GSI JOURNALS SERIE A: ADVANCEMENTS IN TOURISM, RECREATION AND SPORT SCIENCES

Number: 1, Issue: 1, p. 53-60, 2018

DETERMINING PRIOR FACTOR OF SUPPLY CHAIN ON HOTEL INDUSTRY: CASE STUDY IN ESKIŞEHIR

Hüseyin Ertan İNAN[1]
Assoc. Prof. Hilmi Rafet YÜNCÜ[2]
(Received 05.07.2018 Published 25.07.2018)

Abstract

Effective supply chain management is crucial for hotel business to keeps coast under control and ensures business continuity. Appropriate supplier selection is a critical process that influences the quality of service directly. Depending on technological progress, customer needs have changed. Customers demand higher quality and lower price for the products and services which they need. Due to the increasing competition in the services sector and diversification of the customer's request increased the number of alternative suppliers. It is evident that not only depends the power of these enterprises on their own performances but also it affects the success in enterprises of all units' performance in the supply chain. This research is made to determine prior factors for supplier selection at the hotels. This paper focuses on the application of the Delphi technique to determine prior factors of supplier selection. Delphi method has been used to survey major factor. This research was carried out in 3, 4 and 5-star hotels in Eskişehir. After the evaluation of the valid data, we found out which supplier selection factors are more important at hotels.

Keywords: Hospitality Business, Supplier Selection, Delphi Method, AHP

[1] Anadolu University, Institute of Social Sciences, hertaninan@gmail.com
[2] PhD, Anadolu University, Tourism Faculty, hryuncu@anadolu.edu.tr

1. INTRODUCTION

To see the unseen and know the unknown has been the genesis and heritage of Over the past 20 years, supply-based practices have improved significantly. Prior to the 1980s, the purchasing function was viewed as a written activity rather than a tactical activity. There was no effect of the company on competition in the market. The purchasing manager had little effect on the cost of materials. This view has changed significantly. Surveys have shown that suppliers have become increasingly critical for the competitive success of the company. For this reason, purchasing managers make a significant contribution to the company's ability to deliver better products, faster, lower costs and greater flexibility. The purchasing function has come to this strategic position (Handfield et al., 2002; 70).

Suppliers of a hotel play an important role in achieving the objective of supply management and quality achievements. They enhance customer satisfaction through a value chain. By the integration of high-performance suppliers in the supply chain, quality and flexibility of the supply chain and hotel performance can be improved, the cost can be reduced by decrease wastages (Amin & Razmi, 2009, 8640).

Supplier selection problem has been the subject of numerous studies. In these studies, many criteria are determined and solution methods are applied to solve this problem. In the literature, some of the researchers define some important criteria in the selection process. One of the earliest researches on the selection of suppliers made by the Dickson in 1966 and it was determined that the product quality, timely delivery, and warranty policy are most important criteria (Ecer & Küçük, 2008). Weber et al. (1991) reviewed researches about supplier selection in the literature from 1966 to 1990 and they found out that most commonly used criteria are price, delivery time and quality (Özel & Özyörük, 2007: 416). Handfield et al. (2002) evaluate the purchasing managers by intended actions of assessment of suppliers as to their environmentally responsible processes and products. In researches which conducted in recent years, different criteria have added as product development, financial condition, manufacturing capability, close relations, and flexibility (Akyüz, 2012).

There are several studies about supplier selection and defining supplier selection criteria on the subject of Turkish hotel industry. Davras and Karaatlı (2014) aimed that identify the most proper supplier for a hotel and used two different methods, Analytic Hierarchy Process (AHP) and Fuzzy Analytic Hierarchy Process (FAHP) and compared and analysed the results of both methods. In this study six main criteria price, reliability, product quality, delivery performance, ease of paying and reference are determined by interviewing the hotel managers. Şimşek et al. (2015) aimed that identify the importance degrees of the supplier criteria which the hotel management pays attention and determine the most suitable supplier. In their research, they used Moora and Topsis methods. Atay & Ozdagoglu (2008) determined supplier evaluation criteria in 4 and 5-star hotels by using Analytic Hierarchy Process (AHP). Sarıoğlan (2010) aimed to determine the tendency level of suppliers' criteria at accommodation enterprises and his

research was made in 17 hotel enterprises from 199 5 star hotels in Antalya which was active. According to this research, the differences between products are important for supplier selections. At this research, Dickson's supplier evaluation criteria were used.

There are too many methods to evaluate criteria and determine the best option. Jharkharia and Shankar (2007) used analytic network process (ANP) in their research for the selection of a logistic service provider. Xia and Wu (2005) used approach of analytical hierarchy process improved by rough sets theory and multi-objective mixed integer programming and proposed to simultaneously determine the number of suppliers to employ and the order quantity allocated to these suppliers in the case of multiple sourcing, multiple products, with multiple criteria and with supplier's capacity constraints. Amid et al. (2005) developed a fuzzy multi-objective linear model to overcome the vagueness of the information for supplier selection. Wang et al. (2009) used the fuzzy hierarchical Topsis method in their research and presented a numerical example and build a practical supplier selection problem to verify their proposed method and compare it with other methods. Criteria are shown in table 1 which we used at Delphi method

2. METHODOLOGY

This research was carried out in 3, 4 and 5-star hotels in Eskişehir and it was face to face interviews, Delphi form and AHP form to obtain opinions. Delphi method was used in the first part of the study and defined that which criteria will be included in the research and conducted expert surveys twice (1st round expert survey and 2nd round expert survey). Before the first round, we conducted the literature review and were comen together criteria which were defined in past researches. In the first round of Delphi, we have a form which includes criteria in literature to 10 hotel general managers and asked them to specify criteria except in the form are important in supplier selection process. After this round, in addition to criteria shown in table 1, some different criteria were added to criteria list. These criteria were "cost of the delivery process", "the level of knowledge about the product" and "institutionalization of the supplier".

In the second round of Delphi, all 36 criteria which come from literature and general manager surveys were listed and set to experts to analyse the coefficient of variation (CV) for the expert surveys and content validity ratio (CVR). According to Dajani et al., (1979) the CV value is less than 0.5, additional surveys are stopped (Kim et al., 2013). Cv ratios in Calved et. al. (2013)'s research was evaluated as in table 2. CV is expressed in the formula (1);

Coefficient of Variation (CV) = Standard Deviation / Mean

Table.2 Level of Agreement for CV

CV Ratio	**Level of Agreement**
Less than 0.25	Very High
0.25 – 0.50	High
0.49 – 0.75	Low
More than 0.75	Very Low

The CVR developed by Lawshe (1975). The CVR ranges from +1 to -1. In this method, experts select one of the following ratings for each item: essential (+1), helpful but not necessary (0), or not necessary (-1). CVRs, a function of the number of participants and their ratings, are then computed for each item (Neuer Colburn et al., 2016). CVR is expressed in the formula (2);

Content Validity Ratio (CRV) = $\frac{NE-N/2}{N/2}$ (2)

where Ne = the number of survey experts indicating that a factor or item is "essential" and N = the total number of survey experts.

Items are retained if their CVR meets or exceeds the minimum critical value. According to Lawshe's critical value table (Table.3) and our total number of participants in round 2 (10 participants), the min CRV value was 0.62 in this research.

Table.3: Minimum CRV Value

One Tailed Test p=.05	
Number of Panelist	**Minimum CRV Value**
5	.99
6	.99
7	.99
8	.75
9	.78
10	.62
11	.59

Sources: Lawshie,1975

3. FINDINGS

In this research, CVR and CR were calculated for each item, criteria's CVR values ≥ .63 and CR <0.5 were excluded and the other was rejected.

Table 4. Delphi Results

ACCEPTED SUPPLIER CRITERIAS	CRV	REJECTED SUPPLIER CRITERIAS	CRV
Payment Flexibilty	**1**	Payment options	**0,6**
Adaptation to exchange	**1**	Specialization of supplier	**0,6**
Discount Rate	**1**	Images of supplier	**0,6**
Delivery performance,	**1**	Institutionalization of the supplier	**0,4**
Timely delivery	**1**	Currency and Rate	**0,4**
Consistency in delivery	**1**	Information for substitute products	**0,4**
Error Rate	**1**	Delivery flexibility	**0,4**
Reliability of the supplier	**1**	Knowledge of the supplier's substitution products	**0,4**
Compliance in cooperation	**1**	Geographical spread of supplier and service network	**0,2**
Level of knowledge about the product	**1**	Complaint policy of supplier	**0,2**
Being solution-oriented	**1**	Reputation of the supplier	**0,2**
Honesty of the supplier	**1**	Being open to development	**0,2**
Price / Cost	**0,8**	Referances	**0,2**
Campaign	**0,8**	Capacity of the supplier	**0**
Training support related to product	**0,8**	Level of use of information and communication technologies Suppliers	**0**
Ease of return	**0,8**	Market share	**-0,4**
Warranty period	**0,8**	Technological investments	**-0,8**
Information sharing	**0,8**		

Table 4 shows the results of Delphi. According to Table 4, 18 supplier criteria which about mainly payment, delivery, honesty, prices and price are accepted criteria. However, the criteria for supplier characteristics are not accepted. With these result, AHP was performed to the accepted supplier criteria.

As seen in Table 5, eighteen supplier criteria are evaluated under four main group. These groups are Finance, Delivery, Post Delivery Service, Company Features.

Domain weight and overall weight and domain rank and overall rank were given at Table 5.

Table.5. AHP Results

Finance	**Domain Weight**	**Domain Rank**	**Overall Weight**	**Overall Rank**
Price / Cost	0,485	1	0,198	1
Adaptation to exchange	0,262	2	0,107	3
Payment Flexibilty	0,102	3	0,042	9
Discount Rate	0,099	4	0,04	10
Campaign	0,053	5	0,022	14
Delivery	**Domain Weight**	**Domain Rank**	**Overall Weight**	**Overall Rank**
Error Rate	0,468	1	0,145	2
Consistency in delivery	0,247	2	0,77	4
Timely delivery	0,182	3	0,57	6
Delivery performance	0,102	4	0.032	11
Post Delivery Services	**Domain Weight**	**Domain Rank**	**Overall Weight**	**Overall Rank**
Ease of return	0,632	1	0,053	7
Warranty period	0,233	2	0,02	15
Training support related to product	0,135	3	0,011	18
Company Features	**Domain Weight**	**Domain Rank**	**Overall Weight**	**Overall Rank**
Being solution-oriented	0,338	1	0,67	5
Compliance in cooperation	0,219	2	0.043	8
Information sharing	0,142	3	0,028	12
Reliability of the supplier	0,139	4	0,027	13
Honesty of the supplier	0,099	5	0,02	15
Level of knowledge about the product	0,063	6	0,012	17

According to Table 5, Price/Cost has the first rank both in finance and overall. Error Rate has the first rank in Delivery group and second rank in the overall group.

Adaptation to exchange has second place in the finance group and third rank in the overall group.

4. RESULTS

The procurement for the enterprises is an important cost item. Incorrect decisions in the procurement process can bring significant costs. For this reason, it is necessary to establish the supply process correctly. However, the decisions that managers take are influencing this process. In this study, the priorities of manager' during purchasing decision have been examined.

Financial and issues about delivery are the most important for the managers. Financial and issues about delivery are the most important for the managers. These results show that managers are looking for about operational aspect.

Operational dimension predominantly includes financial features, cost, and timely delivery. these issues can be seen as an important cost area in terms of business. it is seen that the decisions taken in this context are more concerned with the work done and the financial guarantee provided by the supplier company.

REFERENCES

Akyüz, G. A. (2012). Bulanık VIKOR yöntemi ile tedarikçi seçimi. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi*, *26*(1).

Amid, A., Ghodsypour, S. H., & O'Brien, C. (2006). Fuzzy multiobjective linear model for supplier selection in a supply chain. *International Journal of Production Economics*, *104*(2), 394-407.

Âmin, S.H., Razmi, J. (2009). An integrated fuzzy model for supplier management: A case study of ISP selection and evaluation. *Expert Systems with Applications* 36, 8639–8648

Baltacioglu, T.; Ada, E., Kaplan, M.D., Yurt, O., & Kaplan, Y.C. (2007). A new framework for service supply chains. *The Service Industries Journal, 27* (2), 105-124.

Ecer, F. ve Küçük, O. (2008) Tedarikçi seçiminde analitik hiyerarşi yöntemi ve bir uygulama, *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 11 (1), 355-369.

Handfield, R. Walton, S.V., Sroufe, R., Melnyk, S.A. (2002). Applying environmental criteria to supplier assessment: A study in the application of the Analytical Hierarchy Process. *European Journal of Operational Research,* 141, 70–87.

Jharkharia, S., & Shankar, R. (2007). Selection of logistics service provider: An analytic network process (ANP) approach. *Omega*,*35*(3), 274-289.

Karaatlı, M., & Davras, G. (2014). Tedarikçi seçiminde analitik hiyerarşi prosesi ve hedef programlama yöntemlerinin kombinasyonu: otel işletmelerinde bir uygulama. *Yönetim ve Ekonomi Araştırmaları Dergisi*, *12* (24), 182-196.

Kim, M.; Jang, Y.C. & Lee, S. (2013). Application of Delphi-AHP methods to select the priorities of WEEE for recycling in a waste management decision-making tool. *Journal of Environmental Management*, 128, 941-948.

Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel psychology*, *28*(4), 563-575.

Manap Davras, G., & Karaatlı, M. (2015). Otel işletmelerinde tedarikçi seçimi sürecinde AHP ve BAHP yöntemlerinin uygulanması. *Hacettepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi;* Cilt 32, Sayı 1.

Neuer Colburn, A. A.; Grothaus, T., Hays, D. G., & Milliken, T. (2016). A delphi study and initial validation of counselor supervision competencies. *Counselor Education and Supervision*, *55* (1), 2-15.

Özel, B. & Özyörük, B. (2007) Bulanık aksiyomatik tasarım ile tedarikçi firma seçimi, *Gazi Üniversitesi Mühendislik-Mimarlık Fakültesi Dergisi*, 22 (3), ss.415-423.

Sarioğlan, M. (2011). Konaklama işletmelerinde tedarik zinciri yönetimi kapsaminda tedarikçi seçim kriterleri üzerine görgül bir araştirma. *Balıkesir University Journal of Social Sciences Institute*, *14*(25).

Şimşek, A., Çatır, O., & Ömürbek, N. (2015). TOPSIS VE MOORA yöntemleri ile tedarikçi seçimi: turizm sektöründe bir uygulama. *Balikesir University Journal of Social Sciences Institute*, *18* (33).

Wang, J. W.; Cheng, C. H., & Huang, K. C. (2009). Fuzzy hierarchical TOPSIS for supplier selection. *Applied Soft Computing*, *9*(1), 377-386.

Weber, C. A., Current, J.R., Benton, W.C. (1991). Vendor selection criteria and methods. *European Journal of Operational Research,* 50, 2-18.

Xia, W., & Wu, Z. (2007). Supplier selection with multiple criteria in volume discount environments. *Omega*, *35*(5), 494-504.