

**ANALYSIS OF THE EFFECT OF DURATION OF LEAN IMPLEMENTATION ON  
WORK PERFORMANCE IN THE TEXTILE AND APPAREL COMPANIES  
IN SRI LANKA**

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**INTRODUCTION**

**Background of the study**

The present study explores relationships between duration of lean implementation with several key constructs, namely, employee empowerment, perceived organization support (POS), job satisfaction and turnover intention in Sri Lankan textile and apparel companies in which the lean manufacturing system is implemented.

It is believed that the success or failure of the adoption of production techniques such as the lean manufacturing system does not depend exclusively in the technical aspect itself, and that without effective management coordination, the production technique alone will not succeed. Because the employee is at the heart of the application of lean manufacturing strategies, this research tries to see whether there is significant relationship between lean implementation and work outcomes in a lean manufacturing environment of the Sri Lankan textile and apparel companies.

Most of the Sri Lankan apparel companies claim that they empower employees as one of the important techniques in lean manufacturing. However, researchers suggest that employee empowerment is not well established in the Sri Lankan Apparel Industry, with Sri Lankan top management failing to encourage lower level employees to take important decisions or to actively involve them in decision making. They found that this was particularly apparent among the larger companies (Kapuge and Smith, 2007).

On the other hand, research on human aspects in lean manufacturing environments has been limited. This is more important when the lean principles are adopted from low labour intensive industries such as automobile to more labour intensive industries such as textiles and apparel. Therefore, the best human performance practices are yet to be established in the labour intensive lean manufacturing environment.

**Objectives**

The objective of the study was to investigate the relationship between the duration of lean implementation and employee empowerment, perceived organizational Support, job satisfaction, and turnover intention.

**METHODOLOGY**

The population of the study consisted of textile and apparel firms operating in Sri Lanka that have implemented the lean manufacturing techniques. Seven textile and apparel firms fulfilled the sample selection criteria set for the study. A random sample of 346 operational level employees from the above mentioned companies responded to the survey questionnaire. Statistical analysis was conducted mainly using correlation analysis and ANOVA.

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## RESULTS AND DISCUSSION

With regard to sample characteristics, the majority of the respondents belong to the female group and it was almost 83 percent of the total sample. 97 percent of the respondents were less than 35 years of age and 63 percent of the respondents were below 25 years of age. 63 percent of the respondents were unmarried. 50 percent of the respondents had Advanced Level qualification.

The correlations between study variables are shown in Table 1. Table 1 indicates that the duration of lean implementation has positive significant relationship with employee empowerment, perceived organizational support and job satisfaction and negative relationship with turn over intention. Results further indicate that employee empowerment and perceived organizational support have positive significant relationship with job satisfaction and significant negative relationship with turnover intention. Table 1 also suggests that employee empowerment has positive significant relationship with job satisfaction and negative significant relationship with turn over intention. POS has also very significant positive relationship with job satisfaction and negative significant relationship with turnover intention.

	Employee empowerment	POS	Job Satisfaction	Turnover Intention
Employee empowerment	1			
POS	.506**	1		
Job Satisfaction	.554**	.715**	1	
Turnover Intention	-.251**	-.421**	-.423**	1
lean duration	.405**	.354**	.275**	-.136*

\*\* Correlation is significant at the 0.01 level, \* Correlation is significant at the 0.05 level .

Table 1. Correlations

Table 2 shows the results of ANOVA. The results show the differences by the duration of lean implementation for employee empowerment, perceived organizational support, job satisfaction and turnover intention.

							ANOVA	
		<6 months	7-12 months	13-18 months	19-24 months	Total	F	Sig.
Employee empowerment	Mean	3.43	3.69	3.8	4.06	3.80	18.824	.000
	S.D.	0.51	0.50	0.43	0.49	0.53		
POS	Mean	3.54	3.76	3.82	4.11	3.83	21.721	.000
	S.D.	0.49	0.49	0.49	0.46	0.53		
Job Satisfaction	Mean	3.61	3.95	4.05	4.15	3.93	17.329	.000
	S.D.	0.57	0.52	0.38	0.55	0.56		
Turnover Intention	Mean	2.27	2.54	2.53	2.17	2.37	7.737	.000
	S.D.	.518	0.65	0.59	0.56	0.61		

Table 2. Differences by the Duration of Lean Implementation

Table 2 also indicates that the level of employee empowerment, perceived organizational support and job satisfaction has higher values when the company has longer duration of lean implementation. The results support that the empowerment of employees as well as organizational support is critical to the success of lean implementation. Results also indicate that employees are more satisfied with the job when the duration of lean implementation is higher.

However, even though there is a significant relationship between the duration of lean implementation and turnover intention (refer to Table 1), it does not decrease with the duration of lean implementation during first 16 months (refer to Table 2). Exploring the reasons for the above variation is beyond the scope of this study. However, this variation may be due to higher resistance in the initial stages of the change management process as well as uncertainty among individuals may lead to higher intention to leave the job within the first year of the process. The general understanding is that it will take time to see the outcomes of lean implementation. To make the lean implementation a success, employee involvement is important and also organization culture needs to be changed so as to fit with the lean culture.

### **CONCLUSIONS AND RECOMMENDATIONS**

The study shows that longer the lean duration of the company, higher the level of employee empowerment, perceived organizational support and job satisfaction and lower the rate of turnover intention. Over time, employees may re-evaluate work arrangements and adapt to given situations, particularly when they perceive they will be benefitted from lean implementation. Effect of increased opportunities for substantive participation in decision making due to employee empowerment has also lead to higher job satisfaction and lower turnover intention. Results also imply that the higher the organizational support employees perceive, the higher their job satisfaction and are less likely to leave the job. Overall, the findings provide useful information to better understand how lean production environment, in particular employee perception change over time and the findings will be use to in designing future research in this area.

### **REFERENCES**

Kapuge A,M, and Smith M,(2007), Management Practices and Performance Reporting in the Sri Lankan Apparel Sector, Managerial Auditing Journal, Vol. 22, No.3, pp. 303-318, 2007