CLOUD COMPUTING, SUPPLY CHAIN INTEGRATION, SUPPLY CHAIN FLEXIBILITY AND MASS PERSONALIZATION: INTERRELATIONSHIPS WITH LEAN PRODUCTION AND PERFORMANCE

Abstract:

Supply Chain Management is defined as a set of actions that allow companies to manage, plan and control their operations as a way to facilitate collaboration between Supply Chain members. To be more effective and efficient, companies are increasingly willing to redesign their Supply Chain Management strategies and adopt management practices. This doctoral thesis analyses how some variables related to effectiveness and efficiency in Supply Chain Management are interrelated, and the possible impact of these interrelations on business performance. Specifically, we delve into the relationships between Cloud Computing, Supply Chain Integration, Supply Chain Flexibility, Mass Personalization and Lean Production (which are variables associated with the effectiveness and efficiency in the Supply Chain) and their role in business performance.

In this doctoral thesis, we initially considered two important factors to achieve effectiveness and efficiency in the Supply Chain. A first factor would be the interrelation between the use of Cloud Computing, a new paradigm in the interpretation of Information Technologies, and Supply Chain Integration. Low levels in this factor will allow companies to achieve their goals (be effective) but using many more resources (less efficient) than high values in this factor. A second factor is the interrelationship of Supply Chain Flexibility and Mass Personalization. Similar to the previous factor, low levels of this factor would be associated with lower efficiency (even if effective), while high levels would be associated with high efficiency. Both factors are considered in this thesis, in the first place, in an isolated way, by means of systematic literature reviews that allow identifying what is known in the literature about the existing relation between the variables that conform each factor. Secondly, an explanatory analysis is made in which the effect of Lean Production is considered, and its relation with each one of the factors, which would be associated with high levels of efficiency in the Supply Chain, and it is analysed how the joint effect of Lean Production and each one of the factors (variables) considered affects business performance. Finally, this thesis considers all variables together (both factors and the effect of Lean Production, acting on business performance), in a holistic model that uses simulation to analyse the model's behaviour.

The value of this doctoral thesis is that academics and business managers can have supporting evidence on the role played by Cloud Computing, Supply Chain Integration, Supply Chain Flexibility, Mass Personalization and Lean Production, operationally and strategically linked, and how this combination could be transformed into better business performance. The better knowledge of these relationships can affect the way researchers and managers approach these management resources, being more aware of the important role of the Supply Chain in competitiveness. This work differs from previous contributions in that it provides theoretical and empirical approaches to the possible interrelations between the variables mentioned above. The results of this study, therefore, could be very useful in the design of future research efforts in this area.