

Chapter 24

A Staged Supplier Pre– Evaluation Model To Determine Risky, Potential and Preferred Suppliers

Gül Gökay Emel
Uludağ University, Turkey

Gülcan Petriçli
Uludağ University, Turkey

ABSTRACT

In the late 1980s, the proportion of outsourced materials in the cost of high-tech products was around 80%. In this respect, with increasing globalization and ever-expanding supply chains, interdependencies between organizations have increased and the selection of suppliers has become more important than ever. This exploratory research study intends to develop a novel approach for a specific type of supplier selection problem which is supplier pre-evaluation. A two-staged multi-layered feed forward neural networks (NN) algorithm for pattern recognition was used to pre-evaluate suppliers under strategy-based organizational and technical criteria. Data for training, validation and testing the network were collected from a global Tier-1 manufacturing company in the automotive industry. The results show that the proposed approach is able to classify candidate suppliers into three separate groups of risky, potential or preferred. With this classification, it becomes feasible to eliminate risky suppliers before doing business with them.

INTRODUCTION

“There is none more important than the selection of a proper source. Indeed, it is in some respects the most important single factor in purchasing” stated Lewis in 1940 (Lewis, 1940). This statement is probably one of the earliest records of the importance of supplier selection. However, it is still consistent with today’s business trends so its importance continues to grow and a new concepts arising about

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the importance of supplier selection is supplier pre-evaluation. For example in 2013, Trans Adriatic Pipeline (TAP) drew attention to the importance of supplier pre-qualification by announcing that they had started a pre-qualification process of candidate suppliers for their gas delivery project. The project development director, Sigurd Hamre, said that the main goal of the pre-qualification was to ensure that there would be enough high quality steel pipes available during the project over the course of three years (Anonymous, 2013).

In globalized world markets, managing supplier risk is a crucial factor that plays a role in the competitive ability of buying firms because cost or any kind of differentiation can no longer guarantee competitive advantage today. Companies achieve sustainable competitive advantage through their supply networks or supply chain management. Therefore, working with a supportive supplier becomes the keyword for success. However, finding a supportive and a proper supplier is not an easy task as there are many of them in global markets. Shortlisting candidate suppliers may ease the final selection process as pre-evaluating candidate suppliers is an important step that enables buying firms to determine and eliminate unqualified or risky suppliers before working with them. It is a step that may ensure the success of the supplier final selection. The aim of this chapter is to present a stepwise model that firstly eliminates unqualified suppliers and classifies the remaining reliable suppliers according to their technical qualifications.

This chapter is organized as follows. The importance of suppliers in globalized markets is discussed under four headings. The concept of supplier risk is explained. The importance of interdependence and inter-firm fit is discussed in respect of supplier pre-evaluation, and a review of literature related to supplier pre-evaluation is presented chronologically. This conceptual frame work and literature review is followed by the method, results, and discussion.

Some terms in this chapter have been used interchangeably as follows. Supplier initial screening, shortlisting, pre-evaluation, pre-selection and pre-qualification were alternately used for eliminating unqualified or misfit candidate suppliers before starting work with them. Unqualified, risky, and misfit suppliers were also alternately used to define the candidate suppliers that do not satisfy organizational criteria. Ordering, buying, and main firm/organization/company were alternately used to define the company that places an order or does outsourcing activities. Emerging, less-developed, developing and low-cost economy/country were also alternately used to define countries/markets with economies of low to middle per capita incomes.

Of the various driving forces behind the importance of suppliers, the main ones are free flow of information, globalization, change in consumer values, needs and desires (Farughi, Azar, Sadeghi, Naseri, & Hajebi, 2011; Noorizadeh, Mahdilo, & Saen, 2012), and increasing the number of new entrants (Gurnani, Gümüş, Ray, & Ray, 2012; Dye & Stephenson, 2010) as shown in Figure 1.

With advanced technology, it can be explained that the flow of information is more rapid than in the past (Khaled, 2007), and it has been widely accepted that globalization has been brought about by an evolving communications revolution (Langhorne, 2001). Basically, technological advances in communication have enabled the free flow of information between geographically remote locations. As a result, all borders between countries disappear and all countries unite together in terms of operations. According to the Ferguson/Mansbach view, globalization involves geographically wider transaction networks and has multiple often-interrelated dimensions, such as ecology, disease, demography, economics, technology, culture politics, military and society. In addition, it has volume and density of transactions and a direction and pace of change. Regardless of whether the direction of the change is forward, static or reverse, and whether the pace is slow, moderate or rapid (Ferguson, 2014), it is undeniable that the influence of globalization on the consumer culture of a society is extremely intensive (Gupta, 2011).

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