

MEASURING BUSINESS PROCESS IMPACT ON DU PONT FORMULA POSITIONS

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Abstract: The development of small and medium companies can identify several stages. The company has reached a mature stage of the business when owners realize that the maximum return on funds that are engaged is achieved with comprehensive approach to the revenue side, cost optimization and discusses the origin and structure of financing. Application of Du Pont analysis enables making effective financial decisions, which is the key point and the essence of a successful process approach because it advocates the integration of organizational units, goals, plans and activities, so-called. holistic approach, awareness of the whole organization. Du Pont analysis is one of integrated systems which observe the company's operations as a whole, not just through certain aspects of the business, which is the essence of the process approach. Therefore, all processes within the organization can be seen as part of a network of interdependent processes, where each process has its role, a measure of efficiency shown through KPI and produced effect, in other words, profit and ROI.

Keywords: process, KPI, Du Pont, ROI, efficiency

Introduction

Google offer 360,000,000 results by inquiry, "Business Process Management". The process can be defined as a structured set of activities initiated by a particular event (or more), and aimed at achieving a certain gain¹. Business process through a set of interconnected or interacting activities transforms the inputs in outputs and leads up to the problem solution, which results in improving the quality of output. The main objective of any business process is to create value for the user.

¹ Hammer M., Champy J., (1993) Reengineering the Corporation: A Manifesto for Business Revolution
Nicholas Brealey Publishing. London;

The process approach means understanding one's own business through business processes and managing the dynamic of these processes. All processes must be recognized and highlighted. In the organization it must be known who is responsible for each process. Companies must create an organizational structure that allows managing off all processes. The success of the organization depends on ability to identify process and opportunities to manage these processes. It is often the result of one- process input to the next process in sequence. Management of interaction between processes called the processes approach.²

1.Methodology

The business processes consideration is connected to the ISO standardization, but not necessarily. Principles of process approach are outlined in ISO standards. Standard ISO 9001 deals with the acceptance of the process approach. The standard prescribes that the company must establish, document, applies and maintain a quality management system and continually improve its performance. In every organization there is a network process, which can be very complex. Every process has inputs and include people or other resources. In order to clear up interrelationships, responsibilities and authorities, processes should have „Owners“, that is persons responsible for the processes. This research is based on theoretical and practical researches presented in Bibliography chapter.

² Lazarević B. (2017), The influence of operating the process on the Du Pont's formula, mojafirma.rs online portal;

1.1 FOCA methodology

The business process is a term that is common in today's business communication, which implies that most companies adopted at least some of the contemporary practice of business process management; However, conducted studies show that 85% of problems in company can be attributed to inadequate organization and process management, and resolution of these problems can lead to improvements in the quality of output.

FOCA is a tool for understanding companies process and goes through four basic steps on the way to overcome the gap from the current situation to the target situation. In the first F (act) step it is determined the actual situation taking into all activities that constitute a process: the input value (the initial trigger, initiating a task), the set of related operations, and output from the process;

The second O (pinion) step is gathering opinions about the process from all relevant participants in the process, at different levels of organization charts;

The third, C (hange) step is based on the changes that have been adopted through the process optimization;

The fourth, A (ction) step means defining the responsible persons and the term of plan in order to optimize the process;

This tool is most easily carried out during a joint meeting, by drawing process on the flip chart with symbols for input into the process, activity, output from the process and responsible person.



Figure 1-FOCA tool, overview off business process analyzing methodology

There is a growing number of IT companies that study this subject in order to automate showing changes in the process. The aim is to simplify processes, reduce the number of necessary steps and the number of documents, develop automated decision making and problem solving. The purpose of the process approach is to optimize and improve business processes in order to obtain a better business results with minimal resources invested, as best shown by Du Pont's formula.

1.2 Du Pontova formula



Illustration 2 -Du Pont company Logo

Du Pont system analysis is known in the practice of financial management and is used for many years.³ The company Du Pont is a US conglomerate founded in 1802 and started its business as a manufacturer of gunpowder. During the 20th century, Du Pont has developed many polymers known for mass consumption, such as nylon, teflon, lycra, freon.

At the end of 2014, Du Pont was the fourth largest global company in the field of chemical industry viewed by market share and ranked as eighth in terms of operating income.

What makes the Du Pont known in the world of finance is the formula that the Corporation used since 1920 and which is often called the Du Pont tree.

The basic formula of this method associates profit rate with assets turnover. Product of these two values indicates the rate of earning capacity of total engaged assets or return on investment (Return on Investment).

In Du Pont system analysis all ratio numbers are seen as integral parts of one whole, as a package.

The aim is to show that in addition to the analysis of the results shown in Profit and Loss Statement, as the subject of Du Pont analysis, must be included the Balance sheet as well, as the report of company's assets and funds.

The advantage of synthetic expressions of Du Pont method is that this approach:

- allows setting up changes;
- identify the cause of the change;
- analyzing change as the result of interactions partial indicators;

Final result obtained through Du pont analysis could be judged and evaluated so as to be compared with the average rate in an industry in which the enterprise operates with a rate is achieved in the previous year or in a number of recent years, as well as with the planed rate.

2. Results

2.1 Companies task defining

In the development of small and medium enterprises can be identified several stages related to the perception of the owner, about the goals, aspirations and business suces.

1. In the first stage of development the focus is on sales and all activities that are subordinated to the sales results and increasing sale;
2. The following period is associated with the calculation of earnings and its tendency to maximize the raising selling prices;
3. In the third period, it can be concluded that the opportunities for raising sales and earnings thus limited, and moving into first reduced and the cost optimization;
4. Company has reached a mature stage of operation, when the owners relize that the maximum yield on asets that have been engaged is achieved by a comprehensive approach to the revenue, cost optimization, and reviewing of sources and funding structure;

³ Knežević G., N. Stanišić, Mizdravković V. (2015), Analysis of financial reports;

Application of Du Pont analysis enables making effective financial decisions, which is the essence of a successful process approach because it advocates the integration of organizational units, goals, plans and activities, so-called. holistic approach, awareness throughout the organization. Holistic approach to the management which includes all efforts to use managing and reviewing processes (the analysis, the improvement, the term planning for new activities) in order to enable achievement of the business systems strategic objectives and optimization of the yield on the engaged assets.

Specifically, and as seen through the example, the yield on the engaged assets of 20% for the period, is obtained by a company with 2 commercial cycles or 2 turns of assets in the period with the profit rate of 10%, but the same result is reached through 5 cycles, and an average profit rate of 4%. The question is what's good for the company. And the answer is in the type of business processes. Du Pont analysis is one of the integrated systems that observe the company's operations as a whole, not just over certain aspects of the business, which is the essence of the process approach. Any organization can be seen as a process system, a system that creates a certain value to the user. Therefore, all processes within the organization can be seen as part of interdependent processes network, where each process has its own role.

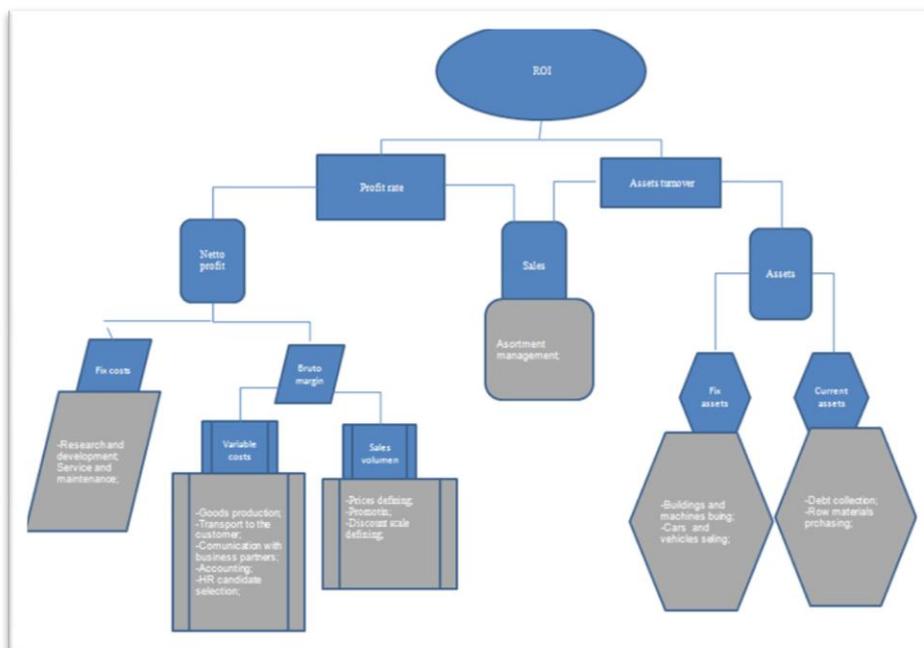


Illustration 3-An example of the processes layout on Du Pont formula positions

In the example, processes are allocated to Du Pont formula position which act directly and solely. The processes identifying and binding to the formulas factor following also identifies process impact on either assets turnover or the rate of profit, and at the end also impact on the Assets yield which is engaged by owner, and it is the main task of the company that strive for success and improvement.

Functional organization through profit and cost centers, planning and plans monitoring is the model that successful companies are doing, but with the respect of the principle of holism and comprehensiveness and to achieve the common companies goals, not the gain of individual sector. However, individual sectors understanding the equality with company goals is a long term process, which imperatively requires the development of clear plans.

Plans meet long-term goals, motivate employees (if they are set realistically), coordinate activities at the lower organization levels and help to make a judgment about the effectiveness of the tasks fulfillment on the base of numbers.

Attitude towards the preparation of the plans is very often associated with the size of the enterprise, and:

- positive attitude have joint stock and large companies because they observe that plans monitoring as a successful instrument for assessing the performance of certain companies parts and their managers;
- negative attitude is typical for small companies because they believe that the planning is not necessary that it requestes additional cost and efforts;

Cost centers are responsible for planning their activities and costs that must accompany the planned revenues activities.

Making the cost plan by organizational structure and plan costs by business functions facilitates make easier the integration in the budget for the financial year.

Companies in the segment of micro and small enterprises are not accustomed to planning costs, especially not in the long term. Framework plan costs are considered to be ad hoc analysis for captal investment. Costs are operational tasks. The point of planning costs is that for each organizational unit determines the real cost required for the execution of activities for profits generation. Resources are not unlimited and it is very important that managers of individual organizational units are informed that apply for the same coin (Eur) in the budget for the year.

By placing the isolated plans the company will not realize the potential benefits, without connecting to internal processes, without coordination.

Successful company must integrate organizational goals and organizational functions (activities). Good communication structures within the company and the association of individual plans is the base for growth and improvement.

Plans translate planned activities into numbers, and instruments for the realization of plans and monitoring their realization are the KPI (Key Performance Indicators).

2.2 KPI (Key Performance Indicators) and their relationship with the processes

Today, defining key performance indicators themes are more represented in practice. Research show that over 90% of the most successful companies in the world have some form of implementation of key performance indicators through various concepts and methodologies. KPI are key indicators of success (or failure) and criteria that supports business strategy and successful business enterprises, and reflect a measure of business performance and sustainability of the business strategy.

KPI reports are the main factors for management reports.

At Furniture Fair in Belgrade on 2017, CEO of a large manufacturing companies said that the working day begins with opening KPI dashboards on his computer. His KPI are visual displayed in colors: red (unsatisfactory), yellow (identified problem, the decline in performance), green (satisfactory indicators). He continues: "If in KPI dashbord appears at least one red field, I convene a meeting of management, if the fields are yellow and green, then I write emails to managers, when everything is green, I close the computer and go to tennis courts."

If the company has no automated reporting, management is required to submit specific, relevant managing information.

Preparation of such reports is not simple, especially with the imperative of the transparency (realization through KPI), analysis of deviation fom defined SOP (Standard of Performance) with the continuous direction towards future. In order to overcome these challenges, it is necessary to provide a convincing concept acceptance of KPI as a unique and unambiguous truth. This provides continuity of management and decision making based on certain key performance indicators (KPI) and measuring individual impact

on Du pont results and ROI (Return on Investment), ROA (Return on Assets) ROE (Return on Equity), ROCA (Return on Capital).

KPI should be connected to the strategic objectives of the company, but also to represent the indicators used in the business in order to plan and monitor the realized effects. In this way they are used to measure the performance of the company, or a part of the company (business functions as a profit or cost center, individual activity, individual process or individual performance of the employee). That is, complex KPI for the purposes of strategic management defining through strategic maps and matrices, must be adapted to be understandable ordinary worker. For example, management looks at KPI called "Converting the number of visits to the showroom in shopping" and for a seller that same KPI is "number of invoices issued in a day." Key performance indicators can be defined for all levels in the organization: the level of jobs, the level of smaller organizational units (services and departments), to the continent as well as sectors. A business process is not completed within a single function, but activities are in one business function inputs for the other, with the aim of completing the process. Key performance indicators may be defined for the processes that are implemented through several organizational units (e.g., purchase, manufacturing, sales, finance), thereby reducing the influence of the so-called. "Silo" effect, ie orientation towards organizational units to own objectives and activities. KPI help the harmonization of all processes and activities of the organization, managers and employees at lower levels, to understand the link between results and activities achieved in organizational units and workplaces with the results and activities of the entire company .

KPI must meet basic criteria SMART (specific, measurable, ambitious, realistic and time-bound). However, the significance of the KPI imposes new, extended descriptions of SMART acronym, and thus:

- S in addition Specific, means either systematic, synergistic, shifting round;
- M, in addition to Measurable, means either motivating , memorable, meaningful;
- A, in addition Ambitious means either achievable, agreed-upon, accountability;
- R, in addition to Rael means either relevant, rasonable, result-oriented;
- T, in addition to Time limited means either timely , thoughtful, tangible;

The success of the company depends on how well KPI is placed and to what extend is daily operations in accordance with the operational KPI arising from the strategic orientation and strategic KPI. So, KPI can be:

- Strategic;
- Operating;

KPI helps to better defining of objectives and measuring the achievement of these objectives, making better decisions and better management. Depending on what they show and in what measures, KPIs can be:

- Quantitative indicators that are expressed in numbers as the ratio of some sizes, for example, the percentage of the sales plan realization, the percentage of debt collection;
- Practical-related processes and activities, for example, the average occupancy of dental chairs or average fuel consumption excavator at work;
- Directing-show place for improvement in the organization and better decisions;
- Accusing-point to the level of (non) adoption of changes or instructions in the company;

There is a correct and a wrong way of KPI assessment.

Initially a company should be free to ask. The nature of KPI is to provide answers, but the answers to what questions. Each KPI should be the answer to some question. No one wants and does not need to waste their time and energy to the collection of answers to questions that have not been set up or no one cares for them.

Children constantly ask questions, irritating parents with curiosity. Children grow up and stop asking questions because people do not want to not know the answers. Culture of setting KPI issues is very transparent and always put out something that should not be shown or had been concealed.

Monitoring of the following 10 steps provide good KPI defining ⁴:

1. Identify KPI 1-3 questions for each strategic objective with strategic maps enterprises;
2. Ensure that KPIs are linked;
3. Enlist as many employees in the creation of KPI issues;
4. Make KPI questions clear and short;
5. Call KPI as an open question;
6. Ensure that the KPI focused on the present and the future;
7. Request KPI to be adjusted and improved over time;
8. Use KPI issues that lead to the delivery of relevant and meaningful information;
9. Use questions where it's necessary to adjust the existing KPI;
10. Include KPI reports issues in the review of business performance;

⁴ Marr B. (2015) Key Performance Indicators For Dummies Paperback

The first 4 steps designed model of each KPI system and help to put KPI into context. It is always best to clarify which are strategically linked KPI to anyone who asks KPI at the time could evaluate its relevance. It is necessary to determine the employee's or department for KPI delivery. This may be one person or a team of people, usually this is Controlling department. What can often missing in most Dashboard and KPI measurement system is to connect their own performance with an external perspective.

Companies become obsessed with their own numbers and trends, data, and fail to look at external factors, including market size and the specificity and specialty of competition.

It is very important to include information on the competition and external threats, in order to compare own business performance with competitors.

Instead of just measuring one's own customer satisfaction, it is important to also compare with the competition-it is now far easier than ever before through social networks, websites aggregates (for example: Data from Trip Advisor, which allows comparison of performance deals with the competition). If company deals exclusively with its own KPI that can blind it.

Competitive analysis is important for the strategic plan. By understanding its own strengths and weaknesses, the company will identify opportunities that will use and manage or avoid threats through strategic planning (SWOT matrix), because the business of an enterprise does not exist in a vacuum.

For large companies it is often said that they are neurotic due to excessive putting of overview of the process, performing measures of their effectiveness and impact on the result of the company considered through dynamic of movement ROI (ROA, ROE, ROCA), which requires constant reactions and adjustments.

On the other hand, micro enterprises are often described as schizophrenic because most decisions are made by heart and on the basis of an impression without KPI, connectivity and analysis. The true rate is somewhere between these two approaches.

Conclusion

The effectiveness (profit, ROI), and efficiency (process optimization) are two very important indicator for the business. It is important to establish processes in companies so that they get efficiency and effectiveness. It is essential that employees understand the importance of efficient and effective organization. They are both economic categories, can be measured with money, and will always be visible in the money.

	Process	KPI
A	Procurement - timeliness	86%
B	Assortment - Availability	92%
C	Sales - realization of the plan	94%
D	Collection of receivables - accuracy	89%
E	Claim – solving	98%

Table 1- An example of KPI impacts of individual processes on the effectiveness and efficiency

Overall efficiency = $A \times B \times C \times D \times E$ or $0.86 * 0.92 * 0.94 * 0.89 * 0.98 = 0.65$

The effectiveness of commercial service in the above example is 65%. The task of the company is to over Du Pont analysis examine how this kind of efficiency is reflected on the profit, as on ROI, or to determine that the effect of business and prescribe preventive and corrective measures.⁵

⁵ Davidović, V. (2017), Training for Small and Medium Enterprises on topic: “Efficiency and effectiveness of companies commercial services”

Bibliography

¹M. Hammer, Champy J., (1993) *The reengineering Corporation: A Manifesto for Business Revolution* Nicholas Brealey Publishing. London;

²Lazarević B. (2017), *The influence of operating the process on the Du Pont's formula*, mojafirma.rs online portal;

³Knežević G., N. Stanišić, Mizdravković V. (2015), *Analysis of financial reports*;

⁴Marr B. (2015) *Key Performance Indicators For Dummies* Paperback;

⁵Davidović, V. (2017), *Training for Small and Medium Enterprises on topic: "Efficiency and effectiveness of companies commercial services"*

Cornwall J. R., Vang O.D., Hartman J.M., (2004), *Enterpreneurial Financial Management an Applied Approach*;

Balzak A., Deyhle A., Eiselmayer K. (2014) *Controlling and the Controller*;

Todorović J., Djuričin D., Janošević S., (2000), *Strategic Management*;

Senić R., (1998), *Marketing management*;

Šćepanović B., (2016) *Bible of the Controlling*;

Mercuri international, White paper (2014) *Taking sales to a higher level*;

ASSA book of reference (2006), *Financial management and control*;

ASSA book of reference (2006), *Financial reporting*;