

STRATEGIC SOURCING DECISION IN INFANT NUTRITION INDUSTRY

By Amit Kumar and Sunil Kumar Injeti
Thesis Advisor: Dr. Javad Feizabadi

Summary: By using an infant nutrition company as a case study, this project enhances the strategic sourcing decision-making process for a highly quality oriented and customer sensitive industry. Existing methodologies from other industries are successfully applied and modified, leading to the development of a quantitative tool and a framework for identifying the most critical factors and their resulting impact on outsourcing level, assisting in selecting the optimal sourcing strategy.



***Amit Kumar** received Masters in Business Administration from S.P.Jain Centre for management. As an undergraduate, he received a B.S. in Nautical Sciences from Mumbai University, a B.Com from I.G.N.O.U and a Master Mariner certification from Ministry of Surface Transport Government of India. Prior to the SCM program, he worked as Head of Supply Chain at Alghanim Group of Industries and various Navigating Officer positions in maritime industry.*



***Sunil Kumar Injeti** received Bachelor of Technology degree from Indian Institute of Technology Madras (IITM) in mechanical engineering. Prior to SCM program, worked with Renault – Nissan in product development & advanced research division for 6 years. Undergone Nissan's flagship 2 year on job training (OJT) at Nissan's R&D headquarters vehicle project management, vehicle performance evaluation & design.*

KEY INSIGHTS

1. The proposed sourcing decision-making framework and the regression analysis tool can be effectively used to determine the critical factors and its impact on outsourcing level for a highly quality oriented and customer sensitive industry; a case study on an infant nutrition company, with similar industry characteristics is used for model validation
2. The research establishes; Final product quality as the most important factor affecting the sourcing decision making process for infant nutrition industry and further identifies factors; Skill level of people and Tacit knowledge, playing a major role in achieving this product quality. These two factors hence indirectly impact the outsourcing level
3. Core competency, Alignment with business strategy and Process architecture in addition to; Final product quality are the factors with strongest impact on strategic sourcing decision making for a firm in a highly quality oriented and customer sensitive industry
4. Transaction environment of a firm's region forms the foundation of its sourcing strategy. Identification of critical factors and the resulting outsourcing levels in this research, has a strong influence of characteristics of APAC region, where the case study firm is based

Introduction

How can companies, in an industry where product quality is paramount and customer sensitivity is extremely high, take strategic sourcing decisions?

When considering outsourcing, many organizations start with the same question: Which activities should we outsource, and which tasks should we do in-house? These are complicated questions, and the answers can have huge effects on organization's short-term and long-term success. Sourcing decision has been historically considered as one of the most strategic key decisions, which impacts the DNA of the company and has gained more prominence due to recent surge in outsourcing avenues, which have emerged due to globalization, improvement of supply chains and lower cost advantages. The potential for outsourcing has moved on from those activities that the firms normally regarded as non-core activities or considered as peripheral activities to the activities such as logistics and security, to such critical activities such as product design, manufacturing, marketing, and distribution and information systems. The entire value chain has been opened up to the outsourcing phenomenon.

Infant nutrition industry can be described as highly quality oriented and customer sensitive industry, hence the challenges faced by this industry for making sourcing decisions also get magnified. Customer's perception of final product quality and trust becomes the defining factor and has a major role to play in any sourcing decision in this industry. Furthermore companies in infant nutrition industry are increasingly under pressure to innovate and introduce new products. Simultaneously they are closely monitored to continuously deliver outstanding results, with a strong balance sheet and maximized profits, how does a company sustain good financial performance, while accommodating and fulfilling the consumer needs, which are increasingly looking for new products at a faster pace?

This research seeks to make theoretical and practical contributions to address the strategic sourcing decision-making for, a highly quality oriented and customer sensitive industry in the following ways

1. Developing a conceptual framework for quality oriented customer sensitive Industries, assisting in making the strategic sourcing decision
2. Developing a quantitative model to validate the conceptual framework
3. Applying the conceptual framework and quantitative model for a case study in infant nutrition industry

Literature Review

Being viewed as an important corporate decision, strategic sourcing decision has been investigated extensively by many researchers. Economic theories have been widely used to explain sourcing strategies. Among them, "Transaction Cost Economics" (TCE) is the most commonly used one (e.g. Anderson, 1985; John et al, 1988; Steenkamp et al, 2012). Pioneered by Coase (1937) and developed principally by Williamson (1975, 1985), TCE has been used in several main contextual domains, such as vertical integration, vertical interorganizational relationships, and horizontal interorganizational relationships (Rindfleisch et al., 1997). TCE views the firm as a governance structure, and firms and markets are alternative governance structures that differ in their transaction costs. TCE points out that there are costs involved in using a market. Both Coase and Williamson examine factors affecting the organization of production systems in a market-hierarchy framework. In such a framework, the organizational criterion is minimization of production and transaction costs (Williamson 1979). According to TCE, when a company tries to determine whether to use the market or to produce goods or services on its own, market prices are not the only factor needed to consider. Rather, there are significant transaction costs, which include operations costs (e.g. search costs), contracting costs, and monitoring and coordination costs (Gurbaxani et al, 1991)

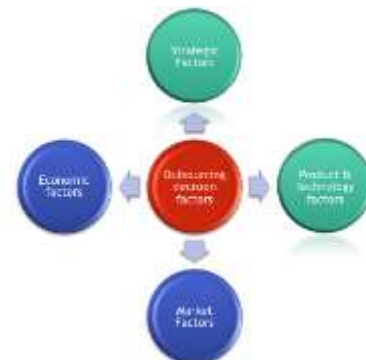


Figure 1: Factors Influencing Sourcing Decision

The research across the industries for factors, influencing the sourcing decision, from multiple sources, provides us an almost exhaustive list of factors as is mentioned in the previous section. Figure 1 shows classifications of these factors into four major categories. After rigorous evaluation and discussions with industry experts, supervisor, representatives from MINC and understanding the specific characteristics of the infant nutrition industry, a comprehensive list of 14 factors is identified. These 14 factors form the crux of the conceptual model for strategic sourcing decision in Infant nutrition industry. Final product quality is identified as the one of the most critical factor to

be considered when making strategic sourcing decision for any of the activities in the value chain. In addition to product quality, the other 13 factors either directly influence the outsourcing level or the final product quality, further influencing the outsourcing level.

Figure 2 shows the conceptual model and the hypothesized relationship between each of these factors and the level of outsourcing. The conceptual model emphasizes the paramount importance of the final product quality, which is affected by several independent factors. Each of these factors is explained in detail in the subsequent sections.

Figure2: Conceptual Framework



Methodology

This study adopts descriptive case study approach. Case study approach is preferred because it is an empirical investigation of a contemporary phenomenon of MINC with its real life context, particularly where there is blurred border between phenomenon and context

In this study, in addition to the qualitative approach, which is most widely used method for strategic sourcing decision making studies, a quantitative approach through regression model, developed based on the conceptual framework has been attempted. The first regression model is formulated based on hypothesized relationships between critical factors and level of outsourcing and the second one between product quality and factors influencing the product quality. A prescriptive survey methodology is adopted to collect the data from MINC, as reliable sourcing decision data from different companies is difficult to obtain and is out of the scope of this study.

$$QLT = \beta_{00} + \beta_{01}TCK + \beta_{02}SKL + \beta_{03}STB + \varepsilon_{01}$$

Above linear regression equation shows the relationship between the dependent variable “quality risk” and three independent influencing factors. The dependent factor *QLT* is quality risk dependent on the three independent factors.

$$OSL = \beta_0 - \beta_1QLT - \beta_2CCP + \beta_3ABS - \beta_4FNH - \beta_5IP - \beta_6PTC + \beta_7PAR - \beta_8SCT - \beta_9ASP - \beta_{10}DRK + \beta_{11}LEV - \beta_{12}TCK + \varepsilon_1$$

This equation shows the linear regression equation between dependent variable OSL “outsourcing level” and influencing factors. Table 1 shows the regression statistics of outsourcing level, R² value of 0.71.

Regression Statistics	
Multiple R	0.8459
R Square	0.7156
Adjusted R Square	0.6233
Standard Error	0.9467
Observations	50

Table 1: Outsourcing Level Linear Regression Statistics

Discussion

The strategic sourcing decisions, with regards to activities in the value chain, have a strong underlying theme, which is the final product quality risk. Any sourcing decision irrespective of the financial consideration has to ensure that there is absolutely no compromise on the final product quality. The company’s success and growth is dependent solely on perception of quality, which a customer associates with their products. Perception building takes a considerable time, effort and investment but destroying that perception can be just a matter of days. One contaminated batch of infant formula can create havoc and cause irreparable damage to brand image.

From the analysis and findings, the hypothesis of final product quality being the most critical factor is proved. It has also been proven that product quality strongly impacts the outsourcing level and the strategic sourcing decision making process. In addition it has been identified that the factor “Skill level of people” has the strongest influence in achieving the desired product quality. This has been also discussed by Gray et al, (2011) and Rotemberg et al, (2000). As achieving consistent product quality is not just about quality ingredients but it starts with the culture of the company. Every individual involved in the value chain, along with training, should internalize the concept and culture of quality and hence skill level of people becomes a strong influencer.

The regression model has further provided three groups of factors, the first group of factors have the strongest impact on the outsourcing level, the second group has medium impact and the third group has the least or negligible influence on the outsourcing level of the firm, in a highly quality oriented and customer sensitive industry. Listed below are factors as per the first, second and third groups.

First group of factors: Strongest impact; Product quality, Core competency, Alignment with business strategy and Process architecture. Second group of factors: Medium impact; Tacit knowledge, Dependency risk and Asset specificity. Third group of factors: Least impact; Legal environment, IP, Proprietary technology and Financial health of the company.

Conclusion

- The authors want to recommend an approach or a way of thinking for making strategic sourcing decisions by this research in a highly quality oriented and customer sensitive industry. MINC has at present no existing model or platform to accumulate, the rich experiences, opinions and viewpoints of all the stakeholders inside the company and combine literature and scientific analysis to effectively use this information for strategic decision-making.
- The research establishes that Product quality is of paramount importance but it also lays out the most important factors; Tacit knowledge and Skill level of people, which play a major role in achieving this product quality. MINC Company could use this insight to understand how these two factors indirectly impact the outsourcing level via product quality.
- Product quality, Core competency, Alignment with business strategy and Process architecture are the four factors among the fourteen factors with strongest impact on the outsourcing level and MINC Company allocate good weightage to these factors, when making strategic sourcing decisions
- The research highlights via the double helix model, the infant nutrition industries shift towards vertical integration but the survey results from MINC Company points to preference for a more outsourced value chain than the existing model. This gap means MINC Company need not necessarily follow the general industry trend and base its sourcing strategy on understanding its capabilities

References

- Sharon Novak and Steven D. Eppinger (2001), "Sourcing By Design: Product Complexity and the Supply Chain", *Management Science* Vol. 47, N, pp.189-204.
- Sara L. Beckman and Donald B. Ressenfield (2008), "Operations Strategy: Competing in the 21st Century", *McGraw-Hill and Irwin, New York*.
- Charles H. Fine (1999), "Clock Speed: Winning Industry Control in the Age of Temporary Advantage", *Sloan School of Management, MIT, Basic Books*.
- Ronan McIvor (2000), "A practical framework for understanding the outsourcing process", *Supply Chain Management: An International journal* Volume 5, 22-36.