

Operations Strategy Practices of SMEs

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Abstract

There is a close link between operations strategies and firm performance. Thus, it is paramount to find out what competitive priorities are adhered to by small and medium enterprises when it comes to operational decision making. The sample is drawn from 244 manufacturing small and medium enterprises (SMEs) operational in Khyber Pakhtunkhwa (KP), Pakistan. Consistent with the research objective, Exploratory Factor Analysis (EFA) is employed to reveal the preference of SMEs in adopting competitive priorities. The results show that the most preferred competitive priority is cost followed by quality and flexibility with delivery priority the least sought-after operations strategy. The paper adds value to a finer and richer understanding of operations strategies in SMEs context and provides insights to practitioners and managers to effectively enhance their firm performance by pursuing right operations strategies.

Key Words: Competitive strategies, SMEs, Pakistan

JEL Classification: L21,L26.

Introduction

Operations Strategy plays a pivotal role in making business strategy work by developing and leveraging capabilities in the domain of customers, new markets and products (Skinner, 1969; Swamidass & Newell, 1987). Operations strategy is often defined in terms of competitive priorities for instance cost, quality, delivery and flexibility (Boyer & Lewis, 2002).

Competitive priorities are a critical part of operations decision making that improve specific manufacturing capabilities and ultimately market position of a firm (Boyer & Lewis, 2002). Moreover, these facilitate the process of operationalizing business strategies by putting strategic plans into functional domains (Gaskill, Van Auken, & Kim, 2015; Vickery, Droge, & Markland, 1993). Similarly, it enables a firm to develop superior resources and desired outcomes (Day & Wensley, 1988), and to carry out activities better than competitors (Hayes & Pisano, 1996), as well as to create and secure an invulnerable position against competitors (Porter, 1980).

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Different aspects of operations strategy have been studied by different researchers. For instance, it has been studied as a competitive weapon (Ward, McCreery, Ritzman, & Sharma, 1998; Avella, Vazquez-Bustelo, & Fernandez, 2011), its relationship with firm performance (Noble, 1995; Skinner, 1969; P. T. Ward, Leong, & Boyer, 1994) and its association with business environmental factors (Badri, Davis, & Davis, 2000; Swamidass & Newell, 1987). Similarly, researchers such as Wood, Gilbreath, & Rutherford (2014), Sum, Shih-Ju Kow, & Chen (2004) and Swamidass & Newell (1987) studied taxonomies of operations strategies.

The importance of research on SME cannot be overemphasized (Wiklund & Shepherd, 2005) for such reasons as its contribution to GNP (Norris, 1979), collective impact on economy (Aharoni, 1994; Lee, Lim, & Tan, 1999; Robinson & Pearce, 1984), advances in technological progress of countries (Maggina, 1992; Mulhern, 1995), innovation (Dougherty, 1992; Karlsson & Olsson, 1998; Norris, 1979), and employment of large share of employees in an economy (Aharoni, 1994; Kraus, Reiche, & Reschke, 2007). It is becoming an important and large part of world economies (Wiklund & Shepherd, 2005).

From the Pakistani perspective, SMEs comprise almost 90% of all the businesses and serves as the backbone of the economy (Khan & Khalique, 2014). Not to mention, SMEs account for more than 85% of all manufacturing companies (Khalique, Hasan, Md, Jamal, & Sharri, 2011). Similarly, SMEs employ 80 percent of the non-agriculture workforce (SMEDA, 2017) and contribute 8.80% to total GDP of Pakistan with a growth rate of 8.18% per year (“Pakistan Economic Survey,” 2017).

With all the vital contribution made by SMEs to the Pakistani economy, it is unfortunate that no systematic research has investigated SMEs in terms of operations strategies practices. The research aims at finding the type of operations strategies followed by SMEs. The investigation will provide a richer and finer understanding of the operations strategies preferences. In addition, it would assist managers to make shrewd decisions about devising, implementing and evaluating operations strategies in line with the customers' preferences.

Literature Review

Operations strategy theory has been mainly developed from the pioneering work of (Skinner, 1969). Being a relatively new field of research, there resides a scarcity of agreement on most of the common vocabulary and operational definitions (Swamidass & Newell, 1987; R. Wood et al., 2014). From the perspective of Slack, Chambers, & Johnston (2010), operations management is making strategic choices about undertakings of operations. Furthering Slack et al. (2010) view, Buffa (1980) perceives manufacturing strategy as deciding whether production strategy should aim at reducing cost or lay emphasis on other attributes of production such as quality, flexibility or consumer choice. However, Boyer & Lewis (2002) note that operations strategy is defined with reference to competitive priorities including cost, quality, delivery and flexibility.

The concept of competitive priorities has been operationalized differently by many researchers (White, 1996). The commonly agreed-upon dimensions of operations strategies are cost, quality, delivery, and flexibility (Beckman & Rosenfield, 2008; Boyer & Lewis, 2002; P. T. Ward et al., 1998). In addition to generally agreed on competitive priorities, some researchers suggest other additional priorities such as innovativeness and service (Beckman & Rosenfield, 2008) and time and technological edge (Slack, 1994). However,

the majority of empirical research emphasizes the basic four capabilities: cost, quality, flexibility, and delivery (e.g. Schmenner & Swink, 1998; P. T. Ward et al., 1998). In the research, we employ the commonly used competitive priorities, cost, quality, delivery, and flexibility. Each of these is briefly reviewed below.

Cost Priority

Outperforming competitors, firms should pursue a low cost strategy that aims at cutting on the expenses and wasting minimum possible resources (Koufteros, Vonderembse, & Doll, 2002; Porter, 1980). In this way, a low-cost strategy can enhance demand for the product/service thus increased sales and profitability. However, lowering prices could also shrink/squeeze the profit margin as products/services could not be produced at lower cost provided the technology remains the same. In addition, lowering down the cost requires an operations manager to figure out each aspect of costs such as labor, material, overhead, and the process and procedure (Slack, 1994).

The literature review suggests mixed results between low cost strategy and higher performance. For instance, on the positive side Sluti (1992) noted a positive association between ROA and cost priority; however, the market share did not show any relationship with cost priority. Similarly, White (1996) found in his 'meta-review' two studies that have significant and positive and two non-significant relationships between cost priority and performance. Similarly, Strong positive association between cost and price has been reported by Safizadeh, Ritzman, Sharma, & Wood, (1996) and Tracey, Vonderembse, & Lim (1999), as well as P. T. Ward & Duray (2000) and P. Ward et al., (1996). According to Wood et al., (2014) cost, quality, and individual priority were significantly positively related to firm performance. On the other hand, C. H. Wood, (1991) noted that cost priority showed negative but non-significant association with organizational performance. Interestingly, Whybark & Vastag (1993) reported that cost priority did not show any association with ROA.

Quality Priority

Quality is deemed to be the most important of all priorities in terms of achieving competitive advantage (Flynn, Sakakibara, & Schroeder, 1995; D. A. Garvin, 1988). Stonebraker & Leong (1994) define quality in terms of meeting customer needs and conforming to specifications. Based on the perception or assessment of customers, it is the service received relative to the customer's expectation. Meeting or exceeding customer's expectations determines the acceptance or disapproval of the product/ service quality (Fitzsimmons & Fitzsimmons, 1994; Koufteros et al., 2002). Quality strategies aim at reducing cost and eliminating waste (Juran, 1989). Several dimension has been identified by different researchers (e.g. Boyer & Lewis, 2002) and each dimension can be converted into a competitive advantage (D. Garvin, 1987).

Empirical research finds a positive correlation between improved quality and firms' performance (such as Adam & Swamidass, 1989; Ferdows & De Meyer, 1990; D. Miller, 1988; Wheelwright, 1984; D. R. Wood et al., 2014). According to the study conducted by Williams, D'Souza, Rosenfeldt, & Kassaei (1995) in the fabric industry by examining 85 firms revealed that quality turned out to be the most significant and consistent predictor of firm performance among other competing priorities such as capacity planning, innovative

manufacturing process, etc. The strong association between quality and firm performance upholds the notion of TQM and prior empirical studies (Flynn et al., 1995; Williams et al., 1995). However, mixed results are revealed between quality and firm performance on 184 manufacturing firms in New Zealand conducted by Sluti (1992).

Delivery Priority

For many firms delivery has been on the top of the list for outperforming competitors (Boon-itt, 2009). Delivery is defined in terms of availability, reliability, speed, and convenience (P. T. Ward et al., 1998). For instance, Stonebraker & Leong (1994, pp. 45-46), perceive delivery strategy as “the dependability in a meeting requested and promised delivery schedules or speed in responding to customer orders”. Similarly, Wacker (1996) reports three elements of delivery: reliable delivery, speed, new product delivery. Likewise, Noble (1997) identifies two elements of delivery: speed/quick and reliable deliveries. By the same token, Li (2000) deems delivery as a time issue and notes these elements: quick/speedy delivery, reliable delivery, the speed at which improvements are made in products/service. Delivery performance depends on the degree of emphasis laid on increasing delivery reliability or delivery speed (Ward & Duray, 2000).

The literature review reveals somewhat muddled results about the association between delivery priority and firm performance. However, relatively the proponents of positive relationships exceed the opponents. In this connection, the study of Sum et al., (2004), on 43 small firms revealed that firms with both low-cost structure and differentiation along with a focus on delivery as operations strategy outperformed its competitors. Similarly, Fawcett, Calantone, and Smith (1997) reported a strong association between delivery priority and organizational performance. On the other hand, relationship building and delivery were found to be significant but negatively related to firm performance (R. Wood et al., 2014).

Flexibility

The concept of flexible factories (Skinner, 1974; Upton, 1995) evolved from the notion of a focused factory introduced by Skinner (1969). Flexibility has been the center of attention of several practitioners and academics (Boon-itt, 2009) because manufacturing flexibility can be turned into a competitive advantage (Boon-itt, 2009; Swamidass & Newell, 1987). Hall (1983) defines flexibility as the capability of switching between products and parts instantaneously. Flexibility, therefore, enables a firm to manage environmental uncertainty (Swamidass & Newell, 1987). By the same token, Zhang, Vonderembse, & Lim (2003) perceive flexibility as an ability of a firm to meet/exceed customer expectations by managing both uncertainty and resources.

Studies on the flexibility-performance association have reinforced the equivocal nature of the relationship between the two concepts. For instance, Upton (1995) found no significant influence of manufacturing flexibility and performance in the paper industry. Similarly, Pagell & Krause (1999) did not find a positive correlation between manufacturing flexibility and performance under uncertain environment. Interestingly, Gaimon & Singhal (1992) found a negative association between flexibility priority and performance.

The ambiguous nature of the connection between flexibility and performance suggests that flexibility does not necessarily contribute to the competitiveness of the firm (Chang, Yang, Cheng, & Sheu, 2003; Gaimon & Singhal, 1992). In other words, there is a trade-off among various manufacturing flexibility (Chang et al., 2003). Therefore, it becomes imperative for firms, especially SMEs as they have limited resources, to decide in advance what manufacturing flexibility needs to be developed in accordance with its business strategy or devising business strategy that matches its manufacturing flexibility. This fit between manufacturing flexibility and business strategy is vital as the incongruence may be counter-productive (Milgrom & Roberts, 1990). For instance, the benefits of manufacturing flexibility may not be capitalized by the marketing function of the firm (Chang et al., 2003).

Research Methodology

Following the philosophical orientation of positivism, explanatory cum cross-sectional research with the mono-method, survey, and delivery and collection method of data collection were employed for conducting the research.

Sampling and data collection

Our sampling frame consisted of all the manufacturing SMEs operating in KP, Pakistan. Initially, the top 500 SMEs in manufacturing were identified as a sample after employing randomization technique. Based on the research situation, data from these SMEs were collected using delivery and collection method of questionnaire administration (Saunders et. al., 2007). A response rate of 49% has been achieved which exceeds the reasonable response rate of 35% with respect to top management (Baruch, 1999).

Measures

All the measures of operations strategy (cost, quality, delivery, and flexibility) were selected and modified accordingly from validated measures of prior researches. Perceptual data for each item on a measure were collected on a five-point Likert scale which is in line with prior researchers (Kathuria, 2000; P. T. Ward & Duray, 2000).

Analysis and Discussion

Consistent with the objective of the research, exploratory factor analysis is conducted to reveal the underlying preferences of SMEs with respect to operations strategy.

Exploratory Factor Analysis

Exploratory Factor Analysis aims at identifying the structure of underlying factors without setting any 'prior constraints on the estimation of components' (Hair, Black, Babin, & Anderson, 2014, p. 92). Similarly, it is used to comprehend the dimensions of an operationally defined latent construct and to exclude items that do not add to capturing the concept (Dobni, 2008). Moreover, it helps in establishing construct validity by indicating the most appropriate items in each dimension of a construct (Sekaran, 2003).

The four latent constructs of operations strategy have achieved an acceptable level of reliability. To further investigate, exploratory factor analyses have been conducted to make

sure these 20 indicators load high on their respective constructs. It came out that two indicators COS4 and COS5 of cost construct and one indicator QUA5 of quality construct failed to load high on their respective constructs. These low loading indicators are dropped for further analysis. The rest of the indicators load highly on their respective constructs with no cross-loading higher than .45. The extracted factors on EFA show good reliability score of 0.904, 0.896, 0.837, and 0.832 for cost, quality, flexibility, and delivery factors respectively which are greater than the acceptable value of 0.6 (Nunnally, 1978).

Pattern Matrix^a

	Factor			
	Cost	Quality	Flexibility	Delivery
Reliability	0.904	0.896	0.837	0.832
Cos2	.933			
Cos1	.880			
Cos3	.848			
Cos4				
Cos5				
Qua2		.892		
Qua3		.852		
Qua1		.805		
Qua4		.788		
Qua5				
Fle2			.773	
Fle1			.721	
Fle4			.719	
Fle5			.692	
Fle3			.684	
Del2				.872
Del3				.746
Del4				.694
Del1				.643
Del5				.605

Extraction Method: Maximum Likelihood.

Rotation Method: Promax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

The above table shows that the most chosen competitive priority is cost followed by quality and flexibility; whereas, delivery priority is the least preferred as an operations strategy.

The reason for cost priority to be on top of the list could be attributed to cutting on the expenses and wasting minimum possible resources that ultimately lead to outperforming competitors (Koufteros et al., 2002; Porter, 1980). In addition, it boosts demand for product/service thus increased sales and profitability. However, lowering prices could also squeeze the profit margin as products/services could not be produced at lower cost provided the technology remains the same (Slack, 1994).

By and large, quality is deemed to be the most important of all priorities in terms of achieving competitive advantage (Flynn et al., 1995). However, the study finds quality priority as the second-highest valued competitive priority by SMEs. Quality strategies aim at reducing cost and eliminating waste (Crosby & Free, 1979; Juran, 1989). Empirical research finds a positive correlation between improved quality and firms' performance (e.g. Adam & Swamidass, 1989; Ferdows & De Meyer, 1990; Wheelwright, 1984; D. R. Wood et al., 2014).

Flexibility priority enables a firm to meet/exceed customer expectations by managing both uncertainty and resources (Zhang, Vonderembse, & Lim, 2003). A great deal of support favoring the positive influence of flexibility priority on firm performance can be found in the literature (e.g. Gupta & Somers, 1996; Swamidass & Newell, 1987). Nevertheless, the ambiguous nature of the association between flexibility and performance indicates that flexibility does not necessarily contribute to the competitiveness of the firm (Chang et al., 2003). In other words, there is a trade-off among various manufacturing flexibility (Chang et al., 2003). Therefore, it becomes imperative for firms, especially SMEs as they have limited resources, to decide in advance what manufacturing flexibility needs to be developed in accordance with its business strategy or devising business strategy that matches its manufacturing flexibility.

Delivery priority is the least chosen strategy by the SMEs despite its potential benefits including customer satisfaction (Wood et al., 2014) and organizational flexibility (Avella et al., 2011). The literature review reveals somewhat muddled results about the association between delivery priority and firm performance. However, relatively the proponents of positive relationships exceed the opponents.

Conclusion

The paper concludes that cost priority is the most preferred competitive priority when it comes to making operations strategy choices; whereas, the delivery priority is the least favored competitive priority. Nevertheless, quality and delivery priorities stand the second and third in order of preference by SMEs. This implies that customers of the region are more cost-sensitive and less concerned with the delivery of products.

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