EXPLORING THE INTERACTION OF PRESSURE SOURCES AND TYPES ON SSCM PRACTICES: AN ANP MODEL APPROACH

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Introduction and Research Gap

The increased interest in sustainability has led to heightened pressures on firms to adapt their supply chain management practices. Individuals, firms, governments, and other organizations increasingly agitate for change, applying various types of pressure to drive sustainable supply chain management (SSCM) improvements (Marculetiu et al., 2023). The authors synthesize **93 research articles published between 1997 and 2022** to explore how **pressure types** (e.g., coercive, normative, relational) are employed by **pressure sources** (e.g., governments, suppliers, customers, employees) to influence firm-level and supply chain practices across internal, upstream, and downstream operations.

Sustainable supply chain management (SSCM) is influenced by multiple sources and types of pressure, including coercive (regulatory compliance), normative (social expectations), and mimetic (industry benchmarking) forces. While these factors are extensively studied, the **relative importance of these pressures** and their **interdependencies** across varying contexts remains unclear (Marculetiu et al., 2023; Oyedijo et al., 2024). This study proposes an **Analytic Network Process (ANP)** model to evaluate and prioritize these interactions systematically, providing a robust framework for SSCM strategies.

Research Objectives

1. **Identify and model interdependencies** between pressure sources (e.g., regulators, investors, consumers) and pressure types (coercive, normative, mimetic).

2. **Quantify the relative influence** of each source-type combination on SSCM practices.

3. Provide actionable insights for stakeholders to design effective, targeted sustainability interventions.

Methodology

Saaty (2010) states, "The Analytic Hierarchy Process (AHP) is the thinking man's rational way to combine logic to identify connection among attributes and judgments to derive priorities from causal explanation. Its questions revolve around what dominates what and how strongly; it is expressed verbally and translated numerically using the absolute fundamental scale (p. xiii)" (Karpak, 2017). This statement

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also applies to the ANP, as it explains the method used to assess the strength of influence among factors and determine the priorities of alternatives. The ANP method has helped decision-makers tackle complex situations for more than two decades by considering how different factors influence each other within a decision model (Mu et al., 2020).

1. **Framework Development**:

   o Construct a network of **criteria (pressure sources)** and **sub-criteria (pressure types)** that influence SSCM practices.

   o Include interactions beyond dyadic relationships, incorporating multi-tier supply chain dynamics.

2. **Data Collection**:

   o Use expert surveys and pairwise comparisons to gather input on the relative importance of pressure combinations.

   o Stakeholders include regulators, corporate sustainability leaders, NGOs, and industry analysts.

3. **ANP Model Application**:

   o Apply the ANP methodology to calculate weights for criteria and sub-criteria, highlighting their interdependencies.

   o Prioritize the most impactful source-type combinations for SSCM implementation.

Expected Results

1. **Prioritization of Influences**:

   o Identification of the most influential pressure sources and types, such as **coercive pressure from regulators** or **normative pressure from investors**.

2. **Interdependency Insights**:

   o Understanding how interactions between pressure types amplify or mitigate their effectiveness across the supply chain.

3. **Strategic Recommendations**:

   o Tailored strategies for firms and policymakers to enhance SSCM adoption through targeted pressure application.

Conclusion and Contribution

This study advances SSCM research by shifting the focus beyond dyadic interactions to a **network-based analysis of pressures**. The ANP model offers a structured, quantifiable approach to prioritizing and understanding complex interdependencies, addressing critical theoretical and practice gaps. The results will guide stakeholders in designing **integrated, context-sensitive interventions** that enhance the sustainability of global supply chains.

References

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