# AN ANALYZE UPON THE INFLUENCE OF THE KEY PERFORMANCE INDICATORS (KPI) ON THE DECISION PROCESS WITHIN SMALL AND MEDIUM-SIZED ENTERPRISES (SME)

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***Abstract.*** *This research paper develops a study regarding the influence of the Key Performance Indicators (KPI's) on the decision process within small and medium-sized enterprises (SME's). KPI's serve as early warning signs for the enterprise and if they are treated properly, they can improve the overall company performance. Within Business Intelligence (B.I.) systems, the Key Performance Indicators (KPI's) are considered instrument measurements that evaluate and demonstrate how effectively a company is achieving their business objectives and goals.*
*The aim of this paper is to better understand what are the critical indicators that need to be identified, measured, reported and managed so that the company, the department or the project will be viewed as a success in order to better achieve the objective propose by the company initially.*

***Keywords:*** *KPI – key performance indicators, company performance, BI – business intelligence.*

***JEL Classification:*** L53, L91, M14, M21, O18, O31, P42.

## 1. Introduction and literature review

A Key Performance Indicator (KPI) is a measurement of how well the industrial process in the organization performs an operational activity that is critical for the current and future success of that organization (Peng, 2008).

Organizations use KPI's at multiple levels to evaluate their success at reaching targets. High-level KPI's may focus on the overall performance of the enterprise, while low-level KPI's may focus on processes in departments such as sales, marketing or a call centre. Key Performance

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Indicators need four ingredients in order to fulfill all of their functions at full capacity:

1) Measurements (these measurements must be very relevant to the project, clear and demonstrate exactly what results are desired);

2) Innovation (the people must be fully engaged in the need for creativity and innovation on an important assignment in order to achieve outstanding results. Innovation is the engine that drives top results);

3) Propagate (the KPI activity to "propagate" refers the ability of the manager to foster growing knowledge about the project, the innovation required and the engagement required of each team member to multiply the results by sharing and integrating with others);

4) Strategize (this applies not only to the creative interaction for innovation but in the project status reviews as well).

Important projects and assignments require regular status reviews to bring the team, or sub-sets of the team, together to review the progress. In these meetings, the KPI's are discussed in terms of progress toward completion of the project and the team strategizes on what to do next or how to overcome any obstacles etc.

The literature abounds with articles defining the characteristics of metrics and KPI's. All too often, authors use the "SMART" rule as a mean of identifying the characteristics (Kerzner, 2013):

- S = Specific: The KPI is clear and focused toward performance targets or a business purpose.
- M = Measurable: The KPI can be expressed quantitatively.
- A = Attainable: The targets are reasonable and achievable.
- R = Realistic or relevant: The KPI is directly pertinent to the work done on the project.
- T = Time-Based: The KPI is measurable within a given time period.

Bernard Marr (2012) suggested a list of 75 KPI's in order to make a good starting point for the development of a performance management system. There is no need to use all the 75 KPI's as they do not apply to all businesses, instead by understanding them; the company will be able to pick the vital few meaningful indicators that are relevant for the business.

## 2. Analysis of the methodology used to measure the most relevant KPI's

Key Performance Indicators (KPI's) should be the vital navigation instruments used by managers and leaders to understand whether they are on course to success or not. The right set of KPI's will shine light on performance and highlight areas that need attention. Without the right KPI's as showed in Table 1, managers are flying blind, a bit like a pilot without instruments. In the table below, there are a few examples of KPI's that are generally important for the most majority of companies.

**Table 1**

*Examples of the most important KPI's used to obtain relevant results to our research.*

| **Financial Performance** | **Customer Understanding** | **Measure Marketing Efforts** |
|---|---|---|
| | | |
| Net Profit | Net Promoter Score (NPS | Market Growth Rate |
| Net Profit Margin | Customer Retention Rate | Market Share |
| Gross Profit Margin | Customer Satisfaction Index | Brand Equity |
| Operating Profit Margin | Customer Profitability Score | Cost per Lead |
| Revenue Growth Rate | Customer Lifetime Value | Conversion Rate |
| Return on Investment (ROI) | Customer Turnover Rate | Page Views and Bounce Rate |
| Return on Capital Employed (ROCE) | Customer Engagement | Customer Online Engagement Level |
| Return on Assets (ROA) | Customer Complaints | Search Engine Rankings |
| Working Capital Ratio | | |

**Source:** Own processing by the authors.

The main reason for measuring the performance of the company is to improve it and to enhance the firm's market competitiveness and market share. A report from Price Waterhouse Coopers[1] stated the most frequently encountered issues in corporate performance measurements are:

[1] PricewaterhouseCoopers (trading as PwC) is a multinational professional services network headquartered in London, United Kingdom. It is the largest professional services firm in the world, and is one of the Big Four auditors, along with Deloitte, EY and KPMG.

http://www.pwc.com/gx/en/research-insights.html

- Finance-dominated approach, focused on budget variance analysis;
- Lack of support for business decision making;
- Lagging – result measures. Historical view of the business;
- Lack of clarity and consistency in management reporting procedures, responsibilities, data sources, number and contents of reports;
- Inaccurate and untimely management reporting;
- Excessive manual efforts in the reporting process that create an administrative burden;
- Performance measurement not linked to strategic goals;
- Insufficient control over corporate strategy execution.

**Table 2**

*Reasons for measuring the most important KPI's used to obtain relevant results to our research.*

| **Operational Performance** | **Employees Performance** | **Environmental and Social Sustainability Performance** |
|---|---|---|
| Six Sigma Level | Human Capital Value Added (HCVA) | Carbon Footprint |
| Capacity Utilization Rate (CUR) | Revenue Per Employee | Water Footprint |
| Process Waste Level | Employee Satisfaction Index | Energy Consumption |
| Order Fulfillment Cycle Time | Employee Engagement Level | Saving levels due to conservation and improvement efforts |
| Delivery In Full, On Time (DIFOT) Rate | Staff Advocacy Score | Supply Chain Miles |
| Inventory Shrinkage Rate (ISR) | Employee Churn Rate | Waste Reduction Rate |
| Project Schedule Variance (PSV) | Average Employee Tenure | Waste Recycling Rate |
| Time to Market | Absenteeism Bradford Factor | Product Recycling Rate |
| Quality Index | Training Return on Investment | |

**Source:** Own processing by the authors.

http://www.pwc.com/ua/en/assets/pwc_kpis_eng.pdf

By analyzing and redesigning performance measurements showed in Table no. 2, in line with the company strategy and management needs, the company can get the following results:

a) meaningful analysis and reporting, which lead to a better decisions;

b) sharing information efficiently and effectively with people across the organization;

c) getting insights into customer behavior;

d) identifying cross-selling and up-selling opportunities;

e) improvement in the efficiency of the employees.

## 3. Case study: A Romanian trading company

Data about our case study (company):

- Activity: Developing laboratory equipment for quality control in agriculture
- Turnover 2015: 7.2 mil. €
- Profit 2015: 0.5 mil. €
- Number of employees 2015: 32
- B.I. software implementation: March, 2016.

The company we developed our case study was facing the following problems:

1) data from different sources;

2) difficulty in finding important information;

3) lack of business insights;

4) no system for saving and accessing historical data;

5) difficulty prioritizing tasks and detecting problems;

6) actions are poorly aligned with strategic organizational goals;

7) poor decisions for marketing a team.

In order to fix the above mentioned issues, the management team organized an internal brainstorming, led by an external consultant (KPI's specialist). During this process they managed to analyze the current situation of the company and to establish the relevant KPI's for each department. Among these indicators there are the classical financial analysis indicators such as sales (fig. 1) and margins (fig. 2). The sales report observations where: although the sales have grown from 2010 to 2015 and the revenue in 2015 is 7.2 million Euros, the margin is at its

lowest point of only 21.94%, meaning that the prices are lower but the sold quantity is bigger.


**Figure 1.** Sales reports expressed in euro ( € ).

**Source:** Chart developed by the authors.

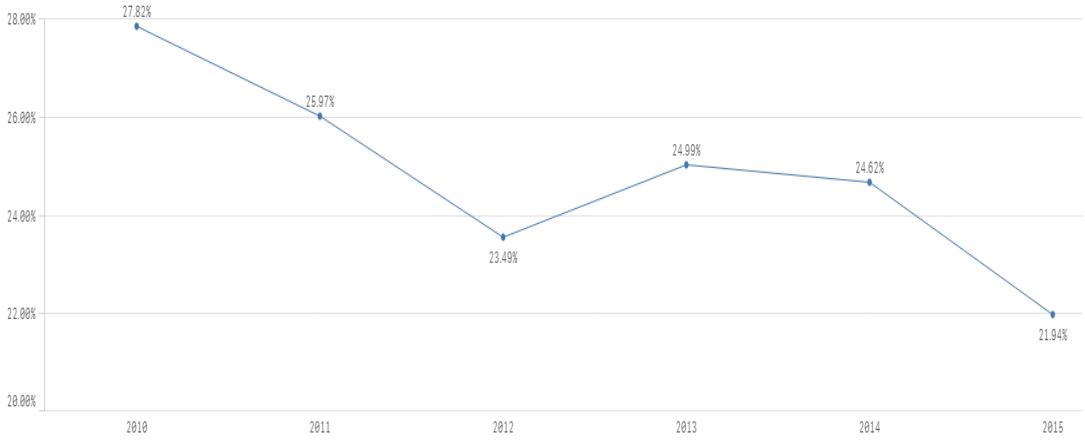


**Figure 2.** The profit margins developed by our company revealed in percentage – %.

**Source:** Chart developed by the authors.

Other KPI's useful for the company are:

1) the number of sold products in a specific period of time (fig. 3), which provides information on the volume of items traded with different clients and helps improve stock management;

2) top sales by client (fig. 4);
3) top sales by agent (fig. 5).

Based on this analysis the top clients receive a customized discount and the first 10 are named premium clients (their requests have priority). Annually the best agents receive bonuses and special gifts from the company.

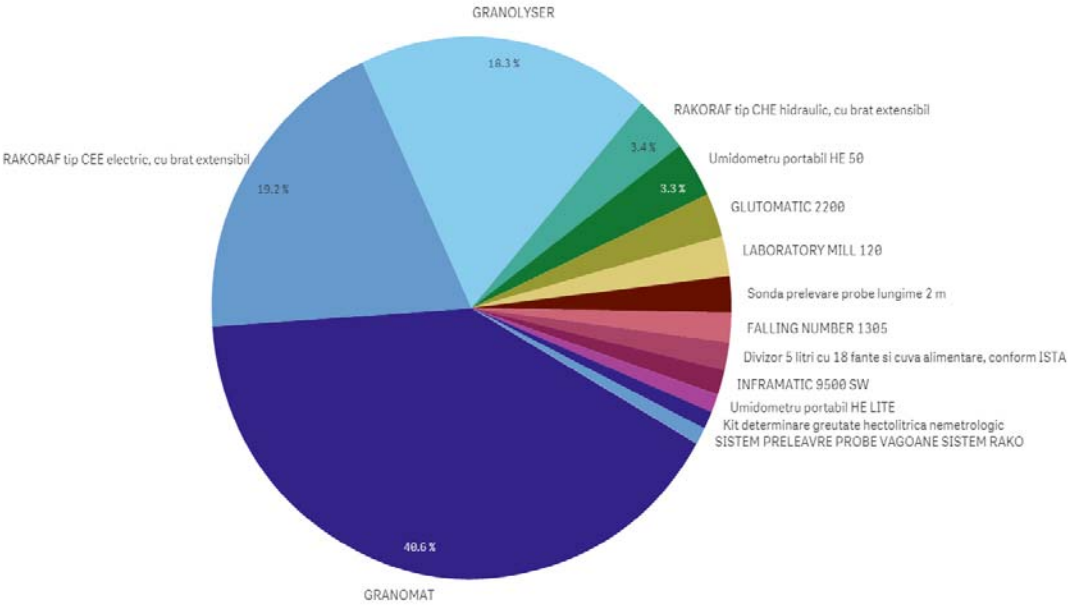


**Figure 3.** Number of products sold in a specific period of time.

**Source:** Chart developed by the authors.

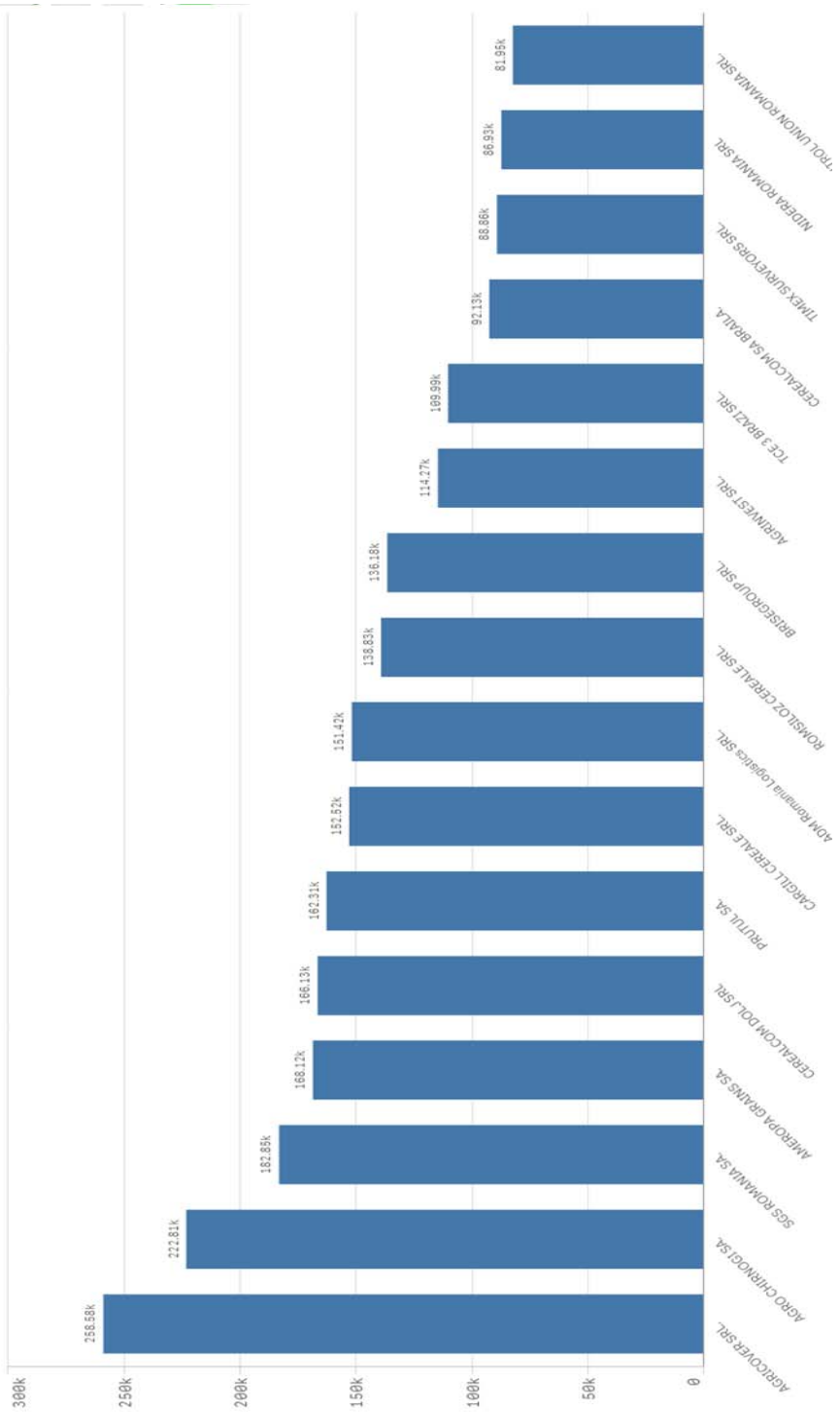


**Figure 4.** Top clients by revenue for the company expressed in euros – €.

**Source:** Chart developed by the authors.

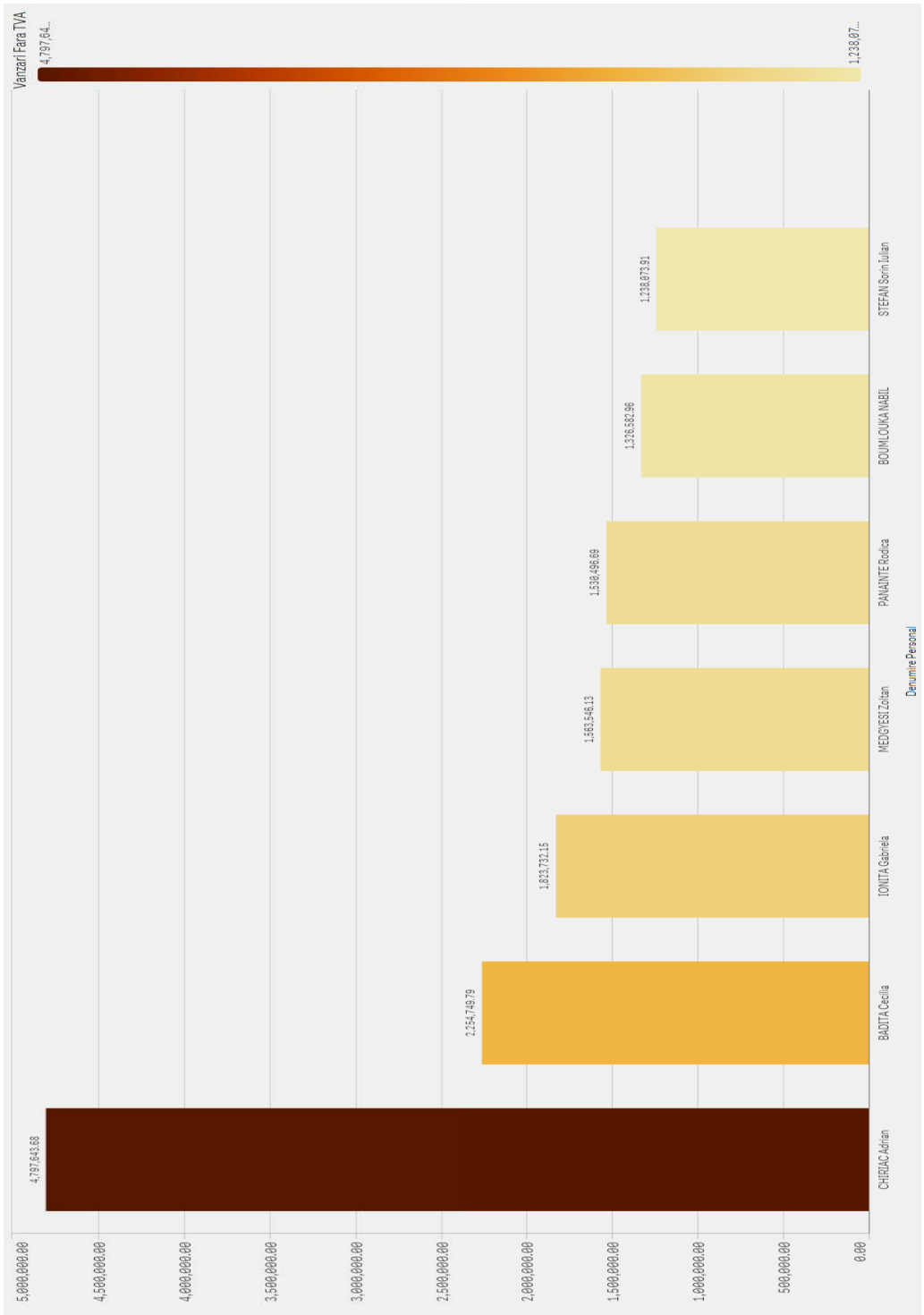


**Figure 5.** Top agents by sales volume expressed in Euros – €.

**Source:** Chart developed by the authors.

An interesting analysis from the point of view of the marketing department is distribution of sales on counties (fig. 6.). Sibiu County has the biggest turnover; meanwhile counties like Harghita, Covasna and Mehedinti have the lowest turnover. This type of analysis helps in planning the marketing activities. Depending on where the clients establish a bigger geographical concentration, the company decides what actions to take and where.

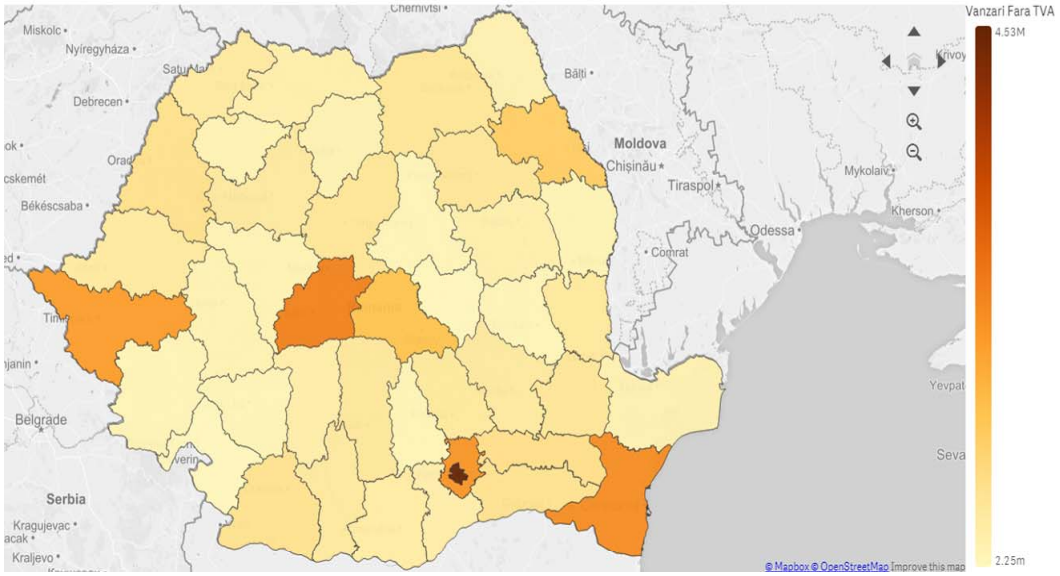


**Figure 6.** Distribution of sales on Romanian counties.

**Source:** Map developed by the authors.

The financial department also analyses revenues and costs by zonal offices (fig. 7) in order to determine which the most profitable ones are. This fact underlies decisions regarding recruitment of further staff, development of the area through the introduction of new products or services or even closing a specific office when it proves to be unprofitable for a number of consecutive years.

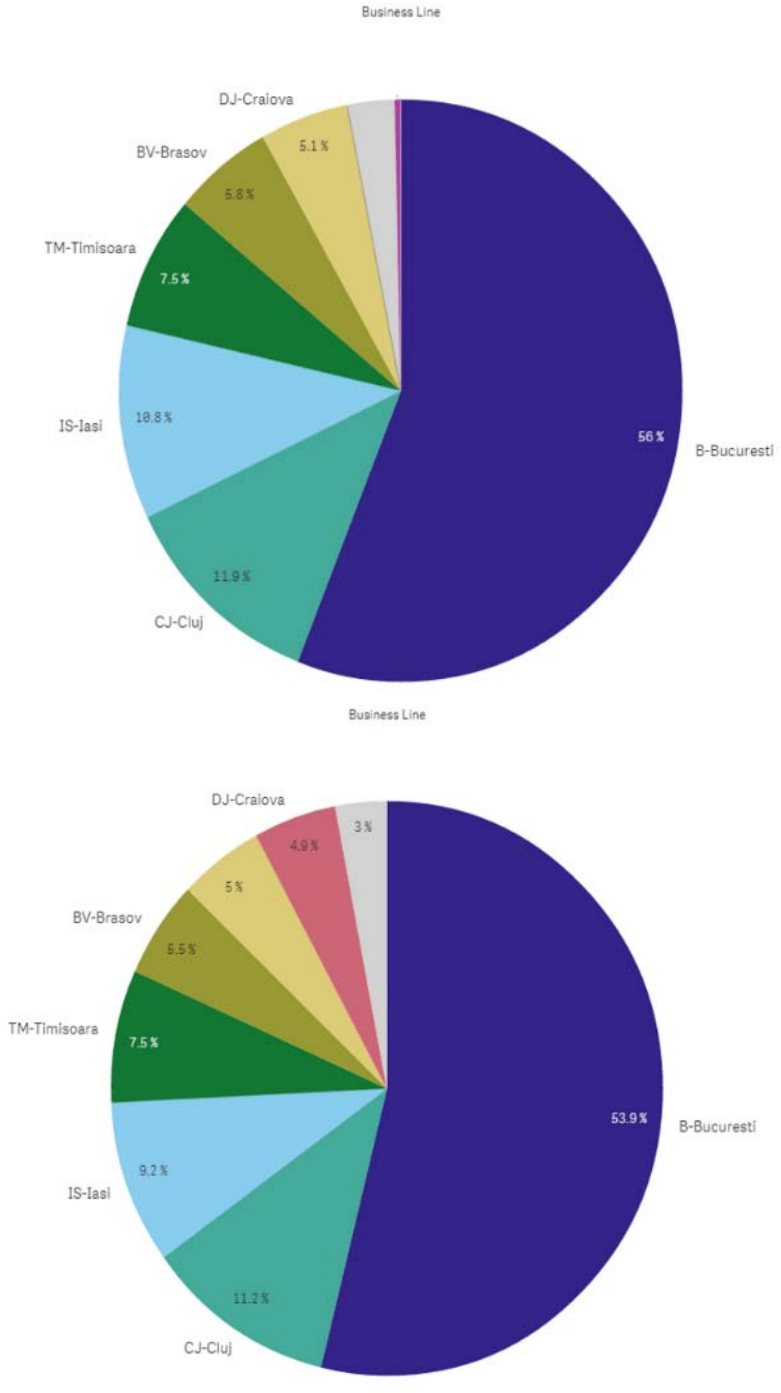


**Figure 7:** Revenues and Costs by Zonal Offices.

**Source:** Chart developed by the authors.

As we sowed above thru all the charts we developed on our case study, the importance of deciding which Key performance Indicators to use is an important factor in developing a company, especially if it uses Business Intelligence tools.

## 4. Discussions and Conclusions

A large list of KPI's that does not have clear linkages to a business's overall objectives may be a sign of a larger problem: a lack of strategic focus (Baroudi, 2014). All of these analyses that we conducted are interconnected and the manager cannot take a decision based on only one of them. Within the studied company, the KPI's were implemented in March, 2016 and the first dashboards led to:

a) great business insights;
b) clear and relevant information;
c) easy access to old data;
d) faster and better decisions;
e) overview of overall performance of the company.

In conclusion, the main relevant indicators should be selected and for which data can be obtained. They should be applied in a circumstance that provides the industry and government with the necessary insights to determine contributing factors to inefficiencies in the main supply chains, and strategies / policies to lift performance.

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BIBLIOGRAPHY

[1] Baroudi, R., 2014, *Key performance indicators. Winning tips and common challenges*, Performance Journal, Volume **6,** Issue 2, May 2014.
[2] Keen S., 2011, *Debunking Economics – Revised and Expanded Edition: The Naked Emperor Dethroned?*, Zed Books; 2nd Extended Rev Edition, ISBN-13: 978-1848139923.

[3] Kenneth E. Boulding, 1996, *The Economics of the Coming Spaceship Earth*, in Victor D. Lippit, ed., Radical Political Economy, Armonk, NY: M. E. Sharpe. p. 362.
[4] Kerzner, H., 2013, PROJECT MANAGEMENT METRICS, KPIs, AND DASHBOARDS – A Guide to Measuring and Monitoring Project Performance.
[5] Kummel R., Henn J., Lindenberger D. (2002), *Capital, labour, energy and creativity: modelling innovation diffusion, Elsevier, Structural Change and Economic Dynamics 13*, pp. 415-433.
[6] Kummel, R., Strassl, W., Gossner, A., Eichhorn, W., 1985, *Technical progress and energy dependent production functions*, National Oekonomie, *Journal of Economics* 45, pp. 285-311.
[7] L., Libardea, D., L., Tâmpu, 2011, *The Economic Recession, the Everlasting Bridge to the Informal Economy*, *Ovidius University Annals, Economic Sciences Series*, vol. **0**(2), pp. 711-716.
[8] Lindenberger, D., Bruckner, T., Groscurth, H.-M., Kummel, R., 2000, *Optimization of solar district heating systems: seasonal storage, heat pumps, and cogeneration. Energy*, The International Journal 25, pp. 591-608.
[9] Marr, B., 2012, Key Performance Indicators (KPI): The 75 measures every manager needs to know.
[10] Marr, B., 2015, Key Performance Indicators for Dummies.
[11] Naslund, D., Williamson, S., *What is Management in Supply Chain Management? – A Critical Review of Definitions, Frameworks and Terminology*, in Journal of Management Policy and Practice, Vol. **11,** Issue 4, 2010.
[12] Peng, W. et all, 2008, *Computation and Applications of Industrial Leading Indicators to Business Process Improvement*, International Journal Of Intelligent Control And Systems, Vol. **13,** No. 3.
[13] http://www.pwc.com/ua/en/assets/pwc_kpis_eng.pdf
[14] http://www.pwc.com/gx/en/research-insights.html