

Function of Motivation in the Management Process in the AHP Framework

Key words: management process, motivation, needs, goals, values, judgements, AHP

1. Introduction

Transformation of Polish economy, the increasing complexity of business processes, acceleration of technological and information technology changes as well as globalisation of various economy sectors as well as 21st century World challenges are a stimulus to modify and increase organizational management effectiveness. Considerable autonomy of enterprises and competition force management skills upon managers so that they can cope with high risk situation – extremely difficult and risky. In a management process each organization manages the following resources: human, material, technological and information technology. All of them are indispensable to rational operating of organizations but the most important resource is people. They feel the need to set up new businesses and make a decision on the type of business activity to choose, whether manufacturing or service. They make companies survive, develop and success or lead them to bankruptcy and failure.

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In the context of academic achievements and modern technologies, in the world where material values are substituted by information it is the **human factor** that grows in importance. The importance of theory and practice related to human resources management increases as well. Motivation is considered the most important and the most difficult function in the management process. No other management function including planning, decision making, organizational behaviour or controlling attracted that much attention (over 5 000 published articles)

Employee motivation is a top priority challenge for managers. Therefore that function shall be constantly modified and perfected. This article aims to develop a new approach to motivation function with AHP as a separate category in a form of a single multi-criteria model consisting of various theories and approaches within motivation models combined with the author's own motivation concept called **motivation theory of needs, goals and values weighting**. It is a new approach to motivation function in the process of organization management. The theory is currently verified in many economic sectors; in organizations with different structures by means of questionnaires with interview on motivation theory weighting with company employees differentiated as to their position within organization, age, work time in organization, work time in general, gender education etc.

The model differs considerably from motivation theories and models to date. It has been built as a hierarchical tree, the main goal at the top – employees satisfaction derived from work, effectiveness increase of their work, the lower levels represent criteria, sub – criteria and alternative motivating activities as motivation models. The model describes weighting of each motivating factor through their comparison along T.L.Saaty's fundamental scale and assigning number priorities to them (weights)

2. Motivation theory

Motivating means, first of all, getting to know other people, their needs, goals, tasks and values, also evoking employees' passive readiness to undertake specific activities and convince them to make additional intellectual and physical effort and use their skills and capabilities to realize organization's goals. Motivation, in turn, *means psychological human mechanism which consciously or not weights against each other needs, goals, tasks and values directed at achieving objective or subjective satisfaction through various human activities*. Both motivating and motivation are subject to be examined by many fields of knowledge, psychology, management, ethics and humanities in general that analyse human behaviour, the most difficult to predict.

Motivation theories have changed over time and adjusted to changes in employee's duties. In the past managers managed their employees who undertook simple tasks.

Nowadays managers deal with people who perform difficult and responsible duties. They require adequate, more precise motivation methods, different than before.

Motivation theory development history noted various motivation models assumed by managers. The most important ones are:

- Traditional model
- Co-operation relations model
- Human resources model

Traditional model is associated with F. Taylor and academic school of organization. Within this model the maximum number of products manufactured was the most important issue. Work pay was the main motivator to make them work faster and better.

Co-operation model. Elton Mayo claimed that, apart from enumeration it is also relations between employees at work whereas boredom and repetitiveness of many tasks lowered motivation. A conclusion followed that managers may motivate employees by recognizing their social needs and ensuring their usefulness and self-importance.

Human resources model – subsequent researchers such as McGregor, Maslow, Argyis and Likert showed that employee motivation consists of many elements, not only financial but also needs to have achievements and perform important work. Employees may therefore derive satisfaction from work, may be entrusted with a higher rank responsibility for decisions and performing tasks. Managers shall not only use financial stimuli but also share responsibility for reaching goals.

At the moment an approach to motivation rules has been changing, F. Landy and W. Backer (Stoner, 2001) divided modern views on motivation theory and practice, represented by various authors, into five categories:

- **Needs category** (A.H. Maslow, C.P. Alderfer, J.W. Atkinson, D. McClelland),

- **Justice theory** (G. C. Homans, Festinger, V. Pareto, J. S. Adams),
- **Expectation theory** (D. Nadler, E. Lawler, L. Porter),
- **Reinforcement theory** (B. F. Skinner),
- **Goal setting theory** (E. Locke, Ch. Early, Ch. Shally).

Depending upon their views managers and their employees in different way finalise the following statement: “One is motivated if.....”. All those views share basic level of importance attached to the awareness of each person as to what is important to him and working conditions.

R. Kanfer (Steinman 1998) in turn divides motivation theories into three groups:

- **Cognitive decision theory**, they tie motivation problem with individual decision process (V. Vroom, E. Lawler),
- **Self regulatory theory**, based upon motivation power following goal orientation (A. Bandura, E. Locke, R. Kanfer, D. Mc Clelland, G. S. Odiorne),
- **Stress reduction theory**, emphasizes the role of personality and particular motives or needs that constitute basis for human activity (A. Maslow, M. Weber, M. Richards, P. Grennlaw, F. Herzberg).

Employee’s motivation is a decisive factor for the success and future of organization as a whole. All theories, approaches and vies on motivation mentioned analyse causative factors, deal with motivation initiatives, rules of motivation, getting to know human needs at work and outside work, getting to know factors that stir work satisfaction and/or dissatisfaction etc.

Subject literature lacks a holistic approach to include all potential motivating elements that influence individual well being of employees and the increase of organization’s effectiveness.

4. Research scope and methodology.

Research was performed in 2004 in one of the largest food sector company in the Krakow region, among almost 200 company employees.

Each employee pairwise compared each motivating element in relation to a set criterion. Each employee should mark preference of one element over the other in a scale from equal, weak, strong, and very strong to absolute dominance in relation to an assumed main goal and criteria and sub criteria in a hierarchical structure of employees' motivation (picture). To solve this problem Analytic Hierarchy Process AHP was used for the first time in motivation research (Saaty 1996, Adamus, Szara 2000). Analytic Hierarchy Process is one of mathematical methods used for solving multicriteria decision problems. The fundamentals of the theory were laid by American mathematician Thomas L. Saaty. AHP is a general measurement theory that combines certain concepts from the fields of math and psychology.

In this method a hierarchical decision scheme is constructed by way of dividing a problem in question into decision elements: the main goal, intermediate goals, attributes and alternative decisions. Main goal is placed at the top of hierarchy, whereas alternative decisions are located at the hierarchy bottom. Importance and preferences of particular decision elements are paired in relation to the element situated directly above. Based on those comparisons and additive model constructed on divisive scale is estimated to describe a decision maker's preference. The model is called priority function. Alternative decision, corresponding to the highest total priority function is considered the best and is recommended for use.

Due to its simplicity, flexibility in adjusting and high effectiveness in analysis and solving of multicriteria decision problems, AHP method may be very useful in making enterprises organization and management more rational, including motivation problem solving.

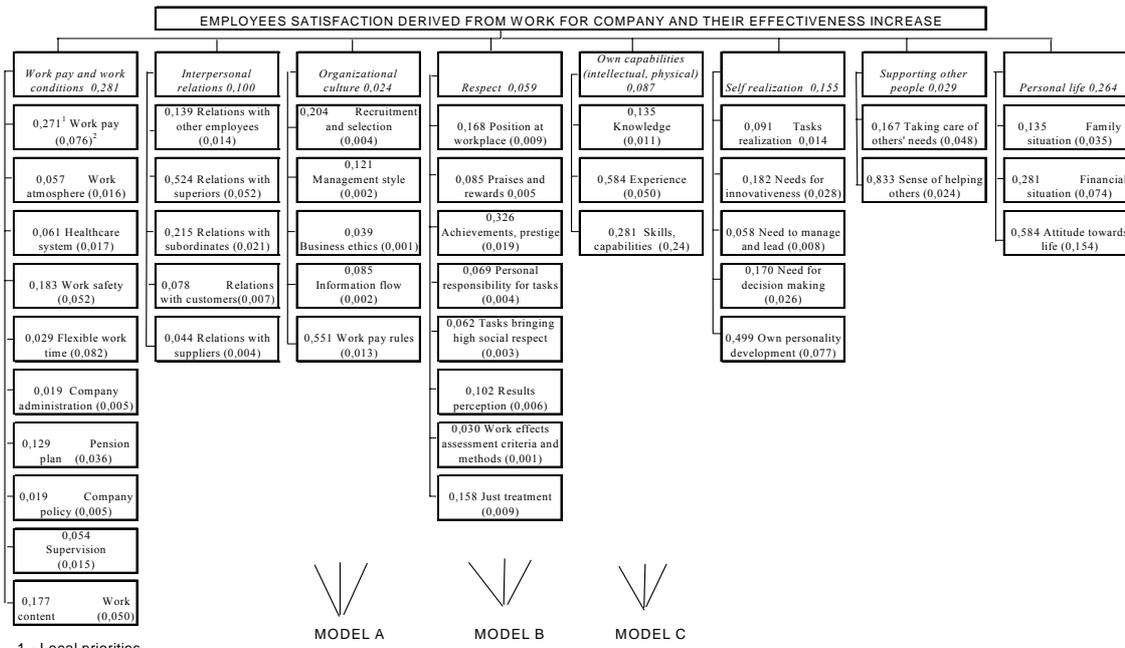
5. Research results

Questionnaires with interviews with each company employee lead to alternative motivation models in relation to each company employee separately and to all of them in groups on different levels. The procedure, using AHP method, was as follows:

- Problem setting – recognizing needs, goals and values of employees that motivate them to work and those tasks that are necessary to realize motivation goals, corresponding to employees and organization needs.
- Main motivation goal identification – employees satisfaction from work for the company and each employee and the whole organization work effectiveness increase
- Defining problem structure in the form of model showing problem key elements and their relations
- Identifying main criteria influencing the main goal: payment and working conditions, organizational culture, interpersonal relations, self respect and respect for others, self realization (constant growth, individual development), capabilities (intellectual and/or physical), supporting others, personal life
- Subcriteria identification within main criteria
- Decision hierarchy construction of hierarchical structure criteria and subcriteria of employees motivation to work and organization effectiveness increase the structure was built as a certain whole consisting of the above presented various theories, approaches, views and models and the author's own considerations (pict. 1)

In brackets there are motivation elements priorities from level III in relation to level II (local priorities) whereas numbers provided below refer to level I (main goal)

MOTIVATION THEORY OF WEIGHTS, NEEDS, GOALS AND VALUES



Picture 1. Hierarchical structure of employee motivation to work for the organization.
Source: own calculations

- Presenting verbal opinions of employees by conducting questionnaire with interview among company employees, corresponding to their knowledge, experience, emotions and feelings in the motivation process.
- Pairwise comparison at each hierarchy level – each employee compared weighting of each criterion in relation to the motivation main goal and subcriteria (in relation to the main criteria) on a verbal scale from equal to dominant (extreme) through estimating dominance or equality of one element over the other.
- Presenting verbal opinions with significant numbers on a Saaty's fundamental preference scale.
- Using those numbers to calculate priority (weighting) of each motivation element in relation to the main goal or to the main criteria based on the comparison matrix
- Estimating the strength of dependence between satisfaction derived from motivation elements and employee work effectiveness in relation to all elements of hierarchical structure with association coefficient C (calculated based on χ^2 tests)
- A synthesis of results achieved necessary to estimate motivation models taking into account employee work satisfaction and the increase of organization's effectiveness
- Developing alternative verbal motivation models taking into account the most sensitive motivation elements
- Comparing developed alternative motivation models in relation to all subcriteria in hierarchical structure, in order to select an optimal motivation model from a viewpoint of all employees and the entire organization
- Implementing motivation models
- Constant correction in the time of implementation depending on external factors and the environment

Describing verbal content of main criteria

1. Work and enumeration conditions mean all kinds of conditions related with type of work done, place and time of work, enumeration method, additional elements of the lack of them
2. Interpersonal relations constitute a critical mass that allows other resources and capitals to start working for the company. Those relations mean not only counting employees and demanding, it is also a question of atmosphere. Manager able to scold for some definite faults but friendly to others do build companies
3. Organizational culture is a set of common values, rituals, specific language and other elements that build a sense of community among organization members. Culture is a basic behaviour element in organization that performs four important roles: delivers a sense of identity, stirs engagement in organization mission, and supports its stability on the individual's behaviour to provide them with a sense of environmental belonging. In order to effectively motivate employees not only must they be known but we have to know exactly what we motivate them to. Motivating to loyalty in relation to the company is effectively obtained by creating appropriate company culture that consists of rules, system and management style, interpersonal relations and company image.
4. Respect (for oneself and the others) Those who neglect themselves and others, undermine others' sense of dignity, have problems talking about themselves and show considerable careflessness in relation to others often feel desolated, have serious doubts and lose motivation to work. Respect for themselves and for others means using personal rights without interfering with the rights of others. It is characteristic of people who have high self esteem and self acceptance. Such people are interested in emotions, thoughts and reactions of others. They can ask questions. Their characteristic features include honesty, directness and high level of motivation which translates to performed work effectiveness.
5. Own capabilities (intellectual/Physical) People who perceive themselves in a way adequate to reality know their strengths and weaknesses, accept themselves and others and set realistic goals. Because of that they fully utilize their capabilities and at the same time do not undertake task that are too difficult for them. That protects them against disappointment and criticism from the others.
6. Self realization (constant growth and individual development). Individual development, possible as a result of performed work, a sense of importance and

its indispensability for individual personal development. The feeling that we develop, we do not standstill, that we have something important to do not only in professional but also in personal life.

7. Supporting other people is naturally ingrained in a wider perspective of personal development, building individual and social identity. It assists self reflection and reflection in general. It allows categorizing social world against stereotypical divisions – referring to the community of features and goal over group divisions.
8. Personal life. Personal matters constitute a separate world and shall not be intertwined with company every day life. Entering a company one assumes different roles. This factor is indeed very important if we are to feel motivated. We often have problems separating those roles. Our personal problems do interfere with our work effectiveness.

Priorities for main motivation criteria

Research was performed from among employees of a company that is a significant market player in the food industry in Poland. Questionnaire with interview, as the most reliable method within AHP framework, was performed by the author and his colleagues. Company employees were to compare motivating factors among each other and determine their impact upon work satisfaction and the effectiveness increase, or dissatisfaction and effectiveness decrease.

Calculations were made using Expert Choice software. The result of pairwise comparison is number results assigned to main criteria. Number results for priorities, summed for a group of people at certain work positions are presented in the picture.

The most important criterion is **Work pay and work conditions**, priority 0,28, followed by **Personal life** 0,264, **Self realization** 0,155, **Interpersonal relations** 0,100, Own capabilities 0,087, **Respect** 0,059, **Supporting other people** 0,029 and **Organizational culture** 0,024.

For the criterion **Work pay and work conditions** 0,28 priorities are as follows:

- Work pay 0,271
- Work safety 0,183
- Work content 0,177
- Pension plan 0,129
- Work atmosphere 0,057
- Healthcare system 0,061
- Supervision 0,054
- Company administration 0,019
- Company policy 0,019

Work Pay is the most motivating factor due to its both economic and symbolic function. Least motivating factors are administration and company policy. Results show that employees shall be taken care of, provided with proper working conditions, development potential and healthcare. This investment will pay back as a company means, first of all, people and their professional potential.

Interpersonal relations 0,100

- Relations with superiors 0,524
- Relations with subordinates 0,215
- Relations with other employees 0,139
- Relations with customers 0,078
- Relations with suppliers 0,044

Relations with superiors assume the highest priority. It is an essential element as it determines our rewards or punishments. Work effectiveness depends on the attitude one has towards his colleagues and superiors.

Organizational culture 0,024

- Work pay rules 0,551
- Recruitment and selection 0,204
- Management style 0,121
- Information flow 0,085
- Business ethics 0,039

Work pay rules take predominance over other priorities. Therefore a mistake in this respect may influence the company culture and atmosphere to a great extent. Rules shall be just and fair, their number shall be limited to a minimum to avoid misunderstanding.

Respect 0,059

- Achievements, prestige 0,326
- Position at workplace 0,168
- Just treatment 0,158
- Results perception 0,102
- Praises and rewards 0,085
- Personal responsibility for tasks 0,069
- Tasks bringing high social respect 0,062
- Work effects assessment criteria and methods 0,030

Achievement and prestige play a major role in category respect. Motivating tools may therefore be additional incentives provided to employees such as training, foreign language courses paid by the company. Managers should know their employees well enough to propose appropriate means that will be satisfactory for them.

Own capabilities (intellectual, physical) 0,087

- Experience 0,584

- Skills, capabilities 0,281
- Knowledge 0,135

It is important for the employees to develop new skills while performing his tasks and also to use experienced acquired so far. Provided a project is innovative and will increase his experience an employee may accept additional duties without increase in pay.

Self realization 0,155

- Own personality development 0,499
- Needs for innovativeness 0,182
- Need for decision making 0,170
- Tasks realization 0,091
- Need to manage and lead 0,058

Own personality development has the highest priority, and is considerably more important than managing other people. Most people prefer being managed and avoid responsibility gaining safety at the same time. As one's personality develops higher needs come to the fore and self realization, respect or belonging assume more importance.

Supporting other people 0,029

- Taking care of others' needs 0,167
- Sense of helping others 0,833

It is the sense of being helpful that is more important than the actual help. People want to perceive positive effects of their work and be convinced of their usefulness.

Personal life**0,264**

- Attitude towards life 0,584
- Financial situation 0,281
- Family situation 0,135

Expectations depend on one's family situation. Employees perceive their work depending on what their personal situation looks like, hence such a high priority attached to attitude towards (non – professional) life.

To sum up, we assume that people's professional effectiveness depend on the values that employees want to achieve and on the way they perceive effective work as an efficient tool to achieve that goal. It also assumed that values that are most important to an individual make work more effectively only when he is convinced that effective work is the best way to reach his goals. Values can be assigned both abstract ideas (self realization), interpersonal relations (friendship, love) and physical concepts (goods, property) as well as means to reach those goal (money) Work pay is and will remain the main tools to effectively shape a motivation level with employees. However, even when goals are worthy and ambitious, financial resources should not be spent excessively. Motivation stimuli cannot be introduced within the company once and forever. When there are changes in organizational structure, goals and task of the company, organization of work or work profile, the stimuli used so far may prove inadequate. Therefore companies need to conduct periodical examinations of the level of effective influence motivation factors have upon employees. The lack f money creates dissatisfaction but their presence for a longer period of time does not necessarily lead to a higher work satisfaction. Other factors are equally important. Financial factors and rewards are especially important when they are missing.

As a result of hierarchical process analysis the following motivation models were developed for the company examined.

A MODEL

- Safety (relative work stability)
- Proper work pay
- Good relations with superiors
- Work content
- Clear work pay rules
- Personal self development

B MODEL

- Safety (relative work stability)
- Partner relations with other employees
- Participation in a management process
- Appropriate work position

C MODEL

- Participation in setting company policy
- Well organized administration
- Personal responsibility for tasks
- Rational employee control (supervision)
- Personal self development, need for knowledge and reality understanding
- Work safety
- Proper work pay

Based on the above described steps priorities for each alternative decisions within motivation model were pairwise compared with each motivation element found in motivation hierarchy. Building motivation models those motivation factors were taken into account that, in the opinion of employees had the highest priorities and those that affected their work effectiveness increase most. While developing the model, a Vilfredo Pareto rule “20-80” was used whereby 80% of results achieved by a manager follow

20% of his actions, while 80% actions are responsible for 20% of effects. Therefore a manager should concentrate on the most sensitive elements and defined as priorities by employees, while motivating his employees.

Choice of optimal decisions – we choose the motivation model that has the highest global priority.

Global priority function is as follows:

$$U_G = .387 U_A + .291 U_B + .322 U_C$$

Model A has the highest priority in the category employee satisfaction from work for the company and the increase of organization effectiveness. Models B and C have lower priorities.

As it is, while motivating employees to work for the company, a manager shall concentrate on elements listed in model A.

6. Summary and conclusions

In the process of management motivation is considered only as a „management function” but management theoreticians and practitioners realize that without motivating employees, no organization can survive not only while facing labour market competition but even as a player in the sector. Motivation understood in a wider perspective is not one word but a continuous process that changes with time, depends upon employees personality and conditions and, first of all fast changes on the market that a company must constantly adjust to.

It is the level of motivation of all organization employees that company flexibility depends upon as well as its success, chance to survive and grow. To achieve a market success an organization must have employees able to identify the company success with

their own benefits. Knowing needs of their subordinates and their priorities managers should concentrate on those sensitive elements that in the highest degree affect their individual well-being and the organization effectiveness. Each organization creates its own motivation system e.g. a system of influences it has on its participants that aims at encouraging them to undertake actions beneficial and avoid those that are not from the holistic point of view. Motivating is a difficult process. People are very complex and differ significantly from each other so it is extremely difficult to determine what factors motivate everyone in the same manner. As a result, positive motivating stimuli can be adopted as they allow them to fully reach their priority goals, or negative that creates conditions threatening what employees have already reached.

Each individual has a definite system of needs that he would like to satisfy. Those needs act as an engine of human activities. A good manager shall therefore know his employees' needs and while motivating employees try and get to know the needs of his employees so as to be able to create work conditions and task structure that will allow his subordinates to reach good work results and satisfy needs at the same time.

To achieve company success an intellectual effort, ideas and engagement of all employees is required. Employees' engagement in performed work and duties as well as making full use of their qualifications, skills and abilities to reach company objectives depends upon managers and the way they motivate employees to effective work.

Motivation process is not a simple mechanism. In order to effectively motivate people it is necessary to get to know their needs and expectations.

While evaluating research results, attention shall be paid to the fact that they were conducted in the period of economic stagnation and high and increasing unemployment. Those facts determined the values assigned to particular motivating factors.

Based on the research we may draw the following conclusions:

1. Applying the AHP method to employee motivation research made it possible to develop a single multicriteria motivation model consisting of various motivation theories, approaches, motivation models and the author's own concept.

2. While striving to achieve employees satisfaction from work and organization effectiveness in an examined company managers shall pay special attention to:

- Safety (relative work stability)
- Adequate work pay
- Work content
- Clear work pay rules
- Employees needs in self realization
- Participation in company management.

3. AHP method presented may be successfully implemented for solving multicriteria problems, including motivation fields in various organizations.

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