


Performance Management of Strategic Sourcing Process: A Case of the Footwear Industry

Nimra Nazar¹, Syed Hassan Raza², Khaliq Ur Rehman³ * and Asher Ramish¹ 

1-Dr Hasan Murad School of Management (HSM), University of Management & Technology, Lahore, Pakistan

2-GrocerApp, Lahore, Pakistan

3-School of Management, Wuhan University of Technology, China

*Corresponding Author: khaliqcheema@gmail.com

ABSTRACT

The paper focuses on strategic sourcing in the upstream supply chain of the footwear industry in Pakistan. It intends to explore the drivers and enablers of strategic sourcing and how the performance of these sources is measured. The study develops a framework for the Performance Measurement (PM) of Strategic Sourcing process. The research has been undertaken using the qualitative research methodology and is a case study of the footwear supply chain in Pakistan. The data is collected through semi-structured interviews, direct field observation, and related documents. The paper contributes to finding out the current practices to measure the performance of strategic sourcing and developing the criteria to measure strategic sourcing, especially in the footwear industry of Pakistan. Eleven approaches are proposed based on a case that will result in better prospects for supply chain development and strategic sourcing in the Pakistani footwear industry. The framework will serve as a guide for developing strategies for strategic sourcing. No previous study has been done in this region concerning strategic sourcing performance. Since this is a single case study, it cannot be statistically generalized. Analytical generalizations have been made nonetheless.

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INTRODUCTION

Supply chains are becoming more planned, active, and consumer-oriented (Melnyk et al., 2006). Supply Chain Management is persistently evolving due to strategic differences in the demands of its stakeholders (Matthyssens, 2019). Strategic SCM improves an organization ability to survive and thrive in a dynamically competitive market. Strategic supply chain is the development of broader capacities that make SCM a multipart initiative (Khan et al., 2008). Supplier selection and development can be decisive in achieving its targets and supply chain objectives (Kabadayi & Dehghanimohammadabadi, 2022). As such, many practices are used by firms in vendor selection and material procurement. A practical evaluation model for the buyer-supplier relationship & procedures must be cemented, keeping in view the importance of the relationship.

Chopra and Meindl (2007) highlighted that focusing on strategic sourcing saves costs 10-20% of total sourcing functions. The process of sourcing, although complicated, can also be a source of competitive advantage for the organization (Çankaya, 2020). At the same time, researchers have developed several models and simulations for making such decisions e.g., Fuzzy Data Envelopment Analysis (FDEA) (Azadeh & Alem, 2010), Total Cost of Ownership (Bhutta & Huq, 2002) and Mixed Integer Programming (Hartmut, 2007). These corporate practices can be described in a methodical charter of strategic sourcing appropriate for goods and services (Anderson & Katz, 1998). Knowledge, skills, and capabilities of sourcing personnel can provide an organization with critical data (e.g., facts about the supply market, chances, or conservational reservations), which can boost the company's skills to sustain or attain a competitive place (Chen et al., 2004).

Literature generally describes Strategic Sourcing (SS) as a procedure that leads complete sourcing undertakings to prospects that allow the company to accomplish its durable working and structural performance aims (Kocabasoglu & Suresh, 2006; Lawson et al., 2009). In current years, the performance of a supply chain is enabled by the growing practice of strategic sourcing (Dey et al., 2014). Furthermore, methodical identification of maximum suitable standards for supplier assessment with the deliberation of mutually important (proactive) and sheathing (reactive) features is also occasional (Dey et al., 2015). Furthermore, strategic sourcing for procuring materials can also allow an organization to function in critical times when supply chains are vulnerable, such as during COVID-19 lockdowns (Karmaker et al., 2021). Thus, Linton and Vakil (2020) have also stressed the importance of a sound sourcing strategy (Frederico et al., 2021).

RESEARCH REQUIREMENTS AND OBJECTIVES

Su (2013) encouraged that future researches need to develop a comprehensive framework for Supplier Evaluation Processes and performance indicators. An operative supplier performance measurement (PM) framework offers two benefits: analysis & feedback (Dey et al., 2014). Dey et al. (2015) also identified a research gap for, Strategic Supplier performance measurement and suggested a need to develop a suitable framework for performance measurement of strategic suppliers. Su (2013) also concluded the research gaps of study in performance of strategic sourcing under a qualitative research design. Baldassarre and Campo (2015) studied strategic sourcing in different industries and identified a need to develop a framework related to varying dimensions of sourcing in the industries (e.g., furniture, medical devices, equipment, electronics & footwear). Similarly, Tahir and Ramish (2022) also highlights a requirement for an in-depth vendor selection that evaluates all processes and capabilities of vendors.

This paper investigates the drivers & enablers of strategic sourcing in the footwear industry of Pakistan and their measurement to develop & establish a comprehensive framework for their performance measurement by answering the following questions: (i) What are the drives and enablers of Strategic Sourcing in the footwear industry? (ii) How these drivers & enablers of Strategic Sourcing are measured in the footwear industry? (iii) How do we develop & establish a comprehensive framework for Performance Measurement in the footwear industry?.

LITERATURE REVIEW

Fasli and Kovalchuk (2011) define a supply network as a self-organized structure of diverse initiatives founded on collaboration is a supply network. Managing the source is a significant trait of SCM as a company's success/failure is now dependent on the supplier and external functions have more impact than inner functions (Goffin et al., 1997). Having capable suppliers permits businesses to improve essential skills for competitive advantage (Gottfredson et al., 2005). Two theories support the investigation of the subject, as cited by Su (2013), and the third theory is also mentioned, which is relevant to this investigation. Resource-based view: The supplier is a crucial resource of a firm, and if handled properly, it can be a competitive advantage (Barney, 1997; Wernerfelt, 1984). A relational view of strategic management: the ability of an organization to manage its relationships with other firms becomes a strategic resource for strategic advantage (Dyer & Singh, 1998). Resource Dependence Theory: organizations hinge on the input and output resources because of being a built-up structure.

The deficiency of self-support forms a prospective dependency on the links that device these resources (Pfeffer & Salancik, 1978). These theories emphasize building a relationship with the resources of an organization. Furthermore, these theories and resulting strategies for sourcing can result in supply chain resilience and advantage if supported by an organization's culture (Mandal, 2020). This research will underlay the relationship of the focal firm with their suppliers and creates the strategic resources for strategic management, creating a competitive edge for the organization.

Strategic Sourcing is established as a tactical character of purchasing in the organizations strategic practice for planning and development. It is theorized to be an important factor in a supply chain's flexibility, responsiveness, and agility (Kocabasoglu & Suresh, 2006). Strategic sourcing assimilates not the same tasks of an organization which include but are not limited to buying, processes, transportation, and advertising (Gottfredson et al., 2005). Strategic sourcing synchronizes strategy and activities of an organization. Strategic sourcing comprises three supplier-related functions: selection, motivation & evaluation, and development, through which a firm can determine its market positioning (Dobrzykowski et al., 2010). The effectiveness skill of an organization should be improved by increasing refined sourcing job that ties into the organization's strategic managerial process (Carr & Pearson, 2002). There are two components to the term strategic sourcing, namely "strategic" & "sourcing". "Sourcing," as defined by Benson and Ribbers (2020), is a procurement function on how an organization will acquire the resources for its business activities, whereas "strategic" refers to how the organization plans to manage vendors for said sourcing purpose.

It is essential to define "Drivers" & "Enablers" for research purposes. Drivers are the internal and external factors that motivate the occurrence of a particular phenomenon (Brandenburg et al., 2014). Enablers are the blend of perceptible and immaterial resources reinforced with core and outside organizational abilities essential to implementing strategies (Brandenburg et al., 2014). Performance Management is "a metric used to quantify the efficiency and effectiveness of an action" (Bourne et al., 2003). Performance Management process that's been getting lots of response (Wouters & Sportel, 2005). Performance Management improvement must be directed by combining critical achievement aspects resulting from the general organizational strategy (Tsang et al., 1999). Performance Management, when used correctly, development fields, diagnosis, and support (Wireman, 2005). There are several reasons to measure and segment actions (Barrat & Whitehead, 2005).

- Defensive: to defend a stance/ practice and conclude the current matter.
- Justification: to prove that certain tasks need to be initiated.

- Improvement: to find the initiation of a problem and recover the disorder.
- Control: a on the trot degree to search for slight modifications.
- Efficiency: to seek movement that can be removed.
- Effectiveness: to measure the inspiration on the outcome.

Performance Metrics are divided into two groups, soft and hard. Soft aspects rely on social characteristics, e.g., learning, management, cooperation, dealer relations, expert connections, and communication (Lewis et al., 2006). Hard features are dealt with implements and structures essential to the execution of soft aspects (Black & Porter, 1996). They are usually concerned with benchmarking, Kaizen, data, procedure control, process control, designs, and projects. (Lewis et al. 2006a). The inability of a firm to quantify soft characteristics can substantially differ in performance, affecting suppliers and partners. Thus, firms must be able to quantify soft characteristics for competitive advantage (Cottrill & Gary, 2005).

Supplier performance measurement is similar to measuring the entire SC (Felix et al., 2003). Holistic measuring of supply chain performance is necessary, as these measurements help improve supply chains, controlling, planning, problem findings, and decision making (Felix et al., 2003). Supplier evaluation works as an instrument to connect the buyer and supplier to recognize each other's insights, performance & capabilities (Prahinski & Fan, 2007). Another advantage of supplier evaluation is that buyers can use the evaluation for making strategic decisions like selection, supplier ranking, supply base optimization, setting targets and goals, supplier development, sorting suppliers, and relationship management (Cormican & Cunningham, 2007). Significantly, buyers formalize their supplier evaluation system to identify suppliers and set formal performance measurement criteria to evaluate new and existing suppliers. This system can actively create awareness amongst the supply base about performance expectations and communication tools for sharing KPIs and targets for future evaluation (Prahinski & Benton, 2004). It will provide a formalized result of suppliers' weaknesses & strengths and what mutual solutions they expect to help them solve those issues, resulting in a strong supply base (Modi & Mabert, 2007). A comprehensive literature review on seller selection and assessment show that cost is not the most extensively accepted standard (Ho et al., 2010). After an extensive literature review, the study summarizes different authors KPIs for supplier evaluation (see Appendix).

Apart from frameworks related to vendor performance evaluation, there are also frameworks for selecting suppliers; in the first place, Table 1 below provides a compiled form of various strategic sourcing frameworks extracted after an extensive literature review.

Table 1.
Various performance measurement frameworks

Theory	Authors	Key elements/steps
A framework for make-or-buy decisions	Cáñez et al. (2000)	Technology and Manufacturing, cost, supply chain management, and logistics and Support system.
A framework for sourcing product development services	Barragan et al. (2003)	Step 1: Assemble the expertise Step 2: Analyze the strategic position Step 3: Identify proper arrangement. Step 4: Plan for Knowledge Migration
A framework for transport purchasing and management	Holter et al. (2008)	Involvement of senior management
A Decision support system for purchasing management in Supply Chain	Costantino et al. (2009)	Step 1: Determining the supplier and the research and negotiation cost Step 2: Determining the purchasing prices and selecting the vendor Step 3: Determining the costs of drafting and approving the contract and the ex-ante cost Step 4: Determining the quality control and the enforcement costs Step 5: Determining the ex-post cost and the transaction output data

Kocabasoglu and Suresh (2006) discussed that strategic sourcing has four sub-constructs for evaluation; Strategic purchasing, Internal Integration, Information Sharing, and Supplier Development. Day and Lichtenstein (2006) classified strategies purchasing practices into three groups for evaluation by using Narasimhan and Das (2001) research : Supply base Leveraging; merging small orders into a single large order to achieve minimal costs, higher quality, better delivery speed, booking the capacity in advance and taking benefits of the devoted skills and technology of a supplier. Shares bundling and capacity alliance are strategically important to the industry (Reese, 2000).

The Buyer-Supplier relationship is a vital constituent of any strategic sourcing process. Firms are creating more synergistic links rather than keeping the supplier at arm length (Carter & Narasimhan, 1995). Supplier performance Evaluation; observing and assessing performance indicators and limitations to the strategic needs (Fitzpatrick, 1996). Recently studies have shown the change from cost and quality to product innovation, design skills, and technological

support (Trent & Monczka, 1998). The key practices for successful strategic sourcing are high quality, consistency in product development, technical ability, long-term relationships/contracts, mutual problem-solving teams, and buyer-supplier assemblies or boards (Zhou & Benton, 2007).

Internal Integration are made to reduce costs by cross-functional integration between necessary departments. The relationship between parties is evolving from argumentative to collaborative. Purchasing for operational purposes fades out an cross-functional strategic buying is activated. The process keeps updating, integrating, and consistently complimenting the strategic sourcing across the organization's business units. This phase requires a strong team with strong communication skills Bemelmans et al. (2013).

Information sharing in the supplier evaluation phase can be defined as the quantity of exchange of important and necessary data between a supplier and a buyer (Mohr & Spekman, 1994). It can be attained through sharing crucial data like planning, inventory, capacity, constraints, and volumes (Flynn et al., 2009). Formal communication is unnecessary and can be achieved informally through taking and discussions in meetings (Zhou & Benton, 2007). Trust levels also boost between parties and help customize mass projects (Liao et al., 2011). Companies prefer working with fewer trustworthy suppliers than a list of risky suppliers (Paulraj & Chen, 2007).

Watts and Hahn (1993) defined supplier development as a two-way effort to promote the supplier's competencies, excellence, abilities, costs, quality, capacity, and delivery time by a customer and a supplier.

There are seven measurements to evaluate the supplier development phase:

- i. Process Oriented advice: Organization provides process-oriented advice to its sellers, it upturns the supplier's independence capacity, and upgrading struggles will endure when the purchasing firm completes its doings (Hartley & Jones, 1997).
- ii. Know-how transfer: is important for competitive advantage as explicit and tacit knowledge flow enhances supplier capacity (Arroyo-López et al., 2012) and motivates prosperous production and larger revenues (Dyer & Hatch, 2006). Increases interaction, creating value for the buyer (Modi & Mabert, 2007). Furthermore, decreases the mismatch of knowledge and practices, resulting in innovative idea (Arikan, 2009; Lawson et al., 2015a).
- iii. Strategic advice: collectively grow as one unit advise on new machinery, updating technology, skillful labor, and new process. Discussions on cost cuttings and profit maximization to achieve better margins with a better quality product (Seshadri, 2005).

- iv. Support of market entry: progressing with a new approach, giving suppliers an active role product development process, Also supporting those to enter the market also eradicates the risk of a new competition entering with a potential product (Monczka et al., 2000).
- v. Transfer of staff: Dyer and Nobeoka (2000) Joint Problem Solving strategy in which buyers provide on-site support for quality problems and implement the best production practices (Carr et al., 2008). This activity aims to propagate knowledge to the supplier’s staff to improve methods and practices. The supplier’s skills are improved, and it is equipped with a tool for process improvement (Krause, 1999; Mesquita et al., 2008; Nagati & Rebolledo, 2012).
- vi. Financial support: better performance in terms of quality and delivery time. Can be achieved by giving performance-based financial incentives, e.g., Hyundai Motor Company rates suppliers performance and cluster them into four classes. Class 1 suppliers are the best supplier and are paid in cash, Class 2 are paid in net 30 days, class 3 in net 60 days, and class 4 are paid in net 60 days with no more business (Rhodes et al., 2009).
- vii. Investments in a supplier: Buyers invest in helping the suppliers grow, which will be returned for greater revenue for the company (Rhodes et al., 2009).

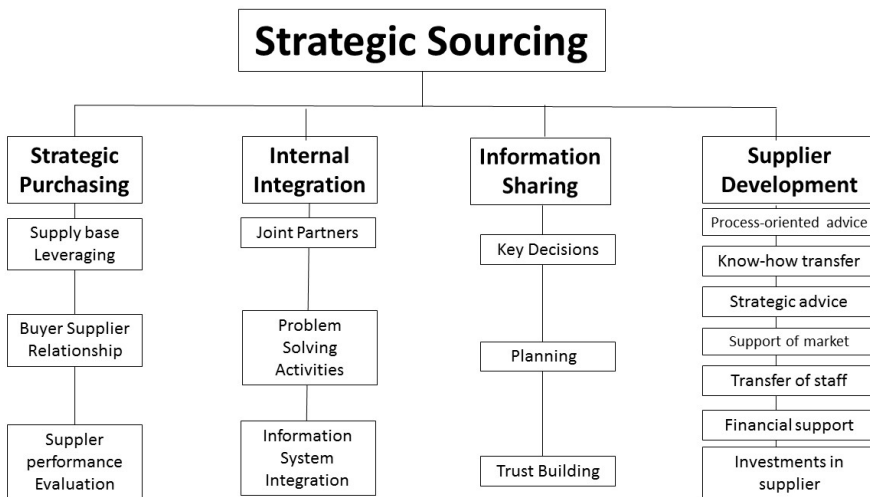


Figure 1: Framework for performance measurement system in the strategic sourcing process

METHODOLOGY

Eekels and Roozenburg (1991) describe the methodology as a structure of philosophies, events, and observations applied to a particular information division. It controls the outline of clarifications resulting from the data and observations collected and their analysis (Hernandez et al., 2006). The research adopts a case study approach to the Footwear Supply Chain of Pakistan. Single Case Study is selected as the research methodology because it is unusually pictorial, ultimate model, or prospects for unusual research access (Yin, 1994). This study will be done through the lens of the Interpretivist Paradigm as the research observes the reality through social actors and embraces subjectivity. As the Interpretivist Paradigm is used to study the phenomenon, qualitative research methodology is the best fit to get the desired result. This research follows the study done by Su (2013), in which the author uses quantitative research methodology and emphasis the path of qualitative research design to validate the results. The original study was done in Apparel and Textile, and the author identified a gap in studying the other industries.

Due to time limitations, a single case study is adopted to support the study. A leading footwear company in Pakistan with a complex cross-functional SC is selected for various suppliers. It is a retail-based structure with completely outsourced production. The company focuses on specialized materials and has many suppliers developing specialized materials. The unit of analysis is organizational; since this is a typical case, purposive sampling is used where participants will include the personnel and manager who are directly managing the supplier of the organization and the critical suppliers identified by these managers.

Case Study Protocol

The authors have followed the case study protocol to achieve reliability for this case. Research objectives were identified and supported by the literature review. A clear methodology was written, and interview questions were prepared using the themes emerging from the literature. Since the data collection method was through interviews, ten interviews were conducted. The focus was placed on the suppliers that make the final product. The Interviewees were the focal firm's executives, who worked closely with the suppliers and identified two strategic sources, one of which was interviewed along with their strategic sources. The secondary strategic sources included a material provider and a Packaging provider. The interviews were then analyzed for results. An Interview guide was made (see Annexure I). Introduction of self and study was made, and the questions were asked in the same series. The interview was recorded,

transcribed, and analyzed along with the data from the documents and field observations to get results.

DATA SOURCES AND ANALYSIS

Three sources of evidence were selected to achieve triangulation; Semi-structured interviews, Secondary data in the form of documentation and archival research, and observation.

The investigation, classification, and organization of the data to state the early research proposals is called data analysis (Yin, 1994). Data is analyzed by explanation building Strategy. It focuses on edifice, explaining the case conceded out of the study; it is also a form of pattern matching. Construct validity will be achieved by using multiple sources of evidence, including interviews, documents, and direct observation (Yin, 1994). Internal validity is provided by testing the theories and framework developed through previous literature from a specific unit of analysis (Yin, 1994). External validity is the most challenging task, and Yin affirms that it can be achieved through developing theoretical relationships. Analytical generalizability can be achieved by comparing the study results with the framework created using the literature (Yin, 1994).

RESULTS AND DISCUSSION

The footwear supply chain in Pakistan is one of the most unorganized sectors and is currently developing its norms. However, some key learnings will be shared in this paper section. The learnings are divided into two parts. Firstly, industry practices will be shared, and secondly, these practices will be shared about the theoretical framework derived from the literature review. The industry has defined Strategic sourcing as the sources you can plan long-term. The industry does believe in growing these sources but is not primarily focused on it, and the primary focus lies in timely deliveries and order fulfillment. The drivers & enablers of strategic sourcing were identified in Table 2 during the data collection.

Table 2. Drivers and enablers of strategic sourcing in the Pakistan Footwear Industry

Drivers	Enablers
Cost efficiency	Internal Practices; Procurement, Inventory &
Lead time reduction	Demand Management Team; Supplier,
Specialized products	Technical assistance, Finance, Retail Team.
Response time/flexibility	
Operational	
Efficiency	
Increase quality	

The company indirectly practices strategic purchasing through all three concepts in the proposed framework. The firms leverage the supply base by placing orders to one strategic supplier in peak season to run their factory and generate the fixed cost incurred during the low season. There is no formal way of maintaining the relationship, but the focal firm practice to help suppliers lift the dead stock and liquidize it in one of the companies channels. Supplier performance evaluation is done monthly by the particular departments annually company-wide. The supplier base is not integrated with the company. However, the firm treats the suppliers as a vital part of the company but sharing wins & losses is not a practice. Half of the problem solving is done by technical staff of the focal firm; in case of a financial problem, the supplier still has to complete the order by any means, or it will affect its performance in the company's records.

Information Sharing is scarce. Both parties maintain individual databases; communication is only for order placement and feedback. Both entities have commendable yet unintegrated planning. The item demand forecast is also done separately, which results in a fixed unmovable forecast error. Information sharing is the prerequisite of trust-building; low information sharing leads to low trust. The technical team tends to advise strategic suppliers in the shoe-making process. Though the exercise is not detailed, the advice is not passed on. Very little know-how transfer is done informally throughout the supply chain, technical assistance, or developing a new product. In the supply chain, all the firms, starting from the focal firm to the smallest part of the supply chain the firms are concerned with asking the vendor to fulfil the order by any means. Only collaboration is done in a situation that is compromising the final product. There is no such practice of giving strategic advice. As already discussed, there is a mistrust in the market regarding creating competitors from the existing suppliers. It results in dependency on product development and less technical sharing. Being a non-manufacturing set, the firm sends experts to help, but there is no transfer of staff. The company only invests in its suppliers by improving its payment cycles, giving discounts to the suppliers, and helping them get finances when in need. Besides the technical assistance and helping suppliers run their factory with the appropriate number of suppliers, the focal firm is not investing in any non-monetary form.

The focal firm is the largest footwear supplier globally, with a market share exceeding 10 percent. The footwear industry in Pakistan is unorganized, and however, it is developing and will become an organized SC. However, the focal firm is more organized & working on international practices and moving forward to the suppliers and secondary suppliers.

Below mentioned are the current industry practices.

- *Trust & relationship*: is maintained with strategic sources for the future business; this is not based on KPIs but on experiences and goodwill.
- *IT infrastructure*: is non-existent due to most suppliers being cottage industries. Computers are less, and patterns are handmade. No statistical tools are available for planning or forecasting.
- *Flexibility*: Work is done on reaction time, and the firm works six months ahead of time due to the long lead time. Most failures are due to long lead times as reaction time is too low in footwear retail.
- *Support*: there is less or no support to suppliers in monetary terms; the supply chain is unintegrated and technologically redundant.
- *Design Supplier network structure*: A ranked strategic supply base needs to be built; currently, it takes 1.5 to 3 years for a supplier to perform to the mark of a strategic supplier.
- *Advance matching supplier capabilities*: group supplier production lines by the specialized shoe-making technology and develop suppliers as a grow, instead of current mismatch.
- *Create associations throughout the supplier network*: to liquidate leftover stock and material among suppliers and for discussion of ideas to have a more productive and sound show line.
- *Create valuable relationships and effective harmonization instruments*: support by combining two strategic suppliers to solve problems and share expertise.
- *Maximize awareness*: of production technologies and new ways of production with suppliers, which are available online for faster design. Better molding machine that can create a better quality pro.
- *Track supplier-integrated invention and process improvement*: Firms help suppliers technically but on supplier request. No supplier is facilitated on the grass-root level.
- *Constant performance progress*: focal firm measures the performance based on the items produced against the order given; however, a numeric method is insufficient. Many factors that affect production, e.g., political instabilities or natural disasters, are not measured.

The drivers and enablers of the strategic sourcing process are discussed in the analysis part. The revised practical framework is explained in Figure 2 below based on the discussion.

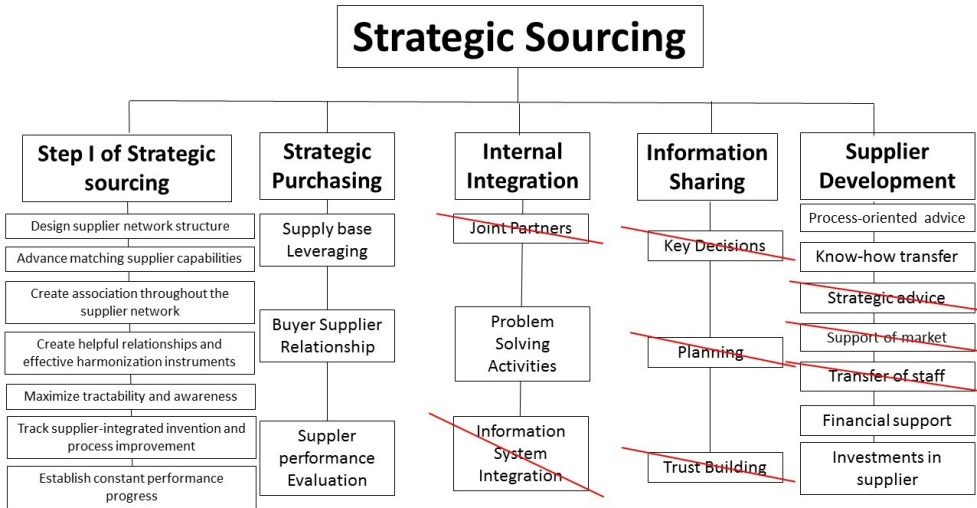


Figure 2: Revised Framework for performance measurement system in strategic sourcing process in footwear supply chain of Pakistan

IMPLICATIONS AND FUTURE DIRECTIONS

The framework can help organizations and supply chain personnel understand the enablers and drivers of strategic sourcing, which can further lead to the development of a sound sourcing strategy that can develop an agile, resilient and sustainable supply chain and ultimately result in a source of competitive advantage. Despite the thorough analysis done in this paper, certain limitations are present. There is much subjectivity involved in this research type; every participant tends to give more/irrelevant information (Hodkinson & Hodkinson, 2001). The case study does not have several proofs and graphical representation but a long theoretical paragraph which makes it difficult to present. The outcomes are no trouble predisposed by the interviewee’s peculiar preferences and characteristics (Yin, 2003). The researcher unavoidable manifestation during information collection in qualitative research can create biasness. Discussed limitations lead to consideration in future research. Since the study is done using a single case study, the same research can be done using multiple case studies. The derived framework from the literature can be studied using the quantitative method. The major gaps in the research were identified by Su (2013), who worked in textile and apparel so that the same study could be completed in the same industry in Pakistan. The study can be improved for the whole supply chain as well. The authors focus on a single focus firm with a strategic supplier, a strategic supplier for materials and packaging; future research can include more

suppliers to study.



Figure 3: Proposed performance measurement system in strategic sourcing process offootwear supply chain in Pakistan

CONCLUSION

Based on the results and discussion, it is concluded that the footwear supply chain of Pakistan is progressing but is not as efficient as the literature says that it should be. However, during the progressive phase, the supply chain focuses on the prerequisite of strategic sourcing. In addition to the above discussion, it may also be concluded that Pakistan has a struggling economy,

and livelihood and footwear are emerging industries in this struggling economy. Nevertheless, this industry is growing at a very fast pace while adopting international practices. There is also a social aspect to the conclusion because the labor is very competitive compared to other industries, but the labor is not educated. Another view of the same problem is that the hiring and firing costs reach the skies if new labor is hired. It is time-consuming to train the new workforce.

Another dilemma that should be mentioned in conclusion is that the Footwear industry of Pakistan is an unorganized sector, and the use of technology is minimal. The workers make shoes by hand, and the designer still draws the designs by hand. There are two reasons for this dilemma; mostly, cottage industry technology seems unaffordable, and secondly, there are no educated resources to run them. Keeping all the results and discussion, the framework that emerges in the result is given below in Figure 3.

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APPENDIX

Table A. 1.
KPIs of Supplier Evaluation used by different authors

Authors & Years	Indicator
Narasimhan and Das (2001)	Supplier Capability, Supplier Performance
Stanley and Wisner (2001)	Internal supplier's service quality and purchasing's service quality performance
Quayle (2002)	Price, Quality, Time to market immediacy, Product credibility, Service reliability, Support capability, Research, and Development power, Purchase specialty, Value analysis, Value engineering, and E-commerce
Felix et al. (2003)	Delivery time, Delivery quality of material
Schmitz and Platts (2004)	Supplier performance indicators as suppliers' strategic planning, information management, relationship with other suppliers, positivity, coordination capability, priority decision capability, and learning competence
Prahinski and Benton (2004)	Buyer-supplier association, supplier's promise, and supplier's enactment
Teng and Jaramillo (2005)	Distribution, Elasticity, price, quality, and dependability
Chin et al. (2006)	Supplier motivation, technology, and information sharing, supplier performance measurement
Dyer and Hatch (2006)	Product quality, inventory costs
Kim (2006)	Delivery performance, product, and service quality performance
B. Li and Yin (2007)	Historical performance, Readiness to collaborate, Technical features
Modi and Mabert (2007)	Operational knowledge transfer activities, modest stress, assessment, and documentation, future commercial inducements
Chan et al. (2008) Sen et al. (2008)	Cost, Social Responsibility, Organizational Structure.
Oh and Rhee (2008)	Technological uncertainty, customer proliferation capability, supplier's delivery, cost, quality, flexibility, engineering, design and module capability, communication, new product development collaboration, collaborative problem-solving, strategic purchasing
Carr et al. (2008)	Supplier involvement, supplier training
Kulkarni and Jenamani (2008)	Cost, Quality, Delivery, Technical know-how, design confidentiality, safety
Wagner and Krause (2009)	Product and delivery, performance improvement, supplier capability improvement

Continued on next page

Table A. 1 continued

Joshi (2009)	Continuous supplier. performance improvement
Sánchez-Rodríguez et al. (2009)	Strategic purchasing, purchasing performance
Wagner (2010)	Product and distribution, performance growth, seller capabilities
Wu et al. (2011)	Relationship learning, exploitation competence, exploration competence
Humphreys et al. (2011)	Effective communication, long-term strategic goals, partnership strategy, top management support, supplier strategic objective, trust, buyer-supplier performance improvement
Wagner (2011)	Performance improvement, relationship length
Kuo and Lin (2012)	Organizational Structure, Manufacturing Capability, Quality System, Implementation capability
Arroyo-López et al. (2012)	Financial performance, operational performance, development of capabilities
Lu et al. (2012)	Socially responsible, information sharing, supplier evaluation
Koufteros et al. (2012)	cost and quality capabilities, buyer product innovation, quality, and competitive pricing capability
Mahapatra et al. (2012)	Competitive intensity, relational orientation, supplier capability
W. Li et al. (2012)	Effective communication, long-term commitment, strategic goals, top management support, supplier strategic objectives, trust, supplier performance improvement, buyer competitive advantage, buyer-supplier relationship improvement
Asare et al. (2013)	Knowledge transfer content, knowledge transfer frequency, buyer involvement intensity
Blonska et al. (2013)	Capability development, supplier governance
Blome et al. (2014)	Top management commitment
Lawson et al. (2015b)	Supplier responsibility, skill similarity, single supplier, supplier task performance
Mckevitt et al. (2014)	Supply, Adapt, Innovate
Haartman and Bengtsson (2015)	Product innovation, Lead times
Hwang and Min (2015)	Short lead time, Product variety, Delivery reliability, Cost, Quality
Sancha et al. (2015)	Coercive pressures, normative pressures, mimetic pressures, supplier integration
González-Benito et al. (2016)	Sustainability, loyalty, good knowledge of the company's strategic goals

Drivers: Cost competence, Technical Capabilities, Flexibility, Operational Efficiency, Response time.

Enablers: Relationship Management, Organizational Structure, Loyalty, Competitive Intensity.