Abstract

Occupational safety and health are key contributing factors to the quality of employment. Nevertheless, the trend of work-related burden of disease and injury even seems to increase over the years.

Chapter 1 provides an overview of occupational injuries and work-related illnesses world statistic along with a possible explanation. Indeed, past research indicates that reasons for these huge numbers of victims may be a poor Hazard Identification, an incorrect Risk Assessment and consequently a not effective Risk Management. The relationship between OS&H and Quality management is already known by researchers, thus, the general aim of this dissertation is to provide methodological contributions exploiting an approach based on Quality Engineering techniques to try to achieve a correct Hazard Identification, a more accurate Risk Assessment and consequently more effective Risk Management in Occupational Safety and Health field.

To better understand the impact that the adoption of the investigated approach may have on Risk Assessment and Management in Occupational Safety and Health field, and to corroborate its wide range applicability, six case studies from different sectors were introduced in Chapter 2 and analysed in detail in Chapter 3. For every case study the state of the art was deeply analysed as a first step. Then, several Quality Engineering techniques (e.g., uncertainty budget table, measurement scale analysis and Design of Experiments) were applied to achieve better results in terms of health and safety. The results of the case studies demonstrate that the investigated approach brings significant improvements to the Risk Assessment and Management, through, for example, a better estimate of the exposure to hazardous chemicals.