

## Tools and Techniques in Risk Assessment in Public Risk Management Organisations

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**Abstract :** Risk assessment and the knowledge provided through this process is a crucial part of any decision-making process in the management of risks and uncertainties. Failure in assessment of risks can cause inadequacy in the entire process of risk management, which in turn can lead to failure in achieving organisational objectives as well as having significant damaging consequences on populations affected by the potential risks being assessed. The choice of tools and techniques in risk assessment can influence the degree and scope of decision-making and subsequently the risk response strategy. There are various available qualitative and quantitative tools and techniques that are deployed within the broad process of risk assessment. The sheer diversity of tools and techniques available to practitioners makes it difficult for organisations to consistently employ the most appropriate methods. This tools and techniques adaptation is rendered more difficult in public risk regulation organisations due to the sensitive and complex nature of their activities. This is particularly the case in areas relating to the environment, food, and human health and safety, when organisational goals are tied up with societal, political and individuals' goals at national and international levels. Hence, recognising, analysing and evaluating different decision support tools and techniques employed in assessing risks in public risk management organisations was considered. This research is part of a mixed method study which aimed to examine the perception of risk assessment and the extent to which organisations practise risk assessment's tools and techniques. The study adopted a semi-structured questionnaire with qualitative and quantitative data analysis to include a range of public risk regulation organisations from the UK, Germany, France, Belgium and the Netherlands. The results indicated the public risk management organisations mainly use diverse tools and techniques in the risk assessment process. The primary hazard analysis; brainstorming; hazard analysis and critical control points were described as the most practiced risk identification techniques. Within qualitative and quantitative risk analysis, the participants named the expert judgement, risk probability and impact assessment, sensitivity analysis and data gathering and representation as the most practised techniques.

**Keywords :** decision-making, public risk management organisations, risk assessment, tools and techniques

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