Contributions for Improving Textile Supply Chain Management in Pakistan

Deedar Hussain Pathan[1], Manuel C. Figueiredo[2] and Fernando B. Ferreira[3]

[1,2,3] School of Engineering
University of Minho, Portugal
[1] Department of Textile Engineering
NED University Karachi, Pakistan

E-mail: deedar_agha@hotmail.com[1]; mcf@dps.uminho.pt[2]; fnunes@det.uminho.pt[3];

KEYWORDS

Supply chain management; competitiveness; strategic planning; responsiveness

ABSTRACT

The global shift of textile and clothing manufacturing to low cost countries has created a strong competition in Asia and Far East. Old and new players are developing the missing links in the supply chain. Although they are at different development stages, they share the advantage of being suitable sources for low-value and standard products. Similar is the context for Pakistan which supplies mainly standard products of low added value. This work is focused to improve supply chain competitiveness, especially the responsiveness to enter higher end markets.

INTRODUCTION

Over the past 25 years, trade liberalization and communication innovations have increased the opportunities for retailers and brands to buy their products from producers worldwide, resulting in complex international networks, or global supply chains. These supply chains are driven by the big brands and retailers that have tremendous power in determining price, quality, delivery, and labor conditions for suppliers and producers up the chain. They are segmented into high and low profit steps. Retailers and brands keep high profit steps such as innovation, marketing and retailing. Low profit steps, such as sourcing raw materials, production and assembly, finishing and packing, are outsourced to mid-chain suppliers and low-cost producers worldwide. Thus global supply chains have created labor-intensive exports from low-cost locations especially Asian and Far East regions (Bolisani and Scarso, 1996; Loo, 2002). The result is an enormous growth in the number of producers, increasing competition among the world's factories at chain upstream.

BACKGROUND

Supply Chain Management (SCM) is an interdisciplinary field that emphasizes cross-functional links and seeks to manage those links to enhance a company's competitive advantage. It involves forecasting, resource allocation, production planning, flow and process management, inventory management, customer delivery, after-sales support and service, and a multitude of other activities and processes familiar and essential to business. Nowadays an ever-increasing number of companies rely on supply chain management as a key competitive weapon.

World trends in textile and fashion business indicate clearly that lead times are continuously reducing. This created a new and an advanced demand and supply market where each key player collaborates with its suppliers and shares market information and risks. It seems that Pakistani textile industry may not be prepared for this scenario and may have difficulties in meeting lead times and prices of key markets. The current context of these markets frequently creates changing short run orders causing a strong impact on planning. Despite having latest computerized manufacturing machines, Pakistani companies put less emphasis on demand forecasting, production and inventory planning systems. This results on high costs of operation and late deliveries. Thus, even with state of the art machinery and access to capital, Pakistani textile industry is compelled to manufacture and export non-seasonal and low value textile products where high capital is required to manufacture at extremely low margins. We believe that improving responsiveness and decreasing lead times can bring an opportunity to enter the higher end markets of fashion and clothing and improving research, design and development and diversifying fiber base in Pakistan will improve its competitiveness in these markets and prepare it to enter the markets of technical textiles. Some of the obstacles in achieving the above objectives include geographical location (away from main current markets of USA and Europe), imperfect Logistics systems, scarce Production Planning and Inventory Management systems and limited use of advance communication systems (Cororaton et al., 2008; Yusuf). Schwab (2009) identifies other problematic factors in the country which include among others: Political/Government Stability, Inadequate Supply of Infrastructure, Inadequately Educated Work Force and Policy Instability.

METHODOLOGY

To analyze the effects of the factors involved, we conducted a study over internal and external environment of the chain by literature review and consultations with the internal experts of the chain. The effectiveness of SWOT analysis is discussed by Hill and Westbrook, 1997; Kurttila et al., 2000; Dyson, 2004. Thus, using inputs from our work (Hussain et al., 2009), we evaluated the strategies developed for achieving competitiveness in textile and clothing supply chain in Pakistan and their potential effects using a process of prioritization following Saaty´s Analytical Hierarchy Process and Analytical Network Process (Forman and Gass, 2001; Saaty and Vergas, 2006; Yuksel and Dagdeviren, 2007). Inner dependence of factors is included and inner dependence of sub factors and alternatives is planned in future. We intend to include the views of more external experts through semi structured interview surveys to increase reliability of our results. It is also our intention to formulate the decision structure of our problem based on external view of the chain and with more generalized criteria. A study based on secondary data of textile and clothing exports from Pakistan is initiated to highlight important current export destinations. Surveys of transportation time being part of lead times are planned and other time components like manufacturing and planning will be structured through a case study. These will collectively provide the base to formulate the factors responsible for responsiveness and help to study their effect on competitiveness. Forecasting of future markets and customers needs are also planned which will be based on analysis of secondary data and literature review. Some of the data from our semi structured interview surveys planned on external experts will also provide inputs for customer expectations and needs.

RESULTS

The top four strategies out of fifteen which were based on SWOT and prioritized by Saaty´s AHP and ANP (Hussain et al., 2010) are presented in following table.

Table: Prioritized Competitive Strategies

Rank	Strategy
1st Group of Strategies	
1st	WO4: Developing Effective Linkage between Industry, Academia and R&D Institutes
2nd	WO1: Skill Development Programs
3rd	ST2: Establishing Down Stream Facilities in Stable, Near to Market and Competing Regions
4th	WO2: Expanding Non-cotton Fiber Base

CONCLUSIONS

The results are preliminary and future studies will refine these results and bring further insight. These can be utilized for resource allocation, policy making and other strategic decisions related to the supply chain and can be implemented simultaneously and in parallel through different entities involved with the chain.

REFERENCES

Bolisani, E. and Scarso, E. (1996) International Manufacturing Strategies: Experiences from Clothing Industry, *International Journal of Operations & Production Management*, Vol. 16, No. 11, pp. 71-84.

Cororaton Caesar B., Salam A., Altaf Zafar and Orden D. (2008) Cotton-Textile-Apparel Sectors of Pakistan; Situation and Challenges Faced, IFPRI Discussion Paper 00800.

Dyson G. Robert. (2004) Strategic Development and SWOT analysis at the University of Warwick, *European Journal of Operational Research,* 152, pp. 631-64.

Forman Earnest H. and Gass Saul I. (2001) The Analytical Hierarchy Process- An Exposition, *Operations Research*, Vol. 49, No. 4. pp. 469-486. ISSN: 0030-364X.

Hill Terry and Westbrook Roy, 1997, SWOT Analysis: It´s Time for a Product Recall, *Long Range Planning*, Vol. 30, No. 1, pp. 46-52.

Hussain, D., Figueiredo, M. and Fernando, B. F. (2009) SWOT Analysis of Pakistan Textile Supply Chain, Proceedings *of IX Congreso Galego de Estatística e Investigación de Operación*s, 12-14 November 2009, p 257-263, ISBN 978-84-613-6906-5.

Hussain, D., Figueiredo, M., Tereso, A. and Fernando, F. (2010) A Study of Textile & Clothing Supply Chain in Pakistan, Proceedings *of EngOpt2010 - 2nd International Conference on Engineering Optimization*, September 6-9, Lisbon, ISBN 978-989-96264-3-0.

Kurttila,M, Pesonen,M,Kangas,J, Kajanus,M (2000) Utilizing the analytical hierarchy process (AHP) in SWOT analysis–a hybrid method and its application to a forest-certification case,*Forest Policy and Economics*, Vol.1,No.1. pp41-52.

Loo Becky, P.Y.(2002) The Textile and Clothing Industries Under the Fifth Kondratieff Wave: Some Insights from the Case of Hong Kong, *World Development*, Vol. 30, No. 5, pp. 847–872.

Saaty Thomas, L. and Vergas Luis, G. (2006) *Decision Making with Analytical Network Process*, Springer, ISBN 978-0-387-33859-0, pp. 2-3.

Schwab Klaus (2009) *The Global Competitiveness Report 2009-2010*, World Economic Forum, ISBN-13: 978-92-95044-25-8, pp. 248-249.

Yuksel, I. and Dagdeviren M. (2007) Using the analytical network process (ANP) in a SWOT   analysis – A case study for a textile firm, *Information Sciences*, 177, pp. 3364-3382.

Yusuf Moeed, `An Overview of Transport sector` in IDS Pvt. Ltd, Study on State of Domestic Commerce in Pakistan.

DEEDAR HUSSAIN PATHAN was born in Jacobabad, Pakistan and studied at NCTE, Faisalabad for BSc Textile Engineering. He obtained his degree in 1999. He worked for a couple of years in Pakistan textile industry before moving in 2003 to the NED University of Engineering and Technology Karachi where he remained involved with teaching. He completed his Master of Engineering in Textile from NED University Karachi as part time student. He is pursuing his PhD in the field of Supply Chain Management at University of Minho, Portugal.

His e-mail address is: deedar_agha@hotmail.com.