Abstract: World Tourism Organization’s long-term forecast up to 2020 emphasizes an increasing tourism development in Central and Eastern-European countries such as Bulgaria, Croatia, the Czech Republic, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia and Slovakia.

The paper herein aims at identifying Romania’s place within the tourism framework of these Central and Eastern-European countries, taking into account a series of indices specific to the tourism activity: arrivals of visitors at tourist accommodation units, tourism nights, number of bed-places in hotels and similar units, tourism intensity (total number of nights spent per 1000 inhabitants), tourist expenditure of residents total (thousands of euro), Gross Domestic Product at market prices (Purchasing Power Standard per inhabitant).

Analysis methods: main components analysis, cluster analysis, relative distances method.

Key words: relative distances method, cluster analysis, main components analysis

1 INTRODUCTION
Among the states of Central and Eastern Europe, Romania is considered the country endowed with the richest and most varied natural and entropic resources, which makes it verz suitable for tourism. The development of tourism is quite difficult in the transition period to a market economy which Romania is crossing now. Without remarkable exceptions, both the Romanian experts and those from abroad agree that the potential of the Romanian tourism might compete with the tourist offer of any other country in the world, contributing to the increase of the earnings got from the foreign exchanges. It is obvious in this respect the statement made by the Secretary General of the World Tourism Organization: “A country which has in its patrimony the Danube Delta, the Black Sea Coast, the Monasteries in the north of Moldavia and numerous thermal resorts could live and flourish only from tourism.”

At present the hospitality industry in Romania is facing problems such as: a decline in the domestic and foreign tourist demand (the number of foreign visitors coming to Romania decreased from 1,439,231 tourists in 2008 to 1,255,703 in 2009, and the number of Romanian tourists who went abroad decreased from 5,420,039 in 2008 to 4,663,411 in 2009); an outdated tourist product; tourist services at low standards which do not meet the tourists’ requirements; insufficient promotion, etc.

The perspective that the Central and Eastern European area may become an important receiving pole for the international tourist flows in the future should convince and stimulate Romania, too. This paper aims at identifying the place occupied by Romania within the framework of tourism in these countries in terms of a series of specific indices.

Among the tourism specific indices, we shall resume to the analysis of those included in the Eurostat regional yearbook 2010, since it allows the comparison of data not only between countries, but also in time, i.e. the arrivals of foreign guests at the tourist accommodation units, the number of stayings overnight, the number of bed-places in hotels and similar units, tourist expenditure of residents, Gross Domestic Product at market prices.

Therefore, the eleven partner countries that worked out a statistic document common to the national institutes of statistics are: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia and Slovakia.

2 The analysis of the indices specific to the tourism activity
A survey of the main indices characterizing the tourist sector in the eleven countries analysed points out the presence of certain similarities regarding the
state of tourism [6]. The variables the study is based on are presented in the table below.

### Table 1. Tourism activity specific indices - 2009

<table>
<thead>
<tr>
<th>Country</th>
<th>Number_of_establishments</th>
<th>Number_of_bed_places</th>
<th>Arrivals_of_residents</th>
<th>Arrivals_of_non_residents</th>
<th>Tourism_intensity</th>
<th>GDP (Purchasing Power Standard per inhabitant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG</td>
<td>2012</td>
<td>308</td>
<td>230.510</td>
<td>120.712</td>
<td>10.790</td>
<td>7645</td>
</tr>
<tr>
<td>HR</td>
<td>2000</td>
<td>670</td>
<td>230.510</td>
<td>120.712</td>
<td>11.790</td>
<td>5045</td>
</tr>
<tr>
<td>CZ</td>
<td>2000</td>
<td>770</td>
<td>230.510</td>
<td>120.712</td>
<td>10.790</td>
<td>8452</td>
</tr>
<tr>
<td>EE</td>
<td>2000</td>
<td>43</td>
<td>230.510</td>
<td>120.712</td>
<td>10.790</td>
<td>8452</td>
</tr>
<tr>
<td>HU</td>
<td>2000</td>
<td>123</td>
<td>230.510</td>
<td>120.712</td>
<td>10.790</td>
<td>8452</td>
</tr>
<tr>
<td>LV</td>
<td>2000</td>
<td>123</td>
<td>230.510</td>
<td>120.712</td>
<td>10.790</td>
<td>8452</td>
</tr>
<tr>
<td>LT</td>
<td>2000</td>
<td>123</td>
<td>230.510</td>
<td>120.712</td>
<td>10.790</td>
<td>8452</td>
</tr>
<tr>
<td>PL</td>
<td>2000</td>
<td>123</td>
<td>230.510</td>
<td>120.712</td>
<td>10.790</td>
<td>8452</td>
</tr>
<tr>
<td>RO</td>
<td>2000</td>
<td>123</td>
<td>230.510</td>
<td>120.712</td>
<td>10.790</td>
<td>8452</td>
</tr>
<tr>
<td>SI</td>
<td>2000</td>
<td>123</td>
<td>230.510</td>
<td>120.712</td>
<td>10.790</td>
<td>8452</td>
</tr>
<tr>
<td>SK</td>
<td>2000</td>
<td>123</td>
<td>230.510</td>
<td>120.712</td>
<td>10.790</td>
<td>8452</td>
</tr>
</tbody>
</table>

Source: Eurostat regional yearbook 2010. Explanation: BG = Bulgaria; HR = Croatia; CZ = the Czech Republic; EE = Estonia; HU = Hungary; LV = Latvia; LT = Lithuania; PL = Poland; RO = Romania; SI = Slovenia; SK = Slovakia

Besides the aspects shown by the statistic information in the eleven countries, common elements characterizing the tourist sector in those states can be pointed out, such as:

- the transition from a centralized economy to a market economy;
- the effort of creating a competitional environment in the tourist sector by privatizing the companies belonging to this sector;
- the stimulation of the small and medium-sized companies;
- the adaptation of their own laws to those of the European Union;
- the competition to attract foreign investments necessary to rehabilitate the specific infrastructure, etc.

At the same time, there are also big differences among the eleven countries: different levels of economic and social development, different reform rates from one country to another, varied tourist potential, experience and tradition in organizing and developing tourism, etc.

Not only all these aspects but also others are clearly shown by the differences which appear after analysing other indices of tourism.

Even if the number of bed-places in hotels and similar units represents only part of what the material resources mean, it clearly explains the differences existing among the eleven countries in terms of the degree the tourist potential can be made profitable. As compared to the other countries analysed, Romania has an essential advantage because, thanks to its rich and varied tourist potential, it can actually offer all types of tourism requested: stayings at the seaside, in the mountain resorts, in the spas, winter sports practising, hunting, fishing, rural and ecological tourism, cultural and scientific tourism, etc.

Anyway, the Romanian tourist potential alone is insufficient to represent a real and powerful tourist attraction.

Romania ranks the third with the index of Number_of_establishments, the fourth with Number_of_bed_places, the second with Arrivals_of_residents, the eight with Arrivals_of_non_residents, the tenth with Tourism intensity and Gross domestic product at market prices (Purchasing Power Standard per inhabitant).

**Tourism intensity** (total number of nights spent per 1000 inhabitants) - this measures total arrivals or overnight stays in relation to the total permanent resident population and provides an estimate of tourism potential. This serves as an indicator of the relative importance of tourism for a region. It is generally a better guide to the economic significance of tourism for a region than the absolute number of overnight stays. Furthermore, in the context of the sustainability of tourism, it can also be seen as an indicator of the possible tourism pressure.

**Gross domestic product (GDP)** is a measure for the economic activity. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. The volume index of GDP per capita in Purchasing Power Standards (PPS) is expressed in relation to the European Union (EU-27) average set to equal 100. If the index of a country is higher than 100, this
country’s level of GDP per head is higher than the EU average and vice versa. Basic figures are expressed in PPS, i.e. a common currency that eliminates the differences in price levels between countries allowing meaningful volume comparisons of GDP between countries.

Fig. 2 Gross domestic product (PPS) - 2009

3 The multicriterial hierarchy of the territorial units

The comparisons at the territorial level and the classifications of the territorial units are of great importance both at national level, for a harmonious and balanced development of all the regions of the country, and at international level, to ensure the measurement of the discrepancies and the drawing up of the best development strategy [1].

To achieve a multicriterial hierarchy of the territorial units, several methods have been formulated in the specialized literature, out of which the rank method and the relative distances method will be exemplified. The relative distances method belongs to the category of methods that calculate the distance between the elements (territorial units) of an \( m \)-space, when \( m \) represents the number of features included in the analysis. The method implies:

- to choose a fictitious unit whose features present the minimum (or maximum) levels noticed in the real community;
- to choose a method of measuring the distance between the real units and the fictitious unit (for each feature analysed);
- to settle a procedure of aggregating the information got for each real unit.

The aggregation of the information in an average index with separate levels for each unit of the community allows the measurement of the real discrepancies between units, as well as the use of the multicriterial hierarchy results in a subsequent statistical research based on parameter procedures. For the example chosen the relative distances method between units is applied, the distances being calculated as co-ordinating relative sizes against the unit with a maximum performance:

\[
    d_{ij}^w = \frac{x_{ij}}{\max_{1 \leq k \leq m}(x_{ik})} \times 100 \quad \text{for} \quad i = 1, n \quad j = 1, m
\]

To aggregate the co-ordinating relative sizes in an average index, the geometric mean is used:

\[
    \overline{d}_i = \sqrt[n]{\prod_{j=1}^{m} d_{ij}} \quad \text{for} \quad i = 1, n
\]

The option for a multiplying-type aggregation is determined by the following reasons:

- a product of indices leads to the calculation of a geometric mean, which has the advantage of being less exposed to the influence of extreme values, therefore, it is a more precise value than the arithmetic mean;
- the probability of getting the same product for two or more territorial units is less than that of the equal sums, diminishing thus the subjective intervention in establishing the final hierarchy.
- By applying the relative distances method to the indices specific to tourism, Romania appears to occupy a place 6, as shown in the chart below.

Fig. 3 The top of countries based on multicriterial hierarchy

4 Cluster analysis

The cluster analysis aims at describing a group of individuals or of objects characterized by a group of attributes by means of their regrouping in classes [3]. These classes are thus established that the objects
belonging to the same class should be the most similar possible, and the objects belonging to two different classes should be the most different. The input data are organized in an individual-variable table. The groups are established according to two big categories of procedures which resort to the hierarchical or non-hierarchical methods using the rectangular or euclidean distances.

By using the product SPSS the dendrogram [5] below results, which presents the countries grouped according to the seven variables.

Fig. 4 Dendrogram using Average Linkage (Between Groups)

Ascending hierarchy: a first group is represented by the following countries: Latvia – LV, Lithuania – LT, Estonia – EE, Slovenia – SI; the second group includes Hungary – HU, Slovakia – SK, Bulgaria – BG, Romania – RO; the third group is represented by Croatia - HR; the leading group is represented by the Czech Republic – CZ and Poland – PL.

5 Principal Component Analysis

The factorial methods have a double objective [3]:

- to simplify a table with raw data by passing from a great number of variables to a smaller number of new variables got by grouping the initial ones;
- to select from an important multitude of variables those that appear more frequently in the description of the phenomenon studied;
- to structure and interpret the input data, owing to the small number of new variables – hidden components – that simplify the interpretation of the less legible data at the beginning.

The existence of the correlations between variables makes possible the reduction of the dimension of their representation space, not by their reduction, but by building new aggregative variables with the following features:

- the new variables are linear combinations of the initial combinations and they contribute each with a descending part to the variance of the data. They are called principal components, and each P_i component is of the following form:
  \[ P_i = a_{i1}V_1 + a_{i2}V_2 + \ldots + a_{ik}V_k \]  

- the p principal components are independent of each other, i.e. not correlated.

The factorial analysis methods are data reduction methods, replacing the initial scatter by one of more restricted dimensions for a convenient graphical representation. The reduction is possible if the data chart can be represented by two scatters: that of individuals-points in the space of variables and that of variables-points in the space of individuals. The simultaneous representation in the same reduced space is thoroughly justified and the link between them can be analysed.

In the example chosen the variables are:
- Number_of_establishments
- Number_of_bed_places
- Number_of_tourists
- Tourism intensity
- GDP_inhab_PPS
- Employed
- Tourist_expenditure_of_residents_total

<table>
<thead>
<tr>
<th>Comp.</th>
<th>Initial Eigenvalues</th>
<th>Total Variance Explained</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
</tr>
<tr>
<td>1</td>
<td>4.179</td>
<td>59.693</td>
</tr>
<tr>
<td>2</td>
<td>1.436</td>
<td>20.511</td>
</tr>
<tr>
<td>3</td>
<td>1.220</td>
<td>17.090</td>
</tr>
<tr>
<td>4</td>
<td>0.422</td>
<td>6.027</td>
</tr>
<tr>
<td>5</td>
<td>0.079</td>
<td>1.133</td>
</tr>
<tr>
<td>6</td>
<td>0.061</td>
<td>0.874</td>
</tr>
<tr>
<td>7</td>
<td>0.004</td>
<td>0.053</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

The first two components represent 80.204% of the total variance, which means that they can be used to represent the scatter in the principal plane.

The information included in the last components is insignificant as compared to that included in the first ones, which permits a reduction of the number of components describing a phenomenon. The correlation coefficients presented in the table below are used as co-ordinates of the variables in the plane of the two components.
The chart shows clearly that component 1 is closer to variables: Number of establishments, Number of bed places, Number of tourists, Employed, Tourist_expenditure_of_residents_total, GDP_inhab_PPS, an indicator characterizing the purchasing power.

The processing of the data has been made with the product SPSS.

Countries with maximum performance: Poland and the Czech Republic, with average performance as Bulgaria, Hungary, Slovakia and Romania; countries registering low values of these indices as Estonia, Latvia, Lithuania and Slovenia.

6 Conclusions

The aim of this paper is not only to identify the place occupied by Romania within the tourism practised in the countries of Central and Eastern Europe but also an attempt to draw attention upon the modest position it occupies as compared to other countries, and, moreover, an invitation to reflection on the necessity of finding solutions for Romania’s integration into the European tourist market at a level corresponding to present requirements.

Nevertheless, this means to be aware of the place we occupy and the role we have or we want to play in the European tourism.

The process of Romanian tourism integration into the European tendencies has proved to be long, difficult and still uncertain so far. Even if tourism did not represent a distinct chapter of negotiation for Romania’s acceptance by the European Union, there are many other chapters directly or indirectly linked to tourism that have been negotiated and closed. Among the most important ones, the following can be mentioned: the free movement of people, services and capital, the policy in the field of transport, the small and middle-sized companies, the regional policy and the coordination of the structural instruments, the environment etc.

Therefore, Romania will have to meet, even if only indirectly or in an induced way, the requirements of the European Union in terms of the European integration of tourism. Moreover, the integration of tourism represents a real and complex matter of an ever growing importance both within the European Union, and in its relationships with the rest of the European countries and especially with the candidates for acceptance by the European Union.

Taking into account the strengths of the Romanian tourism, but, at the same time, being aware and trying to eliminate the weaknesses that characterize this field at present, Romania will have to face this challenge by assuming a great financial, professional and educational responsibility.
References


[6]. Eurostat regional yearbook 2010

[7]. www.eurostat.eu