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8th IQC
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8th International
Quality Conference

23.05.2014. Center for Quality, Faculty of Engineering, University of Kragujevac



Culture of Quality

Quality and Social
Responsibility

From knowledge
to quality

Competition and
globalization

Innovation: A key of
quality in
automotive industry

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to quality and
safe food

Quality of life
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Management of
sustainable
development

ICT challenges
for future society

Excellence of
society organization



8th IQC
QUALITY
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23.05.2014., Kragujevac, Serbia



8. International Quality Conference



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MODELING WEIGHTS OF ORGANIZATIONAL VULNERABILITY FACTORS: GENETIC ALGORITHMS APPROACH

Abstract: Market requirements and the development of new technologies require constant improvement of business organizations to enable them to ensure sustainable development. A significant number of companies is not capable of managing its own vulnerabilities so in a presence of significant disturbances they may disappear from the market or become entities within more capable organizations. This paper presents a model of obtaining the weighting coefficients of the factors that can be used in the evaluation of the overall vulnerability of the organization. The model is tested on real data obtained from the production sector in Central Serbia.

Keywords: Organizational vulnerability, risk, genetic algorithms

1. INTRODUCTION

As a response to changes in the business, in the last decade of the twentieth century process approach has emerged with multidisciplinary application (operating management, system dynamics, system modeling). Continual changes in market demand imply high degree of organizations adaptability which can be achieved through the improvements based on the quality [1] and business process management [2]. An important part of success in business operations is dealing with organizational failures that are relevant sources of potential for breakdown of organizational efficiency and may lead to large delays and very significant issues.

The literature often treat the management of organizational vulnerability as part of the organizational resilience [3], although the relationship between organizational resilience and

vulnerability is treated in a variety of areas [4] from environmental changes to the socio - economic systems [5]. Resilient organizations in most cases have the ability to recover from disturbances to the normal state in a short period of time [6].

Organizational vulnerability is a complex issue due to its nature, so it can not easily be accompanied to a simple metric. Its complexness make vulnerability hard to quantify. Even harder is to define a unique threshold of risk, danger or damage to the organization as a whole. Similarly, the extent of resilience is still extremely difficult to obtain so mentioned problems remain open for further research, particularly in organizational science [7].

The main objective of this paper is introduction of a model oriented to assessment of coefficient weights of risk factors during an assessment of overall organizational vulnerability.

This paper is organized in the following way: in Section 2 the literature