

**OPTIMIZING INFORMATION FLOW TO ENHANCE
DEMAND PLANNING IN SRI LANKAN APPAREL
SUPPLY CHAINS: A STATISTICAL APPROACH**

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Degree of Master of Science in Business Mathematics

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University of Moratuwa

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Dissertation submitted in partial fulfillment of the requirements for the
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Abstract

Sri Lankan apparel industry is country's main contributor to its export-led manufacturing industry while serving as an outsourcing firm to major international apparel brands all over the globe. Apparel industry earns its profits by properly allocating resources they spent on the apparel supply chain to provide their customers with quality products at the right time with the lowest cost possible. Thus, it is very important for the industry to have an accurate demand information flow at the right time to plan and allocate their resources within their supply chain to earn profit. Therefore, the study has been carried out to develop a methodology to optimize the information flow with respect to the "time variable" to enhance the apparel demand planning. Required information has been collected through a pilot survey with industry experts and a secondary survey with 100 participants from the managerial level employees in the apparel information flow operations. Descriptive analysis, hypothesis testing, analytical hierarchy process analysis and critical path method are used to conduct the relevant inferences. Study results indicated that in order to increase the performance of the information flow to enhance demand planning, highest priority is given to the time spent on the information flow operations, second is the accuracy of the information, third and fourth are cost of the operation and reliability of the information respectively. Information flow of the selected case study is modelled using ISAP analysis and critical path method and it is analyzed using the free float and total float techniques where the developed methodology can act as a guideline to the apparel industry to enhance its demand planning process. Also, a conceptual methodology is developed using the cost slope concept to optimally use time and cost spent on the operation to find an optimal balance between the two resources

Key words: *Supply Chain, Network Analysis, Apparel Industry, AHP Analysis, Critical Path Method*

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List of Abbreviations

AHP	Analytic Hierarchy Process
CC	Crashed Cost
CD	Crash Duration
CI	Consistency Index
CPM	Critical Path Method
CR	Consistency Ratio
CS	Cost Slope
DS	Duration saved
ES	Earliest Occurrence Time
FF	Free Float
ICT	Information and Communication Technologies
LF	Latest Occurrence Time
ND	Normal Duration
PERT	Program Evaluation and Review Technique
RI	Random Index
RMG	Ready-Made Garment
SC	Supply Chain
SCM	Supply Chain Management
TF	Total Float

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