

# **DEVELOPMENT OF A MODEL FOR THE IMPROVEMENT OF SAFETY IN THE WORK PLACE THROUGH THE ANALYTIC NETWORK PROCESS**

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## **ABSTRACT**

The aim of this study is to analyze the dynamics of cognitive processes by means of the technique of the ANP with the purpose to develop a method to improve safety in the workplace. Research has underlined how to minimize and improve safety in firms, it is not sufficient to reduce the “technological failures” but it is necessary to analyze the “human factor” therefore acting on aspects such as analysis of man-machine interfaces and decision support systems. Man is, therefore, the core of a cognitive process that leads to decisions, and therefore influences the safety of the whole system and of all operators according to his own reliability. The purpose of this study is the definition of a cognitive model based on the ANP through which we can “explain” the errors of a wrong decision-making process underlying incorrect performance and accidents at work. Through the ANP sources and typologies of hazard are identified in order to build the network decision-making and calculate the weights for each source of risk. The application of the method gives us, through the investigation of the decision-maker and its decisions, the definition of a “safety system”. The implementation of the ANP allows us: to build a model that helps to measure and synthesize a large number of factors that must be considered in the complex decisions in industrial safety field; to reach the decision that better satisfies the multitude of objectives allowing to the decision-maker the synthesis of the large number of criteria or sub-criteria.

Keywords: ANP, Safety, Human factor, BBS, HRA

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