

UNIDEMI – Research Unit in Mechanical and Industrial Engineering

Supply Chain Integration Model

Research Team POM



R&D Unit in Mechanical and Industrial Engineering



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Objectives

This research fits in the context of supply chain integration. It takes a novel approach toward integration through identifying correlations among supply chain practices and customer values. To be more specific objectives are to:

- Report and review various perspectives on supply chain integration
- Identify existing gaps and obstacles in the literature
- Identify correlations between supply chain practices and customer values
- Quantify the influence of supply chain practices on customer expectations

Methodology

The methodology benefits from an inductive research approach in which theory is built based on observations and data analysis. Therefore three case studies were conducted to collect required data, analyze, and develop the integration model (fig. 1). In development of integration model Bayesian network (BN) and analytic network process (ANP) are employed.

In the first phase customer value data is analyzed with BN. The second phase goes through identifying priorities and synergies in supply chain practices (manufacturing / assembly and logistics practices) by ANP. Integration model gets these two phases as input and identifies their correlations in a BN model in the phase three (fig. 2, 3, 4).

Expected Results

The proposed model is expected to:

- Connect practices to customer values: to ensure implemented practices are contributing to final expectations.
- Identify trade-offs between customer values
- Quantitatively present correlations: tacit knowledge of experts about practices as well as customer preferences should be converted into quantitative data.
- Provide possibilities to plan variety of scenarios and perform sensitivity analysis

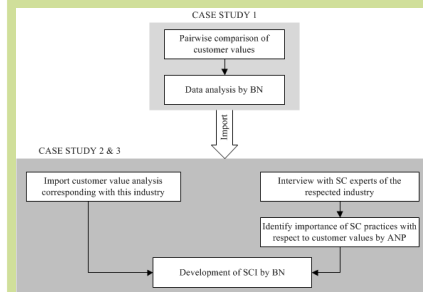


Fig. 1

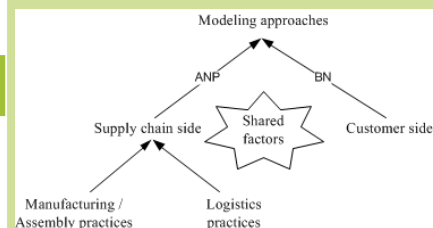


Fig. 2

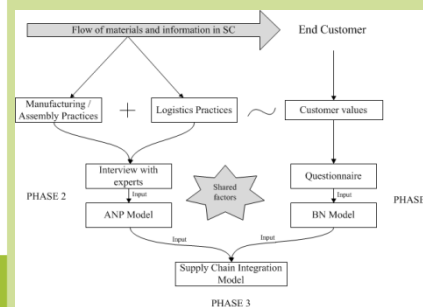


Fig. 3

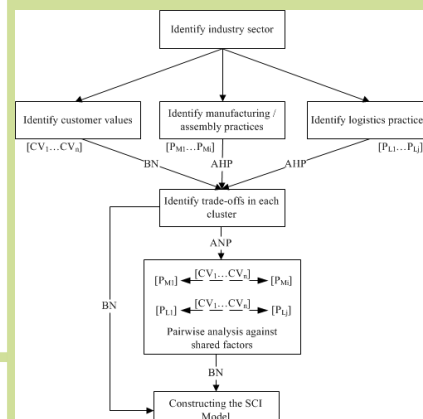


Fig. 4