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# Development and validation of a tool to evaluate resilience performance in metalworking industry

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For several organizations, occupational risk management is focused on risk assessment, accident investigation and analysis, and implementation of control measures. Investigation and analysis of accidents is often carried out taking into account causation models, with the objective of identifying the causes and determining effective corrective measures to improve both current practices and risk control systems. This behavior of the organizations fits in the traditional perspective of safety, realized as the absence of unwanted events.

The traditional safety management approach begin to show itself unable to cope with the changes in the working context and unable to fully explain the accidents occurred within organizations. In view of this, arose the need to find new models. Resilience Engineering emerges as a new safety management paradigm that seeks to focus on the daily performance of organizations and ensure the necessary actions that enable the continuing evolution and growth of the systems. Assuming itself as a proactive approach, contrary to the traditional view of safety, it seeks to ensure that the number of successful results is as high as possible under the most varied conditions.

With this new paradigm, new methods and instruments have emerged to support in resilience assessment, such as the Resilience Assessment Grid (RAG). According this method, four abilities are necessary for resilient performance, called cornerstones of resilience: ability to respond, ability to anticipate, ability to monitor and ability to learn. RAG allows us measure how resilient the system's performance is.

Given the importance of Resilience Engineering for organizations, particularly for industries, there is a need to adapt existing instruments to different realities. The Portuguese metalworking sector is of particular interest, since the accident rate is still high and improvements to the risk management process are needed. Additionally, it is important to recognize the relevance of risk assessment and investigation and analysis of accidents processes for Occupational Safety & Health management in this sector.

In view of the above, this study aims to develop and validate a grid to assess resilience in the metalworking sector, which allows to determine the contribution of risk assessment and the investigation and analysis of occupational accidents for a resilient performance. For this purpose, a questionnaire was designed based on RAG assumptions. The first version of the questionnaire was developed by a team of four researchers and according to the current bibliography. In a second phase Delphi methodology was applied to find the final items to include in the grid. A team of 20 specialists were included, who analyzed the applicability and suitability of each item to the sector. In the following phase, the questionnaire will be applied to a sample of metalworking industries. The results will be presented at the congress. The authors believe that the application of this grid will contribute to the definition of strategies that helps the companies of metalworking sector to improve safety management.