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Balanced Scorecard and analysis of workers motivation in manufacturing company

Uravnotežena bodovna lista i analiza motivacije radnika u jednoj proizvodnoj tvrtki

ABSTRACT • *This paper deals with the analysis of similarly created motivation-orientated groups of workers in the woodprocessing company with the possibility of introducing motivation factors into the motivation program. The analysis of motivation factors and their order was made according to the level of the importance they had for the employees which was assessed by the questionnaire method. On the basis of cluster analysis we divided similarly value-orientated groups of workers for which it was possible to develop differentiated motivation programs. Apart from individual value system for each employee it is also necessary to respect the value system of the whole organisation. Consequently, it is necessary to elaborate the concept of value management and to utilise the system of Balanced Scorecard (BSC).*

Key words: motivation, motivation program, analysis of motivation factors, controlling, motivation systems, Balanced Scorecard (BSC)

SAŽETAK • *U radu se analiziraju motivacijske grupe radnika u jednoj drvnoindustrijskoj tvrtki određene prema sličnostima za njih značajnih poticaja za rad te mogućnost uvođenja pojedinih poticaja u motivacijski program. Analiza poticajnih čimbenika i njihov poredak prema značaju načinjeni su u skladu s razinom značaja što ga pojedini poticajni čimbenik ima za radnike. Podaci o značaju pojedinih poticajnih čimbenika dobiveni su provođenjem upitnika među radnicima. Na bazi klaster analize radnici su podijeljeni prema značaju pojedinih poticaja za rad u slično orijentirane grupe za koje je moguće razviti različite poticajne programe. Uz pojedinačne vrijednosne sustave, za svakoga pojedinoga radnika također je nužno uzeti u obzir i vrijednosni sustav za cijelu tvrtku. Stoga je nužno razraditi koncept menadžmenta vrijednosti i uporabe sustava uravnotežene bodovne liste (BSC).*

Ključne riječi: poticaj, poticajni program, analiza poticajnih čimbenika, nadzor, sustavi poticaja, uravnotežena bodovna lista (BSC)

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1 INTRODUCTION
1 UVOD

Factors such as e.g. changed conditions in the process of economic transformation, transition to market conditions, rising tension of competition, new information and manufacturing technology, global markets, changes of work organisation, social structure of companies, implementation of quality and ecology concepts - impose new demands on business activities and bring change to working methods of companies and individuals. The said factors ask for radical changes especially related to the reaction of entrepreneurs to both external and internal environment. Since the mid eighties human resources have been considered as the most valuable resource of a company development in industrial countries (Armstrong, 1999).

Company success is always and anywhere highly dependent on human resources and hence the employees must identify themselves with the company's program and they must also understand that only by fulfilling the company's goals they can satisfy their own desires. The quality of human resources is the rate of the company's success (Čambál and Jedlička, 1999). Investments aimed at up-grading qualification and motivation of human potentials are a necessary condition for achieving the most effective use of human resources and at the same time the highest possible satisfaction of people.

In the process of managing a company it is necessary to focus interest on business management staff apart from providing conditions for meeting an efficient job performance. This is understood as an integrated system of measures focused on systematic creation of conditions suitable for the development of specific programs and motivation of employees. When speaking of business culture, special interest is placed on employees' motivation, which is considered as the basis for employees' efficiency. This can be clearly seen when observing the way employees fulfil their working tasks. Optimum motivation leads to optimum job performance. The workers' behaviour is usually motivated by their needs, interests, ideals, values, habits, etc. Hence if we want the staff to identify themselves with the company, with its strategic targets, values, habits and tradition, we have to motivate them by use of various motivation tools and methods.

The basis of working motivation lies in correctly defined targets and their conversion into tasks of the working group. The best motivation is reached if the employees identify themselves with the working tasks and if they are aware of their importance. The process of motivation is highly affected by human character so that the features of their character as well as their moral and mental status create an individual value system.

LUBONAS Hlohovec is a 50 year old production association. Its main production task is wood processing. At present its production and trade is mainly oriented to foreign markets. The basic production program is production of toys for the company NIC Laupheim BRD, the production of semi-finished sawnwood for butts of sport guns and production of boxes for the company MONOTEX South Korea. A small part of production deals with the production of boards for dough and vegetables, children beds LUBA and DETSKY SEN and the production of connection material.

2 MATERIAL AND METHODS
2 MATERIJAL I METODE

2.1 Balanced Scorecard (BSC)
2.1 Uravnote□ena bodovna lista (BSC)

Besides the individual value system of each person, it is necessary to respect the value system of the whole organisation. The company should develop the concept of value management and introduce by all means the system called Balanced Scorecard (BSC).
BSC is a tool of strategic management and planning and its task is to translate the vision and strategy of a company into the system of balanced targets and indicators (Rajnoha, 2002). The evaluation of the whole company`s value based only on financial parameters does not correspond to BSC goals of establishing the long-term strategy of a company. BSC, therefore, uses complete records of financial and non-financial parameters in the area of motivation as well as indicators of rising potential, processes, customers and finances (Figure 1).

According to Horváth (2002) substantial changes in the process of planning can be summarised in the following steps:
• selection of strategic planning in stages of general development and strategy implementation within BSC,
• reduction of the whole planning process and especially operative planning,
• substitution of middle term planning with a few-year prospect within BSC,
• planning logic modification (planning by

the top-down method, intensive integration of top management into planning process),
- irregular planning interconnection of specific projects with periodical strategic and operative planning,
- system of strategic planning interconnection with motivation-orientated employees.

types of motivation programs, which meant the possibility of unified motivation programs for the groups of managers with similar motivation profile. The goal of the analysis was to determine whether the employees with similar motivation factors could be selected according to the assessment of similar answers in the questionnaire and whether unified motivation pro-

2.2 Motivation of employees
2.2 Poticaj radnika

Motivation is an important element of personal work usually not adequately taken into consideration by major companies. Generally, motivation is considered as the basic pillar of personal management. The motivation of employees is usually equal to their results. Human work activity is also motivated by a specific system of individual necessities. Motivation adequate to demanded working efforts, which includes willingness to co-operate actively in order to reach the goals, can be achieved by using specific motivation factors.

Managing of working motivation is a relatively independent work activity dealt with by special workers called social managers. Their work activity is regulated internally by their brain, which is a part of motivation. Motivation does not always have to be at a socially demanded level. If a desired level is not achieved, the worker does not reach the optimum performance. For example, they don`t not use optimally their working time, they does not work with sufficient intensity and responsibility (Mikuláštík, 2000). This can also be caused by many factors coming from the worker's personality as well as from their physical and social work conditions, nature of work, their living conditions and other factors. It is, therefore, necessary to deal with working motivation as well as with the development of optimum working conditions.

2.3 Cluster analysis
2.3 Klaster analiza

Cluster analysis was chosen and used because of the possibility to create certain

grams could be developed focused on simplification and higher effectiveness in the application of motivation programs in the practice. From a variety of cluster techniques, hierarchical (tree) clustering was chosen by the so-called Ward method, which applied the measurement of the answers similarity level in the simplest way by the so-the called Euclid distance. The whole process was suggested in such a way that it could be suitable for qualitative, non-metric parameters (motivation factors) assessed in a single scale (the level of importance 1 - 5).

Research was partly focused on problems of motivation and on implementation of motivation resources in economic practice. Important motivation tasks revealed the employees´ needs and as a result we obtained information about motivation profiles of several employees. In order to get the right information, a questionnaire was used as the most common method for obtaining the (proper) adequate information. It was elaborated consistently for all employees because of its simplicity, transparency and comprehensibility.

The aim of the questionnaire was to establish the relevant motivation factors to be used in the process of improving motivation in the company. The questionnaire was given to 78 employees and 49 were returned, which means 62.82 %. There were 32 motivation factors, which were more or less important for the employees. The employees had to allocate one of 5 importance grades (Table 1) to each motivation factor (Hitka, 2002). Five stages characterisation is too wide to reach an objective evaluation result. The rank order of motiva-

Table 1
Scale of importance of motivation factors
Tablica 1.
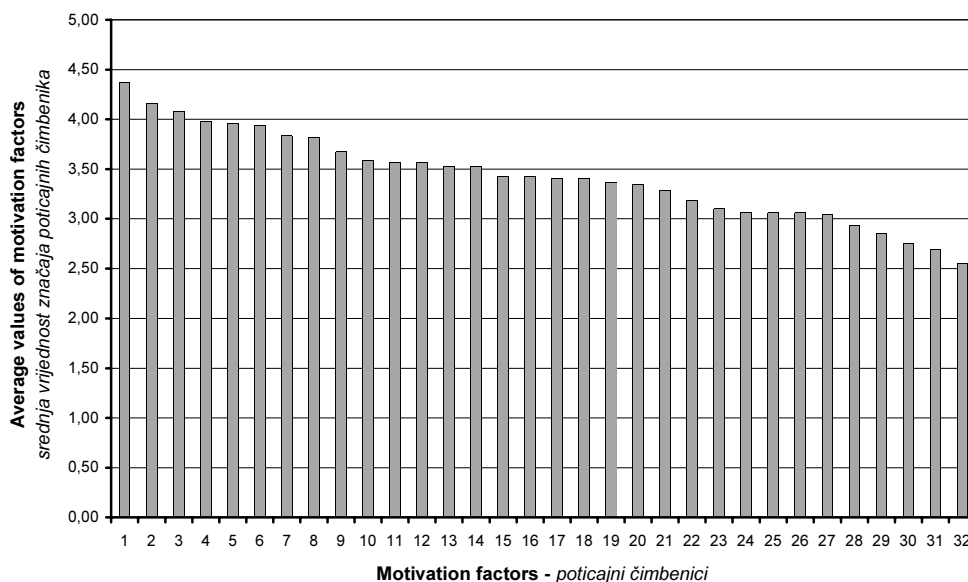*Ljestvica značaja poticajnih čimbenika*

The most important *Najznačajniji*	Highly important *Vrlo značajan*	Medium important *Srednje značajan*	Weakly important *Manje značajan*	Unimportant *Beznačajan*
5	4	3	2	1

tion factors is presented in Table 2, where the motivation factors are ranked on the basis of the level of importance given by employees. The acquired results were evaluated by the system of clustering analysis (Hitka and Sedmák, 2002; Green and Carrol, 1978). From the given rank order it can be seen that the most important motivation factors are primarily those related to economic and living conditions (salary, reasonable financial remuneration and work safety), then health-hygienic conditions which provide safety at work and factors of social satisfaction (family life and leisure time, good relationships with boss, good working environment and good relationships with colleagues). In order to increase motivation and enhance working efficiency of these employees, management should focus on the above mentioned motivation factors by the application of BSC method. Motivation factors represent a good information about the events in the company, stress, possibility of further education and participation in management performance.

Table 2
Rank order of motivation factors of workers
Tablica 2.
Poredak poticajnih čimbenika radnika

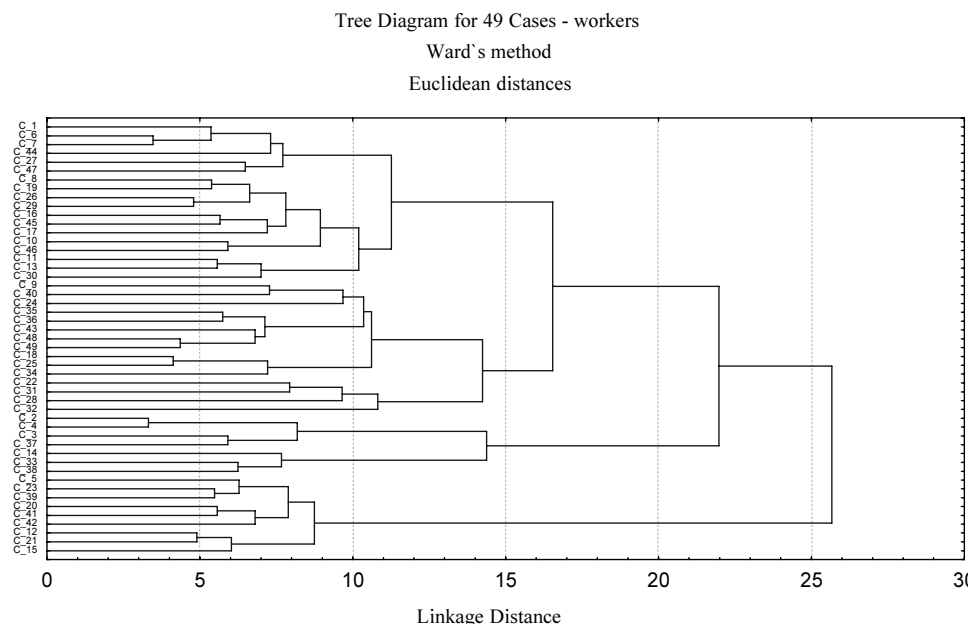| No. *R. b.*	Motivation factors *Poticajni čimbenici*	No. *R. b.*	Motivation factors *Poticajni čimbenici*
1	Salary *osobni dohodak*	17-18	Work responsibility and related competence *radna odgovornost i osposobljenost*
2	Work safety *zaštita na radu*	17-18	Applause for well done work *pohvale za dobro napravljen posao*
3	Reasonable financial remuneration *prihvatljiva financijska nagrada*	19	Reasonable job compensation *umjerena nadoknada posla*
4	Appreciation of individual abilities and crafts *poštovanje osobnih mogućnosti i vještine*	20	Social care *socijalna briga*
5	Reasonable appraisal of working results *pravedno ocjenjivanje radnih rezultata*	21	Personality of supervisor *osoba neposrednog voditelja*
6	Working security *radna sigurnost*	22	Sanctions for poor performance *sankcije za loše obavljen posao*
7	Family life and leisure time *obiteljski život i slobodno vrijeme*	23	Style of leadership *način upravljanja*
8	Information about one's own work and working tasks of a specific job *podaci o poslu i radnim zadacima određenog posla*	24-26	Ergonomic conditions *ergonomski uvjeti*
9	Good relations with boss *dobri odnosi s poslodavcem*	24-26	Possibility of getting promotion *mogućnost napredovanja u poslu*
10	Working environment *radna okolina*	24-26	Utilisation of abilities *iskorištenje mogućnosti*
11-12	Good working relationships *dobri radni odnosi*	27	Working prestige *ugled posla*
11-12	Independence in work *neovisnost u radu*	28	Ecological situation in the company *ekološka situacija u tvrtki*
13-14	Scope of employment *vremensko trajanje zaposlenja*	29	Sufficient information about the events in the company *dobra informiranost o događajima u tvrtki*
13-14	Working time *radno vrijeme*	30	Stress *stres*
15-16	Good-will of the company *ugled tvrtke*	31	Possibilities of further education *mogućnosti dodatnog obrazovanja*
15-16	Working satisfaction *radno zadovoljstvo*	32	Participation in managing process *sudjelovanje u procesu upravljanja*

3 RESULTS AND DISCUSSION
3 REZULTATI I DISKUSIJA

Cluster analysis was used for the final evaluation of motivation factors, where variables were joined to the group of clusters, thus determining their relative similarity. The functional principle of agglomerate hierarchical procedures was used in the form of continuous clustering of the ele-

factors. The biggest group is made of 18 workers: 1, 6, 7, 44, 27, 47, 8, 19, 26, 29, 16, 45, 17, 10, 46, 11, 13, 30. The most important motivation factors for this group are: reasonable financial remuneration, salary, safety at work, scope of employment and reasonable appraisal of working results. The second group is made of 15 workers 9, 40, 24, 35, 36, 43, 48, 49, 18, 25, 34, 22, 31, 28, 32. This group is particularly motivated

Tree Diagram for 49 Cases - workers

Ward`s method

Euclidean distances

Linkage Distance

ments group, at first the nearest and in the following steps the next move distant one.

The relationship analysis of workers' motivation profiles was executed by agglomerated hierarchical clustering. The results of the analysis are shown in Figure 3, Variables C1-C49 mapping workers. Figure 3 clearly indicates that there are four groups of workers with similar motivation

by motivation factors such as salary, working environment, appreciation of individual abilities, working security, safety at work. The most important motivation factors for the third group, made of 7 workers 2, 4, 3, 37, 14, 33, 38 are as follows: information about work and tasks, appreciation of individual abilities, good relations with supervisors, good relationship with colleagues

Figure 4
Hierarchical cluster analysis of workers´ motivation factors structure
Slika 4.
Hijerarhijska klaster analiza strukture poticajnih čimbenika radnika

Tree Diagram for 32 Variables
Ward`s method
Euclidean distances

and working security. The last fourth group is made of 9 workers 5, 23, 39, 20, 41, 42, 12, 21, 15, for whom the most important motivation factors are: reasonable financial remuneration, salary, safety at work, information about work and tasks, good relations with supervisors.

The method of statistical verification may be used for carrying out the analysis of the interrelation between motivation factors and establishing which employees have similar motivation profiles. Information acquired from the given analysis can be used for developing a motivation program aimed at increasing the employees' motivation and their working efficiency.

It can be seen from the results that apart from the usual motivation factors, employees are also affected by additional motivation factors such as working security, information about one's own work and goals, working environment, good relationship with supervisors and independence at work, so that the management should also take into consideration further motivation factors when developing new motivation programs on a larger scale.

4 CONCLUSION
4 ZAKLJUČAK

Since the value-orientation as well as the structure of employees can change from time to time, it is necessary to develop wide-range motivation programs. The company should focus its interest on continuous analysis of employees motivation factors and form similarly orientated groups by use of statistical methods and develop motivation programs for them accordingly. Such a motivation program should bring employ-

ees to higher performance, higher creativity, self-sacrifice, discipline and synchronise their value-orientation with other targets of the company, which make part of BSC.

In the long run the benefit from the implementation of the employees motivation program can be seen through the assessment of the economic indicators trend and by analysis of external environment as well as by comparison between the achieved results and to-date economic indicators.

Recommendation and implementation of effective motivation program is one of the key issues of most companies under present market conditions (Drličková and Zaťková, 2002). The benefit of the motivation program does not only lie in the management area of human resources but it can also be seen in higher working efforts and better quality of work. The appropriate motivation of workers results in their higher efficiency, which has a serious impact on the company's revenues (Zámečník, 1999). When making an economic evaluation, external and internal environment of a company should be taken into consideration. Specification of a motivation profile has a great importance in exercising personal management. Understanding of motivation factors which predominate in a motivation profile plays an important role in the operative and decision making process, as well as in the selection of the optimum management and leadership style and in the implementation of adequate motivation programs in a company. We must realise that motivation should be focused on human relationships, interests, attitudes and necessities of employees. Those, who develop motivation tools, should carefully understand their

employees. The process of establishing motivation requires sensitive differentiation. A different kind of motivation is required for young and older people. This difference should be visible in the area of remuneration of single people and those who have families, men and women, etc. We should be aware that investment into qualification and motivation potential of people is a necessary condition for achieving the best possible utilisation of resources and the highest possible satisfaction of workers. Furthermore, a complex understanding of the employees' value system in a company starts to play an important role as well as the utilisation of BSC indicators as a tool for strategy implementation in daily company activities (Kotlínová and Aláč, 2001).

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