

ANALYSIS OF DYNAMICS OF SERVICES VALUE PROVIDED FOR ECONOMIC AGENTS, BY CATEGORY OF SERVICES IN ROMANIA, DURING 2010-2015

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Abstract:

The objective of this study is to analyze the categories of services whose national classification changes have occurred in 2008, the analysis period 2010-2015. In this respect, the methodology used is that belonging statistics or indicators time series, charts, indicators of structure, trend analysis. Evolution of the total volume of services provided for economic agents in the period under review, ie 2010-2015, was generally upward, except the period of time between the years 2010-2011, the total volume of services rendered for experienced operators in 2011 compared to 2010 some deficiency, and in the timeframe 2011-2015 the volume of services provided value for operators to resume its upward trend, increasing from year to year, although with a relatively low rate. On average, in the period under review, was an increase in the volume of services provided to economic entities, from one year to another. Also, the average was an increase in the volume of services provided to economic entities, compared to 2010. The volume of services for operators increased from year to year, but compared to 2010.

Keywords: services, trend indicators dynamics, structure of services, the value of services

Jel Classification: C10, C15

1. Introduction

As defined by National Institute of Statistics services for operators are " those activities covered by the sale and purchase market , mainly for businesses, regardless of when payment type practiced price (sale price, price , etc.) and collection methods (excluding transport services , post and telecommunications) . "

Flow analysis for the economic value of services provided nationwide by category of service we considered publicly available data provided by the National Institute of Statistics database Tempo online www.insse.ro .

Given the objective of this study or analyze the categories of services whose national classification changes have occurred in 2008 , the period of analysis covers 2010-2015 .

Since 2008, the structure of the national total of services covers the following service categories:

- a) Activities of services in information technology
- b) Information service activities
- c) Real estate
- d) Legal and accounting activities
- e) Activities of management and management consulting
- f) Activities of architecture and engineering, testing and technical analysis
- g) Research and development
- h) Advertising and market research
- i) Other professional, scientific and technical
- j) Veterinary activities
- k) Renting and leasing
- l) Service activities on labor
- m) Investigation and security activities
- n) Cleaning activities
- o) Office administrative, office support and other services rendered to enterprises
- p) Other, respectively, arts and creative activities, activities of libraries, museums, activities Gambling and betting activities, sports activities and amusement and recreation, repair of computers and personal and household goods, other services.

As a strategy considered in the analysis indicator was first done to analyze the evolution of the global service value , then based its structure to analyze developments relevant categories of services .

2. The methodology used in research

In the period under review, 2010-2015 timeframe, structure value services for operators is shown in Table. 1.

The graphical representation of the evolution of the overall level of services provided nationwide value is shown in waveforms in Figure 1.

Table 1. Categories of services provided for operators in Romania, 2010-2015

| Structure services for operators | Value services (mil. lei) | | | | | |
|---|---------------------------|----------------|----------------|----------------|-----------------|-----------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| Information technology service activities | 7249,2 | 7081,1 | 8753,6 | 9571,3 | 12416,4 | 13705,9 |
| Information service activities | 987,2 | 1060,6 | 1046,9 | 1257,7 | 1493,1 | 1657,2 |
| Real estate transactions | 12875,9 | 13121,1 | 12704,2 | 13269,8 | 14890,9 | 15189,9 |
| Legal and accounting activities | 2542,5 | 2041,3 | 2002,6 | 2091 | 2323,9 | 2534,4 |
| Management activities and management consulting | 9684,6 | 9240,2 | 9724,8 | 10477,9 | 11820,8 | 11628,8 |
| Architectural and engineering activities , technical testing and analysis | 10367,5 | 9746,6 | 9370,9 | 11343,5 | 12414,3 | 11154 |
| Research and Development | 1984,9 | 1611,3 | 1881,8 | 1831,4 | 1888,8 | 1749,1 |
| Advertising and market research | 10641,2 | 8776,7 | 8507,9 | 9121,2 | 9840,8 | 8321 |
| Other professional , scientific and technical | 1069,3 | 1028,2 | 1156,4 | 1989,8 | 1763,3 | 1617,6 |
| Veterinary activities | 268,5 | 345,4 | 327,2 | 397 | 457,2 | 451,7 |
| Renting and leasing | 2220 | 2363,9 | 2690,1 | 2896,1 | 3499,4 | 3618 |
| Service activities on labor | 1277,8 | 1250,8 | 1656,4 | 2152,1 | 2629,4 | 3229,5 |
| Investigation and security activities | 3184,9 | 3515 | 3597,4 | 3801,3 | 4063,2 | 4225,7 |
| Cleaning activities | 1723,4 | 1649,4 | 2017,5 | 2385,3 | 2326,3 | 2291 |
| Office administrative , office support and other services rendered to enterprises | 4980,1 | 4506,8 | 5174,3 | 5818 | 7286,9 | 8127,2 |
| Other services ¹ | 9208,1 | 9039,8 | 9640,5 | 10309 | 11508,4 | 11944,3 |
| Total | 80265,1 | 76378,2 | 80252,5 | 88712,4 | 100623,1 | 101445,3 |

Data source: I.N.S.S.E, <http://statistici.insse.ro/shop/index.jsp?page=tempo3&lang=ro&ind=PSC102B>

¹ creative arts and entertainment activities , activities of libraries, museums , activities Gambling and betting activities , sports activities and amusement and recreation , repair of computers and personal and household goods, other servicesii

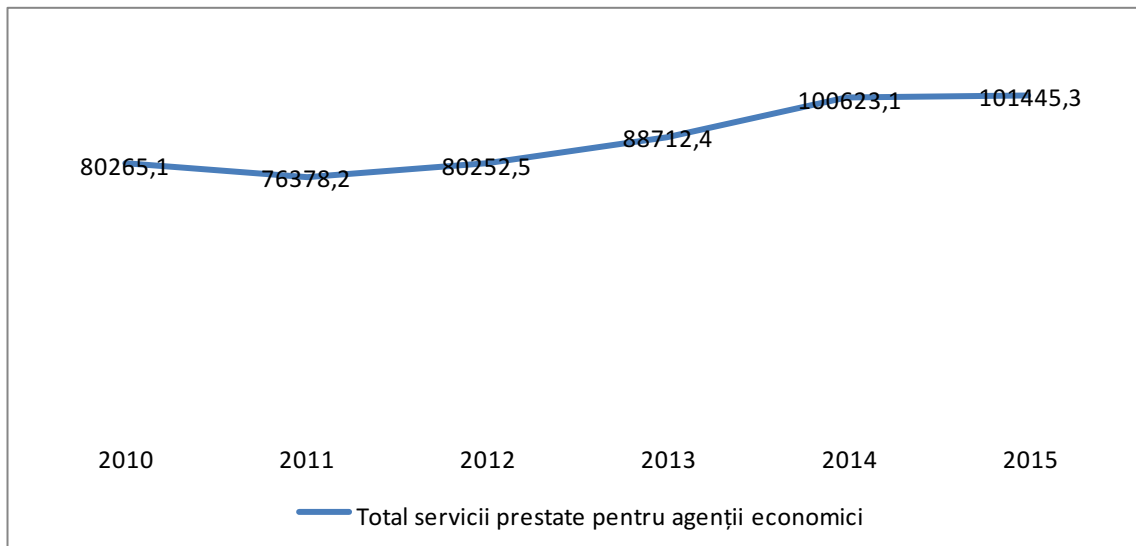


Fig. no. 1. Evolution of the total value of services provided for operators in Romania, 2010-2015

From the chart above developments could be observed total volume of services provided to economic entities, namely a generally upward trend, except for the period of time between the years 2010-2011, the total volume of services rendered to the economic agents known from 2010 to 2011 some deficiency, and in the timeframe 2011-2015 the volume of services provided value for operators to resume its upward trend, increasing from year to year, although with a relatively low rate.

To analyze the evolution of the volume value of services provided to economic entities for the period considered, we used statistical indicators of time series, indicators absolute, relative and media, and the most basic and analytical determination of the trend, followed by applying criteria specific to choose the most suitable trend.

3. Processing, data analysis and research results

After processing the data for the period under review, it notes that in 2011 the volume of services provided to economic entities decreased by 3886.9 mil. Lei compared to 2010, while in 2012 compared to 2011 was a growth of 3874.3 mil. lei. IANA in 2015 shows that the volume of services provided to economic entities increased year on year, the lowest increase recorded in 2015 compared to 2014 (822.2 mil. Lei), while the highest increase -the 2014 to 2011 (11.910,7mil. lei). Compared to the reference year 2010 shows that both in 2011 and in 2012 the volume of services provided to economic entities decreased by 3886.9 mil. Lei, or by 12.6 mil. Lei. In the period 2013-2015 there was an increase in the volume of services provided to economic entities, the highest growth was recorded in 2015 (an increase of 21180.2 mln. Lei) and the lowest increase in 2013 (8447, 3 mil. €). It also notes that the volume of services provided to economic entities decreased in 2011 compared to 2010 of 0.9515 times, ie decreased by 4.8%, decreased in 2012 compared to 2010 of 0.9998 times ie 0.02%, increased in 2013-2015, compared to 2010, the highest growth was recorded in 2015 by 1.2638 times, which represents an increase of 26.38% and the small increase recorded in 2013 of 1.1052 times, ie 10.52% in 2012-2015 increased from year to year, the highest growth was recorded in 2014 compared to 2013, growth being of 1.1342 times, ie an increase by 13.42%, while the lowest increase was recorded in 2015 compared to 2014, the increase being 1.0081 times, ie an increase of 0.81%.

In other words, the average volume of services rendered to operators in the analyzed period was EUR 87946.1 million. Lei. On average, in the period under review, was an increase in the volume of services provided to economic entities, from one year to another with 11290.84 million. Lei. On average, in the analyzed period was an increase in the volume of services provided to economic entities, compared to 2010 by 9217.2 mil. Lei. For the period under review volume of services provided to economic entities increased from year to year, on average, 1.0479 times. The volume of services provided to economic entities increased compared to 2010, an average of 1.1074 times. From year to year the volume of services provided to economic entities increased by an average of 4.79% during the period under review. Compared to 2010, there was an increase in the volume of services provided for operators on average by 7.4% per period. The dynamics analysis requires adjustment time series analyzed to determine trends and to separate essential factors influence the action of random factors that

determine the actual value of the series deviation from the theoretical values. Consequently, the case is required to quantify the trend and, to this end, we proceed to apply elementary and analytical methods for determining the trend, followed by applying specific criteria to choose the most suitable trend. Since the waveforms in Figure 1 indicates a roughly linear trend for its quantification model was called the linear trend function.

Expression trend function is as follows:

$$Y_{ti} = a + bxt_i \tag{1}$$

By applying specific methodology for determining parameters a and b , shown in the table below , was obtained following expression of function trend :

$$Y_{ti} = 87946,1 + 2031,09xt_i \tag{2}$$

Table . 2. Calculations for determining linear trend and forecast for 2016 , 2017

| Year | The volume of services for operators (mil. lei) | ti | $Y_{ti} = 87946,1 + 2031,09xt_i$ |
|------|---|----|----------------------------------|
| 2010 | 80265,1 | -5 | 77790,65 |
| 2011 | 76378,2 | -3 | 81852,83 |
| 2012 | 80252,5 | -1 | 85915,01 |
| 2013 | 88712,4 | +1 | 89977,19 |
| 2014 | 100623,1 | +3 | 94039,37 |
| 2015 | 101445,3 | +5 | 98101,55 |
| 2016 | | +7 | 102163,7 |
| 2017 | | +9 | 106225,9 |

Data source: own calculations

In Figure 2 shows the linear model adjustment prolonged evolutionary trend for the years 2016 and 2017.

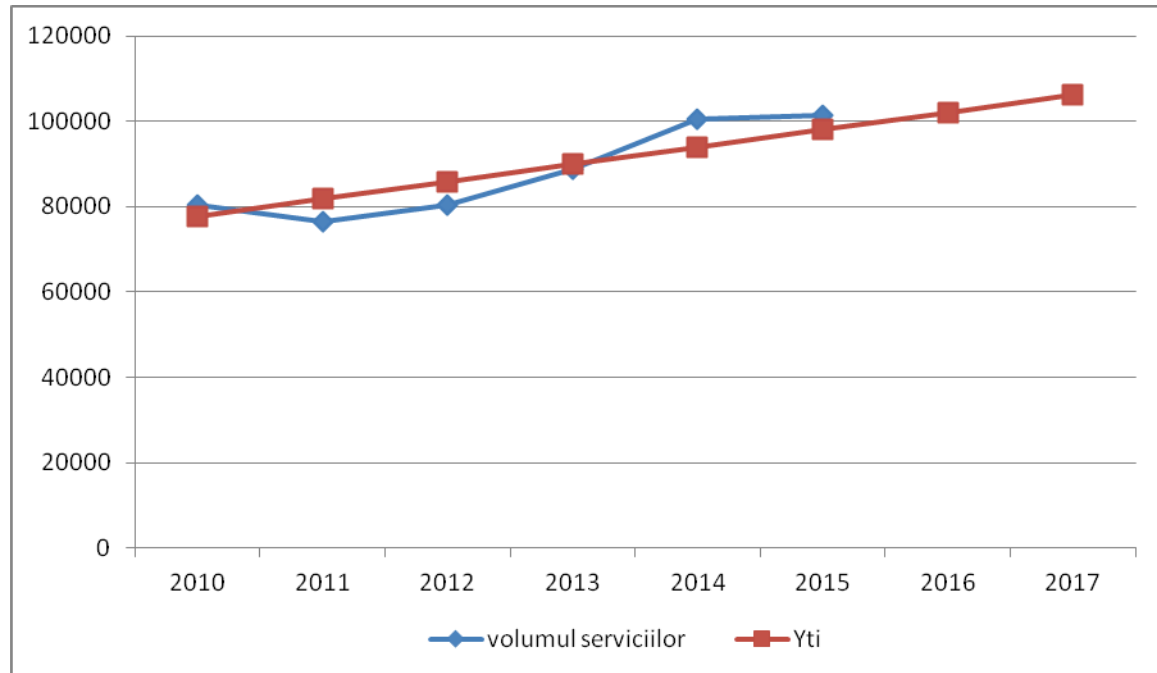


Fig . 2. Evolution trend total value of services provided for operators in Romania , 2010-2015 (million) and forecast for 2016-2017

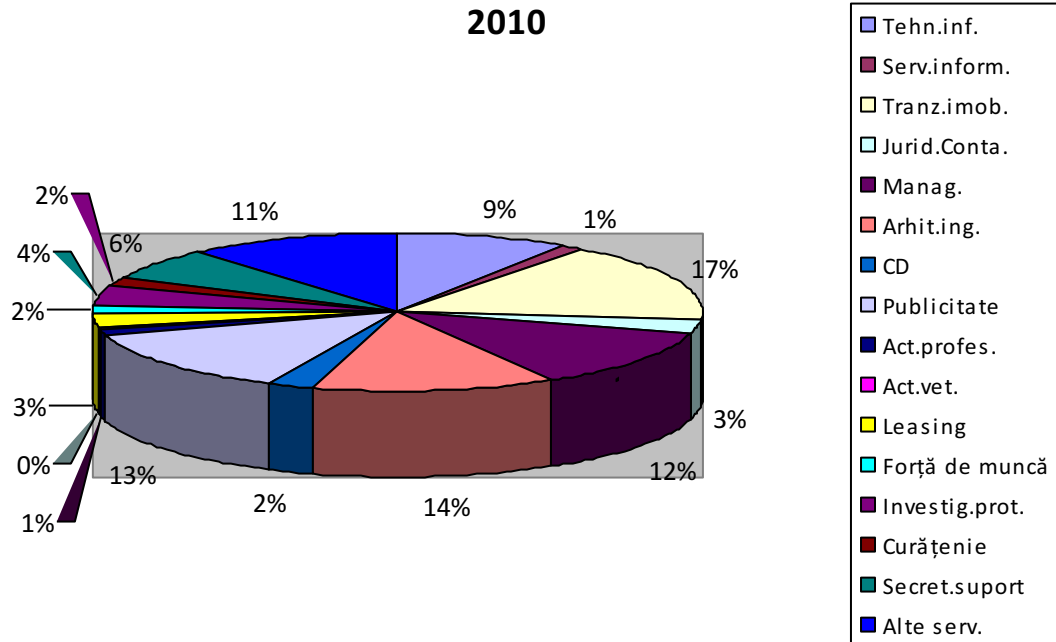


Fig. 3. Structure services for operators in Romania in 2010

In 2010 can be seen in Figure 3, the highest share in total services provided to operators hold real estate transactions in 17% , followed by activities of architecture and engineering, testing and technical analysis with a share of 14 % . At the opposite pole lies veterinary activities accounted for 0.033 % , other professional, scientific and technical with a share of 1 % , R & D and services activities on employment with a weight of 2%.

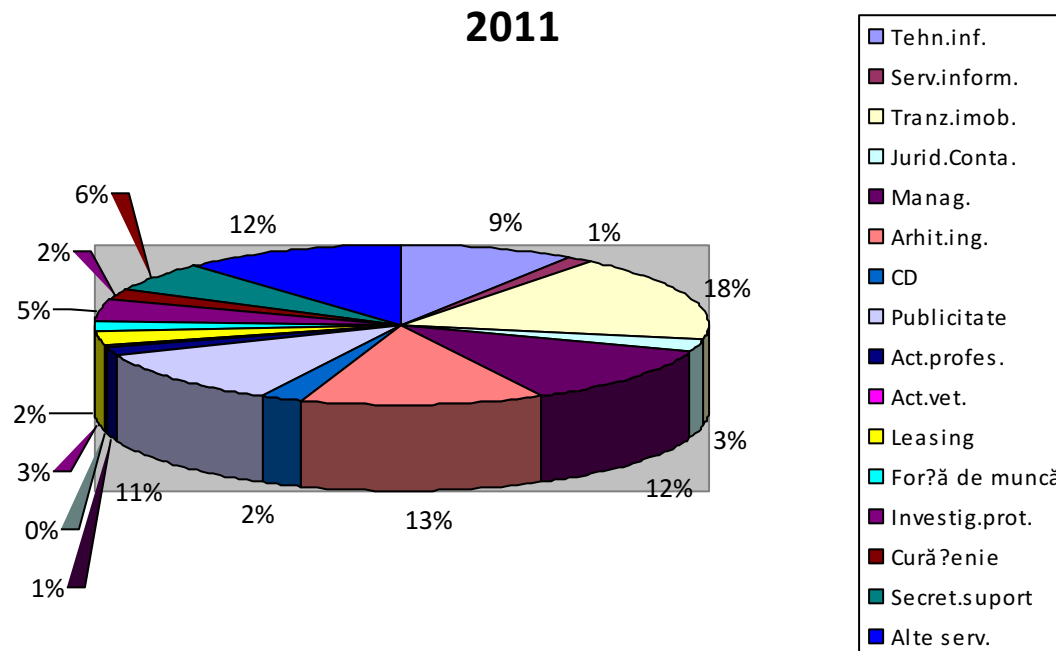


Fig . 4. Structure services for operators in Romania in 2011

In 2011 can be seen from Figure 4 that the highest share in total services provided to operators hold further property transactions in 18% , followed by activities of architecture and engineering, testing and technical analysis with a share of 13 % . At the opposite pole lies veterinary activities accounted for 0.033 % , other professional, scientific and technical with a share of 1 % , R & D and services activities on employment with a weight of 2%. So there is an increase in the share of real estate transactions by 1% compared to 2010 , a decrease in the share of activities of architecture and engineering, testing and technical analysis by 1% , while most of the service categories Price for traders remained broadly unchanged in 2011.

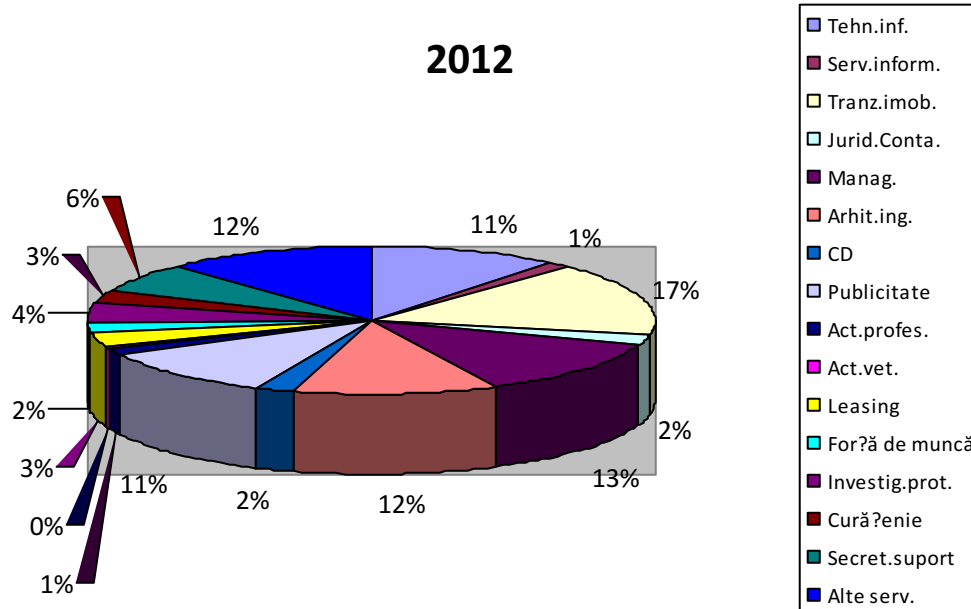


Fig. 5. Structure services for operators in Romania in 2012

In 2012 can be seen from Figure 5, the highest share in total services provided to operators hold further property transactions in 17%, followed by activities of management and management consultancy with a share of 13%, architectural and engineering activities, technical testing and analysis and other services with a share of 12%. At the opposite pole lies veterinary activities accounted for 0.033%, other professional, scientific and technical and IT activities with a share of 1%, R & D and services activities on employment with a weight of 2%. So there is an increase in the share management activities and management consulting over 2010 and 2011, while most of the service categories Price for businesses have remained almost constant in 2012 compared to previous years.

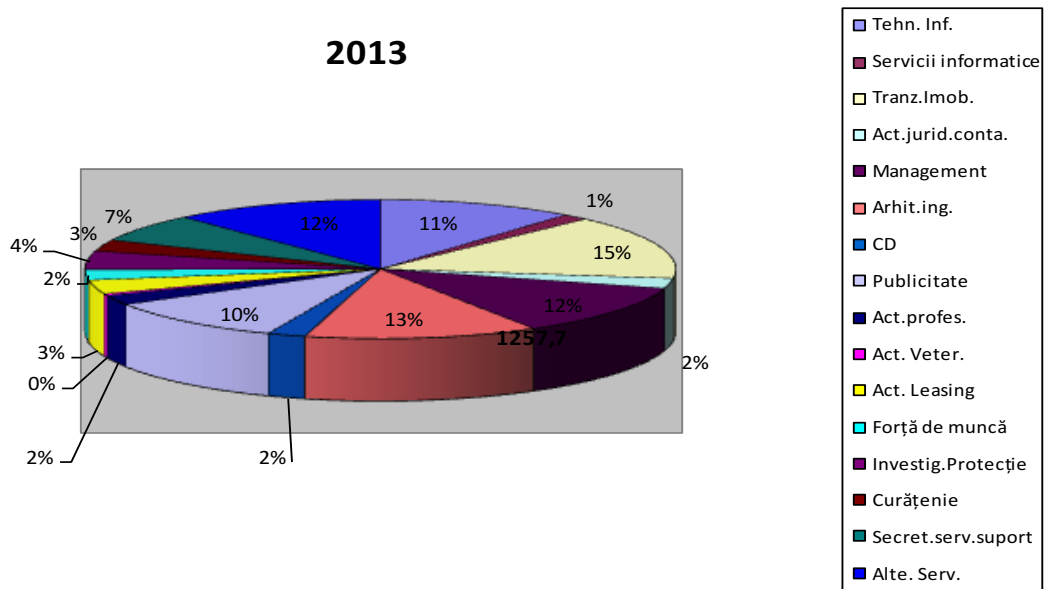


Fig . 6. Structure services for operators in Romania in 2013

In 2013 can be seen from Figure 6 that the highest share in total services provided to operators hold further property transactions in 15% (down from previous years), followed by activities architecture and engineering, testing and technical analysis and other services with a share of 13 % . Management activities and management consulting and other services hold a significant share of 12% . On the opposite side are still activities Veterinary share of 0.033 % , other professional, scientific and technical and IT activities with a share of 1 % , R & D , advertising and service activities on employment with a share 2% each.

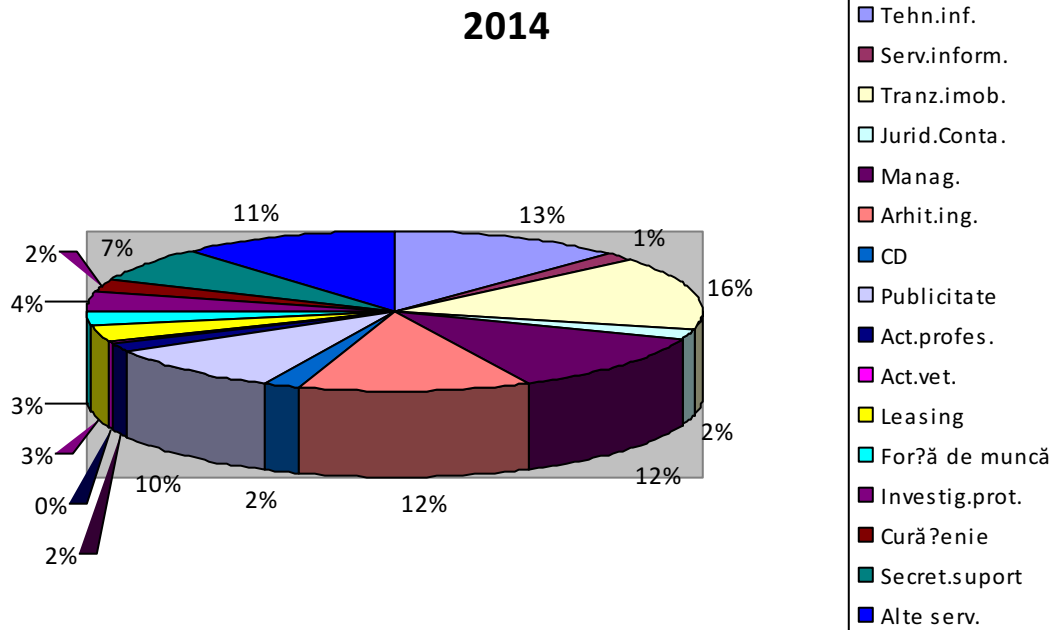


Fig . 7. Structure of services for operators in Romania , 2014

In 2014 can be seen in Figure 7, the highest share in total services provided to operators hold further property transactions in 16% , followed by activities of information technology by 13% , and activities architecture and engineering, testing and technical analysis and other services and activities of management and management consultancy with a share of 12%. On the opposite side are still activities Veterinary share of 0.033 % , IT activities with a share of 1 % , R & D , advertising and other professional, scientific and technical accounting for 2% each.

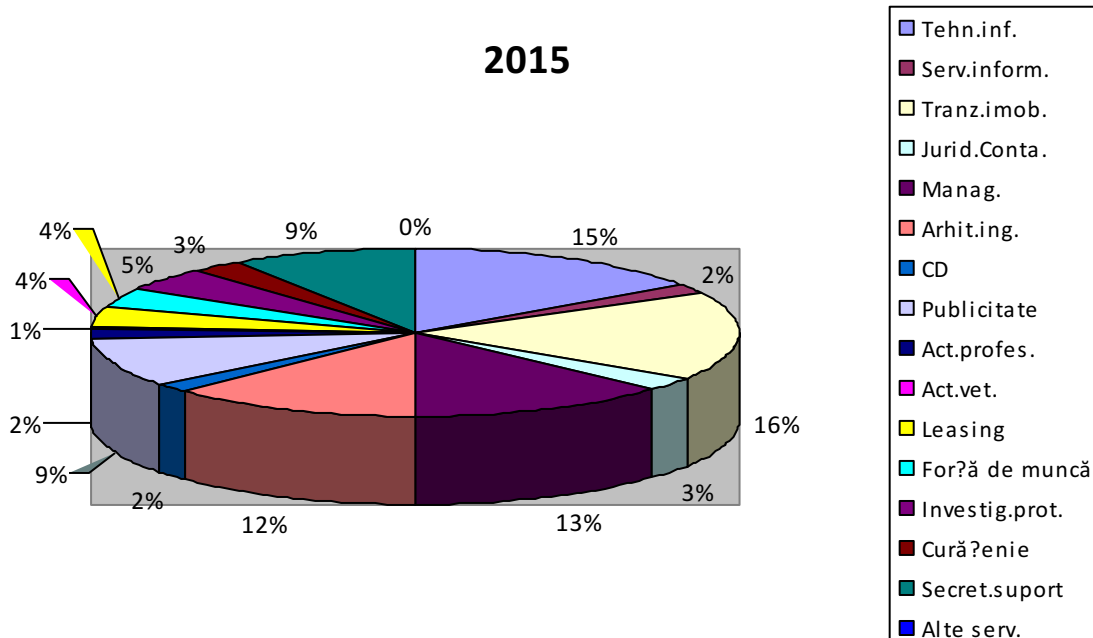


Fig. 8. Structure of services for operators in Romania, 2015

In 2015 can be seen from Figure 8, the highest share in total services provided to operators hold further property transactions in 16%, followed by activities of information technology by 15%, and activities management and management consultancy with a share of 13%. On the opposite side are still activities Veterinary share of 1%, IT activities with a share of 2%, R & D, advertising and other professional, scientific and technical accounting for 2% each.

4. Conclusions

Economic sector includes services for a wide variety of activities, characterized by varying degrees of complexity, with different economic and social functions and a wide variety of proportions between their content.

Evolution of the total volume of services provided for economic agents in the period under review, ie 2010-2015, was generally upward, except the period of time between the years 2010-2011, the total volume of services rendered for experienced operators in 2011 compared to 2010 some deficiency, and in the timeframe 2011-2015 the volume of services provided value for operators to resume its upward trend, increasing from year to year, although with a relatively low rate.

In 2011 the volume of other services provided to economic entities have decreased compared to previous years, the most significant decrease in 2011 compared to 2010. In the years 2012, 2013, 2014 and 2015 shows that the volume of these services provided for economic increased year on year, the highest growth was recorded in 2014 compared to 2013, while the lowest increase was recorded in 2015 compared to 2014. compared to the reference year 2010 shows that only 2011 volume of these services provided to economic entities decreased by 168.3 mil. lei. In the period 2012-2015 there was an increase in the volume of such activities provided for operators relative to the reference year 2010, the highest growth was recorded in 2015 (an increase of 2736.2 mil. Lei) and the lowest growth in 2012 (432,4mil. lei).

Based on the data presented in this paper, we appreciate the fact that the structure of services provided to economic entities, the biggest share is held by the following services: real estate; Information technology services activities; management activities and management consultancy; architectural and engineering activities, technical testing and analysis; publicity and market research and other services.

The lowest share within the structure of services for their economic activities and the activities of veterinary services.

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