

## EMPLOYEES' JOB SATISFACTION AND ITS IMPACT ON MANAGEMENT PROCESSES AT THE KOMAG INSTITUTE OF MINING TECHNOLOGY

Małgorzata MALEC<sup>1\*</sup>, Lilianna STAŃCZAK<sup>2</sup>

<sup>1</sup> KOMAG Institute of Mining Technology, Gliwice; mmalec@komag.eu, ORCID: 0000-0002-6373-4568

<sup>2</sup> KOMAG Institute of Mining Technology, Gliwice; lstanczak@komag.eu, ORCID: 0000-0002-5154-7693

\* Correspondence author

**Purpose:** The article contains an analysis of inquiry results concerning the KOMAG employees' job satisfaction and its impact on management processes. As in recent years a management style and paradigm were mainly oriented onto improving the employees' motivation and commitment, it is important to highlight the significance of job satisfaction. Satisfied employees go beyond their formal duties, required by job description, and they are ready to put in an extra effort to achieve organizational goals. Based on available literature and on the results of conducted inquiry, the Authors concentrated their research work on human resources management in the aspect of motivation, leadership and organizational culture as well as their impact on job satisfaction and employees performance. The paper is ended with conclusions which can be treated as a form of guidelines for managers responsible for investments in building values and a maintenance of all the efficient activities oriented onto management processes of human resources.

**Design/methodology/approach:** The main objective of the undertaken research work includes a presentation of the KOMAG employees' job satisfaction survey, enabling to improve human resources management processes. A realization of research-and-cognitive objectives enabled to obtain knowledge concerning an important aspect of management activities. The main methods used for the research are as follows:

- an analysis of publications,
- a case-study method,
- a heuristic method,
- a method of diagnostic investigation (questionnaires).

The subject scope of the paper embraces human resources management, in particular in the aspect of employees' job satisfaction.

**Findings:** The findings show an urgent need of introducing management measures oriented onto an improvement of the KOMAG employees' level of job satisfaction, in particular in the area of appreciation needs. An introduction of the holocation system should be taken into consideration as it rejects a traditional model of a company and makes self-organizing collective bodies active and creative. It is worth highlighting that an encouragement of employees to undertake activities of innovative character and an appreciation of their achievements are equally important as risk assessment and budget management in projects.

**Originality/value:** An approach to the management process of human resources seems to be new due to highlighting the job satisfaction aspect. Some recommendation and guidelines, based on survey results, are also a sort of novelty as they emphasize the aspect of appreciation needs. A suggestion of implementing holocracy processes at the KOMAG Institute of Mining Technology confirms this new approach to managing human resources in an efficient manner.

**Keywords:** job satisfaction, management processes, motivation, institute, human resources, career paths, career perspectives.

**Category of the paper:** Case study.

## 1. Introduction

The KOMAG Institute of Mining Technology is a state-owned research organization which started its business activity more than seventy years ago. It has always been a sort of a bridge between science and industry, specializing in a commercialization of research results. Its scientists and researchers are the most valuable assets, so their job satisfaction is one of the strategic aspects of human resources management processes at the Institute.

The subject-matter of the article covers the results of surveys on job satisfaction of the KOMAG employees, enabling to improve human resources management processes and procedures. These results reflect the employees' most important needs and expectations in terms of job satisfaction. It should be highlighted that an approach to a scientific problem as well as research objectives and methods are based on an analysis of the Polish and foreign multi-disciplinary literature in the domain of participative decisions, motivation, leadership, organizational culture and also on the promotion of innovative, creative behaviour from the career perspective. In the subject-matter under consideration, some implications of Maslov's hierarchy of needs play a significant role and they should be taken into consideration while analyzing different aspects and criteria of employees' job satisfaction.

A holistic approach to the issue of job satisfaction is crucial. Some factors, affecting the relationship between leadership and job satisfaction, are described in detail in the following chapters of this article, where special attention is paid to a human resource management perspective and innovation – based human resource management influence on employees' satisfaction and performance. Self-evaluative and self-efficacy mechanisms, governing the motivational effects of goal systems and differences between personal and organizational value systems, are also taken into consideration. It should be highlighted that an encouragement of employees to undertake activities and an appreciation of their achievements are extremely important as regards efficient, effective and goal-oriented human resources management systems.

However, apart from traditional management models, which are widely used nowadays, a holocracy, rejecting typical procedures and processes, is suggested to be implemented in research institutions, where the employees of intellectual character constitute most valuable and important assets.

## 2. Analysis of the literature

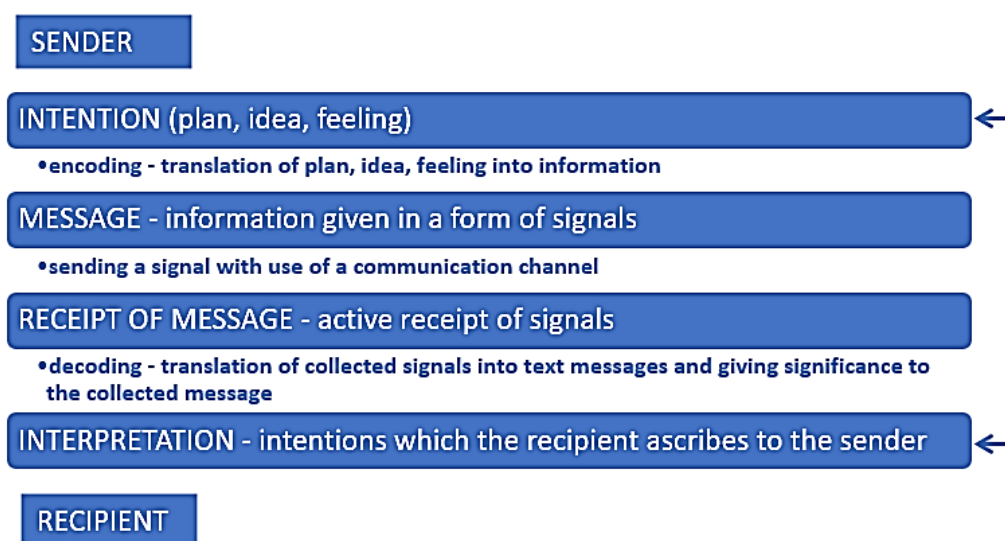
In the last few years a new management style and paradigm were mainly oriented onto improving the employees' motivation, commitment and satisfaction through participatory management practices and more democratic organizational structures. According to the test results obtained by the Authors of (Balawajder, 1994), participative decisions positively influence job satisfaction directly and indirectly by means of employees' perception of trust.

It is worth highlighting the fact that quite often employees go beyond their formal duties, required by job description (Đorđević et al., 2021), and they are ready to put in an extra effort to achieve organizational goals. The Authors have based their conclusions on the analysis of 244 respondents from Serbia, stating that there is a positive relationship between respondents' job satisfaction and organizational citizenship behaviour.

Analyzing the available literature on the subject of effect of motivation, leadership and organizational culture on satisfaction and employees' performance, the Authors (Paais, Pattiruhu, 2020) concentrated their research work on human resources management. The test sample consisted by 155 employees and the results of data analysis showed that work motivation and organizational culture had a positive and significant effect on performance, but did not significantly influence employees' job satisfaction. While leadership seemed to have a substantial impact on employees' job satisfaction, it did not affect performance. An analysis of the issues related to employees' professional satisfaction and its impact on management processes requires some information about differential association theory (Johnson, 2020) which emphasizes how patterns of behaviour are learned through a process of interaction with different types of individuals with varying ideas about the acceptability of a particular course of action. The results of 61 in-depth interviews, conducted with commercial and noncommercial scientists at four universities in the United States, show that socialization to commercialism is an interactive learning process in which scientists learn definitions that are favourable to commercial career trajectories.

The promotion of innovative behaviour from the career perspective (Zhu et al., 2022) is analyzed from the point of view of job satisfaction, based on responses from a sample of 4007 scientific workers in China. The need for achievement serves as a moderator between career satisfaction and innovative behaviour. The influence of personal management systems on job crafting behaviours via motivation was tested using survey data gathered in Italy (Berdicchia, 2022). A development and validation of a scale to measure knowledge-sharing

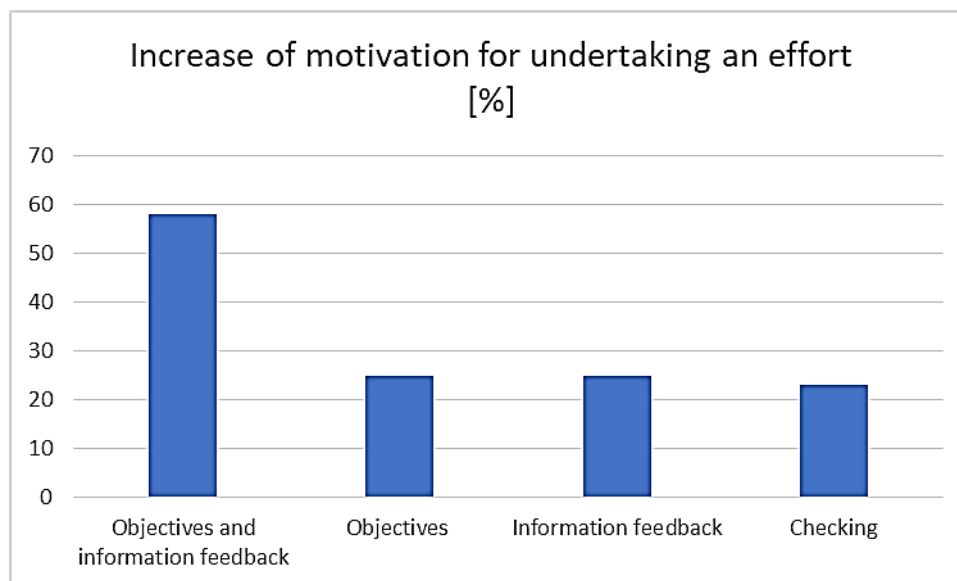
motives at work are discussed in (Fischer, 2022). An understanding of the employee performance facilitates and understanding of job satisfaction, training and leadership connection (Rusli et al., 2020). A new perspective of the motivation-performance link and the influence of satisfying each basic human needs, described by Maslow's hierarchy of needs and on employees' professional performance is described in (Ştefan et al., 2020). It is interesting to find out if higher professional satisfaction translates into more ethical attitudes regarding work-related dilemmas (Małkowska et al., 2021). It should be borne in mind that professional, ethical issues are an integral part of decision-making processes at critical moments. Insights, related to ethical concerns when collecting and assessing evidence within decision making processes, are developed (de Graaf, 2019; Fobel, 2019). Survey data from 63 private sector organizations in Iran enable to analyze an implementation of human resource management practices (Nazarian et al., 2021). In Peru most organizations are actively competing to survive in troubled markets, especially today when the effects of COVID-19 caused a collapse of most businesses. Some of the essential tools for organizational success in the long and short terms continue to be motivation and job satisfaction (Moran, Corzo, 2021). There is a direct and positive relationship between the employee perception of development and intent to stay at the company and that job satisfaction mediates this relationship (Kasdorf, Kayaalp, 2022). In the literature there is some guidance to analyze the relationship between employee - oriented corporate social responsibility actions and employee retention in a business context (Boutmaghzoute, Moustaghfir, 2021). The development and application of innovation - driven human resources in the Nigerian aviation context encourage satisfaction with assigned task roles, leading to employee performance (Małkowska et al., 2021). A communication system of a bidirectional character plays an important role in management processes (Balawajder, 1994), which is shown in Fig. 1.



**Figure 1.** Communication scheme according to K. Balawajder (1994).

While drawing conclusions on social behaviour, it is important to take into consideration its role in an assessment of professional life quality and satisfaction. A good principle, concerning a control of employees' behaviour, includes an aim for a social justice. An interaction among employees can be broken if they do not get an expected satisfaction. It should be borne in mind that management of employees, oriented onto shaping abilities of creative thinking, which is particularly important in the case of research organizations, should be efficient irrespective of the situation (Grzesiuk et al., 1997).

A determination of institutional objectives and an information feedback from the employees have a strong impact on the level of motivation, what can be seen in Fig. 2.



**Figure 2.** Increase of motivation for undertaking an effort (Bandura, Cervone, 1983).

### 3. Research objectives and methods

The main objective of the undertaken research work, described in this article, is a presentation of the KOMAG employees' job satisfaction survey, enabling to improve human resources management processes. A realization of research-and-cognitive objectives enabled to obtain knowledge concerning an important aspect of management activities. A utilitarian character of recommendations should be highlighted. The subject-matter of the article is limited to a research institute, but the Authors plan to conduct research at their industrial partners' as soon as possible.

The KOMAG scope of activity covers machinery and equipment for underground exploitation and mechanical preparation of minerals. The research-and-development projects are oriented onto anthropotechnical systems, smart mechatronic systems, interactive shaping of work environment, clean coal technologies ensuring ecological safety, just transition of

post-mining areas according to the recommendations of the European Green Deal strategy as well as a production of green energy, its storage and management. The reclamation of post-mining areas and the restoration of the post-industrial sites require a close collaboration among scientists, researchers, politicians, businessmen, representatives of local and regional authorities and of mining plants. A role of scientists and researchers in the just transition of post-mining areas should be highlighted. The KOMAG Institute of Mining Technology is an example of a successful transformation into the Institute of Green Transition 2030.

The research methods, used by the Authors, are as follows:

- an analysis of publications being a deepened literature studies on the subject-matter of job satisfaction and its impact on management processes; the literature analysis included Polish and foreign publications,
- a case-study method limited to a preparation of questionnaires for testing the KOMAG employees' job satisfaction level and to an analysis of the survey results,
- a heuristic method, enabling to detect new facts and relationships among them, was used for a rationalization of the selected solutions assuming the assessment criteria, searching for similarities and contradictions,
- a method of a diagnostic investigation (questionnaires) consisting in a preparation of questions as regards testing of the KOMAG employees' job satisfaction level; they form a consistent, logical set of items to be used for solving research problems, avoiding suggestions of responses and answers.

It should be borne in mind that the management processes at the KOMAG Institute include a motivating remuneration system of rewards and bonuses. These systems encourages employees to achieve the objectives of the Institute as well as their personal objectives. In Fig. 3 an accordance of institutional values with personal values is shown. According to the presented figures institutional values vary between 14.87 and 6.26 (high) and 4.90 and 6.12 (low) whereas personal values vary from 4.90 to 14.87 (high) and 6.12 to 6.26 (low).

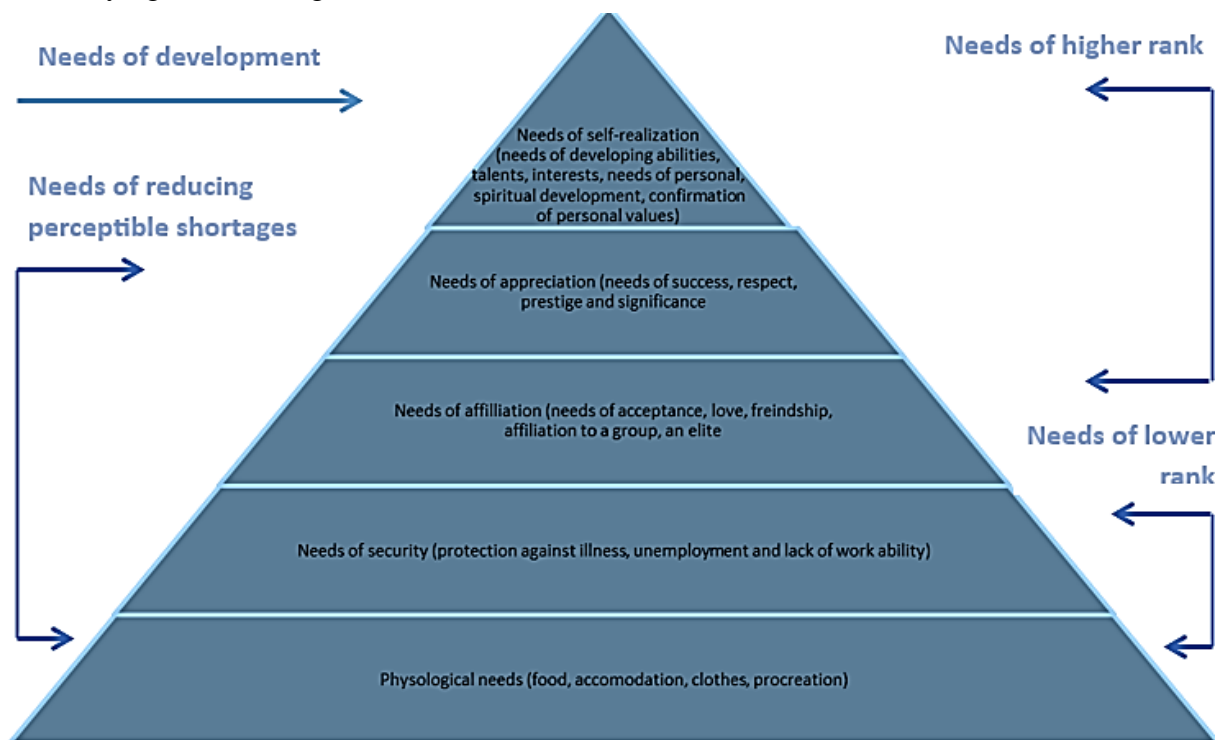
Institutional values	High	14.87	6.26
	Low	4.90	6.12
		High	Low
		Personal values	

**Figure 3.** Accordance of institutional values with personal values (Posner, Schmidt, 1993).

As it has already been presented in the former chapter, the main objective of the undertaken research work, described in this article, is a presentation of the KOMAG employees' job satisfaction survey results.

#### 4. Analysis of the KOMAG employees' satisfaction

In the case of research and scientific institute such as the KOMAG Institute of Mining Technology the most valuable assets include the intellectual capital. Even the best testing infrastructure or software will be useless without skilled creative personnel. There is no doubt that the KOMAG staff makes the assets useful due to their research and development projects. The human potential becomes a real challenge for the managing staff of research institutions, taking into consideration their limitations in the scope of requirement possibilities in comparison with universities and remuneration systems which in most cases cannot compete with industrial enterprises. Within the research project of improving management process at KOMAG, tests of employees' professional satisfaction were carried out based on the Maslow's Pyramid. A Model described among others in the "Motivation and personality" (katowice.eu/edukacja, 2023). The essence of this model consists in grouping human needs on five levels: psychological security, affiliation and love, appreciation and self-realization. The two first ones are regarded to be the basic needs of lower rank which condition a transfer to satisfying needs of higher ranks.



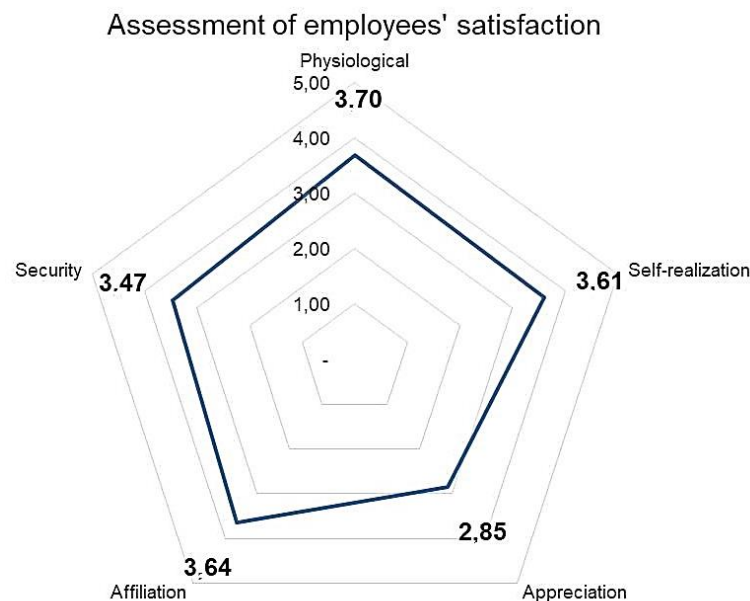
**Figure 4.** Pyramid of needs according to Abraham Maslow (katowice.eu/edukacja, 2023).

An employer's role is oriented onto a satisfaction of employees' needs if the efficiency of employees' work, due to an improvement of the satisfaction level, is to be achieved.

An important objective includes a reduction of costs required for getting and implementing new workers. The above mentioned activities are oriented onto strengthening the employer's position on the market which enables to maintain the best employees and to

attract most valuable new ones. In the case of the KOMAG Institute there is also a danger of losing specialists of very high qualifications in the mining branch of industry because there are fewer and fewer students who want to study mining at technical universities. Another issue concerns a reduced number of orders from the mining industry, as according to the European Green Deal coal should be replaced by renewable energy sources in the energy mix. A job satisfaction of employees seems to be a real challenge considering the circumstances described above. The questionnaire, enabling to test the KOMAG employees' level of satisfaction contained 36 questions. Seven questions were related to each level of A. Maslow's Pyramid of Needs and an additional question was on the plans of working for KOMAG in future. Besides, there were four questions of specification. The reaction of employees to a request of fulfilling the questionnaire was very positive. Altogether 111 employees presented their views. Allocating one point to opinions of firmly and negative character to assess a job satisfaction and five points to opinions firmly positive in the case of psychological, security, affiliation and self-realization needs an average assessment was very close and it varied between 3.47 and 3.70.

An assessment of appreciation differs significantly as it is on the level 2.85, i.e. slightly below the neutral level (Fig. 5).



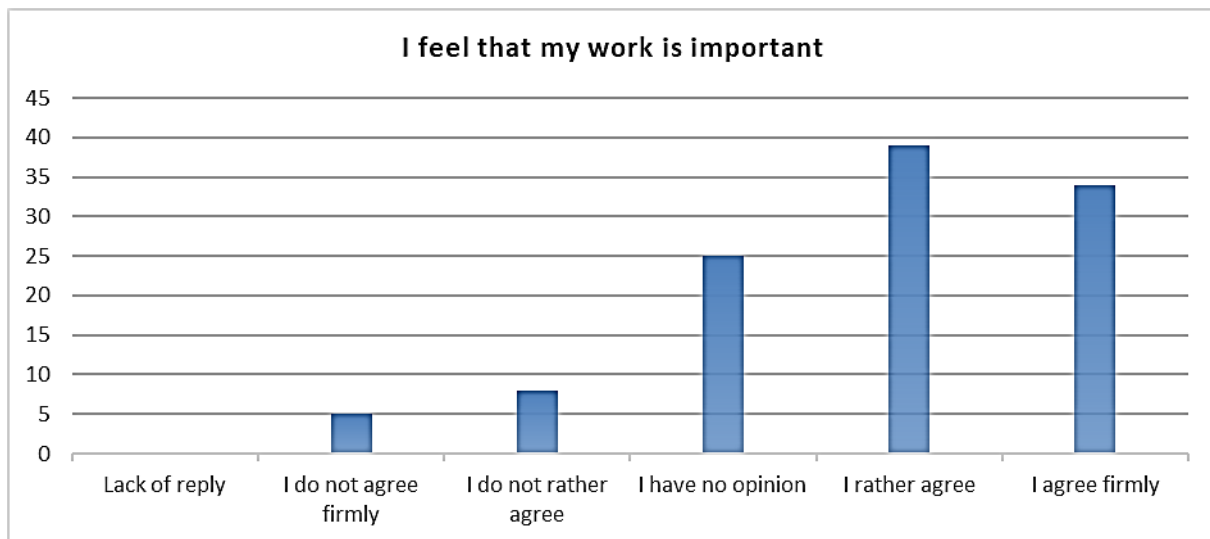
**Figure 5.** Assessment of employees' satisfaction – results of tests conducted at KOMAG in 2022.

The survey results reflect the KOMAG employees major needs and expectations as far as their job satisfaction is concerned. At present different management measures are taken into consideration to improve the situation.



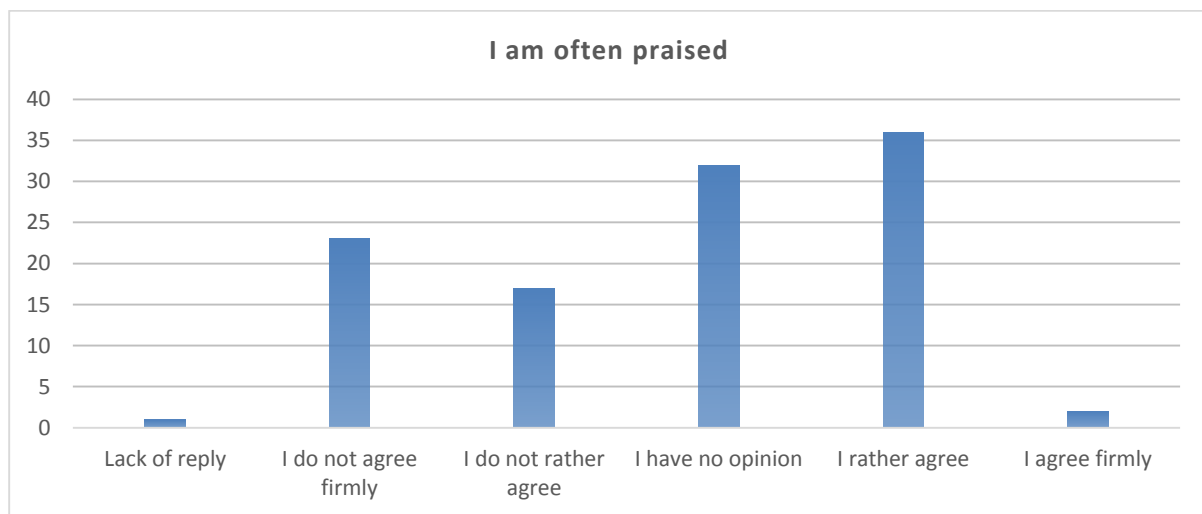
### 5. Detailed results of employees' job satisfaction tests

The Figures 6-14 present the survey results in a graphical form.



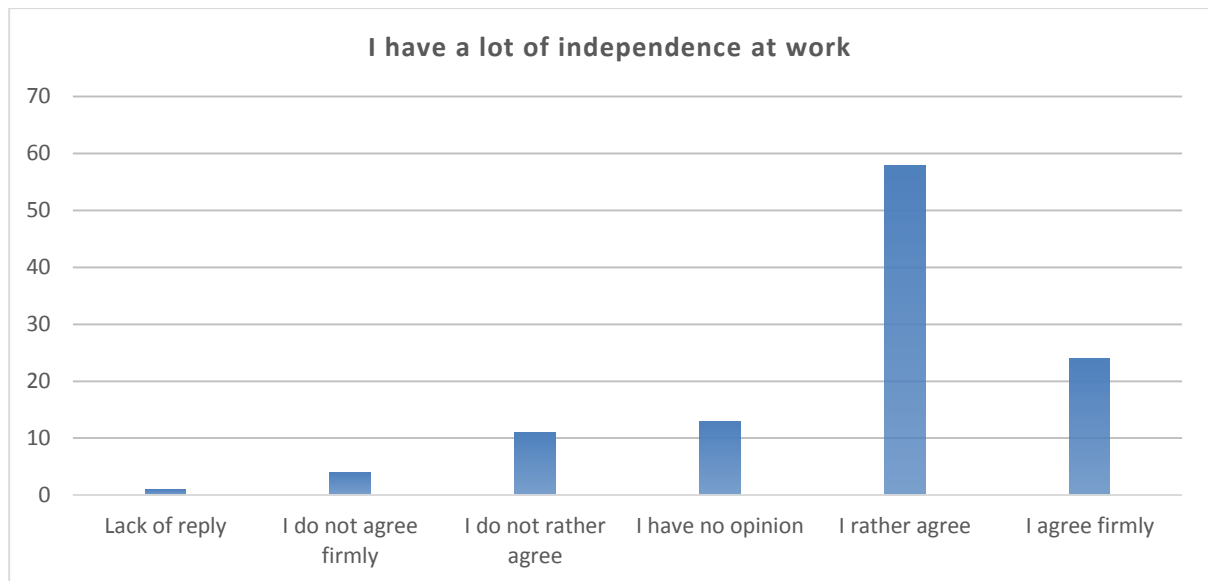
**Figure 6.** I feel that my work is important – test results.

It should be highlighted that 73 respondents gave positive responses and 13 of them disagreed. It should be investigated why such a big number of employees - 25 did not want to present their opinion at all.



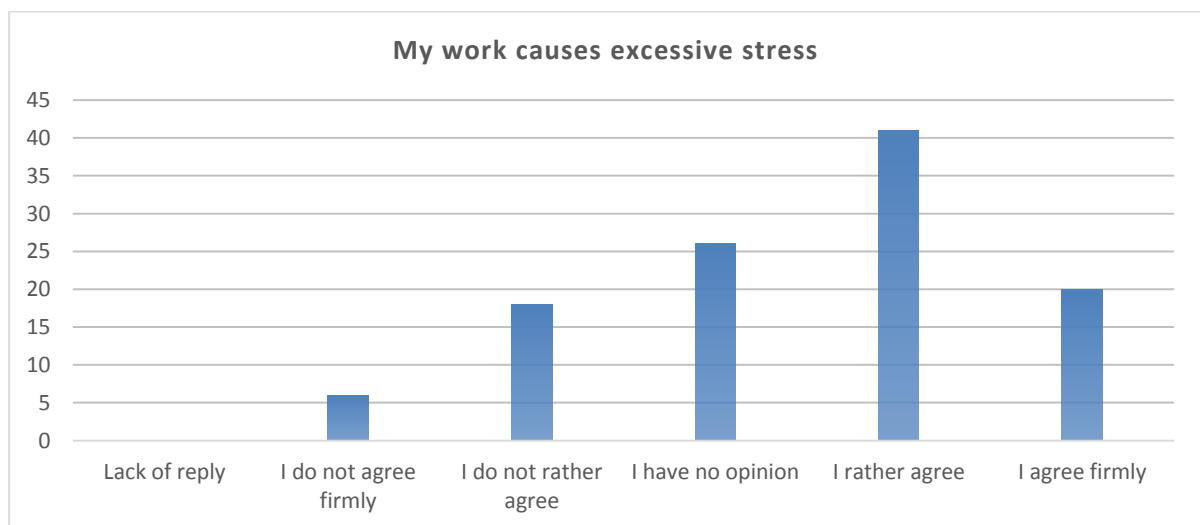
**Figure 7.** I am often praised – test result.

It is worth presenting the fact that only 36 employees rather agreed giving a positive opinion whereas 72 disagreed or had no opinion, which reflects a negative comment.



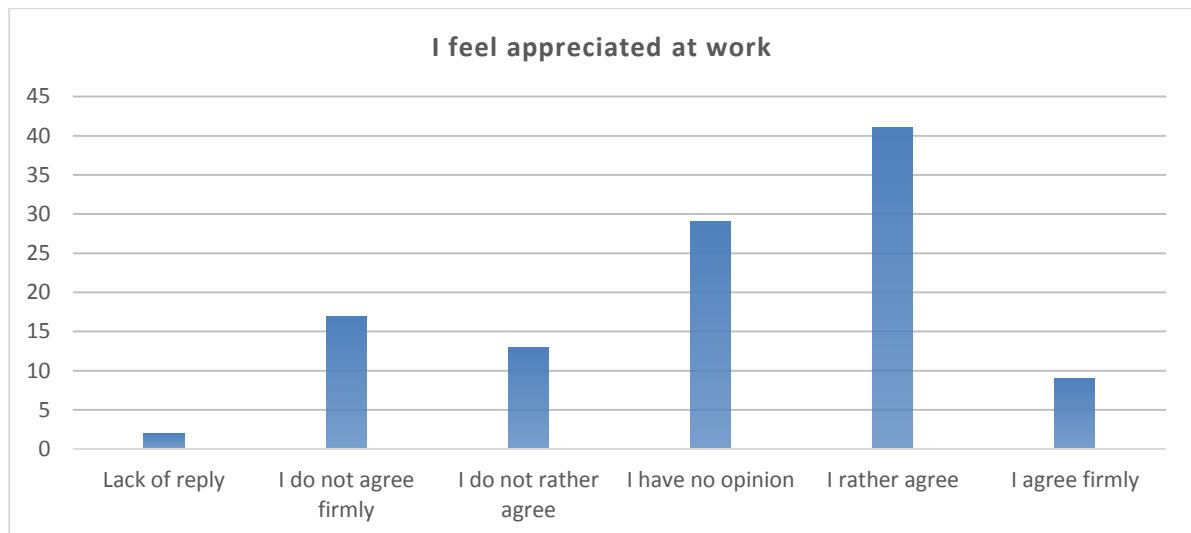
**Figure 8.** I have a lot of independence at work – test results.

In this case the majority of respondents - 81 employees expressed positive opinions which confirmed the fact that creative researchers, oriented onto a generation of innovative ideas at KOMAG, appreciated their independence.



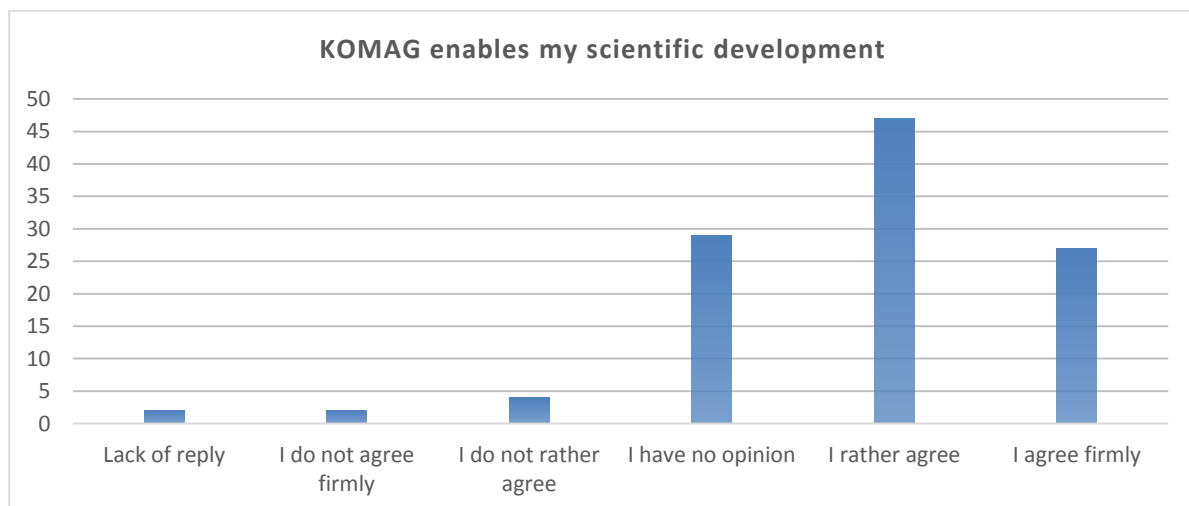
**Figure 9.** My work causes excessive stress – test results.

The majority of respondents - 60 persons have confirmed the fact that their work causes excessive stress, however 24 persons expressed their negative views in this case.



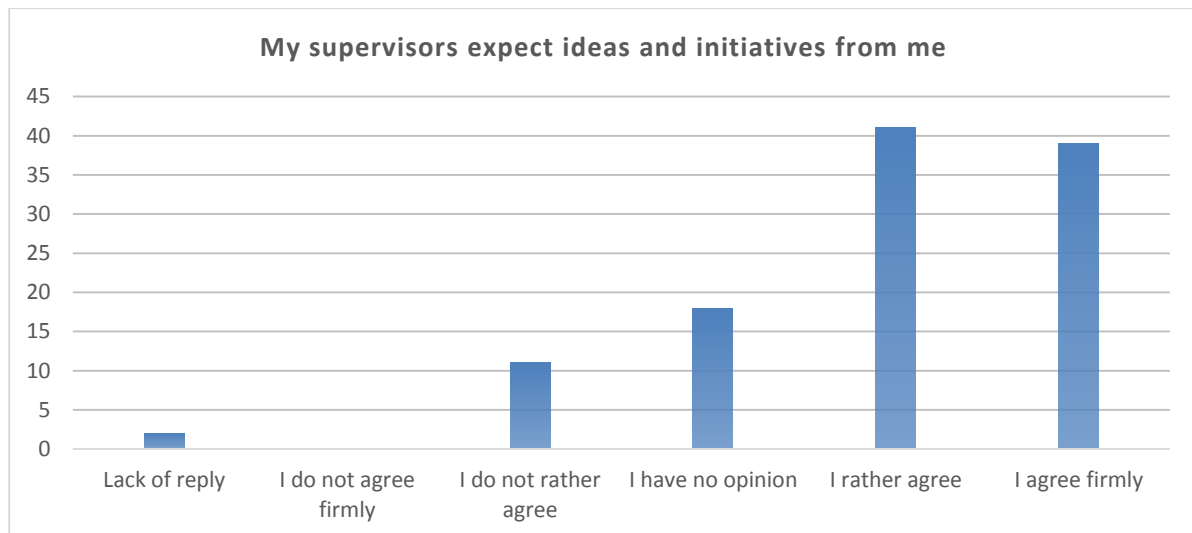
**Figure 10.** I feel appreciated at work – test results.

From the conducted test it can be concluded that 50 persons feel appreciated at work, but it is surprising that 31 employees did not give any opinion at all, so the Authors think that they should be included into the group of employees who are not appreciated and their number in total reaches 61 persons.



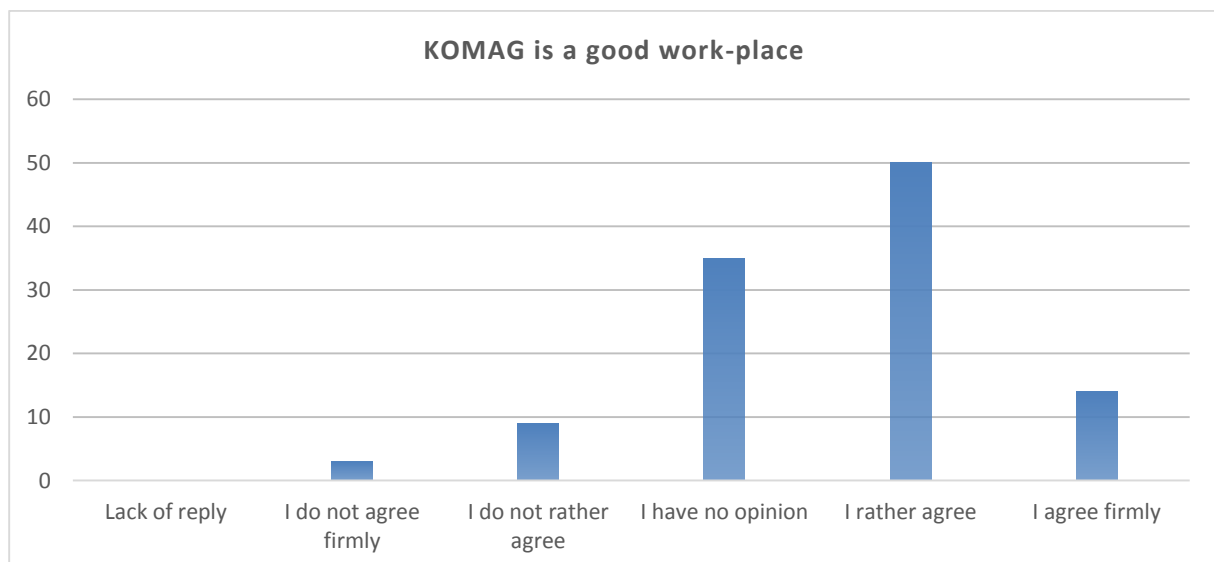
**Figure 11.** KOMAG enables my scientific development – test results.

The opinion on this item seems to be really important in the case of a research institute such as KOMAG, so it is worth highlighting that 74 persons have confirmed the fact that KOMAG enables a development of scientific careers and only 6 persons disagreed with that.



**Figure 12.** My supervisors expect ideas and initiatives from me – test results.

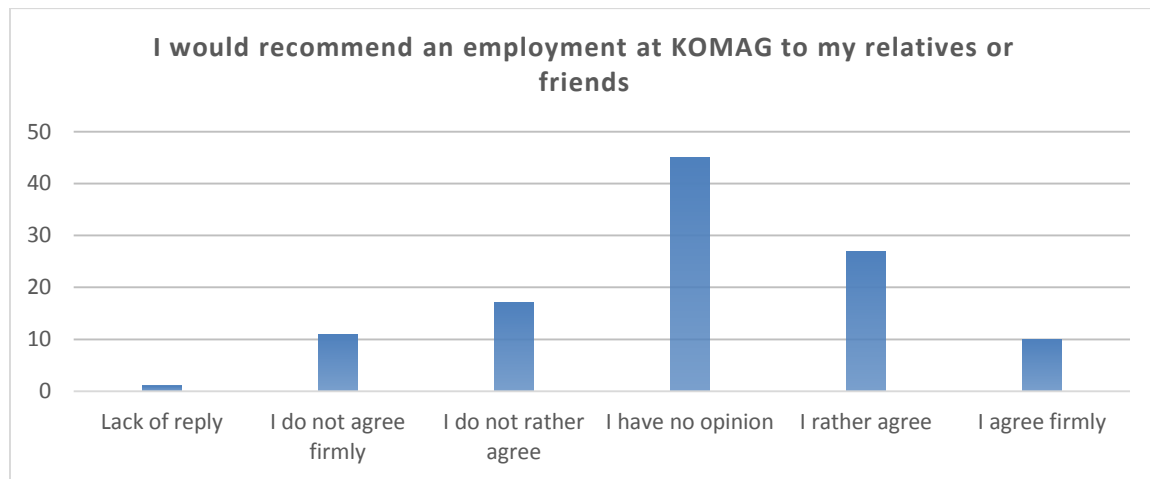
In this case 80 persons gave a positive reply and only 11 employees responded in a negative way.



**Figure 13.** KOMAG is a good work-place – test results.

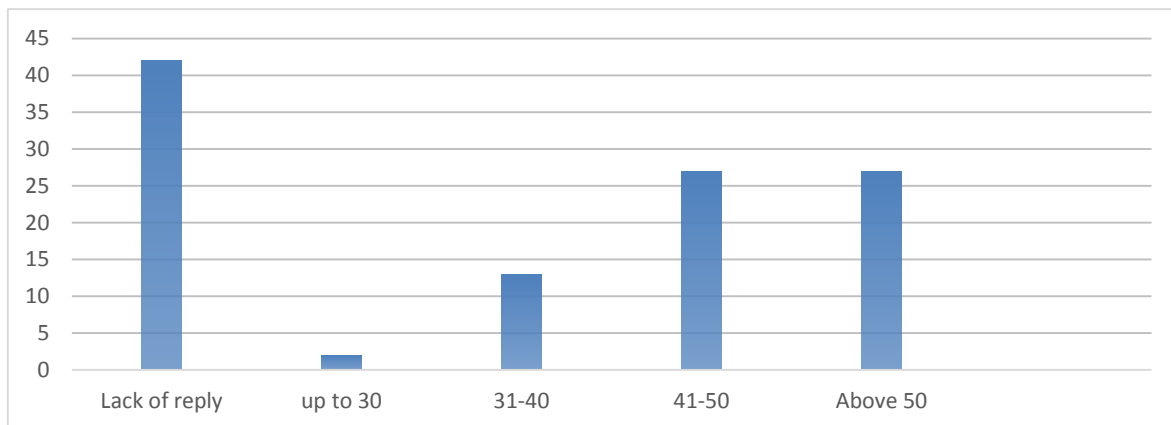
It is important to highlight the fact that 62 persons have positive opinions, i.e. I agree firmly and I rather agree, and in the case of the Item: “My work is interesting and gives me a lot of satisfaction” 81 persons gave positive opinions, as it is shown in Fig. 13.

Taking into consideration the questionnaire results presented above, it is surprising to find out that only 36 employees would recommend an employment at KOMAG to relatives or friends as it is presented in Fig. 14.

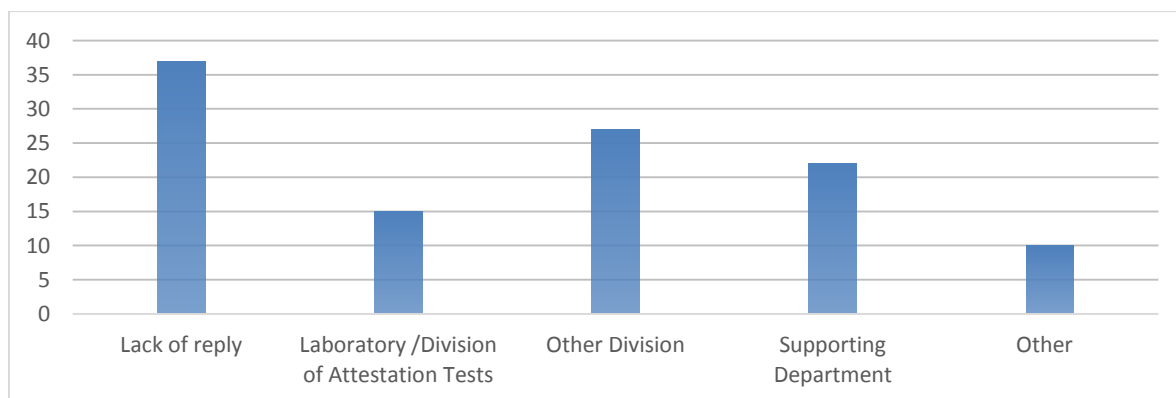


**Figure 14.** I would recommend an employment at KOMAG to my relatives or friends – test results.

Summing up the test results, it should be mentioned that it lacked responses in the case of many items which is rather difficult to explain because a participation in the questionnaire survey was anonymous. In some cases it lacked replies of 49 respondents, although all the items were formulated in a clear, undoubtful way. It may be interesting from the scientific point of view to analyze the respondents' age groups (Fig. 15), their work-places at KOMAG (Fig. 16), and their positions (Fig. 17) as well as their employment periods (Fig. 18).



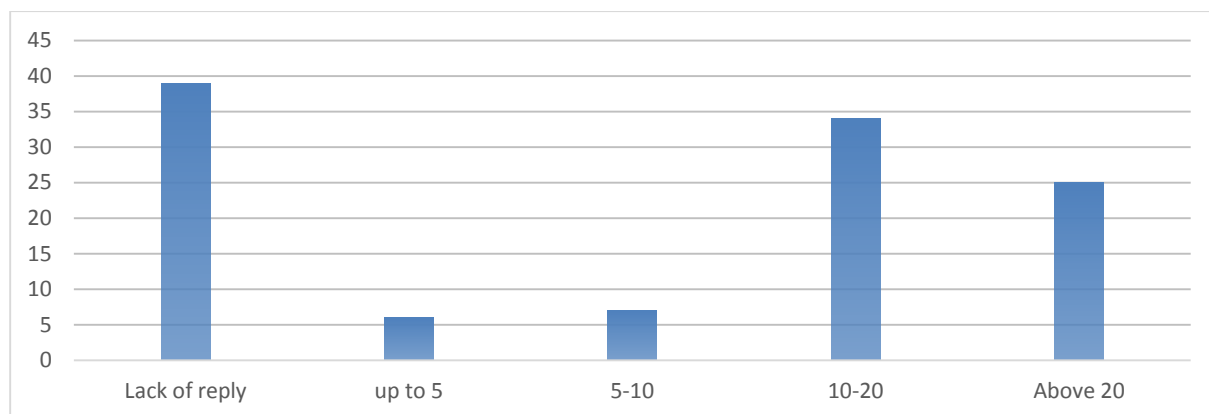
**Figure 15.** Analysis of the respondents' age groups.



**Figure 16.** Analysis of employees' work-places at KOMAG.



**Figure 17.** Analysis of employees' positions at KOMAG.



**Figure 18.** Analysis of KOMAG workers' employment periods.

An analysis of the respondents' age groups shows that it lacked responses from 41 of them, there were 28 persons in the age group: 41-50 years old and the same number in the age group above 50 years old. Only one person was younger than 30 and 12 employees were in the age group 31-40 years old.

As regards the work-places at KOMAG, it lacked responses from 36 employees, 15 persons represented laboratories and Division of Attestation Tests, 26 - another division, 21 - supporting department and 10 of them - other divisions and departments.

Analyzing the positions, it is easy to see that it lacked 39 replies, 49 respondents were classified as employees, 9 - as managers, director, deputy director and 18 - as independent specialists.

An analysis of the employment period showed that it lacked 39 replies, 32 persons have been employed for the period 10-20 years, 22 - for more than 20 years, 8 - for the period 5-10 years and 3- for the period up to 5 years.

The test results reflect an urgent need of improving the appreciation area. At the KOMAG Institute of Mining Technology, where intellectual work results are generated, the main and most valuable assets are its employees who require investments in the chain of values to maintain the economic efficiency of the organization and to guarantee a correct management of human resources.

## 6. Conclusions

The obtained results show a necessity of introducing management measures oriented onto an improvement of the KOMAG employees' level of job satisfaction, in particular in the area of appreciation needs. It is worth following the example of IT companies which make ordinary project team members active and creative in the result of decentralizing decision processes and introducing holocracy processes, at the beginning of the XXI century. Holocracy is a system which rejects a traditional model of a company. It eliminates bosses, managers and workers forming a flat structure, created by a jointly responsible collective body. This model becomes more and more popular, especially in the IT sector. In this case the management determines only general directions of activity, whereas self-organizing collective bodies present their initiatives. An encouragement of employees to undertake activities and an appreciation of their achievements are equally important as risk assessment and budget management in projects. It should be highlighted that in the case of each scientific and research institution, it is indispensable to take care of creating, maintaining and developing the potential which is based on:

- developed and gathered knowledge (know-how, test results, publications, technical documentations),
- intellectual assets (independent scientists and researchers, young scientific personnel, qualified technical personnel),
- state-of-the-art testing infrastructure,
- possibilities of getting financial means for covering costs of research-and-development projects,
- network of collaboration,
- market position and renown,
- organizational efficiency.

Undoubtly the sphere of appreciation needs should be improved at the KOMAG Institute of Mining Technology first of all. The employees of intellectual character are the most important assets and they require an investment in building values and a maintenance of all the efficient activities oriented onto management processes of human resources.

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