A Composite Method to Compare Countries to Ascertain Supply Chain Success: Case of USA and India

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ABSTRACT

Supply chains are assessed for the contribution they make in improving business processes. Assessment also looks at the return on investment and improves the overall functioning of the entire chain. However, supply chains extend beyond geographical borders and span a wide variety of activities; therefore, a systematic examination of factors required for success of supply chains is essential. This paper proposes a composite method by which supply chains could be assessed at multiple levels to enable a comprehensive comparison. The objective is to first compare at a global level and then narrow down to the firms' level. Although over time a number of measures have been developed to evaluate supply chain performance, this paper provides a methodology involving well-known techniques to assess the supply chain success based on objective considerations. Furthermore, the authors demonstrate how global players can select the partnering countries to reap maximum benefits. Finally, a comprehensive model is provided involving three approaches that look at the issue of comparison from different perspectives and are debated with respect to India and the United States.

Keywords: Business Processes, Performance Measures, Supply Chain Comparison, Supply Chain Partnering, Supply Chain Performance

INTRODUCTION

Supply chains have multiple objectives to satisfy and require different measures to ascertain their performance. Considering the fact that today’s supply chain extend beyond borders and span a wide range of activities, assessment of supply chains is not a simple task. Further the question is at what level assessments should be made and how different entities can be measured. The entities here could be two countries, two firms or two sectors. Over a period of time several measures have evolved to suit different issues and aspects of supply chains and still some more may be developed considering the type of changes and new developments. This paper develops a composite model to assess the supply chain capabilities and potential that leads to success between say two partnering countries. Considering the huge investments made across...
the world, the supply chain performance assessment and also countrywide comparisons become crucial in making decisions about investments and types of changes to be made. The model described in this paper allows for comparing different countries or regions with regard to their support for successful international supply chains. Further the model starting from a country-wise level comparison moves down to assessment of specific success factors of supply chain in the second level comparison and finally ends up with comparison across a particular sector or domain selected from the previous level. As the comparison moves from the first level to the third level the scope of comparison reduces and becomes specialized. This multilevel comparison is accomplished with the help of different techniques that allow the comparison to be made smoothly and objectively. This in turn leads to better decision making process enabling higher success rate.

The multilevel comparison proposed in this paper examines the issue of comparison from three different levels as follows:

1. Using global competitive index as a basis for comparison across the countries and using the same factors to decide about the suitability of various countries for establishing supply chains particularly while partnering.
2. Using Analytical Hierarchy Process (AHP) to enable decision makers to compare the partnering countries by making pair-wise comparisons using specific criteria that are considered vital for the success of supply chains. The criteria considered at this level are a subset of the previous level factors.
3. Using Data Envelope Analysis (DEA) to create a series of inputs and outputs that can be used as a basis of comparison for each country. As in the previous step, the factors considered are a subset of the factors considered in the previous level.

In addition it is also possible to establish a fourth level comparison that is at the firms' level which examines all the supply chain success factors at a micro level. This ensures comparison down to operating mechanisms and environment at firms’ level. However in this paper the fourth level comparison is kept outside the scope and is suggested as an extension for further work. All the above three levels of comparison are illustrated with a specific case involving comparison between USA and India as partnering countries.

The paper proceeds like this. The next section provides a literature review, at the end of which a discussion of criteria for evaluating supply chain performance is made. Immediately after that, the need for comparison across countries is shown and a new methodology is proposed. To illustrate the applicability of the proposed model a comparison between the USA and India is made. The paper concludes illustrating the benefits of the new model along with further extensions possible for the model.

BRIEF LITERATURE REVIEW OF SUPPLY CHAIN MONITORING AND ASSESSMENT

Performance assessment of supply chains has aroused considerable interest among researchers who have examined various issues of supply chain for assessment. Stewart (1995) describes how performance assessment can be benchmarked, and Tan, Kannan, and Handfield (1998) comment that assessment can be at different levels. Monitoring supply chain performance is an intriguing new field according to Lee and Whang (2001). Gunasekaran, Patel, and Tirtiroglu (2001) have attempted to develop a framework for measuring the strategic, tactical and operational level performance in a supply chain. Based on trust, terms like Supply Chain Event Management, Supply Chain Process Management, or Supply Chain Execution Management are used interchangeably. Supply chain monitoring must start with tight tracking of the many different processes involved in a supply chain. As products and information flow through different parts of the supply chain, it is
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