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BOOK OF ABSTRACTS

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Development of a methodology for the management of risk in a supply chain. Application to the pharmaceutical sector

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Abstract Most of the current supply chains have been designed to respond the clients' and customers' requests. Nevertheless, they are not designed to face situations of risk, which is an important aspect to be taken into account nowadays given the complexity of the chain management. We propose a methodology to re-design a supply chain including some decisions to consider risks. Later, it is shown how its first steps can be applied to a case study of distribution in the pharmaceutical sector.

Keywords: supply chain management, design, risk, methodology.

1 Introduction

The supply chain management (SCM) encompasses the planning and management of all activities involved in the supply and acquisition, conversion and distribution, and if necessary, reverse logistics (Chopra and Meindl, 2016). Global supply chains are affected by different events, according to the physical area they operate. This can be conceptualized in form of risks. Their management is studied under the known SCRM, Supply Chain Risk Management (Tang and Musa, 2011). Simultaneously, the important changes in society and business have brought a higher uncertainty in markets, more customer expectations, greater

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global competition, longer supply chains, greater variety of products and shorter lifecycles. Many years ago, Kaplan and Garrick (1981) formulated some questions that the executives had on this field: What can go wrong? What are the risks? What are the consequences? The case study is framed in the pharmaceutical sector.

2 Methodology for Supply Chain Risk Management

Many methodologies for supply chain design cannot address all types of chain. Moreover, they do not make differences between a design and a redesign and this brings differences from a methodological focus, which have not been addressed (Klibi et al, 2010; Corominas et al, 2015; Chandra and Grabis, 2016). We propose a methodology for supply chains which are running:

1. Definition of the object of the SC, an environment analysis and the formulation of objectives.
2. Definition of the existing SC, as a priori design. This will be done at several levels (the macro, the meso and the micro).
3. Definition and/or evaluation of the model of SCM and the strategic coherence of the SC (reality versus objectives).
4. Study of the customers and the possible scenarios of demand. An analysis on demand risks will permit to evaluate possible scenarios.
5. Identification and evaluation of risks in the supply chain, by determining current and latent threats.
6. Analysis of the redesigned chain, final state, using optimization if possible (multicriteria context and looking for an improvement in the degrees of vulnerability and resilience against possible disruptive events).
7. Evaluation of the accomplishment of objectives. If the requirements and objectives fixed step 1 are not satisfied, go back to step 5 or step 1.

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