REWARD SYSTEM FOR LOGISTICS MANAGEMENT OF MANUFACTURING COMPANY BASED ON KPIS

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Abstract

The reward system is one of the fundamental elements influencing the managers' motivation in most companies. The development of such a system is usually a long and expensive task, and the result is very sensitive to unfairness and mistakes. For that reasons, the authors propose a specific set of processes to build a functional and efficient reward system. The aim of this article is to propose reward system methodology for logistics area of manufacturing companies, which will allow the creation of a system based on an appropriate set of selected key performance indicators (KPIs). The methodology is validated on an example from second tier supplier from automotive industry.

Keywords: Reward system, KPIs, manufacturing company, methodology

1. INTRODUCTION

In most companies there is a reward system whose aim is to motivate the employees in various positions and levels of management to higher performance when carrying out their work duties. A properly designed and defined reward system should also contribute to the fulfilment of company objectives and strategies. The individual reward systems and their practical effects differ significantly, and an incorrectly designed or set system can have low, zero or even negative effect. The basic problem is represented by the great complexity of the entire issue, a number of external factors (e.g. cultural), and the absence of clear links between motivation, performance and rewards [1].

The aim of this article is to propose reward system methodology for logistics area of manufacturing companies, which will allow the creation of a system based on appropriate set of selected KPIs. The suggested methodology is intended to design a system for financial remuneration, which is currently still the most important component of the motivation system. Praise and appreciation (non-financial rewards), benefits or career growth are important parts of employee motivation, but they are not going to be dealt with in this article.

2. LITERATURE REVIEW

An effective reward system should be based on fair approach and truthful information, which is why the proposed methodology is founded on KPIs. The use of KPIs for reward systems has been well established in business practice for several decades, and it is still the most common approach at present. According to a global research [2], it has been applied in more than 70% of companies. The second most widely used approach is connecting reward system to BSC [3], which does not exclude a partial utilization of KPIs at all. The use of KPIs is based on the fundamental idea of "What gets measured, gets done" [4]. This is the reason why it is beneficial for a selected set of KPIs to be based on company objectives and to respect system

approach [4, 5]. It is also important not to split the forces of the entire company and the individual managers by introducing too many KPIs [6]. A suitable solution is to divide a set of indicators into two layers:

- KPIs - key performance indicators that are considered as most important for achieving the objectives and strategies of the company and they are linked to the reward system.
- PI - performance indicators which have an informational character and serve for better decision-making of individual managers.

The individual KPIs should also respect the rules listed below, modified [7]:

- KPI calculation is based on correct and true data files.
- Calculation of the KPI should not be influenced by external effects and particularly by the evaluated subjects.
- Calculation of the KPI should be easy to understand agreed by the participating parties.
- KPI should provide not only the final value but its context as well.
- KPI should lead to positive actions.
- KPI should be relevant with respect to the current company situation.

3. PROPOSED METHODOLOGY

The methodology of a reward system for the managers from the area of logistics includes the following steps (see **Figure 1**).

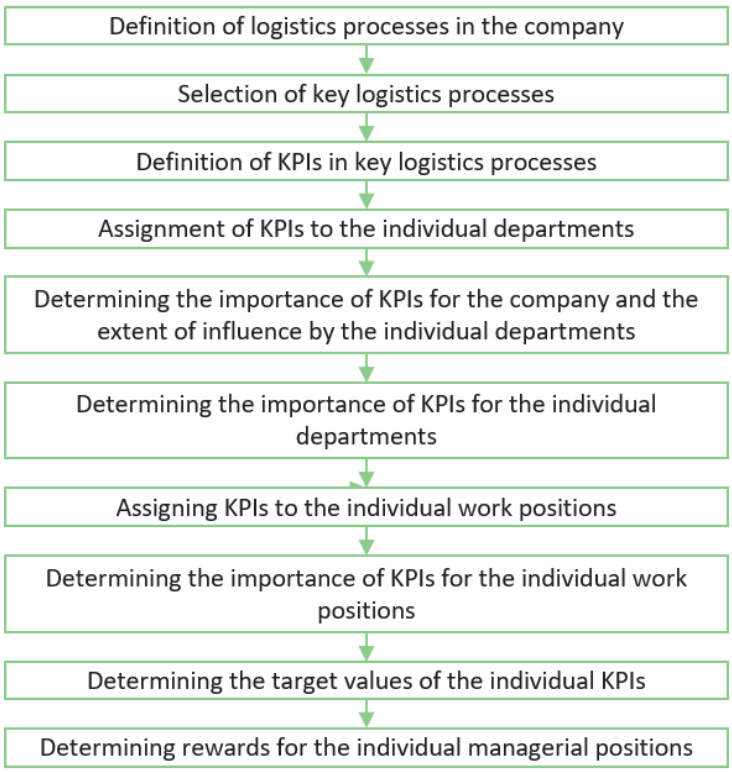

Figure 1 Scheme of designed methodology

Definition of logistics processes in the company - logistics processes may have different classification structure in companies. The authors suggest using the classification shown in **Figure 2** as the basis of the analysis.

I. Selection of key logistics processes - the individual logistics processes contribute to the achievement of the strategic objectives of the company to varying extent. For the sake of simplicity and efficiency of the entire future reward system, the next steps in its development should select only the key logistics processes the proper management of which represents the basis for the successful functioning of the material, information and financial flows within the company.

II. Definition of KPIs in key logistics processes - the selection of suitable KPIs and the setting of their calculation is one of the most important and difficult steps of the whole methodology. In practice, this step often reveals many problems, for example, the lack of or high error rate of data in corporate information systems. The selected KPIs should be incorporated into the reward system before all the problems are eliminated and, at the same time, they should respect the principles described in Chapter 2, and their selection and the final form should be accompanied by an agreement of the whole company top management.

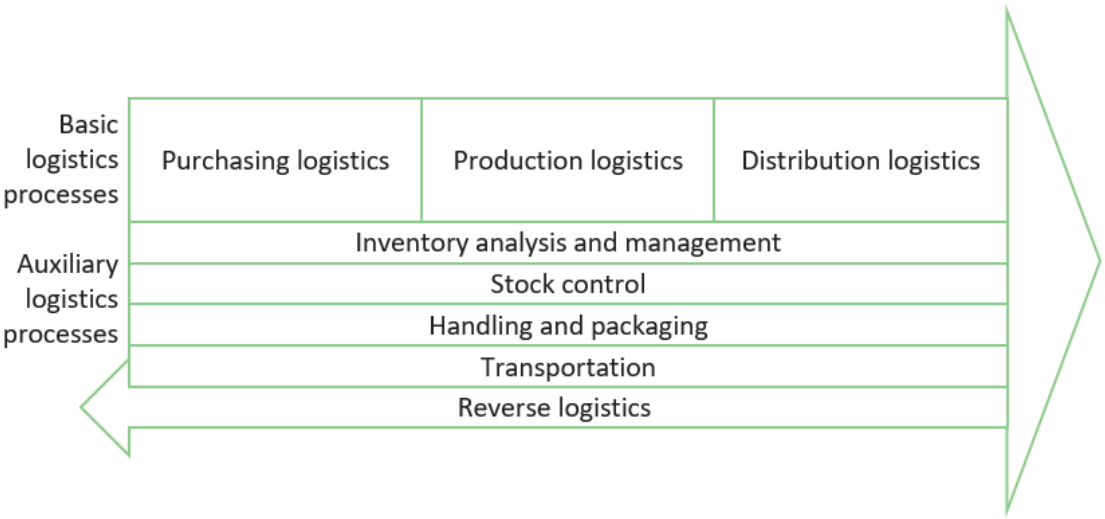

Figure 2 Scheme of logistics processes

III. Assignment of KPIs to the individual departments - it is common in practice that the logistics processes in company are also within the responsibility of other departments than the logistics one or the organizational structure of the company does not include logistics department at all. In these cases, it is necessary to divide the individual KPIs to departments according to the responsibility for their achievement.

IV. Determining the importance of KPIs for the company and the extent of influence the individual departments have on the KPIs - for an objective proposal of the reward system, it is necessary to distinguish between two basic parameters for each logistics KPI:

- The importance of a KPI for the company expressing its degree of global importance for the whole company and its strategy.
- A degree of impact of the individual departments on the KPI determines to what extent the examined departments, which the indicator was assigned to, can influence the level of its fulfilment.

Both of these parameters are evaluated on a scale of <0.100> representing the percentage accomplishment of the defined properties, while the sum of significance of all KPIs equals 100 and, at the same time, the sum of the degree of impact on each KPI across the departments equals 100.

V. Determining the importance of KPIs for the individual departments - this step is determined by a calculation, where the parameters from step 5 for the individual KPIs in the examined departments are multiplied and the result represents the final weight of the KPIs in the individual departments.

VI. Assigning KPIs to the individual work positions - if the department has only one manager who should be involved in the reward system, steps VII and VIII are redundant and the importance of KPIs for the individual departments is equal to the importance for the work position in question. In practice, however, there is a frequent situation where it is beneficial to involve more work positions from the examined department. In this case, it is good for the simplicity of the system to design an approach where the management decides only whether the worker from a given department affects the indicator or not.

VII. Determining the importance of KPIs for the individual work positions - calculation of the importance of the KPIs for the individual work positions takes the form of the standardization of new values of importance of the KPIs for the individual departments, taking into account the selection of the KPIs for each work position from step VII.

VIII. Determining the target values of the individual KPIs - The outcome of the preceding steps is the determination of a weighted set of KPIs for each interested employee. It is also necessary to determine the

target values for the individual KPIs the achieving of which means the KPI will be regarded as achieved. The target values of the individual KPIs must be in line with the company strategy. The target values should be set so that they are achievable but also motivating for above-average performance. This issue can also adopt different approaches in evaluating whether a KPI was fulfilled, or what fulfilment will make it possible to grant the manager a reward or its aliquot part. The two basic approaches can be characterized as follows:

- Use of binary logic: Reward for the individual KPIs is only granted upon the fulfilment of the KPI to 100% (and more).
- The use of interval logic: Reward, as well as the fulfilment of a KPI, is divided into intervals when the partial fulfilment of a KPI the value is assigned to a predetermined interval, which involves a specified reward. The use of the approach should also take advantage of a progressive formation of intervals so that the manager is always motivated to additional performances.

IX. Determining rewards for the individual managerial positions - this step is intended to determine the total amount of the potential reward and the method of its payment. Determining the total amount of reward is very individual for each company, its situation and management. The methods of payment may vary significantly as well, and the most common methods used in practice for managerial positions are quarterly or yearly intervals, or a combination of them.

4. CASE STUDY

The proposed methodology was verified during the designing stage of the reward system for the management of a production company operating as a supplier in automotive industry. The reward system included all the managers involved in the management of logistics processes, except for the position of the CEO, which has its own evaluation system defined by the parent company.

First, all the logistics processes were gradually defined in the examined company, followed by the selection of the key logistic processes with sets of KPIs defined for them. The result is shown in **Figure 3**. EBITDA indicator has been chosen because it reflects the fulfilment of the basic objectives of logistics management, which can be defined as follows:

- External logistics goals are focused on meeting the requirements of its clients by offering the so-called logistics services, whose achievement means an increase of revenues
- Internal logistics goals are focused on minimizing the logistic costs.

Service level expresses the performance of supplies to customers at the right time, quantity and quality. EBITDA, along with the service level, have been selected as the global indicators that have been assigned to all logistics processes. This approach should guarantee a mutual cooperation of all departments in the management of logistics processes. Inventory turnover was another selected important indicator determining the cost-efficiency of logistics processes, and it is divided into turnover of purchased parts, work in process and finished goods, according to their links to the individual processes. Production processes in the company are divided into two basic production stages. The key role in the first stage is played by the CNC equipment, which is why the complex indicator of OEE (Overall Equipment Effectiveness) has been chosen as the KPI. The second stage is based on manual labour and that is why OLE (Overall Labour Effectiveness) has been chosen in this case. Other indicators are intended to ensure cost minimization in the processes where the company management sees the highest potential savings (savings from negotiations, the cost of emergency transportation).

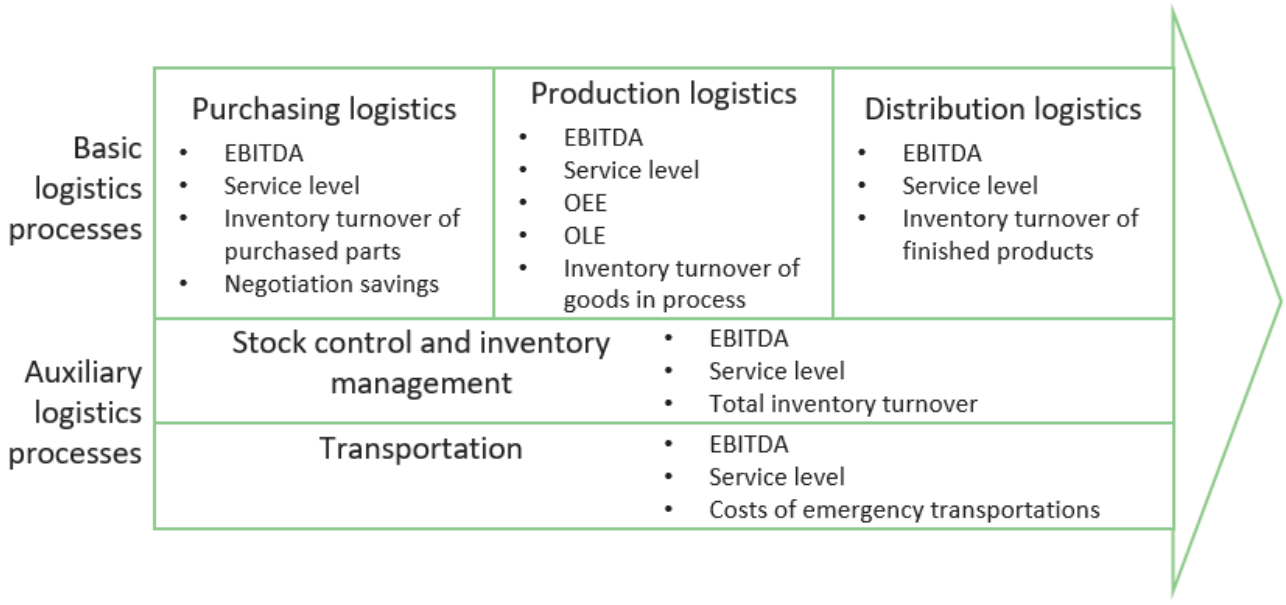

Figure 3 Scheme of key logistics processes with selected KPIs in examined company

Determining the importance of the individual KPIs for the company and the degree of influence by the interested departments, including sales, production and warehouses, are shown in **Table 1**. There is no logistics department in the company.

Table 1 The importance of the individual KPIs for the company and the degree of influence by the individual departments

KPI	Priority for the company (%)	Degree of influence of the department on the indicator (%)			
		Sales	Production	Warehouses	Control
EBITDA	20	35	45	20	100
Service level	20	35	55	10	100
Material inventory turnover	10	80	0	20	100
Goods in process inventory turnover	10	0	80	20	100
Finished products inventory turnover	5	80	0	20	100
OEE	10	0	100	0	100
OLE	15	0	100	0	100
Costs of emergency transportation	5	100	0	0	100
Negotiation savings	5	100	0	0	100
Sum	100				

Steps VI, VII and VIII of the methodology have been aggregated and the common result can be seen in **Table 2.**

Table 2 shows what ratio the individual KPIs should use for their participation on the total reward of the individual executive staff.

The applications of the last two steps of the methodology, in which the target values are determined, the amount of rewards and the method of their payment, are left out due to confidentiality of the sensitive data.

Table 2 Importance of KPIs for the individual managerial positions

KPI	Priority for company (%)	The possibility of influence of the department on the indicator (%)				
		Sales		Production		Warehouses
		Purchasing manager	Sales manager	Head 1st level	Head 2nd level	Warehouse manager
EBITDA	20	25	30	26	24	27
Service level	20	25	30	32	28	13
Material inventory turnover	10	30	0	0	0	Inventory turnover 27
Goods in process inventory turnover	5	0	0	12	10	
Finished products inventory turnover	5	0	18	0	0	
OEE	10	0	0	30	0	0
OLE	15	0	0	0	38	0
Costs of emergency transportation	5	0	22	0	0	0
Negotiation savings	5	20	0	0	0	0
The use of warehouses	5	0	0	0	0	33
Sum	100	100	100	100	100	100

5. CONCLUSION

Thanks to the presented case study, the methodology of the proposed reward system has been verified. The reward system based on KPIs may have certain drawbacks but despite that, according to the authors' opinion, it is the best choice for rewarding in the area of logistics process management. The important aspects do not include only a sophisticated design and proper initial setup of the reward system, but also its continuous reviewing and updating responding to the current turbulent development of the business environment. Along with the application of such a system, the top management of manufacturing companies should also develop other elements strengthening the motivation and loyalty of all managers with respect the performance and results of the company. The proposed methodology can also be used for non-production companies (e.g. wholesalers, logistics providers) or for other processes of the company.

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