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Different Approaches for Performance Appraisal and Bonus Calculation: The Case of Truck Drivers

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Abstract: Market changes last years have led to an additional understanding of people importance as the main resources of companies. Truck drivers are one of the occupations with the greatest shortage. More attention is being paid to ways of retaining employees. One of the most important measures is bonus or reward. There is a lack of models in the literature and it is exactly the main motive of this research. Proposed models create a basis for future theoretical research, but also for practical applications. The main assumption is that models must provide a fair way to earn bonuses in a "healthy environment". Two models are proposed. The first model for distribution company with a heterogeneous fleet of vehicles with less capacity. The second model refers to homogenous heavy truck fleet. In the first case, several criteria are used: distance (kilometers) driven, number of tours/rides, number of unloading stops and number of pallets. The second model is based on fuel consumption, distance driven, vehicle maintenance, driver experience (years in the company) and overall dispatcher score. The results show the convenience of applying the proposed models. Certain differences were also identified in the observed models. It can be concluded that there is no universal model for performance appraisal and bonus calculation. Ideas for overcoming and improving models are also proposed. Described models in original or adapted form can be applied to evaluate the performance of drivers in a wide variety of transport systems.

Keywords: Work performance; Variable payments; Bonus; Incentive system; Working conditions; Drivers

1. Introduction

Different factors have contributed to labor-related problems in all sectors. Labor shortage, turnover and retention are present in almost all markets and all industries. The problem of truck drivers stands out in particular. The problem has been present for many years. As a consequence of the aforementioned, programs and methods for retaining employees in logistics companies are increasingly being developed.

Measuring driver performance and paying accordingly is one of the most important tasks in all transportation systems. Work performance is influenced by numerous factors: financial, operational, social, technical, quality factors, environment, etc. [1]. Management's task is to ensure a fair way of distributing bonuses and additional income. Special attention must be paid to the distribution strategy. For example, the goal may be to make the bonus more available for a larger number of drivers with smaller amounts, or for a smaller number of drivers with a larger amounts. On the one side, it is good to cultivate a competitive spirit, while on the other side, it is not good to set high goals that cause dissatisfaction among workers [2, 3]. Also, the distribution of bonuses depends on the total financial resources allocated for it. Evaluation criteria are also a significant category or [4-11]. The subject of this paper is proposing new models and analyzing the current situation in terms of working environment conditions, incentive programs as well as reward systems in the transport sector. The aim is to form the basis for further scientific research and practical implementation, as well as, fill an existing gap in the literature in the observed area.

The paper is organized as follows. In the following chapter, a problem description with a special emphasis on the improvement of working hours, incentives and variable payment systems is given. In the third chapter, one of the rare models from the literature is described. Section four deals with driver incentive programs for company with distribution function, while section five describes driver stimulation programs in logistics company (third

party logistics provider). The last section gives concluding remarks and future research directions.

2. Problem Description

The Methodology section should be written concisely, yet provide enough details to allow others to replicate and build on published results. The well-established methods can be introduced briefly with proper citations. Do not describe these published methods in details. In contrast, detailed descriptions are required for new methods. If multiple methods are adopted in the work, this section may be divided into several subsections, each providing details on a specific method. Note that the publication of your manuscript means all materials, data, codes, and protocols associated with the publication must be made available to readers. Remember to disclose restrictions on the availability of materials or information at the submission stage. If your manuscript uses large datasets deposited in an opensource database, please specify where the data have been deposited. If your study requires ethical approval, do not forget to list the authority and code of the ethical approval.

Productivity can be presented as a general measure of economic efficiency, i.e. it implies the achievement of maximum results with minimal investments, through an increase in the volume of production or work performance. Modern business requires constant improvement and market struggle in any branch of industry. Monitoring and measuring productivity is important for both manufacturing and logistics companies. For the production of material products, raw materials and components are tangible and easily measurable, while the service provided is characterized by the use of resources, such as time, space and engaged workforce.

The efficiency of logistics systems is actually reflected in the efficient operation of all its subsystems, which are made up of numerous processes with varying degrees of complexity. In practice, companies often express efficiency in terms of costs, and it is necessary to monitor and analyze each activity in order to determine how much logistics costs are, who is responsible for implementation, and where exactly that activity was carried out. In recent years, the costs of bonuses and employee rewards have been gaining importance. In fact, in the circumstances of the rapid development of supply chains and the increase in the scope of work, the question is the quality of working conditions and the possibility of increasing performance, which is directly reflected in the generation of income [1]. Labor productivity is usually defined as the ratio of the volume of production/services and inputs. The inputs can relate to time, skills, labor, etc. There are advantages and disadvantages associated with the various input measures used in the calculation of labor productivity [12].

In conditions of accelerated development, globalization and other factors, changes in the way business systems function, overtime is a common occurrence. The increase in the volume of work and the desire of companies to remain competitive in the market require an increase in working hours. In the literature, the concept of working time is usually mentioned in the context of overtime or excess working time. In fact, any number of hours that exceed the limit of standard working hours can be considered overtime, but the difference is whether it is paid or not. Accordingly, the definition of overtime depends on the regulatory framework of the country that defines the legal norm on working hours and the threshold of working hours at which overtime begins [13]. The European Union's Working Time Directive, revised in 2003, defines the maximum total weekly working time at 48 hours, including overtime. In America, that number of working hours is in the range of 49-59, while in Asia and the Middle East working weeks of 60 or more working hours are common [14]. From the company's perspective, good organization of working hours is directly related to higher productivity per employee's working hours and better performance. In addition to limiting overtime, there is also the issue of payment for working hours outside the framework of defined working hours. In most countries, overtime premiums start at 50% above regular wages and may increase progressively with the number of additional hours worked. For example, research conducted in the European Union shows that 35% of companies apply monetary compensation for overtime work, 23% compensate with additional rest, 37% use both forms of compensation, while in 5% of cases overtime is not compensated [15].

2.1 Improvement of Working Hours

Management and planning of working hours are the key segments of the successful business of every company. The coordination of time resources can be observed through the aspects of the number of working hours and the organization of working time itself. Adaptability and quick responses to user requests have caused the usual fixed working hours during the week to change and to strive for new forms of working hours (shift work, shortening of the working week, on-call, etc). Another key problem in the organization of working time concerns the impact of new information and communication technologies, which enable the constant connection. These trends have led to the creation of a blurred line between paid work and leisure time. A large number of studies and research conducted on this topic point to the principles of flexibility, which, in addition to the benefits in the organization of working time, also affect the improvement of the use of time resources [16].

‘Working Smarter’ is a national project established by social partners at the national level to introduce problem solving and improved relations between employers and employees in order to create new forms of work organization and smarter ways of working. Heineken is one of the projects developed within the framework of the

'Working Smarter' policy [17]. A decision was made to introduce the so-called smart work, as opposed to a workforce reduction. Essentially this means that production costs could be reduced by improving working hours to better manage oscillations in the production cycle.

The project included the introduction of new practices on time resource management, the development of more flexible working patterns, shared control in working time arrangements, work-life balance and a remuneration policy based on the exchange of time and money. As well as introducing flexible working time the 'Working Smarter' project includes policies for older workers, employability and ways to improve working conditions by lowering work pressures and reducing absence from work [17].

2.2 Incentives and Variable Payment Systems

Motivating and rewarding employees is an important aspect of a good work organization. Incentive programs can create great savings, and their definition and implementation within the operations of various sectors of logistics companies can affect the increase in quality, staff satisfaction and performance improvement. When creating such programs, the following principles should be considered:

- balance,
- measurability,
- inclusiveness,
- comparison,
- transparency.

In practice, financial rewards (bonuses, profit sharing, etc.) are most often used, but other methods can also be very productive and useful, such as benefits that improve the quality of life, education and training, preferential choices, etc. [12, 18].

Once employees are engaged, motivated and trained, managers must find a way to further motivate them. The compensation and financial reward structure contain two basic elements:

1. Fixed salary, also known as basic salary, does not vary according to work or results achieved by the worker. It is determined by the general philosophy and structure of the payment system represented in the organization;
2. Variable or variable pay, which varies directly with the level of performance or results achieved by employees. It can be short-term or long-term depending on the goals, but it has to be earned every time.

The payment and evaluation systems of employees, in addition to the policy itself and internal organization in the company, are directly related to the concept of labor market flexibility, which refers to the ability to adapt and respond to changing economic conditions [12]. In the literature, three main forms of flexibility at the company level are distinguished, which include [19]:

- Numerical flexibility - refers to the adjustment of a total number of employees, varying types of contracts and the distribution of working time.
- Functional flexibility - related to the capacity of employees to perform a variety of tasks and functions within the same company.
- Financial or wage flexibility - connected with the ability of employers to adjust pay according to productivity, profitability and other performance measures.

In the following chapter, one of the rare examples of incentive programs in a transport company from the literature is discussed.

3. Rewards System for Truck Drivers – A Literature Example

The application of analytical methods and various big data processing techniques contribute to the improvement of the company's business and competitive position. This trend is also present in the logistics sector, where it is necessary to increase operational efficiency, capacity utilization and development of new business models. In this regard, the following will describe the research that connects the measurement and data collection systems in the transport company with the method of rewarding and distributing bonuses to drivers.

The observed company has a fleet that is equipped with telematics systems installed in Daimler and MAN vehicles. These telematics systems collect technical and other data about the vehicle and the driver's activities in real time and send them to the headquarters. The company uses this data, among other things, to evaluate the performance of drivers in terms of their more or less economical driving of the vehicle. The goal is to reward

adequate management with an additional premium, which encourages the driver and creates conditions for a "win-win" situation. In practice, fleets consist of vehicles from many manufacturers that are usually equipped with different technologies. As there is no standard way to evaluate the economic driving of a vehicle, the applied metrics also differ [20]. Through the standard FMS (Fleet Management System) interface, technical data about the vehicle is obtained (such as speed, gas pedal position, total fuel consumption and many others).

The digital tachograph records the driver's activities ("driving", "rest", "availability", "other work", etc.) and can be connected to the central processing unit through the so-called D8 interface. Finally, the telematics unit itself can be equipped with a display that allows interaction such as exchanging text messages with the central office or using navigation software. Collected data is transmitted via mobile network communication to a server that provides information to the end users of the device, and can also be integrated via web services into existing software solutions such as transport management systems (Transport Management System - TMS).

The management of the analyzed transport company was faced with the problem of designing an incentive system that would be applicable for both categories of vehicles and implemented telematics systems. In general, the incentive system must comply with the following requirements: well-defined input parameters, easy understanding of the relationship between the obtained rating and the employees' work, the possibility of influencing the rating by adjusting behavior, etc. Also, the evaluation would be considered unfair if the same job performance could result in different grades. In this research, two systems were compared: Daimler FleeBoard and MAN TeleMatics [20]. FleetBoard's vehicle economy rating can vary between 1 and 10, the higher the better. On the other hand, the MAN solution evaluates the working effects in percentages. Bearing in mind the fact that the measurement and evaluation methods cannot be transformed from one system to another, the company decided to apply two different forms of reward, for each group of vehicles (Table 1 and Table 2).

Table 1. Bonus scale for the Daimler FleetBoard system [20]

Economic driving measure	Bonus [€/month]	Number of bonuses	Number of bonuses in percentage of total
$x \leq 9$	0	161	18.85%
$9 \leq x \leq 9.3$	30	124	14.52%
$9.3 \leq x \leq 9.5$	60	235	27.52%
$9.5 \leq x \leq 9.6$	90	177	20.73%
$9.6 \leq x \leq 10$	120	157	18.38%
	Total	**854**	

Table 2. Bonus scale for MAN TeleMatics system [20]

Economic driving measure	Bonus [€/month]	Number of bonuses	Number of bonuses in percentage of total
$x \leq 80\%$	0	41	45.56%
$80\% \leq x \leq 82\%$	30	9	10%
$82\% \leq x \leq 83\%$	60	7	7.78%
$83\% \leq x \leq 84\%$	90	11	12.22%
$84\% \leq x \leq 100\%$	120	22	24.44%
	Total	**90**	

The collected data referred to a period of six months. The amounts of monthly bonuses are identically divided into classes for both systems and as can be seen from the tables, the total number of bonuses achieved for FleetBoard was 854, while for the MAN system there were a total of 90 bonuses. The average value of the bonus paid to drivers using FleetBoard telematics was 61.58 EUR. while the drivers of MAN vehicles were paid an average of 48 EUR. In addition to the obvious differences in the average premium, the chances of receiving an award were much higher in the first case, where the FleetBoard system was applied [20].

Thus, the incentive systems applied by the case study company were compared in terms of objectivity, i.e. a fair chance for a driver to get a bonus regardless of the vehicle they are assigned. The obtained results suggest that this was not the case, and one of the ways to improve it would be to check the reward system based on statistical analysis and adjust the bonus scale. Also, it is important to consider the influence of external factors on the evaluation of the economic driving of the vehicle.

It is obvious that a driver who drives mainly on highways will be in a better position because he will be able to maintain a constant speed with an optimal engine load for a longer period of time and consume less fuel than a vehicle whose driving is characterized by a large number of stops and accelerations. Topography and load weight also play an important role. Therefore, some kind of objectivity must be ensured, which will limit the influence of the mentioned factors on the evaluation of the driver's work.

The next two sections are case study examples that deal with two different performance appraisal and bonus calculation systems.

4. Bonus Calculation – Distribution of Consumer Goods

The distribution of goods is a key process in every supply chain, i.e., it enables the delivery of goods to end users. The efficiency of the transportation system in terms of delivering the right goods to the right place at the right time is of great importance to logistics companies. The observed company has a bonus calculation model for drivers that respects four key categories of specific work, namely:

- distance driven (kilometers),
- number of tours/rides,
- number of unloading stops,
- number of pallets.

Depending on the used and assigned vehicle category, the conversion coefficients for each work category differ, which is shown in Table 3. Different categories of vehicles have different parameters in terms of capacity (number of pallets), realized tours (depending on routes and distribution zone) and kilometers traveled. This directly affects the driver's results, because work performance can decrease or increase, as a result of changing the vehicle category. In the delivery planning process, drivers receive certain categories of vehicles (assigned category) for task realization. However, at the moment of starting the implementation of the task, the dispatchers give the drivers the vehicles available at that moment (used category). As mentioned before these differences directly affects driver performances. Differences in assigned and used vehicles (conversion coefficients) are presented in Table 3.

Table 3. Conversion coefficients for observed factors (criteria)

Conversion coefficients for *kilometers*				
Used/assigned	Category 1	Category 2	Category 3	Category 4
Category 1	1	1	1.2	1.5
Category 2	1	1	1.2	1.5
Category 3	0.83	0.83	1	1.3
Category 4	0.66	0,66	0,76	1
Conversion coefficients for *tours*				
Used/assigned	Category 1	Category 2	Category 3	Category 4
Category 1	1	1	0,9	0,5
Category 2	1	1	1	0,6
Category 3	1,11	1	1	0,4
Category 4	2	1,66	2,5	1
Conversion coefficients for *unloading*				
Used/assigned	Category 1	Category 2	Category 3	Category 4
Category 1	1	1.25	1.11	1.42
Category 2	0.8	1	0.83	1.11
Category 3	0.9	1.2	1	1.25
Category 4	0.7	0.9	0.8	1
Conversion coefficients for *pallets*				
Used/assigned	Category 1	Category 2	Category 3	Category 4
Category 1	1	1	0.71	0.76
Category 2	1	1	0.71	0.76
Category 3	1.4	1.4	1	1.11
Category 4	1.3	1.3	0.9	1

Each driver is assigned to a specific distribution center. Based on the collected data on the work of the drivers, the achieved parameters were defined on a monthly basis. They are then multiplied with conversion coefficients, whereby the changed values of the parameters are obtained. For each pair of assigned/used vehicles, it is necessary

to calculate the parameters and summarize them for each category individually (km, tours, unloading, pallets), which is shown in Figure 1.

				Realized parameters			
Name Surname	DC	Assigned Category	Used Category	KM	Tour	Unloading	Pallets
Driver 1	DC1	Category 2	Category 3	143.58	4.00	10.00	28.00
Driver 1	DC1	Category 2	Category 2	2206.53	17.00	115.00	224.00
Driver 1	DC1	Category 2	Category 4	130.10	9.00	16.00	21.50

X

X

Conversion coefficients			
KM	Tour	Unloading	Pallets
0.83	1.00	1.20	1.40
1.00	1.00	1.00	1.00
0.66	1.66	0.90	1.30

=

Parameters after conversion			
KM	Tour	Unloading	Pallets
119.17	4,00	12,00	39,20
2206.53	17,00	115,00	224,00
85.87	14,94	14,40	27,95
2411.57	**35.94**	**141.40**	**291.14**

Figure 1. The procedure for calculating driver parameters
Note: This figure was prepared by the authors

The next step involves determining the corresponding range for the obtained parameter values, which is shown in Figure 2. After that, the values of the parameters are expressed in monetary units (m.u.), whereby a fixed amount is assigned for each limit value of the range (Figure 2), and the difference is calculated according to the scale that defines the unit values of the criteria expressed in monetary units (Figure 2). The total bonus represents the sum of the realized bonuses for each category of work individually.

	PARAMETRES															
	KM				Tour				Pallets				Unloading			
Category	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Category 1	3.000	4.000	5.000	6.000	20	22	24	26	250	275	300	325	80	90	100	110
Category 2	3.000	4.000	5.000	6.000	22	24	26	28	250	275	300	325	100	120	140	160
Category 3	2.500	3.250	4.000	4.750	24	26	28	30	180	195	210	225	90	100	110	120
Category 4	2.000	2.500	3.000	3.500	40	50	60	70	200	220	240	260	120	150	180	210

	TOTAL (MONETARY UNITS)															
	KM				Tour				Pallets				Unloading			
Category	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Category 1	800	1.200	2.000	2200	400	600	1.000	1300	600	900	1.500	1800	400	600	1.000	1200
Category 2	800	1.200	2.000	2200	400	600	1.000	1300	600	900	1.500	1800	400	600	1.000	1200
Category 3	800	1.200	2.000	2200	400	600	1.000	1300	600	900	1.500	1800	400	600	1.000	1200
Category 4	800	1.200	2.000	2200	400	600	1.000	1300	600	900	1.500	1800	400	600	1.000	1200

	PRICE – MONETARY UNIT / PARAMETERS (CRITERIA)															
	MON.UN. / KM				MON.UN. / TOUR				MON.UN. / PALLET				MON.UN. / UNLOAD.			
Category	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Category 1	0.9	1.2	2	3	210	300	520	830	26	40	70	90	40	60	110	160
Category 2	0.9	1.2	2	3	210	300	520	870	28	40	70	90	20	30	60	90
Category 3	1.2	1.7	2.7	4	200	300	500	870	40	60	110	150	40	60	110	160
Category 4	1.7	2.5	4	6	40	60	100	160	30	50	75	110	20	20	33	56

Figure 2. Bonus calculation data
Note: This figure was prepared by the authors

In the following, the bonus calculation model will be shown on the example of the work of one driver.
Km: 2411.57
The distance driven in this case not exceed the norm for category 3000km. The driver has no bonus on this basis (0 m.u.)

Tours: 35.94
1300 m.u. + (35.94 - 26) x 870 m.u.= 6907.8 m.u.
Pallets: 291,15
900 m.u. + (291.15 - 275) x 40 m.u.= 1546 m.u.
Unloadings: 141.4
1000 m.u.+ (141.4 - 140) x 60 m.u.= 1084 m.u.
Total: 0 m.u.+ 1208 m.u.+ 6907.8 m.u.+ 1084 m.u.= 9199.8 m.u.

The total earned income is also influenced by the so-called penalties representing overtime hours spent driving due to delays, stoppages, wrong deliveries, etc. [21]. They are also expressed in m.u. and are deducted from the total bonus. In the observed period of 200 drivers, 20 make penalties. Table 4 shows drivers with the highest number of penalties.

Table 4. Drivers with the largest number of penalties (expressed in m.u)

Driver	KM BONUS	Tours BONUS	Pallets BONUS	Unloading BONUS	Total BONUS	Penalty	Payment amount
1	2839	1155	1192	3562	8747	6715	2033
2	3905	1485	1403	4217	11010	5490	3520
3	2590	330	601	1968	5489	5051	438
4	1795	1155	305	3383	6637	4407	2230
5	1302	2145	4154	5781	13382	3953	9429
6	1054	1815	1947	7187	12002	3953	6049
7	1906	1320	6038	10230	19494	3074	16420
8	638	330	195	5792	6955	2938	4017
9	1582	2145	2276	6673	12676	2855	7821
10	1555	1650	5203	8910	17318	2635	14683

The difference between the total amount of bonus and penalty can vary. Specifically, the achieved parameters of driver 3 indicate minimum earnings, although he did not generate the highest amount of penalties. Also, in the case of driver 10 and driver 7, the difference is much larger, which is a direct consequence of the significantly larger total bonus but also of smaller penalty amounts.

5. Bonus Calculation – Logistics Service Provider

In order to increase the quality of the drivers' work, the reward system is very important. Observed fleet is homogenous with heavy weight vehicles. In this way, they improve their work and contribute to the company's development. In a competitive atmosphere, drivers compete to achieve better grades, which are reflected in their salary. This type of stimulation had an excellent response among drivers and resulted in a significant increase in satisfaction. It is also very important to keep detailed records and bring closer to the drivers who have poor grades and they are poorly ranked in the segments where they must work on improving the quality in order to take a higher place in the ranking list and be better stimulated. The assessment process is divided into five areas (criteria) which form cumulative assessment:

- fuel consumption,
- distance driven (km),
- vehicle maintenance,
- drivers experience (years in the company),
- overall score (dispatcher score).

Each criteria has a weight coefficient in relation to its importance, so for example fuel consumption has a coefficient of 0.3 while distance driven has a coefficient of 0.15. From this it can be concluded that fuel savings are valued twice as much as the number of kilometers traveled.

The driver's experience in the observed company is an important factor in the evaluation because the goal was to retain drivers. This criterion was created to motivate drivers not to leave the company and to be rewarded with a better grade by working longer.

Distance driven is one of the basic metrics in transportation. The purpose of this rating is to encourage drivers to cover as many kilometers as possible, that is, to reward drivers who have a greater desire to work and give their maximum every day. This also creates competition among drivers in order to obtain greater productivity through healthy competition.

Fuel consumption is, as its coefficient suggests, the most important rating. It is extremely important to stimulate drivers who make savings in consumption. Fuel savings are equally important for the company and drivers, in accordance with performance. The importance of the parameter can be seen in the cost overview, where fuel accounts for almost 30% of total costs. With these actions, for a period of one year, the consumption of vehicles

of all manufacturers was reduced, even though it was considered impossible to bring the consumption in order for some of them. This puts pressure on drivers to improve their driving style in order to minimize consumption and improve their place in the rankings.

Vehicle maintenance represents a cumulative rating that drivers receive based on several factors: cleanliness of the cabin, wearing adequate clothes, damage to vehicles, frequency of vehicle washing, reporting of vehicle breakdowns, etc. This rating aims to increase the awareness of drivers about the importance of vehicle maintenance and that vehicle should be treated with care for the company's interest as well as their own.

The general rating also represents a cumulative rating assigned by the dispatchers, it is based on a couple of basic criteria: communication with the dispatcher, regularity of reports, compliance with procedures, documentation, etc. According to domestic laws, drivers receive a fixed salary every month and for tours abroad they receive a supplementary salary based on daily wages for each country of residence. However, since the practice is that the driver's salary is calculated per kilometer or as in some companies it is calculated as a percentage of the value of the tour, the driver's incentive model is based on this system. Namely, the first fifty drivers on the ranking list receive incentives. The first ten drivers are stimulated with 0.02 euros per kilometer. From the tenth to the twentieth place, drivers are stimulated with 0.015 euros per kilometer. From the thirtieth to the fortieth place are stimulated with 0.01 euro per kilometer, while the drivers from the thirtieth to the fiftieth place are stimulated with 0.005 euro per kilometer. Drivers below the fiftieth place are not incentivized. Any major violation or damage to the vehicle disqualifies the driver for the incentive for a certain period of time.

The steps for bonus calculation in the observed example are:

- Step 1 – For each criteria drivers are ranked in descending order (Table 5).
- Step 2 – Depending on the achieved value for that criterion, drivers receive a rank from 1 to 5 (5 is the best).
- Step 3 – The weight of the criteria is multiplied by the rank and the driver's mark according to each criteria is obtained (fuel 0.3; distance 0.15; maintenance 0.15; experience 0.25; dispatcher mark 0.15).
- Step 4 – The overall mark is obtained as the sum of the marks for all criteria (Table 6).
- Step 5 –After ranking all drivers according to the overall mark, incentives per km are defined in accordance with the ordinal number (as mentioned before, Table 6).

Table 5. Drivers ranking according two criteria (km and fuel consumption)

Driver	KM/ month	Rank	Weight of criteria	Mark	Driver	Fuel consumption	Rank	Weight of criteria	Mark
1	11309	5	0.15	0.75	1	2006	5	0.3	1.5
2	11251	5	0.15	0.75	2	1963	5	0.3	1.5
3	11205	5	0.15	0.75	3	1877	5	0.3	1.5
4	11047	5	0.15	0.75	4	1658	5	0.3	1.5
5	11041	5	0.15	0.75	5	1638	5	0.3	1.5
6	10927	5	0.15	0.75	6	1602	5	0.3	1.5
7	10909	5	0.15	0.75	7	1500	5	0.3	1.5
8	10744	5	0.15	0.75	8	1438	5	0.3	1.5
9	10575	5	0.15	0.75	9	1356	5	0.3	1.5
10	10574	5	0.15	0.75	10	1347	5	0.3	1.5
11	10541	5	0.15	0.75	11	1339	5	0.3	1.5
12	10497	5	0.15	0.75	12	1099	5	0.3	1.5
13	10381	5	0.15	0.75	13	1024	5	0.3	1.5
14	10371	5	0.15	0.75	14	900	4	0.3	1.2
15	10166	5	0.15	0.75	15	891	4	0.3	1.2
16	10107	5	0.15	0.75	16	868	4	0.3	1.2
17	10083	5	0.15	0.75	17	855	4	0.3	1.2
18	9964	4	0.15	0.6	18	842	4	0.3	1.2
19	9863	4	0.15	0.6	19	838	4	0.3	1.2
20	9800	4	0.15	0.6	20	693	4	0.3	1.2

Table 6. Bonus for the first 20 drivers

Rank	Drivers	Exp.	Distance	Fuel	Maint.	Disp. score	Over. mark	Bonus
1	Driver S	0.8	0.75	1.50	0.60	1.00	4.65	0.020
2	Driver A	1.00	0.45	1.50	0.60	1.00	4.55	0.020
3	Driver B	1.00	0.75	1.50	0.45	0.80	4.50	0.020
4	Driver Z	0.60	0.75	1.50	0.60	1.00	4.45	0.020
5	Driver K	1.00	0.75	1.50	0.45	1.00	4.40	0.020
6	Driver L	0.60	0.60	1.50	0.60	1.00	4.30	0.020
7	Driver I	0.60	0.75	1.50	0.60	0.80	4.25	0.020
8	Driver O	0.40	0.75	1.50	0.60	1.00	4.25	0.020
9	Driver X	0.40	0.75	1.50	0.60	1.00	4.25	0.020
10	Driver Y	0.80	0.60	1.20	0.60	1.00	4.20	0.020
11	Driver C	1.00	0.45	1.20	0.45	1.00	4.10	0.015
12	Driver E	0.40	0.75	1.50	0.45	1.00	4.10	0.015
13	Driver D	0.40	0.75	1.50	0.60	0.80	4.05	0.015
14	Driver J	0.60	0.30	1.50	0.60	1.00	4.00	0.015
15	Driver M	0.80	0.60	0.90	0.60	1.00	3.90	0.015
16	Driver R	0.60	0.75	1.50	0.45	0.60	3.90	0.015
17	Driver P	0.80	0.75	0.90	0.60	0.80	3.85	0.015
18	Driver S	0.60	0.75	0.90	0.60	0.80	3.65	0.015
19	Driver W	0.40	0.45	1.20	0.60	1.00	3.65	0.015
20	Driver Q	0.40	0.60	1.20	0.60	0.80	3.65	0.015

The main benefits of this stimulation model are: better overall results, increased quality of the driver's work, increased driver satisfaction, increased driver awareness that someone values their effort and commitment, reduction of average fuel consumption, healthy competition among drivers.

6. Concluding Remarks

Economic trends create changes in business and demand greater accessibility and availability, quick responses, a high level of service, etc. All of this contributes to the creation of overtime and the imbalance of business activities. Employees are faced with reduced choices, which often results in leaving the company and resigning. In order to retain workers, various variable payment systems are developed and applied, which directly affect the reduction of total costs.

It is necessary for companies to implement an appropriate system of evaluation and identification of the performance of each employee, team or the entire organization, and accordingly to apply adequate rewards. Carrying out case studies, research and comparison with the best in practice are of great importance and can certainly contribute to the improvement of the current situation. Therefore, the success of the functioning of an organization is a consequence of the success of the work of all its subcategories, processes, activities and individuals, whose performance is constantly monitored, improved and rewarded.

Based on all of the above, it can be concluded that there is no universal model for performance appraisal and bonus calculation. Each model must be adapted to the system under consideration, as well as to the company's goals (paying the bonus to as many people as possible, making a greater difference in the dependence on engagement, giving more importance to different criteria, etc). Regardless of all the advantages and possibilities of application, the described models have certain disadvantages to some extent. For example, in the last model, a big difference is made in the monetary compensation to drivers with similar results. Driver S (rank 1) with a rating of 4.65 and Driver Y (rank 10) with a rating of 4.20 have the same compensation while Driver C (rank 11) with a rating of 4.10 has significantly less compensation than Driver 10. The reason is the ranking and strict division into groups according to the ordinal number in the rank. Overcoming this shortcoming is possible by the linear distribution of bonuses in accordance with the final mark, not the group to which it belongs.

In order to overcome the mentioned and other problems, it is crucial to pay more attention to the overview of the system and the application of other approaches and methods for the objective determination of the bonus. In this sense, in future research, it is important to analyze other models and identify their advantages and disadvantages. Future research must be focused on making hybrid models that can help to obtain the most reliable measurements. For example, the application of the DEA method represents one of the future research directions. By simulating different reward scenarios with sensitivity analysis, useful information can be obtained and the right decisions can be made based on it. It is also necessary to investigate the possibilities of applying models from other industries in the logistics area.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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