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## **Impact of Supply Chain Competencies on the Performance of Supply Chain Professionals: A Conceptual Model**

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### **Abstract**

Globalization, trending business environments and advancements in technologies, have changed today's supply chains (SC) significantly and consequently, SC is now delivering superior operational performance. Highly competent, skilled and qualified professionals are required by high performing supply chains to perform transactional, clerical, strategic and planning tasks. Literature shows that those supply chain professionals contribute towards better supply chain performance, who possess a certain level of supply chain-related competencies. These competencies are comprised of a professional's knowledge, skills, and abilities. Literature and theory in the context of competencies in supply chain management (SCM) are still in their infancy so this research paper is an attempt to highlight the key supply chain competencies in this modern age where supply chain is way more complex, and to measure their impact on the supply chain professional's (supply chain manager's) performance. This paper presents a conceptual model that will guide the supply chain organizations to the acquisition of competent SC professionals. The study will give a conceptual model to the supply chain professional that will help industry professionals to improve their performance by identifying, gaining and improving certain supply chain competencies (i.e. knowledge, skills & abilities (KSA)).

**Keywords:** Knowledge Sharing, Manager's Resilience, Supply chain Competencies, Supply chain performance

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### **1. Introduction**

Competence is a fuzzy concept as it is impossible to come on a single comprehensive definition of competence (Deist, 2005). Several researchers referred that a competent manager is a professional having a perfect combination of knowledge, skills & abilities (KSA) (Athey & Orth, 1999; Sanchez, 2004). So competencies usually refer to the blend of

Knowledge, skills, abilities, capitals, and competencies (Athey & Orth, 1999; Sanchez, 2004) and this blend when perfectly exists in a person, makes him the right match for the job. But it becomes difficult to discover capable professionals for different kinds of jobs (Maku, Collins, & Beruvides, 2005). Similarly, competencies are key determinants of superior performance and competitiveness in supply chain management.

Bowersox (2000) concluded that financial and operational improvements in businesses can be made through supply chain competence. So these competencies (KSA) are the core reasons for developing organizational goals that seem more relevant to supply chain management, which when utilized effectively, can strategically add value to the firm's performance (McCarter & Northcraft, 2007). So the competent supply chain professionals do form an efficient supply chain that links the firm's performance with it.

Globalizations, business environments, and technological advancements have changed today's supply chains significantly and this has led the supply chains to deliver superior operational performance (Sohal, 2013). Several researchers have studied and concluded that the current supply chains require the professionals who can transform themselves from transactional and clerical tasks to strategic and planning tasks (Carr, 2000; Faes, Knight, & Matthyssens, 2001; Giunipero, 2006; Johnson, 1998). The search is intensifying day-by-day for competent supply chain professionals for the modern supply chain management firms due to the globalization, competition and technology advances.

Firms can have an optimum SC performance based on the fact that SC professionals have sufficient level of KSA's blend where *knowledge* is having content or technical information in one's cognition obtained through properschooling, working (practical) experience or different information sources (McCormick, 1976), *skills* are developed capacities that facilitate quick learning and airing knowledge (Mumford, 1999) and finally Fossum (1986) defined *abilities as the* unceasing characteristics that influence an individual's performance and they usually do not change.

Most of the recent researches in similar context are based on Knowledge-based view (KBV). The view considers knowledge as the most important strategic resource for an organization (Grant, 1996). There is always exists a continuous thirst in the industry to have the competent supply chain professional and this quest is grounded in the firm's KBV (Flöthmann, Hoberg, & Wieland, 2018b). KBV suggests that firms can achieve competitive advantage by the knowledge it possess (Grant, 1996; Zander, 1992). Strategic knowledge resides within an individual, rather than an organization (Grant, 1996). Competencies are a perfect blend of KSAs (Athey & Orth, 1999; Sanchez, 2004) and these competencies can be the determinants

of firm's performance (McCarter & Northcraft, 2007), so KBV presents the best theoretical support to the idea of this study.

There is a need to study the impact of SC competencies on the performance of SC professionals in the SME sector (Flöthmann et al., 2018b). Flöthmann, Hoberg, and Gammelgaard (2018a) found the significant bias of supply chain management (SCM) and human resource management (HRM) literature toward American companies so non-American companies needed to be studied. This gap needs to be addressed, As SCM is an emerging field in Pakistan and needs to address the specific Pakistani small & medium enterprises (SME) industry.

Moreover, in analyzing the competencies requirements for logistics and SC managers, Derwik (2016) concluded that the competence in SCM context "is still in its infancy". There is an insufficient discussion and a limited empirical investigation available on the professional competencies of logistics professionals in the SCM context. So SCM needs to be further explored due to its multidimensional construct (Derwik and Hellström, 2017).

The purpose of this study is to find out the key competencies and skills required for the professionals of SCM to achieve better performance in their supply chain related role. The study will help in identifying and developing the supply chain competencies that will help the HRM of the organizations and individuals equally in preparing themselves to deal with supply chain related challenges. The study will also help the human resource (HR) managers to hire right SCM professionals for the right SCM Job (Flöthmann et al., 2018b).

Hence, this study aims to consider and focus on the scarcity of research in the area to dig down the competency requirements for SCM in industry and this will help HR managers to define hiring criteria for SC professional. So, the first research question is:

*RQ1: What are the antecedents and consequences of supply chain competencies?*

*RQ2: Which skills have the most contribution towards the better performance of Supply chains?*

This study aims to contribute towards better performing supply chains by giving that required competence and skillsets which can impact the supply chain performance of the organization in a positive way. This will help organizations to develop competent supply chain professionals in their organization. The SCM firms especially the SME firms which are the backbone of the Pakistani industry will also get benefit from this study.

## **2. Literature Review**

### **2.1. Theoretical Background**

Firms always remain busy in looking to hire a highly competent supply chain professional and their success for this search is anchored in the knowledge base view (KBV) of the firm. The basic idea with the KBV view is that knowledge can become a firm's competitive advantage (Grant, 1996; Zander, 1992). Further Grant (1996) suggested that individuals or personnel are the sources of strategic knowledge. The proficient personnel if possess valuable, rare, inimitable and non-substitutable (VRIN) competencies can lead to the competitive advantage for the organization (Barney, 1991; Grant, 1996; Wernerfelt, 1984). Knowledge-based view (KBV) compels firms to develop competent professionals to sustain their competitive advantages. Knowledge as a resource for an organization is a very important resource in SC competitiveness (Hult, Ketchen, & Slater, 2004). Manager's ability related to SC.

### **2.2. Supply chain competencies and skills**

The balance between two types of skills i.e. hard skills like technical & analytical skills and soft skills like behavioral skills within supply chain professionals to achieve assimilation in the supply chain dynamic business environment (Christopher, 2012; Cottrill, 2010). Mirabile (1997) took individual competencies as a set of personnel's knowledge, skills, and abilities related to an individual's job performance. Ellinger (2002). According to Faes et al. (2001), supply chain professionals should be more flexible in making and working in teams having leadership skills. Good communication skills make employees able to communicate across functions and organizations to promote and coordinate supply chain management, and also as two-way communication inside the organization i.e. upward & downward (Carr, 2000). Campos, Lima, Silva, and Fernandes (2018) studied the supply chain competencies by dividing these competencies into two groups, i.e. general skills and specific skills. Gammelgaard and Larson (2001) researched and grouped 45 skills of logistics and SC professionals. They grouped these skills items as "managerial skills," "SCM core skills" and "quantitative/technical skills". Later Flöthmann et al. (2018a) studied and applied the same model in their study to see the impact of SC competencies on SC performance.

Several authors and researchers discussed competency requirements for SC professionals, but Giunipero (2006) proposed five key competencies for SC professionals having a more strategic approach.

- 1) Team-building skills

- 2) Strategic planning skills
- 3) Communication skills
- 4) Technical skills
- 5) Broader financial skills

These skills were further studied by Campos et al. (2018) in the mid-sized supermarket sector of Brazil and they reported that these competencies received low attention but general competencies were more focused as compared to SC specific competencies for SC related activities. Literature suggests that McAfee (2002) provided theoretical and empirical evidence about employees' skills and improvement affects a company's performance.

A model on competence describing competencies for logistics and distribution managers (SC managers) was published by APICS (2014). They modeled competencies corresponding to the professional knowledge and skills needed for a successful job. The model serves two purposes, one, it guides individuals seeking a career in the supply chain (logistics and distribution management) and second, HRM seeking to hire SC (logistics & distribution) managers. APICS (2014) is a model that presents professional (occupational) job requirements and competencies along with the basic competencies and skills.

Table 1: (APICS, 2014) SC Managers' Competence Model

| Category                | Competencies   |
|-------------------------|--|
| Foundation Competencies | <ul style="list-style-type: none"> <li>• Personal effectiveness competencies</li> <li>• Awareness of need for others</li> <li>• Integrity</li> <li>• Continuous learning</li> <li>• Effective communication</li> <li>• Interpersonal skills</li> <li>• Creativity</li> <li>• Academic competencies</li> <li>• Math, statistics and analytical thinking</li> <li>• Reading and writing for comprehension</li> <li>• Applied science and technology</li> <li>• Supply chain fundamentals</li> <li>• Foundations of business management</li> <li>• Operations and enterprise economics</li> <li>• Workplace and leadership competencies</li> <li>• Problem-solving and decision making</li> </ul> |

|                                   |  |
|-----------------------------------|--|
|                                   | <ul style="list-style-type: none"> <li>• Teamwork</li> <li>• Accountability and responsibility</li> <li>• Customer focus (internal and external)</li> <li>• Planning and organizing</li> <li>• Conflict management</li> <li>• Enabling technology</li> </ul>   |
| Professional-Related Competencies | <ul style="list-style-type: none"> <li>• Operations management knowledge areas</li> <li>• And technical competencies</li> <li>• Strategy development and application</li> <li>• Supply chain management</li> <li>• Process improvement and six sigma</li> <li>• Execution, planning, scheduling, and control</li> <li>• Project management</li> <li>• Lean management</li> <li>• Enabling technology application</li> <li>• Supply chain managers' knowledge areas and technical competencies</li> <li>• Performance trade-offs</li> <li>• Warehouse management</li> <li>• Transportation management</li> <li>• Supply chain synchronization</li> <li>• Risk management</li> <li>• Sustainability</li> <li>• Locating facilities</li> <li>• Distribution</li> <li>• Warehousing</li> <li>• Logistics</li> <li>• International regulations</li> <li>• Strategic sourcing and supplier relationship management</li> <li>• Customer relationship management</li> <li>• Applying lean tools and six sigma</li> </ul> |
| Occupation-Related Competencies   | <ul style="list-style-type: none"> <li>• Supply Chain Manager Specific</li> </ul>  |

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#### Requirements

- Post-secondary education
  - Association membership
  - Certifications
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Skelton (2014) presented an industry skills report for logistics, claiming that the skills required of supply chain managers comprise both hard and soft skills, including job-specific skills, communication, and teamwork/interpersonal skills.

### **2.3. Knowledge Flow**

Global Survival of businesses in current rivalries and performance, the supply chain is considered to be an important element (Pan, Liang, Ma, & Wang, 2013). The researchers have started considering knowledge flow as a contributor to supply chains (Pan et al., 2013). Knowledge flow increases the supply chain's competitive advantage as a whole (Liu, 2014) and knowledge flow is defined as the complete procedure of sharing and acquisition of knowledge from knowledge source to knowledge recipients (Davenport & Prusak, 1998). To improve SC performance, a firm must focus on the knowledge flow across its SC processes as Knowledge flow creates and advance SC systems of the firm and consequently increase SC performance (Bhosale, Kant, & Shankar, 2018). Implementing knowledge flow in SC will help its partners to improve planning activities within the buyer-supplier (Bhosale et al., 2018).

### **2.4. Corporate Training**

Lawler (1994) suggested in the light of the KBV view, only those skill sets needed to be developed in the employees that are suitable, unique and will result in the competitive advantage of the organization. This is possible through training and this enables firms to align individual's competencies with the firm's strategies to develop dynamic capabilities in dynamic environments (Flöthmann et al., 2018a). Lawler (1994) also proposed that employees can only deliver critical skills when the employer has developed these individual skills in employees. Several studies showed training has a positive effect on several SC dimensions, just like quality matrices (Ahmad & Schroeder, 2003; Jayaram, 1999). Flöthmann and Hoberg (2017) reported that competency development is important for SCM which is a true cross-functional profession. Gowen and Tallon (2003) studied the relationship between different HRM practices and SCM practices and reported that employee training is a key enhancer of SCM practice success and both are in high co-relation.

## **2.5. Knowledge Sharing**

Knowledge sharing (KS) is defined as a process of communication between two or more participants involving in attaining knowledge (knowledge collection (KC)) and giving it away (knowledge donation (KD))(Lee, 2003). KS is sharing, transferring or exchanging knowledge including experience, information, expertise or skills among the members of an organization (Taegoo, Gyehee, Soyon, & Seunggil, 2013). KS is not only important at an individual level, but it has gained its important at an organizational level under the resource-based view (RBV) (Taegoo et al., 2013).

Two different schools of thought are there, about the value creation of knowledge, exist among researchers (Flöthmann et al., 2018a), few like (Grant, 1996; Simon, 1991) advocate the competencies at an individual level as the locus of value creation. Most of the researchers like (Eisenhardt & Martin, 2000; Kogut & Zander, 1992) are of the view that organizational level knowledge is the locus of value creation. So organizational SCM knowledge requires separate investigation in SCM (Flöthmann et al., 2018a). Only Schoenherr, Griffith, and Chandra (2014) studied knowledge management in relation to supply chain management discussing the role of explicit (intangible) and tacit (tangible) knowledge. They reported tacit knowledge is a major contributor toward achieving the firm's competitive advantage. SCM knowledge refers to knowledge in inventory management (warehousing), logistics network design, as well as sales and operations planning (Flöthmann et al., 2018b).

## **2.6. SC Manager's Resilience**

Resilience was started becoming a part of the discussion in the mid of seventeenth century, its origin is a Latin verb "resilience" meaning "to leap back" (Soanes & Stevenson, 2006) and still is in used (Shafique, Tabassum, Konstantopoulou, & Arslan, 2019). Cooper, Flint-Taylor, and Pearn (2013) defined resilience as "being the ability to bounce back from hindrances combined with staying efficient in difficult situations and continuing to grow stronger in the process". Resilience is "the capacity to rebound from adversity strengthened and more resourceful" as defined by (Sutcliffe & Vogus, 2003). Kossek and Perrigino (2016) defined resilience as the ability to accept misfortunes and bear job-related demands. They further discussed different job tasks and contextual demands have different meanings towards resilience.

Resilience as a characteristic is an accretion of abilities and traits that help a person to fine-tune according to the difficult situation they face (Connor & Davidson, 2003). The following authors defined resilience as an individual's trait.



Table 2: Definitions of Resilience as an Individual's Trait.

| Author                              | Meaning  |
|-------------------------------------|--|
| Block and Block (1980)              | Resilience as an attribute is a sum of all those abilities that help professionals to adapt to the difficult situations, they face.                        |
| Egeland, Carlson, and Sroufe (1993) | Resilience is adapted gradually by an interaction between individual and corresponding situations  |
| Coutu (2002)                        | Resilience is a skill that enables individuals to accept reality and to make them certain about life is significant and develop the capacity to improvise. |
| Fredrickson (2001)                  | Resilience is the ability to "leap-back" from misfortune"  |
| Connor and Davidson (2003)          |  |
| Fletcher and Sarkar (2013)          |  |
| Cooper et al. (2013)                | The ability to bounce back from difficulties combined with staying efficient in difficult situations and continuing to grow stronger in the process        |

Block and Block (1980) for the very first time presented resilience as an individual's trait and they used the term "ego resilience" defining as a set of individual's characteristics including creativity, operational flexibility and chromatic power to cater environmental needs.

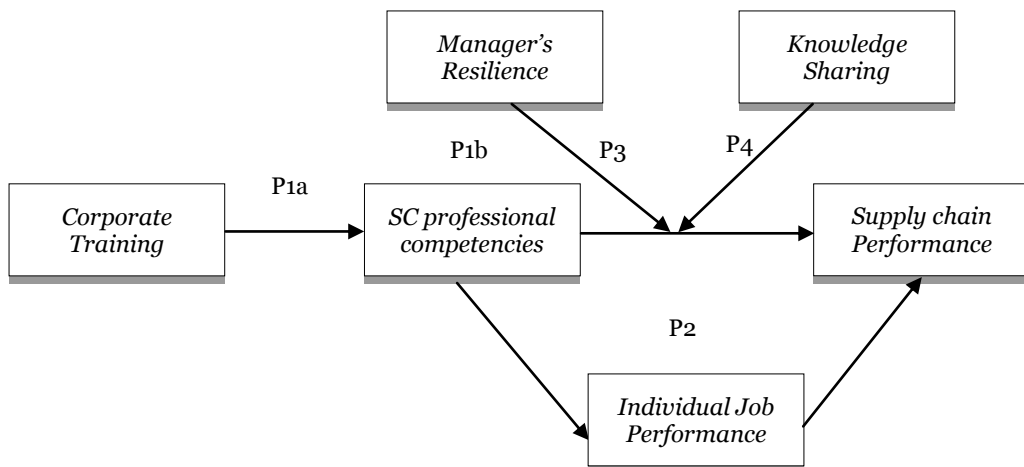


Figure 1: Proposed Conceptual Model of the Study

Resilience as the ability to "leap back" from adversity was explained by Connor and Davidson (2003), Fletcher and Sarkar (2013) and Fredrickson (2001). Resilient managers seek to develop new ways to rectify adverse scenarios and take risks in uncertain situations due to their resilient behaviors (Youssef & Luthans, 2007). A team of individuals having high self-efficacy, resilience, hope, and optimism adopt new tactics, they are more successful in the holdup situations and they show positive and innovative behaviors towards success (Gonçalves & Brandão, 2017).

### **3. Propositions Based on Conceptual Model**

#### **3.1. Corporate Training and Individual's SC Competencies**

Designing and implementing appropriate training for the development of change in the attitudes of employees at an organizational level is one of the primary roles of HRM (Vidal-Salazar, Cordon-Pozo, & Ferrón-Vilchez, 2012). Lawler (1994, p. 7) proposed in the light of KBV that "there is a need for the development of skill sets that are appropriate and unique to the organization and that will provide core competencies and competitive advantage." Further employees can only work in teams if their employer has developed such competencies in their employees (Lawler, 1994), and this is possible through training, as training allow the firms to align employee competencies and organization's strategic competencies. Ahmad and Schroeder (2003) argued that several studies reported that training has a positive impact on a variety of supply chain performance measures. Skills like problem-solving and working together in teams can be developed and reinforced in employees through adequate training (Gowen & Tallon, 2003). So we propose following propositions under given arguments as shown in figure 1 too:

*P1a. Corporate trainings positively impact individual SCM competencies.*

*P1b. SC competencies mediate the relationship between corporate training and SC performance.*

#### **3.2. Moderating effect of Manager's Resilience on SC Professional's Competencies & SC performance**

Professional's resilience is linked to an employee's job performance in stressful and adverse situations (Avey, Nimnicht, & Pigeon, 2010). Organizations having developed their employees with resilient attitudes tend to be more adaptive and successful over time (Luthans, 2002). Resilience capabilities find references in knowledge-based view, resource-based view (RBV) and dynamic capabilities view (DCV) and these theories link competencies, competitive

advantages and superior performance (Barrales-Molina, Bustinza, & Gutiérrez-Gutiérrez, 2013). As suggested by Hamel and Valikangas (2003), these theoretical approaches can become an appropriate frame to study resilience as these theories possess dynamic characteristics, further the resilience capability can be considered as a firm's ability to reinvent itself dynamically. So these approaches can help to study the effect of an individual's resilience in an organization on the supply chain's performance (figure I). Based on these arguments, the following proposition is proposed:

*P3. Moderating effect of Manager's Resilience to the relationship between SC professional competencies and Supply chain Performance.*

### **3.3. SC competencies and Individual Job performance**

Supply chain management is considered as the key to an organization's success and its main factor is competence which helps an organization achieve competitiveness and superior performance (Derwik and Hellström, 2017). Supply chain management is comprised of SC professionals to manage the strategic processes of the firm's supply chain. Supply chain collaboration and integration are done by these SC professionals to generate and maintain the firm's competitive resources and competencies. Supply chain professionals must possess an appropriate range of competencies that can help them prepare to deal with adverse situations effectively and that can help them manage the supply chains (Sohal, 2013).

*P2. Individual Job performance mediates the relationship between SC professional competencies and Supply chain Performance.*

### **3.4. Knowledge Sharing**

SCM Knowledge is a strategic resource for organizations' SCM. A perfect blend of strategy and organizational SCM knowledge can give better SCM performance to the organization (Hult, Ketchen, Cavusgil, & Calantone, 2006). They reported that the degree of strategy and SCM knowledge mixed up in an organization has a direct impact on SCM performance. Hult et al. (2004) previously also studied SCM knowledge management's impact on cycle time in strategic supply chain and findings showed substantial variance explained by knowledge development. SCM knowledge is a VRIN resource explained under KBV theory. Further Schoenherr et al. (2014) showed that SCM knowledge multi-dimensional positive impact on the performance of supply chains.

*P4. Knowledge Sharing has a moderating effect on the relationship between SC professional competencies and Supply chain Performance.*

#### 4. Limitations and Directions for Future Research

This research has focused on the study of the professional competencies requirements in supply chain professionals and their impact on the performance of supply chains. A theoretical model of competencies for successful supply chains has developed by finalizing them through literature review. There is no empirical evidence attached to the model. So, in the future, some empirical research can be done, which can new moderators and can cater to new constructs by keeping or removing the existing ones. Second, this research has only focused on the impact of supply chain competencies on supply chain performance, future research can be done to measure the impact of supply chain competencies on individual's job performance.

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