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# Criteria for Supplier Selection in Textile and Apparel Industry : A Case Study in Vietnam

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## Abstract

The study aims to investigate some criteria of supplier selection in the textile and apparel (T&A) sector in Vietnam. Most research on supplier selection criteria for T&A sector was mainly conducted based on the review of literature. Therefore, the purpose of this study is to explore these criteria based on a framework in which an integrated approach of qualitative and quantitative was employed. First, an in-depth interview was used to explore what supplier selection criteria T&A companies were utilized after the literature on supplier selection criteria had been reviewed. Next, a prequestionnaire was built and sent to some practitioners and experts for their revision. Then, a pilot survey of 31 T&A companies with numerous statistical tests was conducted to validate the questionnaire. Finally, an official study of 282 respondents was conducted to determine supplier selection criteria which are best suited for T&A companies through exploratory factor analysis. The findings of the study suggest that there are eight supplier selection criteria including Quality, Cost, Delivery, Service, Capability, Company's image, Relationship, and Sourcing country. Each criterion comprises certain sub-criteria to make the supplier selection criteria set more comprehensive. The findings will be a contribution to the selection process of T&A companies as they can utilize these criteria to select capable suppliers.

**Keywords:** Sourcing Activities, Supplier Selection Criteria, Supply Chain Management, Textile and Apparel.

**JEL Classification Code:** L6, M1, M16, M19.

## 1. Introduction

Effective sourcing is the main indicator of an enterprise's competitive advantage. However, the selection of right suppliers at the right price is a challenging job of sourcing, which is a complex process involving a variety of criteria. These criteria may vary relying on various judgement factors (Sarkis & Talluri, 2002) and the purchasing circumstances also (Thiruchelvam & Tookey, 2011). It has been argued that selecting suitable suppliers in textile and apparel (T&A)

industry is a hard issue because of its requirement on selection criteria and decision-making methods which are characterized with unpredictable and uncertainty (Lee, 2002). Thus, proposing supplier selection criteria for this industry has always been the major concern of many practitioners (Thiruchelvam & Tookey, 2011). Nevertheless, a comprehensive set of supplier selection criteria for T&A sector is seldom available. Under that fact, an attempt to develop a set of supplier selection criteria has been made for T&A industry to choose the best supplier selection criteria. Consequently, the research question of this study is "Which criteria and sub-criteria are most appropriate for T&A companies in their selection of suppliers?"

The research is developed into 5 sections. Section 1 presents the general introduction to the topic. Literature review on supplier selection and selection criteria are presented in section 2. Section 3 highlights the methodology applied in the research followed by analysis and discussion in section 4. The paper concludes with the findings and its contribution to industrial practices and highlights paths for future research.

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## 2. Literature Review

This section begins with an outline of some key theories regarding sourcing and TQM (Total Quality Management). Next, the authors review supplier selection and supplier selection criteria, which jointly provide the foundation for the study and guide the analysis.

### 2.1. Theoretical Framework

#### 2.1.1. Sourcing Theories

Sourcing has a byzantine configuration, which consists of copious activities and roles giving rise to a series of organizational and executive quandaries. To understand the essence of these activities and to help the managers of enterprises control these processes in an efficacious way, a series of different theories related to sourcing may be applied.

The first of these theories is transaction cost economics (TCE), which focuses on “transactions and the costs that attend completing transactions by one institutional mode rather than another” (Williamson, 1975). One valuable feature of TCE is its use in analyzing and selecting sourcing contracts (Vaxevanou & Konstantopoulos, 2015). The second theory is relational theory, which explains how enterprises obtain and sustain a competitive advantage in regard to their relationships with other organizations (McIvor, 2005). The benefits of the sourcing process are defined by the quality of the relationship (Yanhong, 2011). The third theory is the knowledge-based view. The theory of the knowledge-based view is applied to sourcing in order to explain that knowledge sharing in the relationship management phase of the sourcing process is important to the attainment of the sourcing agreement (Sakas & Kutsikos, 2014). The last theory is core competence theory, which states that core activities should remain intramural and non-core competences should be outsourced (Lonsdale, 1999). These basic sourcing theories provide the guidelines for this study.

Notably, procurement will be effective by meeting certain criteria comprising costs, the relationship between suppliers and purchasers, which may be enhanced by the presence of knowledge sharing, and suppliers' capability.

#### 2.1.2. Total Quality Management (TQM)

According to Deming, quality means “different things to different people” (Deming, 1986). However, in general, TQM may be defined as “managing the entire organization so that it excels on all dimensions of products and services that are

important to the customer” (Jacobs & Chase, 2011). There are some outstanding philosophies on quality from some quality theorists. The first is Juran's approach (Juran, 1964), which views quality management as consisting of three parts: quality planning, quality control, and quality improvement. To maximize quality and profit, quality can be summed up as “doing things properly”. The second approach is Crosby's absolutes of quality management (Crosby, 1979). As stated by Crosby, quality is conformity to requirements. Its performance standard requires zero defects. The third approach, according to Deming's perspective, is quality management, which refers to the practice of constant improvement (Deming, 1981)

To sum up, in the view of TQM, the quality of materials when sourcing can be measured through conformance to requirements, an absence of defects, quality improvement and cost. However, other factors also need to be considered in selecting suppliers to ensure TQM.

### 2.2. Supplier Selection

T&A companies have sought dependable suppliers to manage some of their current production operations either domestically or internationally (Gary Teng & Jaramillo, 2005). The inherent features of the T&A industry and the increased pressure from erratic consumers and an uncertain business environment (Su, 2013) as well as the uncertainties of international sourcing activities result in complexity and risk (Li, Wong, & Kwong, 2013) in the supply chain's operation. Therefore, the process of supplier selection garners much focus from purchasers. This process is divided into three procedures: preselection, selection, and post-selection (Davidrajuh, 2003). During preselection, it is necessary for enterprises to set the strategic goals for sourcing. Then, the selection stage begins with numerous prospective suppliers and ends with the most favourable supplier. A set of criteria is established to evaluate and select a satisfactory supplier during this process. After the selection process, the purchaser begins collaborating with the selected supplier. These three phases are overly complicated for decision makers to perform, particularly the selection stage, as suppliers affect a company's performance (Kannan & Tan, 2002). However, the selection of suppliers can be easily solved by applying the multi-criteria decision-making (MCDM) method, which considers the decision under multiple conflicting criteria (See Figure 1). The MCDM method consists of four components: alternatives; criteria; weight of each criterion; and the measured performance of each alternative in terms of the criteria (Tzeng & Huang, 2011).

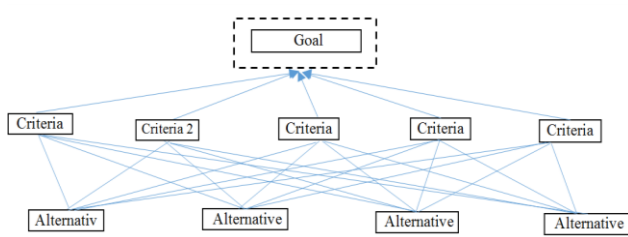


Figure 1: Supplier selection model

To address supplier selection, many methodologies have been proposed, including simple additive weighting (SAW), the analytical hierarchy process (AHP), the analytical network process (ANP) and so forth (Tzeng & Huang, 2011). It is obvious that determining supplier selection criteria is an important component in the supplier selection phase; therefore, the current research contributes to the sourcing literature by generating insights into what criteria are needed for supplier selection.

### 2.3. Selection Criteria

Supplier selection criteria were first studied more than 60 years ago (Thiruchelvam & Tookey, 2011). Based on a survey of industries mailed to approximately 300 organizations, Dickson (1966) proposed 23 criteria to be used for choosing suppliers. These are very helpful criteria for companies to select their suppliers and valuable literature for researchers. However, the selection of supplier criteria depends on the purchasing circumstances (Thiruchelvam & Tookey, 2011). Thus, this review confirms the necessity of studying a set of supplier selection criteria for the T&A industry.

In the T&A industry, fashion apparel has a short life cycle and their demand is highly unpredictable (Lee, 2002). Therefore, responsive and flexible supply to the moving and varied needs of the customers is best appropriate. In 2005, Gary Teng and Jaramillo also proposed a set of criteria and sub-criteria in which flexibility plays a significant role apart from delivery, flexibility, price, quality, and trust (Gary Teng & Jaramillo, 2005). In 2007, in Koprulu and Albayrakoglu's research, one new criterion emerged – innovation rather than those of Gary Teng and Jaramillo. Based on many previous studies, in 2012, Vijayvagy proposed his set of selection criteria including 18 criteria divided into 7 groups: quality, cost, delivery, flexibility, reputation, reliability, and post-sales services. Then, Mokhtari et al. in 2013 based on 17 papers to find a set of supplier selection including 19 criteria and then used group discussion technique to extract the significant supplier selection criteria encompassing quality, cost, location, delivery, and trust.

Later on, Mizrak Özfirat, Tuna Taşoglu, and Tunçel Memiş (2014) and Fallahpour, Olugu, Musa, Wong, and Noori (2017) also proposed many other new criteria such as lead-time; production capacity; environmental aspect including an environmental management system, green products, green warehousing, eco-design, green technology, and green transportation; and social aspect comprising workers' rights, health and safety at work, and supportive activities for workers. Unlike other researchers who based on literature to propose their supplier criteria, Fallahpour et al. (2017) based on both the literature and opinions of the panel to refine main criteria and sub-criteria for each aspect. The findings of Fallahpour et al. (2017) had been the most comprehensive set of suppliers up to 2017, yet the work still had a drawback in which this set of criteria was just proposed basing on a group of respondents' opinions and did not cover macro issues. Then, Ha-Brookshire (2017) stated that there were macro and micro levels for supplier selection. Therefore, the selection of suppliers does involve not only the suppliers' performance and/ or organizational characteristics and capabilities but also macro factors such as political and economic stability of sourcing countries, cultural differences, etc.

According to a study of Yildil and Yayla (2015), only 2 per cent of the supplier selection studies were from the textile industry, the remaining was from electrical-electronics sector, automotive sector, manufacturing sector. This means that there has not been much attention paid to the determination of supplier selection criteria in T&A industry. Taken together, through the above review of literature, there is a dearth of a comprehensive set of criteria basing on a large-scaled survey in the industry. Therefore, further studies on other industries need to be conducted.

## 3. Research Methodology

In order to identify supplier selection criteria for T&A companies, an integrated approach of qualitative and quantitative was conducted. Firstly, a review of literature with high impact journal articles was conducted to build up a set of supplier selection criteria. Secondly, an in-depth interview with 20 practitioners was executed to explore what supplier selection criteria T&A companies were utilizing and which criteria in the occurrence listing of the literature were necessary for T&A industry. Then, a prequestionnaire sheet was set up and sent to practitioners and experts in the industry for their reviews and comments, from which the prequestionnaire was revised one more time.

Next, a pilot study was conducted to determine the supplier selection criteria that were best suited for T&A companies. Numerous tests were conducted to ensure the

reliability (Cronbach's alpha), the validity (face validity, content validity, criterion validity, and construct validity), and sensitivity of the measures. These three criteria were utilized for evaluating good measurements (Zikmund, Babin, Carr, & Griffin, 2013, p.305).

For reliability test, the Cronbach's alpha normally lies between 0 and 1. However, the recommended value is 0.60 (Hair, Black, Babin, & Anderson, 2014). For validity test, face validity refers to the agreement of professionals that a measurement scale reflects the concept being measured. Content validity refers to the extent to which a measure covers all aspects of a given construct. Criterion validity is of importance in describing how well one measure estimates the value of another measure. To test the criterion validity, multiple correlation coefficient is utilized.

For Construct validity, it refers to how well an item measures the construct that it was designed to measure, and it is factor loading to be employed to measure the construct validity (Zikmund, 2013, p.305). When all tests meet the requirements, an official study with reliability and validity test was conducted to define the final set of criteria for T&A companies. Exploratory factor analysis (EFA) was applied to test validity of the data and to find out criteria that meet conditions (Hair et al., 2014):

(1) Given the sample size of around 250, factor loadings of the observed variables must be 0.4 or higher for the significance of interpretative purposes. A variable with several significant loadings (cross-loadings) would be deleted (Hair et al., 2014);

(2) Each variable's communality representing the amount of variance accounted for by the factor solution for each variable less than .05 will not have sufficient explanation and would be deleted;

(3) Kaiser-Meyer-Olkin Measure of Sampling Adequacy must be from 0.5 to 1 to indicate a factor analysis may be useful with the data;

(4) Bartlett test with Sig. coefficient must be less than 0.005 to determine the significance;

(5) The cumulative percentage of variation greater than 50% is appropriate for factor analysis. The number of factors to be retained can be determined through eigenvalue greater than 1.

(6) Label the factors. Once factor solution has been obtained, some meaning to the pattern of factor loadings will be assigned on the following basis: Variables with higher loadings have more influence on the label to represent a factor.

Data were collected by Axis Research company – a member of ESOMAR, so the reliability of the data is ensured. The data collected by Axis strictly follow ESOMAR/ ICC,

using Survey Craft or Smart Data, which provides a close process from designing questionnaire to inputting and charting. With Smart Data, the accuracy of data processing is ensured at the highest level, i.e. automatically controlling the errors in key punch. At the end, all data would be validated upon the input completion. In addition, the reliability of data is also supported by the quality control procedure. From which, each interviewer was randomly monitored during some his/her interview. This was spread out equally for the stages of beginning, middle, and end of the research. Besides, 100 per cent of completed questionnaires were checked by fieldwork supervisors and 10 per cent of fieldwork scores were re-checked by Quality Control staffs. Rather, call backs were also conducted to make sure the accuracy and reliability of the collected data by the Quality Control team. The data were analyzed using SPSS20 software.

## 4. Results and Discussion

In order to explore supplier selection criteria, this section presents the findings from its implementation in Vietnamese T&A companies. Vietnam was chosen because of its huge contribution to the world's T&A. It has found itself on the list of the ten largest T&A exporters in the world for years (Vietrade, 2017). Additionally, Vietnamese T&A industry has a very unique characteristic. Unlike other countries' production methods including cut-make-trim (CMT), free on board (FOB)/ original equipment manufacturing (OEM), original design manufacturing (ODM), and original brand manufacturing (OBM), in Vietnam, the FOB mode varies considerably depending on the actual contractual relationships between suppliers and purchasers and is divided into two categories: FOB1 (firms purchase raw materials from a group of suppliers designated by the clients) and FOB2 (firms receive the product's designs from clients and are responsible for finding raw materials and producing finished products) (Virac, 2016).

Based on the result of literature review, a list of 27 criteria and 178 sub-criteria with their occurrence was made. Then, these criteria were used to interview practitioners. The results of the interviews revealed that organizational factors, performance metrics, and sourcing country were the three groups recognized well by most Vietnamese T&A companies. The organizational factors primarily focus on the suppliers' capabilities, social responsibilities, and characteristics. This group consists of supplier's capabilities, relationships with purchasers, and corporate social responsibilities. The performance metrics group includes quality, cost, delivery and service.

The criteria in this group are operational measures that Vietnamese T&A companies used to evaluate the supply performance of their suppliers. These selection criteria can be evaluated through their sub-criteria. One of the findings of the interview is the emergence of certain new criteria compared to those criteria in the literature, including CSR, and certain sub-criteria, such as the payment method in the cost cluster, the sample development capacity in the capability cluster, the carrier in the delivery cluster, and the offering service in the service cluster. Additionally, the set of criteria includes not only internal criteria (quality, cost, delivery, service, capability, and relationship) but also external ones – CSR and sourcing country. Taken together, 8 criteria and 38 sub-criteria were identified to include in the prequestionnaire which then would be delivered to some typical T&A companies to revise.

As a result, some questions related to background of respondents were added. In addition, the language of questions was also refined to bring simplicity for the questionnaire. The questionnaire was then delivered to 31 T&A companies to conduct the pilot study. The authors conducted Reliability test (Cronbach’s alpha) to measure the correlation between measures of the same concept (Churchill & Iacobucci, 2005) and to make sure the collected data were reliable for further analysis. The results revealed that all eight criteria had the Cronbach’s alpha values higher than the recommended value (0.60). As shown in the Table 1, the Cronbach’s alpha values ranged from 0.672 to 0.859, which means the research survey is highly reliable.

**Table 1:** Reliability test

Factor	No. of items	Cronbach’s alpha
Quality (QA)	5	0.672
Costs (CO)	5	0.771
Delivery (DE)	5	0.817
Service (SE)	5	0.780
Capability (CA)	6	0.767
Relationship (PR)	4	0.718
CSR (CS)	4	0.853
Sourcing country (SC)	4	0.859

Rather than reliability test, face validity, content validity, criterion validity, and construct validity were conducted. In terms of face validity, as the research’s objective was to explore supplier selection criteria, all questions were related to “supplier selection” or “select suppliers”. For example, “We select suppliers who got quality certificates” or “Lead-time affects our supplier selection decision”. Therefore, the face validity found good for all selection criteria for T&A industry. For content validity, the criteria and their sub-criteria were determined by reviewing the literature (Churchill & Iacobucci, 2005) on T&A industry and in-depth

interviews with 20 experts who are currently sourcing managers of different T&A companies in Vietnam. Therefore, the content validity of the study is supported. In regard to criterion validity, the multiple correlation coefficient got 0.866, which indicates a high degree of criterion-related validity (Lewis, Brandon-Jones, Slack, & Howard, 2010). The next test that should be employed is construct validity (Churchill & Iacobucci, 2005). According to Hair et al. (2014), sample size needs to be five times of observable variables at least. Therefore, as estimated, the sample size will be 200 at least. However, the number of respondents in this paper only reached 31, so it was impossible to run factor analysis, but would be conducted in the official study.

For the sensitivity, the respondents were required to rate the level of agreement on each supplier selection criterion based on a five-point Likert scale with 5 as “strongly agree”, 4 as “agree”, 3 as “neither agree nor disagree”, 2 as “disagree”, and 1 as “strongly disagree”. This measurement instrument is able to accurately measure variability in responses (Zikmund et al., 2013, p.305).

The outcome of this step is a reliable and tested questionnaire, which then is used for official study. To conduct the official study, in total, 2,265 T&A companies out of about 6,000 companies in Vietnam were contacted to answer the questionnaire. However, the effective responses received were 282. Taken together, the successful rate was 11%, which is an acceptable and reliable figure. All of respondents are mainly responsible for sourcing activities in their companies. In addition, all of respondents have more than three-year experience in sourcing, which indicate the reliability of their responses.

Out of 282 companies, 245 are from garment, 27 from textile, and the other 10 are from textile and garment, which means textile companies also engage in garment. In terms of human and capital scope, 45% of companies are small, 38% are of medium scale, and the rest is large-sized. In regard to types of enterprises, respondents are from joint stock enterprises accounting for 34%, limited liability (42.6%), private companies (20%), and state-owned companies (3.5%). All private companies are small-sized whilst limited liability and joint stock companies cover from small to large sizes. All these business types cover different levels of production, from CMT to OBM. On the whole, it is clear that samples represent all characteristics of a T&A industry.

The survey’s results showed that the measured Cronbach’s alpha values ranged from the lowest of 0.688 to the highest of 0.863, which is higher than the recommended value. Thus, the measures of supplier selection criteria are reliable.

**Table 2:** Reliability test

Factor	No. of items	Cronbach's alpha	Mean
Quality (QA)	5	0.688	4.308
Costs (CO)	5	0.754	4.033
Delivery (DE)	5	0.726	4.289
Service (SE)	5	0.705	4.291
Capability (CA)	6	0.784	4.170
Relationship (PR)	4	0.731	4.388
CSR (CS)	4	0.801	3.968
Sourcing country (SC)	4	0.863	3.919

The importance of each criterion is presented in Table 2. The mean values of criteria ranged from 3.919 to 4.388, which indicate the significance of these criteria and they are well recognized by T&A companies.

Another statistical analysis - EFA was conducted to explore the set of selection criteria. Factor analysis result showed that: (1) Factors loading of all variables are higher than 0.4, which means these observed variables are reliable. (2) Communalities of all variables greater than 0.5 indicate that a large amount of the variance in a variable has been extracted by the factor solution. (3) KMO coefficient = 0.882 > 0.5 indicates it is appropriate for factor analysis. (4) Bartlett test with Sig. = 0.000 < 0.005 indicates all observed variables are appropriate for factor analysis. (5) The cumulative percentage of variation got 61.848%, which means 61.848% of variance were explained by factors. Eigenvalue = 1.020 > 1 showed that rotated factor result stopped at the eighth factor.

**Table 3:** Rotated Component Matrix

Variable	Factors							
	F1	F2	F3	F4	F5	F6	F7	F8
SC4	.823							
SC2	.822							
SC1	.776							
SC3	.758							
CS4	.680							
CS2	.587							
PR1		.796						
PR4		.659						
SE4		.649						
PR3		.591						
PR2		.590						
CO5			.686					
CO3			.670					
CO2			.668					
CO4			.635					
CO1			.501					
QA1				.686				

QA3				.664				
QA4				.630				
DE1				.541				
DE3				.464				
QA2				.427				
DE4					.743			
DE5					.736			
DE2					.533			
CA5					.428			
SE2						.791		
SE3						.720		
CA2							.731	
CA3							.545	
CA1							.487	
CA6								.733
CA4								.632
Eigenval	1.020							
Cumulati	61.848							
KMO	0.882							
Sig.	0.000							

As a result (see Table 3), 05 variables including SE1 (Flexibility to changes), SE5 (offering service), CS3 (environment protection), CS1 (labour practices), and QA5 (continuous quality improvement programmes) were deleted from the original observed variables as they had more than two significant loadings (cross-loadings), so failed to meet conditions of EFA.

Finally, there were eight new factors forming from 33 observed variables. The first factor is comprised of SC4 (labour disputes), SC2 (economic stability), SC1 (political stability), SC3 (cultural affinity), CS4 (contributions to communities), and CS2 (consumer protection). It is because the four most significant variables are related to sourcing country, they are named Sourcing country. It is surprisingly noted that the two least significant loadings in the group (CS4 and CS2), which belonged to CSR before, are now re-arranged to the present group. It might be because of the regulations of the sourcing countries on the enterprises' responsibilities to communities and consumer.

The second factor comprising PR1 (long-term partnership), PR4 (information sharing), SE4 (after-sales service), PR3 (honesty), and PR2 (trust) is named Relationship. Through this result, it is convinced that good after-sales service such as thoughtful customer care is one of the elements affecting the relationship among parties. The relationship between suppliers and buyers may be enhanced and tightened basing on these sub-criteria. It is because the third factor includes all variables regarding costs such as CO5 (payment method), CO3 (freight cost), CO2 (minimum order quantity), CO4 (discount), and CO1 (price of material), their name remains Cost.

The fourth factor with QA1 (conformance to requirements), QA3 (certificate of quality), QA4 (defect & scrap ratio), DE1 (on-time delivery), DE3 (delivery quality) and QA2 (country of origin) is labelled Quality. The EFA's result indicates that on-time delivery and delivery quality also affect the products' quality; thus, they are re-arranged to be in the Quality group.

DE4 (geographic distance), DE5 (appropriate carriers), DE2 (lead-time), and CA5 (sample development capacity) are grouped into the fifth factor named Delivery. Sample development capacity is also placed in this group because the higher sample development capacity is, the shorter the production time is. As a result, CA5 is re-arranged into this group. The sixth factor comprises service's variables -- SE2 (responsiveness) and SE3 (ease of communication). It is, therefore, named Service.

After running EFA, Capability with 06 variables are divided into two different factors: One with CA2 (financial capacity), CA3 (human resources) and CA1 (production capacity), and the other with CA6 (factories) and CA4 (reputation). The former is named capability because these capacities are inherent and may be quantifiable. Company's image will be for the latter. Only two variables are used to measure this factor including factories and reputation. It is popularly known that factories are fixed assets. Thus, it is the grandeur of the factories that makes the image and reputation of the company enhanced. Taken together, through exploratory factor analysis, the set of criteria with eight criteria and 33 sub-criteria for supplier selection are set up and shown in Figure 2.

### 5. Conclusion

The outcome of this study is the reliable set of supplier selection criteria for T&A companies. Our findings provide insight into a comprehensive set of supplier selection criteria for T&A companies. Theoretical and managerial implications of the work, the limitations of the study, and future research directions are discussed in the following section. The study adds to the theory of sourcing, especially the selection criteria in the selection phase. There are eight supplier selection criteria including Quality, Cost, Delivery, Service, Capability, Company's image, Relationship, and Sourcing country. Each criterion comprises certain sub-criteria to make the supplier selection criteria set more comprehensive. Our conceptualization of supplier selection criteria fits well with theories on total quality management as well as sourcing and the findings of many previous researchers. One of the findings of the study is the emergence of certain new criteria and sub-criteria, and the re-arrangement of criteria and sub-criteria, especially company's image.

This set of criteria can act as guidelines for both T&A companies and T&A suppliers in their business. For T&A companies, this set of criteria is critically useful for T&A companies to choose capable suppliers as their partners in the supply chain and minimize their risks and costs. Consequently, these companies can advance their current production to higher levels. For suppliers, they can perfect themselves to meet T&A companies' requirements. In addition to the above implication, with minor modifications,

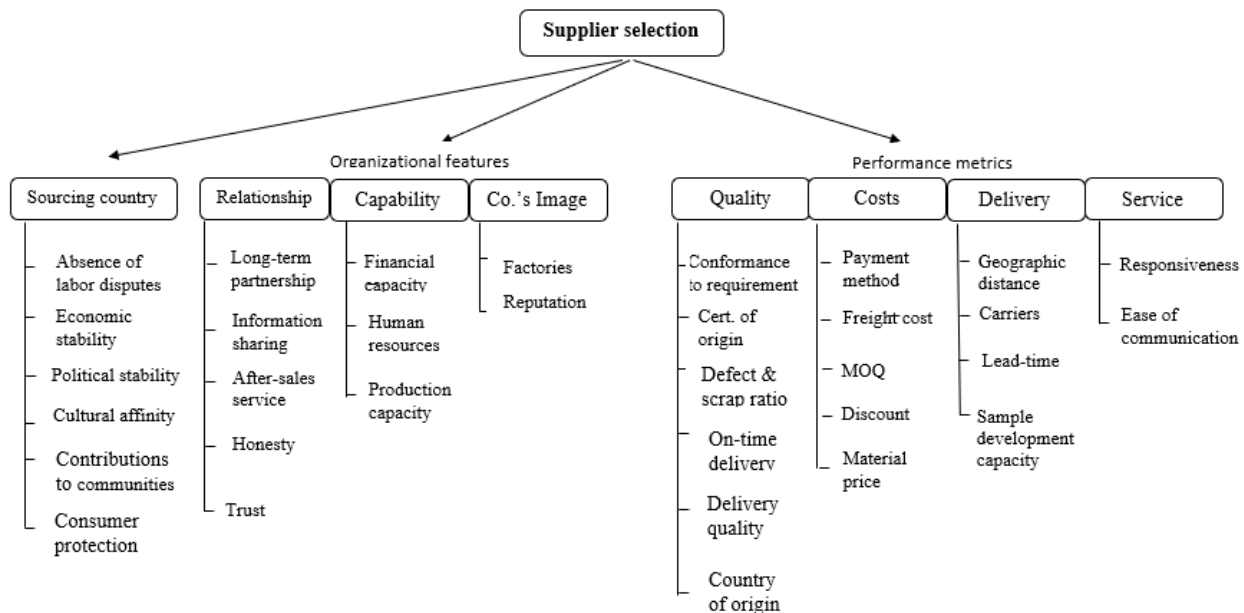


Figure 2: Supplier Selection Criteria in the hierarchy

this set of criteria can help enhance other industries' companies supply chain operations with capable suppliers.

This study has some limitations which need to be solved in future researches such as increasing the sample size or practicing these criteria in the selection of suppliers for Vietnamese T&A companies. In addition, the weights of the criteria and their sub-criteria are yet to be determined. Thus, further studies of these weights by using the MCDM method are encouraged. Additionally, we encourage scholars to study an appropriate method for T&A companies to make multicriteria decisions quickly and scientifically.

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