

Proceedings of the 7th Annual World Conference  
of the Society for Industrial and Systems Engineering,  
Binghamton, NY, USA  
October 11-12, 2018

## **Predictor Model of the Supply Chain Effectiveness Based on Critical Success Factors**

**S.A. Noriega Morales<sup>1,2</sup>, S. Michel da Gama<sup>1</sup>, J. A. Hernández<sup>1,2</sup>, E. Martínez Gómez<sup>2</sup>, and V.A. Torres<sup>2</sup>**

<sup>1</sup>Doctor of Science in Management Program  
National Autonomous University of México -UNAM-  
Ciudad Universitaria,  
México D.F.

<sup>2</sup>Departament of Industrial and Manufacturing Engineering  
Ciudad Juárez Autonomous University –UACJ-  
Ciudad Juárez,  
Chih., México

Corresponding Author e-mail: [snoriega@uacj.mx](mailto:snoriega@uacj.mx)

**Abstract.** The business environments of the globalized economy present increasing complexity, under highly variable conditions of volatility, risk and uncertainty which exert intense pressures to organizations and confronts them, with increasing frequency, to disruptive and unexpected events. Some organizations develop a resilience profile to increase the capacity to anticipate, adapt and recover equilibrium or even, gain a new advantage position after the disruption. This paper is about the determination of the factors of organizational resilience and the development of a structural equation model. The first section presents the background, the description of the problem and a literature search of the resilience factors and their classification. The Methodology section explains the development of a questionnaire based in those factors, which was applied for the determination of the relative importance of the factors in several industrial sectors. The questionnaire was validated with the Cronbach alpha index and then was applied in a sample of manufacturing companies of the twin plant industry of Ciudad Juarez, México. By means of a Partial Least Squares Structural Equation Modeling Approach, a structural model was developed and identified the key “driver” factors related to the development of Organizational Resilience. The section of results describes the model and in the last section, the conclusions are discussed.

**Keywords:** Supply Chain Management, Factor Analysis, Path Analysis, predictor models.