



## Role of Technical Managers in Mining

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*Abstract: This study offers an insight into the education of technical management and raises the question regarding the need for technical managers. We investigate why, in what way and how technical managers could contribute to the efficiency and profitability of an undertaking. We search for the answer to the question: what knowledge should be acquired to this end. We are going to describe the content of the manager education delivered in the frames of the technical manager education at the Óbuda University; how significant the basic subjects are; where specialisation starts; why the conscious selection of the modules is important; how the elective subjects influence the professional specialisation. An evaluative description of the technical manager faculty will clarify those basic knowledge elements that are not directly required, and whether the specific and elective subjects drive specialisation.*

*Keywords: Óbuda, managers, technical, professional, specific, mining*

### 1 Introduction

“Technical”: many people do not know what this term really means, which means that on the labour market the recognition and reputation of this profession is not as favourable as should be of such a complex academic qualification or by a student holding such degree. In order to clarify this misunderstanding, present paper endeavours to explain what technical managers are and what they know; how the can be of use in a specific industry, namely in mining.

“Technical managers graduating from the Technical Management BSc programme will be in possession of the necessary economic, leadership and IT skills that will enable them to run private enterprises and corporations, head economic organisations, and also to perform tasks linked to the preparation, operation, management, design and development of production processes, quality control and technical services.” (KGK, 2015)

In other words, Technical Managers are equipped with knowledge in both natural and technical sciences, as well as economic and organisational skills which are needed for the integrated solutions in production and services regarding the

material, financial and IT fields as well as human resources. Technical managers do not only know the scientific, human, economic and social structure of production and services, or how to set up and manage an enterprise, as “mere” managers, or students of management sciences would, but they are also aware of the principles and results in related sciences (eg. Sociology, Psychology, Law) and Technology.

Students of Óbuda University can decide to be Technical Managers in 4 different engineering fields, namely that of: Mechanical engineering, Electrical engineering, Informatics, Environmental Management Systems. However, various other specialisations are offered by other higher educational institutions in Hungary and abroad.

In Hungary some people are sceptic about the efficiency of the technical manager education or other similar hybrid educations – especially it seems to be the situation in the past years. Those against hybrid courses are mostly complaining about the fact that in the course of their technical managerial studies, students learn only a little about various subjects, and on the basis of this, for them it is a justifiable assumption that students participating in hybrid education could not be able to get to the higher levels of scientific applications.

This is a big mistake! True, hybrid education takes small volumes from everything but therefore students of such courses, such as Technical Managers are able to comment on everything, equally to technical and economic topics. Technical manager as a profession is the golden mean in between technical and economical faculties.

In present paper I will try to prove my statement by investigating one specific research topic, namely, whether or not Technical Manager professionals could participate in the mining industry.

## **2 Mining in Hungary**

In 2008, according to the register of the Hungarian Office for Mining and Geology (HOMG) 879 mining companies carried out active minerals and geothermal energy production on 1858 mining sites. Mining companies however are really small, since the total number of workers in mining according to the Central Statistical Office in Hungary (KSH, 2015) there were only 9600 registered workers in the Hungarian mining industry. It might seem small, but the gross value added by mining in 2014 – when the number of the workers of the industry was approximately 10 000, not significantly higher than in 2015 (KSH, 2015) – was 62 189 M HUF. Which made the industry producing 0,2 % of the gross domestic products (KSH, 2014).

These data suggest that the companies within the industry could work more efficiently and are lacking either resources or specific knowledge and skills. Supposing it is (not solely, but at least partially the later one), in present paper the skills and competences expected from one working in mining are explored and the potential use of Technical Managers is investigated.

## 2.1 Research methodology

In a questionnaire, in addition to the demographic characteristics, with the help of close questions (multiple choice questions) we revealed the employment status of the interviewees and the way they think about the Technical Manager profession. I have interviewed 100 persons. This survey intends to clarify whether Technical Managers have reason for existence within the mining industry, and if yes, what they could be of benefit in that filed. Where they could be of assistance regarding mining and the life of miners. The survey was a targeted, non-representative one, in view of the fact that I was interested only in the opinions of miners.

### Research result presentation

Chart 1 shows the gender breakdown of the interviewees; 67% are males and remaining 33% are females, i.e. in the course of my research I have processed the answers of 67 men and 33 women.

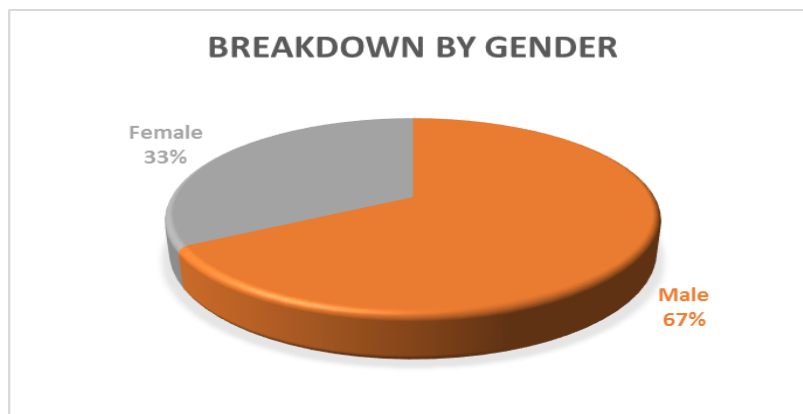


Figure 1

Gender breakdown of the interviewees

Chart 2 illustrates the age breakdown of the interviewees. The survey focused mainly on the opinion of those aged at least 35 in view of the fact that someone aged 25 might not have experiences enough for making realistic decision

concerning the areas where Technical Managers could be of assistance within mining.

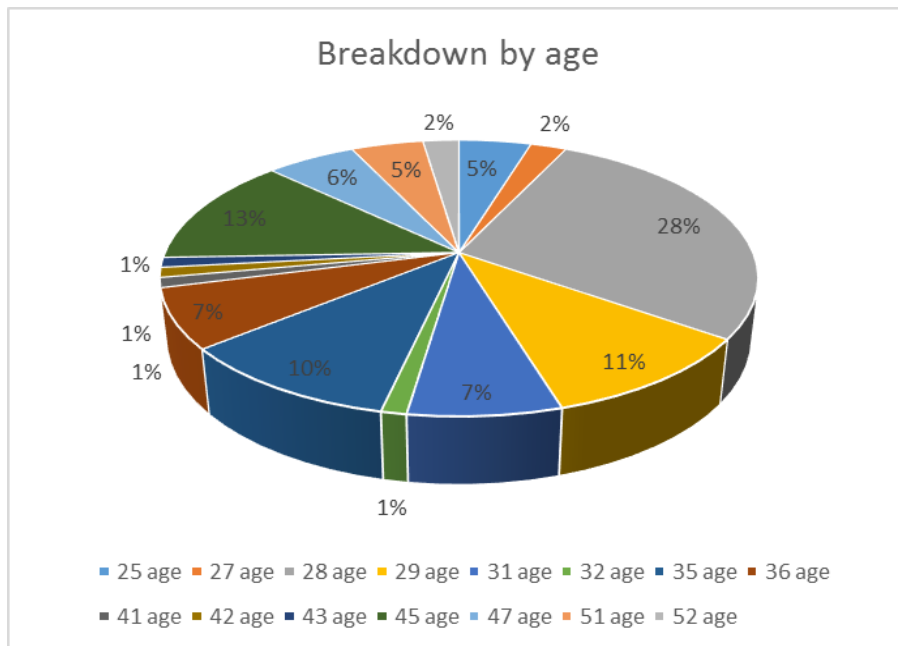


Figure 2  
Breakdown of the interviewees by age

Chart 3 illustrates the breakdown of interviewees by educational level. The chart reveals that 53% (more than half) of the interviewees has university degree. And this is good from the aspect of our research because they as mining engineers have better insight into the mining activities and processes therefore they can form their opinion more easily.

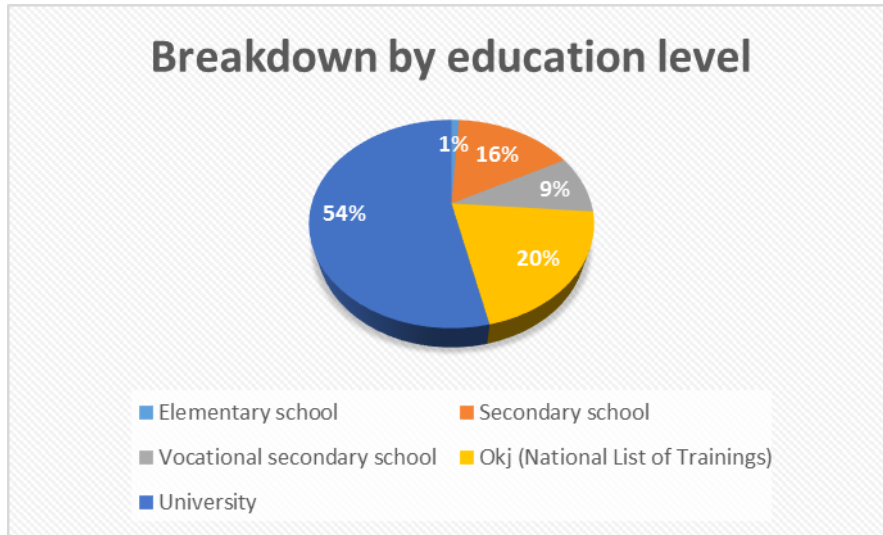


Figure 3  
Breakdown of interviewees by educational level

Chart 4 illustrates the breakdown of interviewees by work experience. Similarly to the previous chart, the number of years spent in the industry is important. This is because the longer someone worked in the mining industry, the more he/she knows about those empty spaces and shortages that could be filled by a Manager. In reality, in the possession of a 5-year work experience, interviewees are able to give appropriate answer. 26% of the interviewees possess university or higher degree and proper work experience.

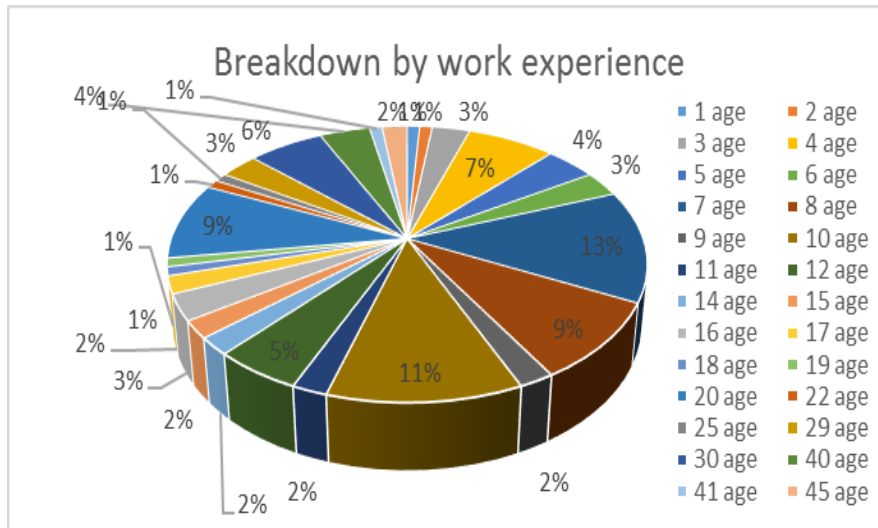


Figure 4  
Distribution of interviewees by work experience

Chart 5 shows the distribution of the opinions given by miners regarding the functions of mining where Technical managers could be engaged. The highest rate, 35% was given to process control. This is interesting because the Technical Manager Faculty is made up of two parts: an economic and a technical module. If the proper module was selected machinery or electric studies then process control could be a quite obvious function.

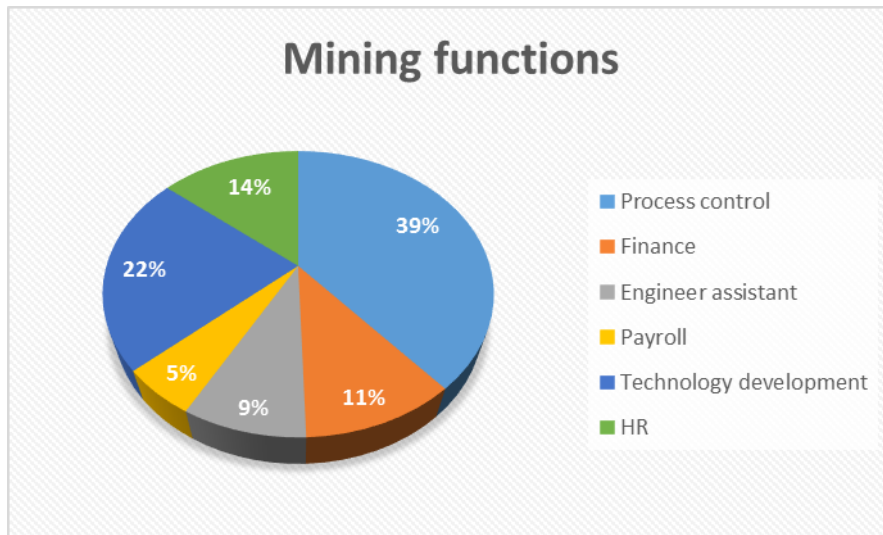


Figure 5  
Breakdown of mining functions

Chart 6 clarifies whether according to miners Technical Managers need preliminary training or not. The majority, 55% believes that this is unnecessary but 45% doubts it.



Figure 6  
Necessity of preliminary training

Chart 7 shows that what those subjects are -according to miners- that if properly deciphered would be beneficial to managers in their work. This is obvious that anyone wishing to find a job in the mining industry should be familiar with various mining terms and operations.

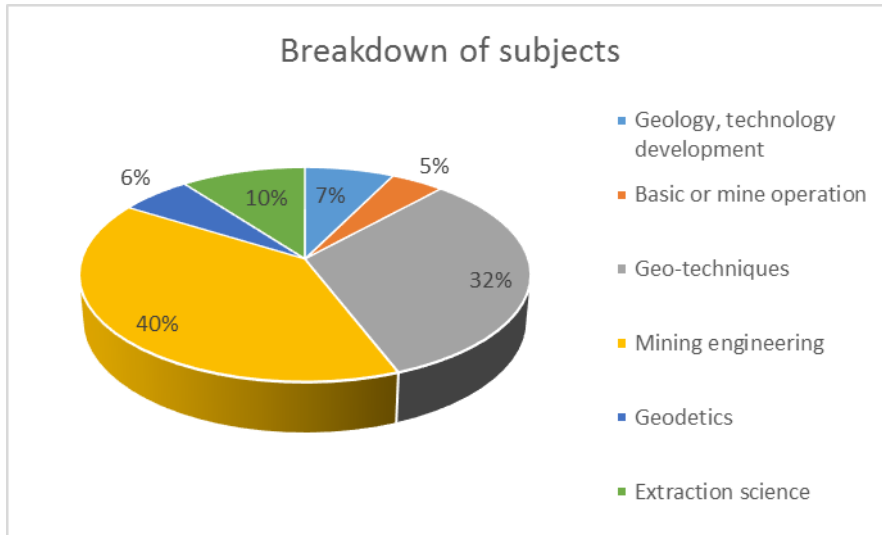


Figure 7  
Breakdown of subjects

Chart 8 presents those work tasks that are least preferred by miners. These tasks could be confidently entrusted to Managers.

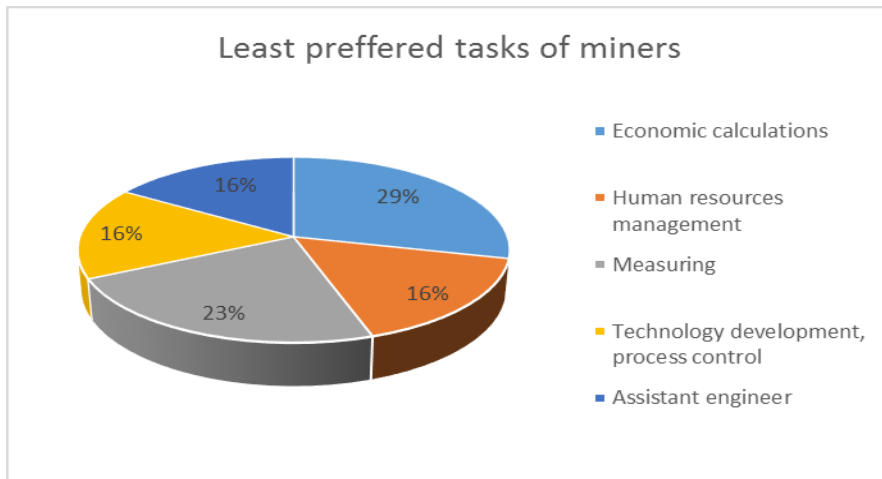


Figure 8  
Jobs least preferred by miners



## Conclusion

The survey discovered that there is room for Technical Managers in mining. However, in order that they would be treated as the full members of the team they should be familiar with the basics of the mining profession and should possess the right attitude. Just like in every other profession there are tasks that colleagues are not pleased to do or are unable to spare time for. A manager could do those easily. According to our research in order for a Technical Manager to perform well, it is not necessarily for him or her to hold a preliminary qualification if he/she is engaged in some sort of economic activity, however, if he/she takes a technical role within the mine, he/she should pay extraordinary attention to Mining engineering, Geo and Manufacturing technology.

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