INCREASING THE EQUITY OF A FLOWER SUPPLY CHAIN BY IMPROVING ORDER MANAGEMENT AND SUPPLIER SELECTION

Moreno, J. R.*; Mula, J.* & Campuzano-Bolarin, F.**

* CIGIP (Research Centre on Production Management and Engineering), Universitat Politècnica de València, Plaza Ferrándiz y Carbonell, 2, 03801, Alcoy, Alicante, Spain
** Business Management Department, Universidad Politécnica de Cartagena, Campus Muralla del Mar, s/n, 30202, Cartagena, Murcia, Spain
E-Mail: cero084@hotmail.com, fmula@cigip.upv.es, francisco.campuzano@upct.es

Abstract
This work focuses on helping the decision-making process of a microenterprise, the central organisation of a flower-exporting supply chain, to satisfy the objective of increasing its equity value by 300 %, and that of the whole supply chain at the same time. A systems dynamics-based simulation model is developed to evaluate the order management process in the supply chain under study, its financial evaluation and a supplier selection module from the central firm. The objective is to increase the equity value of the central firm and the supply chain under study. The main contribution of this work is to model and simulate a real-world supply chain for decision-making. Hence, this paper can be used by other supply chains as a reference for modelling and simulating themselves in order to improve their performance.

Key Words: Order Management, Financial Management, Supplier Selection, Systems Dynamics, Simulation

1. INTRODUCTION

In Cooper et al. [1], a new conceptualisation of supply chain management is proposed where business processes determine a cut-off in the tasks performed by participating firms, while each firm has its own set of tasks that must be related to each key process. Integrating key processes helps meet the supply chain’s objectives. For this reason, the managers who form part of the chain must make strategic decisions for all the participating entities. Nonetheless, these decisions can be quite complex given the large quantity of visible and invisible relations between tangible and intangible factors, and they may also entail risk, which must be assumed because it is not absolutely certain what results can be attained in the future. Since it is necessary to know what will happen in the future to make better decisions in the present, different methods are available that help decision making. One of them is supply chain simulation.

Supply chain simulation entails modelling a system that represents all or part of its structure, which means abstracting its factors more simply by representing the operation of the part to be simulated. According to Campuzano and Mula [2], there are several reasons for supply chain simulation, which include: observations from real systems can prove impossible or costly; the complexity of representing a supply chain by mathematical equations and, despite representing them by such equations being impossible, obtaining a solution with analytical techniques may prove complex; it helps identify most of the relevant variables and the interaction among them; it helps consider different scenarios whose information is unknown; it helps evaluate new policies or decision rules before running a risk in a real supply chain. However, we may wish to simulate different objectives in distinct areas or chain...


