Abstract

The paper attempted to develop a methodology for assessing sustainable development for manufacturing companies of small and medium-sized in the metal industry. It is pointed out that the existing activities carried out in the field of implementing the concept of sustainable development focus only on three traditional dimensions: environmental, social and economic. Therefore, a comprehensive methodology in the field of sustainable development is being sought, which would take into account the specificity of production processes and support the process of developing and implementing our own sustainable strategies. The need to implement tools to assess the level of sustainability is mainly due to the emphasis on manufacturing companies and strict legal requirements for production practices. The work consists of six main chapters.

The first chapter is an introduction. This chapter indicates the genesis of the research problem, presents the research problem and research methods, defines the purpose and scope of work, and puts forward research hypotheses.

The second chapter is the development of the available literature on the concept of sustainable development in manufacturing enterprises. An analysis of the literature on sustainable development objectives and indicators was carried out and the characteristics of methods and tools for assessing the level of Sustainable Development were presented.

The third chapter presents a critical analysis of the literature on the application of multi-criteria analysis methods and discusses the possibilities of using decision trees in the area of sustainable development in manufacturing enterprises.

The fourth chapter builds a method for assessing the level of sustainable development for manufacturing companies in the metal industry, built from the following elements: (1) values of Sustainable Development indicators in manufacturing companiesof small and medium-sized in the metal industry, (2) a model supporting decision-making in the area of Sustainable Development(3) prediction of scenarios of activities leading to an improvement in the level of Sustainable Development. The subsections of the chapter describe in detail the individual stages of the methodology.

The fifth chapter is a verification of the author's methodology for assessing the level of sustainable development in a company in accordance with the reference model. In this part of the work, the developed model was verified thanks to the implementation of the solution in a Polish metal manufacturing company. The final effect of the implementation was to determine the level of sustainable development in the examined company and to indicate recommendations for the manager.

Chapter six is a summary of the work. The chapter also indicates the planned directions of further work.

Keywords: level of sustainable development and sustainability assessment, manufacturing company, SME sector, metal industry, multi-criteria analysis methods, decision tree, method of assessing sustainable development.