

## Vulnerability and Integrated Risk Assessment

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- 11) **Short Summary:** The present work aims developing and implementing a methodology and associated computational platform for the vulnerability assessment at regional level, with application to Europe.
  
- 12) **Keywords:** Engineering Sciences, Technology

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## **13) Project description:**

### Goal

The present work aims developing and implementing a methodology and associated computational platform for the vulnerability assessment at regional level, with application to Europe.

### Methodology

Within the quest to quantify the vulnerability at regional level, in relation to critical infrastructures, a methodology is intended to be proposed, providing, in essence: (i) a working definition for the concept of region, ii) a working definition for the concept of vulnerability, iii) an appropriate metric to vulnerability, iv) provide basis for a qualitative vulnerability assessment with relevance to regional level, v) a 'Vulnerability Scale', and the means to measure the respective 'Vulnerability Index', as an operational expression of a 'Quantitative Vulnerability Assessment' (QVA), vi) comparative vulnerability assessment of various critical systems within the framework of regional co-existence.

### Results

A methodology to diagnose the vulnerability status of a complex system featuring large numbers of indicators, as well as to dynamically monitor the time-evolution of the vulnerability as the indicators change, and the relevance to regional level to be proved. A consequent methodology, models, and adequate platform of software implementation are considered as attractive and useful in further dealing with concepts such as vulnerability mapping (by use of GIS, GPS, and other monitoring technologies). The goal is to achieve a comprehensive methodology, indicators, operational platform towards a living assessment of vulnerability at regional level, in view of homeland security. The methodology is supposed to be generic, and to accommodate a variety of applications. The case study intended to be considered is related to vulnerability at regional level including the transportation of dangerous goods, subject to various type of threats. Effect indicators are combined with indicators reflective of the managerial capability to mitigate risks, in order to fully enable the functioning of the generic QVA procedure.

## **14) Popular description:**

The present work aims developing and implementing a methodology and associated computational platform for the vulnerability assessment at regional level, with application to Europe.

## **15) Graphics:** no entry

## **16) Publications:** no entry

## **17) Links to important web pages:** no entry