

# ANALYSIS OF HIGH-TECH COMPANIES EVOLUTION INDICATORS IN ROMANIA AND IN THE EUROPEAN UNION

Sanda CONSTANTIN<sup>1</sup>

**Abstract:** *The paper presents the evolution of some indicators in high – tech companies both in Romania and in the European Union. The indicators taken into consideration refer to the total expenses of the companies that operate in this field as well as to the evolution of the personnel which works in high – tech technology companies. The paper also aims to present a prediction of those indicators for the next three years. At the same time, the paper contains a correlation between all the expenses of the high – tech technology companies and the number of employees in Romania and the European Union.*

**Key words:** *correlation, employees, expenses, high-tech technology companies.*

## 1. Introduction

The present technological level of many fields of activity like medicine, aeronautics, software products and so on, as well as the high interest in implementing those technologies require a close attention given to high – tech technology companies.

The paper presents the evolution of two indicators of high-tech technology in Romania and in the European Union.

The objectives of this paper are:

- to analyze the evolution of total expenses of the companies in the high-tech technology sector and, at the same time, the evolution of the employees from those companies in Romania and in the European Union;
- to make some predictions regarding the total expenses and the personnel for the

next three years both in Romania and in the European Union;

- to determine if there is any correlation between the total expenses incurred by the companies from high-tech sectors and the number of employees from these companies.

The analysis is based on official statistical information (EUROSTAT) and refers to a comparison between Romania and the European Union average (27 countries).

## 2. High-tech technology companies expenses in Romania and in the European Union

The evolution analysis takes into consideration five years, between 2006 and 2010, and the dates are expressed in millions of euros.

---

<sup>1</sup> Dept. of Economic Sciences and Business Administration, *Transilvania* University of Braşov.

The evolution of the total expenses in the high – tech technology companies between 2006 and 2010 in Romania and in the European Union is presented in the next table:

Table 1

Year	Total expenses EU (millions of euros)	Total expenses Romania (millions of euros)
2006	127.127	163
2007	137.301	215
2008	145.942	272
2009	151.598	242
2010	146.012	223

The weight of the total expenses of high – tech technology companies in Romania as compared with the European Union is presented in the next table:

Table 2

Year	Weight (%)
2006	0,13
2007	0,16
2008	0,19
2009	0,16
2010	0,15

From the previous table, we can observe that during those five years, the weight of total expenses of high – tech technology companies in Romania as compared with the European Union increased in the first three years from 0,13% in 2006 to a maximum of 0,19 % in 2008. In the next two years those expenses began to decrease and in 2010 they reached a

weight level of 0,15% from the European Union level.

### 2.1. High-tech technology companies expenses in Romania

The evolution of the total expenses in the high – tech technology companies between 2006 and 2010 in Romania is presented in the next figure:

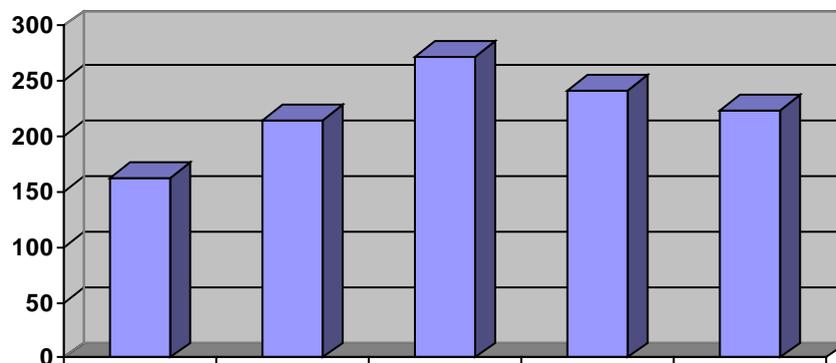


Fig. 1

Applying the statistical indicators of chronological series, we can see that during the analyzed period in Romania, the total expenses increased by 31% in 2006 and by 26 % in 2007 as compared with the previous year, which in absolute values means an increase of 52 and 57 euros respectively. In the next two years the total expenses in the high – tech technology companies in Romania decreased by 30 million euros (12%) in 2009 as compared with the previous year 2008 and by 19 million euros (8%) in 2010 as compared with 2009.

As compared with the first year 2006, we can observe that the total expenses increased in 2007 by 52 million euros, meaning by 31%, and a maximum increase

in 2008 by 109 million euros, meaning by 66 %. After that period, the total expenses increased also in comparison with 2006, but not so much, meaning by 79 million euros in 2009 (48%) and by 60 million euros in 2010 (36%).

On the average, the total expenses in the high – tech technology companies in Romania increased every year by 15 million euros, meaning 10,14% each year, during the entire analyzed period 2006-2010.

## 2.2. High-tech technology companies expenses in the European Union

The evolution of the total expenses in the high – tech technology companies during 2006-2010 in the European Union is presented in the next figure:

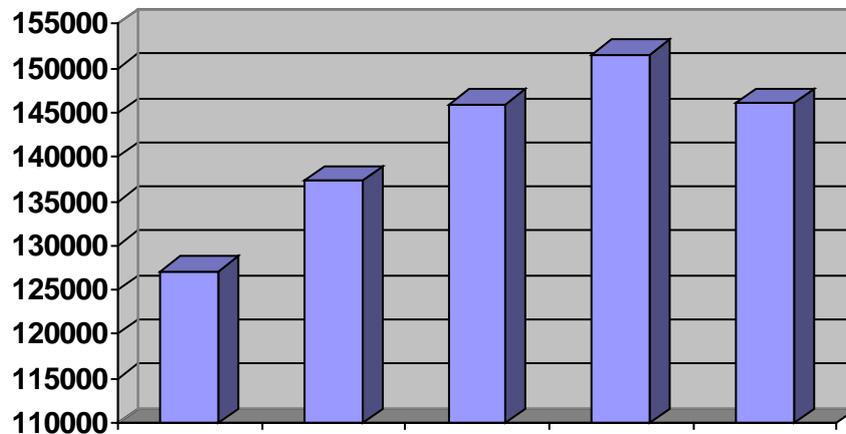


Fig. 2

In the European Union, the evolution of the total expenses of high-tech technology companies as compared with the first year of the series shows that these expenses increased by 10.174 million euros in 2007, meaning by 8%, by 24.471million euros in 2008 and in 2009, meaning an increase of 19% and in 2010 by 18.885 million euros, meaning by 14%.

Taking into consideration the evolution for the previous year, the situation shows that the main increase was in 2007 as compared with the previous year 2006, by 10.174 million euros (8%). In the next two years, the expenses increased again, but not so much, by 8641million euros in 2007 (6%), 5656 million euros in 2009, meaning by 3%.

In the last year of the analyzed period, 2010, the total expenses decreased by 5586 million euros, meaning by 4% less than in the previous year, 2009.

On the average, 141.596 million euros were spent every year of the analyzed series in the European Union. At the same time, the total expenses of high-tech technology companies increased every

year by 4721,25 million euros, 4,21%, on the average.

### 3. The High-tech technology companies employees in Romania and in the European Union

In the analyzed period 2006-2010, the evolution of the employees in the high-tech technology companies is presented in the next table:

Table 2

Years	Number of employees Romania	Number of employees European Union
2006	16.647	1.304.106
2007	14.438	1.397.161
2008	13.468	1.459.814
2009	12.144	1.538.666
2010	11.147	1.534.439

From the previous table, we can notice that during those five years the weight of employees of high – tech technology companies in Romania decreased during the whole period from 1,27% in 2006 to 0,73% in 2010 as compared with the European Union.

#### 3.1. The High-tech technology companies employees in Romania

During the analyzed period, the evolution of the number of high-tech technology companies employees in Romania is presented in the next figure:

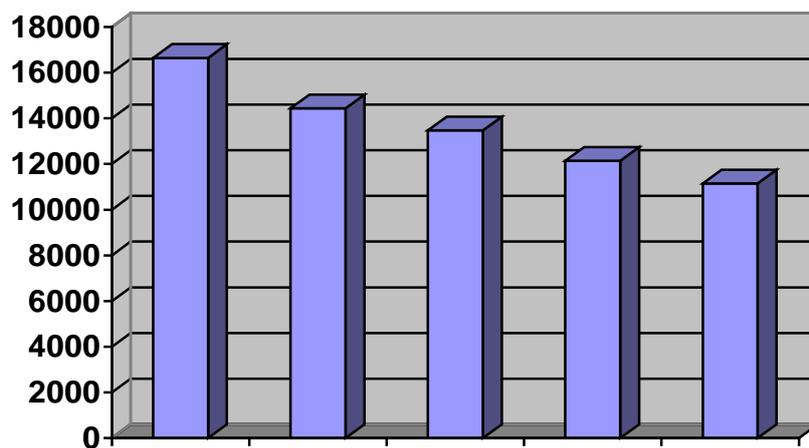


Fig. 3

In Romania, the number of employees hired in high-tech technology companies decreased continuous during the period

analyzed by 14%, 7%, 10%, and by 9% in the last year 2010, as compared with the previous year. That means a decrease of

2209 employees in 2007 and of 997 employees less in 2010. On the average, the number of employees from those companies decreased every year by 1375 persons, meaning by 13,16%.

### 3.2. The High-tech technology companies employees in the European Union

At the European Union, the level of the evolution of the employees in high-tech technology companies is presented in the following figure:

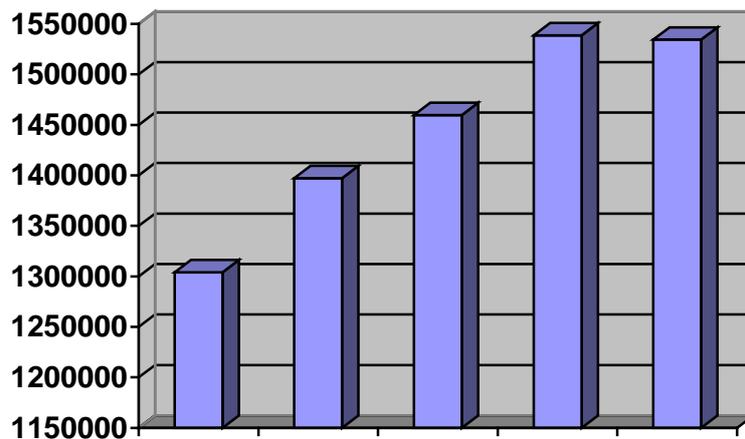


Fig. 4.

During the analyzed period 2007-2010, the number of employees increased in the European Union for the first four years by 7%, 4% and 5% in comparison with the previous year, meaning by 78.852 employees more in 2009. As compared with the previous year, 2009, in 2010 the number of employees decreased by 4227 persons, meaning by 1%.

On the average, the number of employees increased every year by 57.583,25 persons, meaning by 4,97%.

#### 4. Prediction and correlation

For the prediction, the research took into consideration three methods of prediction. According to the results, we can say that the best method was the medium deviation method because it generates smaller deviations than the others.

According to the model application, it results that for the next three years, the total expenses for the European Union in the high-tech technology companies will be: 150.733 million euros in 2011, 155.455 million euros in 2012 and 160.176 million euros in 2013.

For Romania, the predicted values are: 238 million euros in 2011, 253 million euros in 2012 and 268 million euros in 2013.

The correlation showed that there is an indirect link between the two variables. The Person correlation coefficient value is -0,65515, meaning an inverse correlation. The correlation ratio shows that the number of employees influenced the total expenses in 42,92%, the rest of 57,08 meaning the other factors influence.

**References**

1. Begu, L. S.: *Statistică Internațională*. Editura ALL BECK, Bucureşti. 1999.
2. Constantin, S., Petcu, N.: *Statistică - studii de caz*. Editura Infomarket, Braşov. 2000.
3. Mitruţ, C., Isaic Maniu, A., Voineagu, V.: *Statistică Economică*. Editura Dacia Europa Nova, Lugoj. 2000.
4. Petcu., N.: *Statistică. Teorie și aplicații în SPSS*. Editura Infomarket, Braşov. 2003.
5. <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/> Accessed: 08-07-2012