimensions of the average cruise ship on the Danube are 135 meters in length and 11.5 meters in width. Due to the stated dimension, the average capacity of a ship can accommodate 167 passengers. The largest share of the

Danube fleet of 68 % (120 ships) have ships that can accommodate from 150 do 200 passengers. Between 101 and 150 passengers can be accommodated by 21 % of the fleet (36 %). Only 5 % of the Danube fleet (8 ships) can accommodate up to 100 passengers. It is important to point out that the largest number of decks registered on Danube ships are three decks with cabins. This is also the predominant number of decks for most ships (only 20 ships are two cabin ships).

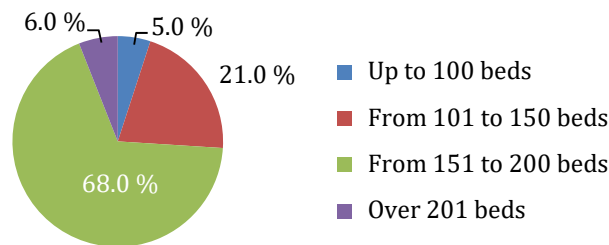
The structure of the fleet of cruise ships on the Danube River, in relation to the capacity of receiving a certain number of passengers is shown in Graph 4.

In accordance with the fact that river cruise tourism is a popular and growing branch of tourism, the Danube fleet shows an increase in its capacity, before the opening of the Rhine – Main – Danube canal, the total river cruise fleet on the Danube was 46 ships, while after the canal’s opening it amounted up to 359 ships. Therefore, it can be concluded that the river cruise fleet on the Danube indicates a sharp increase which was contributed by the opening of the Rhine – Main – Danube canal.

The sharp increase of the river cruise industry has created a great fragmentation of cruise operators. A total of 41 operators offering a cruise service have been identified. Many operators conduct business with a small number of ships with a small passenger accommodation capacity. It is interesting to note the frequent occurrence that one ship is used by several operators. The structure of cruise operators on the Danube in relation to the number of ships at their disposal is stated in Graph 5.

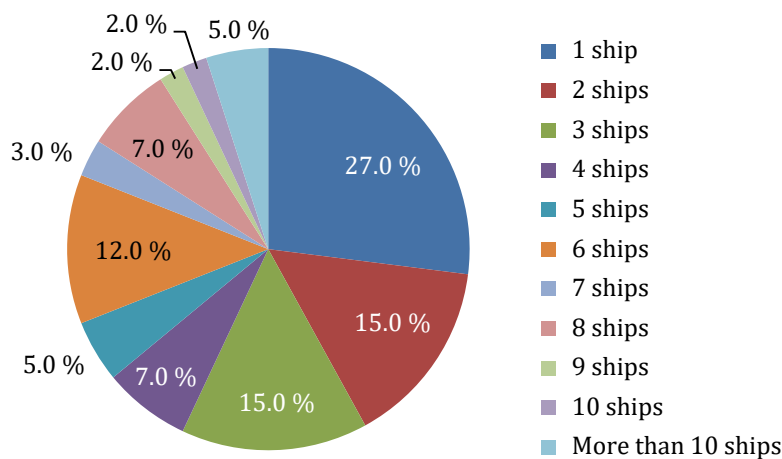
Only three river cruise operators have 10 or more boats on the Danube. The river cruise operator with the largest fleet is the Viking River Cruises. Its fleet amounts to 30 ships, which is a share of 17 % of the total number of all river cruise ships sailing on the Danube. The second place is occupied by the river cruise operator Phoenix Reisen with a fleet of 12 ships, and in third place comes Ama Waterways with a fleet of 10 ships.

The fragmentation of river cruise operators carries with it an advantage that is reflected in a greater chance that less popular destinations on the Danube will enter into a partnership with the river cruise operator and in



**Graph 4** The structure of cruise ships on the Danube in relation to the capacity to accommodate a certain number of passengers in 2017

**Source:** Interreg Danube Transnational Programme: *Lot No 2 – Study of the Development of the Cruise Tourism in the Danube Region*, Sofia, Ministry of Tourism of Bulgaria, 2019, p. 60.



**Graph 5** The structure of cruise operators on the Danube according to the number of ships at their disposal in 2017

**Source:** Interreg Danube Transnational Programme: *Lot No 2 – Study of the Development of the Cruise Tourism in the Danube Region*, Sofia, Ministry of Tourism of Bulgaria, 2019, p. 57.

that way they attract tourists. The greater the fragmentation of market participants, the sharper the rate of competition. Fierce competition is forcing river cruise operators to develop diversification programs with a focus on specialization. This creates a precondition for the integration of new products and services into the market.

### 3.3 Features and geographical distribution of Danube ports

Along the banks of the Danube, in all its sections, there are a total of 98 ports with 268 piers that have the means of accepting river cruise ships. The total density of ports along the banks of the Danube is on average one port for every 25 kilometres of the river's waterways, from the Rhine – Main – Danube canal to its delta in Romania.

Furthermore, only the ports included in the Danube cruise programs are analyzed. Out of a total of 98 Danube ports, 71 have been identified as being included in the program of at least one river cruise operator. In other words, 71.45 % of Danube ports are engaged in the func-

tion of cruises on the Danube. Out of a total of 268 piers, 235 piers were used, which represents a utilization share of 87.68 %.

The inclusion of Danube ports and piers in the programs of cruise operators according to the affiliation of individual countries on the Danube is stated in Table 2.

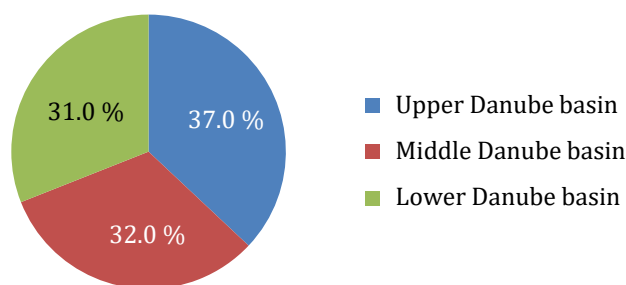
The distribution of ports on the Danube that are included in cruise programs does not indicate more significant deviations than the general distribution of ports. The distribution of ports on the Danube that are included in cruise programs is stated in Graph 6.

The data from Graph 6 indicates that the structure of ports included in river cruise programs does not differ much from the general distribution of ports along the Danube. In the upper Danube basin, out of 38 ports, 26 of them (68 %) are included in river cruise programs. In the middle basin of the Danube, out of 31 ports, 23 of them (74.19 %) are included in cruise programs. In the lower basin of the Danube, out of a total of 29 ports, 22 of them (75.86 %) are included in cruise programs.

**Table 2** The number of Danube ports and piers included in the Danube cruise lines by country in 2018

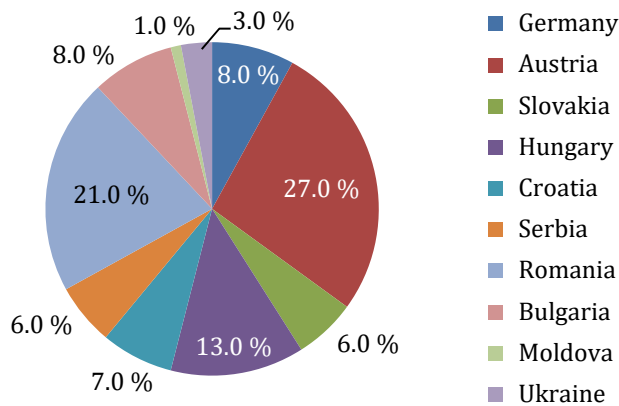
State	Ports			Piers		
	Total number	Included in river cruise lines	Share in %	Total number	Included in river cruise lines	Share in %
Germany	8	6	75	45	41	91.11
Austria	29	19	65.52	66	56	84.85
Slovakia	4	4	100	29	29	100
Hungary	13	9	69.23	51	47	92.16
Croatia	5	5	100	5	5	100
Serbia	8	4	50	17	10	58.82
Romania	20	15	75	35	30	85.71
Bulgaria	9	6	66.67	17	14	82.35
Moldova	1	1	100	1	1	100
Ukraine	2	2	100	2	2	100
<b>Total</b>	<b>98</b>	<b>71</b>	<b>72.45</b>	<b>268</b>	<b>235</b>	<b>87.69</b>

**Source:** Interreg Danube Transnational Programme: *Lot No 2 – Study of the Development of the Cruise Tourism in the Danube Region*, Sofia, Ministry of Tourism of Bulgaria, 2019, p. 36.



**Graph 6** Geographical distribution of Danube ports included in cruise programs in relation to individual Danube basins in 2018

**Source:** Interreg Danube Transnational Programme: *Lot No 2 – Study of the Development of the Cruise Tourism in the Danube Region*, Sofia, Ministry of Tourism of Bulgaria, 2019, p. 46.



**Graph 7** Geographical distribution of Danube ports included in river cruise programs in relation to individual countries in 2018

**Source:** Interreg Danube Transnational Programme: *Lot No 2 – Study of the Development of the Cruise Tourism in the Danube Region*, Ministry of Tourism of Bulgaria, Sofia, 2019, p. 47.

The distribution of ports that are included in river cruise programs by countries of the Danube macro-region is similar to the general distribution of ports along the banks of the Danube. The distribution of ports included in cruise programs by countries in the Danube macro-region is stated in Graph 7.

The largest number of ports included in river cruise programs are located in Austria, as many as 19 ports (27 %) and Romania, as many as 15 ports (21 %). Austria and Romania are followed by Hungary, which participates in the Danube cruise ports with 9 ports, that is, with a share of 13 %. Germany and Bulgaria have the same number of ports for river cruises, 6 ports each, with a mutual share of 8 %. The Republic of Croatia has 5 cruise ports with a share of 7 %, while Serbia and Slovakia with 4 ports have a 6 % share. The countries with the smallest number of ports included in Danube cruise programs are Ukraine with only two ports (3 %) and Moldova with only one cruise port (1 %).

#### 4 Potentials and guidelines for the affirmation of passenger traffic flows in the Danube region

Potentials and guidelines for the affirmation of passenger traffic flows on river cruises can be evaluated from the point of view of the competitive position of the Danube region in the global cruise tourism market. The key indicators through which the competitive position of the Danube region in the global cruise tourism market can be determined, and in connection with this the possibility of affirmation of this type of passenger flows are trends in passenger flows and the fleet of river vessels.

According to the data from CLIA (eng.*International Cruise Line Association*), the total number of passengers in 2018 was 28.515.000 passengers with a growth rate of

6 % per year (26.716.000 passengers – 2017; 25.155.000 passengers – 2016).

The United States with 14 million passengers and Canada with 24 million passengers who consumed Danube cruise tourism in 2018, represent the leading market for Danube cruise tourism. Western Europe, with 6,73 million passengers, is also a significant market of interest, followed by Asia with 4,24 million passengers.

The dynamics of passenger flows on river cruises on the Danube in 2018 compared to 2017 are stated in Table 3.

**Table 3** "Top 10" passenger cruise tourism markets in 2018 (in 000)

State	Number of passengers (in 000) 2018	% of change 2017/2018
USA	13.091	9.6
China	2.357	-1.6
Germany	2.233	3
UK and Ireland	2.009	2
Australia	1.345	0.9
Canada	971	5.4
Italy	831	8
Spain	530	3.9
France	521	3.4
Brazil	510	14.6

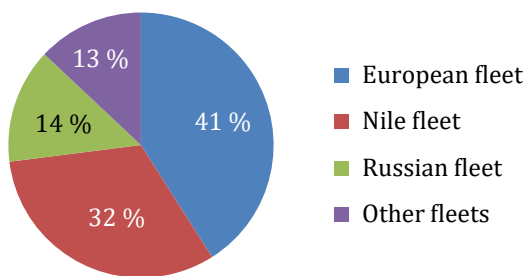
**Source:** Cruise Lines International Association: *2018 Global Passenger Report*, CLIA, Washington, 2018, p. 3.

The leading market for river cruises on the Danube is the United States with 13.091 million passengers in 2018. It is followed by China with 2.357 million passengers and Germany with 2.223 million passengers. Among other European countries with a significant number of passengers were Great Britain, Ireland, Italy, Spain, and France. The only market with a decline in 2018 compared to the previous year is China (-1.6 %) while Brazil recorded significant growth (14.6 %).

The European fleet of river cruise ships in 2018 is structured from 359 vessels with a total capacity of 52.078 beds. It is concentrated mainly on the central European waterways in the upper Danube basin. These central European waterways include the Rhine – Main – Danube canal and some canals on the Elbe. Within the aforementioned canals, up to 75 % of the entire European fleet of cruise ships is active. This is confirmed by the fact that there is a concentration of 253 river cruise ships exclusively on the waterways of the Rhine – Main – Danube canals.

The fleet of European river cruise ships increased by 195 ships between 2004 and 2018, which represents an increase of as much as 119 %. The largest part of the fleet





**Graph 8** Structure of the river cruise fleet by its main markets in 2018

Source: **Central Commission for the Navigation of the Rhine: *Inland Navigation in Europe – Market Observation***, CCNR, Strasbourg, 2018, p. 132.

was built in the period from 2011 to 2015, and in relation to that period, the lifespan of most European river cruise ships can be estimated. The relevance of the European river cruise fleet is indicative to compare with the fleet of cruise ships within other global river navigation systems; such as the Nile, Russian and Asian fleets of river cruise ships. Accordingly, the Graph 8 shows the share of individual fleets in the structure of the total world fleet of cruise ships.

Through the analysis of the data from Graph 8, it can be concluded that the European fleet holds a share of 41 % and is positioned in the first place, the Nile fleet holds a share of 32 % and is positioned in the second place, the Russian fleet holds a share of 14 % and is positioned in the third place. Within the group of other fleets, the Asian and North American fleets should be highlighted as significant, which together with other fleets holds a share of 13 % of the total fleet. The total capacity of the fleet of river cruise ships, expressed in the number of ships for the main world markets of river cruises is 875 ships, where (IDTP, 2019, p. 118):

- the European Union with 359 cruise ships holds the largest share of 41 %,
- the Nile fleet and the fleet of its tributaries numbers 280 river cruise ships by holding a share of 32 %. The development of river cruising on the Nile is hampered by the current political crisis,
- the Russian fleet of river cruise ships has been declining since 2004 and in 2018 it numbered only 121 ships; Russian river cruise tourism is characterized by a high age of the fleet, a relatively small number of foreign passengers, which does not arouse interest in further investments and incentives,
- the remaining two river cruise areas, the United States and Southeast Asia, have the lowest share of ships and low annual growth dynamics.

It is indisputable that the number of ships and the share of ships in the total fleet of cruise ships to the world's most important river systems are not only a relevant indicator of supply, i.e. ship capacity in function of

these voyages, but also a relevant indicator of demand for cruises on world important river systems. This implies towards the conclusion that the Danube macro-region is highly positioned in relation to the demand on the world river cruise market. The Danube macro-region as a destination for river cruise tourism is currently the world's leading region.

The flourishing of river cruise tourism on the Danube, as an economic activity, is a consequence of the opening of the Rhine – Main – Danube canal in 1992, thanks to the local cruise lines are promoted to interregional, that is, international lines. Consequently, the Danube is constantly attracting an increasing number of foreign and domestic passengers and stimulates the constant growth and modernization of the river cruise fleet. However, since river cruise tourism is a new traffic tourism phenomenon in the territory of the European Union, this is the reason why it has remained outside the purposeful planning within its strategic and coordination bodies. The further development and perspective of river cruise tourism in the Danube macro-region should be implemented by reducing the fragmentation of river cruise operators on the Danube and by consolidating and repositioning passenger flows from the upper Danube basin to the middle and lower Danube basin. Among the guidelines for the valorization of the potential of cruise tourism on the Danube, on the realization of which the prosperity of the Danube macro – region will depend in the context of intensification and dynamics of growth of passenger flows on cruises are (IDTP, 2019, p. 128):

- strategic planning of river cruises at the level of the European Union, analogous to the planning of maritime and ocean cruising,
- establishing a reliable model for monitoring the development of river cruise tourism by introducing effective procedures for statistical monitoring and analysis of factors in the formation and consolidation of passenger flows,
- synchronization of legislative frameworks of river cruise tourism on the Danube countries,
- promoting the synergy of river cruise operators, local city tourism companies, city and port authorities,
- planning river ports for cruises in the context of optimizing passenger flows in order to avoid congestion,
- encouraging travelers to travel on the middle Danube basin and the lower Danube basin by developing diversification programs,
- expanding the offer of additional facilities, excursions, etc., especially for tourists oriented to ecological tourism and recreational tourism,
- modernization of existing river cruise services by introducing innovative supply side methods,
- affirmation of thematic excursions in different areas, for different market segments and different passenger structures.

The structure and dynamics of animating river cruise tourism in the Danube macro-region are further elaborated in the European Strategy. The Strategy supports the integration of the Danube countries through guidelines for addressing their transnational challenges and through guidelines for shaping a coordinated and integrated framework for existing sectoral policies. In this way, the quality of river cruise tourism on the Danube has a perspective for valorization at a higher level, which implies connectivity and cooperation among key regional actors at the local, national and international levels. This would open the possibility of mitigating the unequal fragmentation and consolidation of passenger traffic flows within individual Danube basins, which would strengthen the competitiveness of the Danube and the Danube macro-region in the global river cruise market.

## 5 Conclusion

The competitiveness of the Danube region, and thus of the European Union in the context of river cruise voyages, i.e. river cruise tourism, is a consequence of numerous natural and geographical predispositions, geo-transport and socio-economic factors. The opening of the Rhine – Main – Danube canal in 1992 should be identified as a particularly important moment in the affirmation of the aforementioned types of voyages and associated passenger flows on the Danube. Thanks to this canal, local cruises on the Danube have been promoted into interregional and international cruises that attract an increasing number of foreign and domestic passengers (tourists) and stimulate the continuous growth and modernization of Danube ports and fleets of cruise ships.

The analysis of relevant indicators and factors of formation and consolidation of passenger flows on cruise voyages on the Danube, leads to the conclusion that cruise tourism on the Danube is characterized by a strong competitive position compared to other global cruise destinations, such as the Nile, Russian, Asian, and North American destinations. However, the sudden flourishing of river cruise tourism on the Danube, in conditions beyond the purposeful planning of the strategic and coordination bodies of the European Union, is the cause of its distinct fragmentation.

The results of this study point to the conclusions about the rapid development and fragmentation of river cruise tourism on the Danube, which is characterized by a distinct disproportion in intensity and distribution, i.e. spatial distribution of passenger flows on cruise voyages within individual Danube basins. Thus, in the structure of passenger traffic on cruise voyages on the Danube, the upper Danube basin holds a dominant share of 82 %, while the remaining 18 % refers to the middle and lower basin. The reason for this lies in the fact that the upper Danube basin stretches through the territories of economically developed European countries such as Germany and Austria, which also have the highest concentration of ports and associated port facilities for passenger traffic and a wide

range of tourism supply side. Accordingly, with the aim of even distribution, it is important to establish a balance in the concentration of passenger flows between individual Danube basins. In other words, the affirmation and perspective of passenger flows on cruise voyages on the Danube is reflected in their intensification, especially in the lower and upper Danube basin.

The basic guidelines and activities for the realization of the aforementioned goal should primarily relate to: investments in ports and associated port infrastructure, raising the quality and content of the tourism supply side in the middle and lower Danube basin, integration and development of new ports, renewal of partnership models with river cruise operators, creation of incentive programs in the function of channeling passenger flows in the destinations of the middle and lower Danube basin and modernization of existing services by introducing innovative forms of the tourism supply side. These guidelines and activities are a prerequisite for further intensification of passenger flows on cruises on the Danube, and thus the valorization of the Danube region in the global market of river cruise tourism.

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