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## **FACTORS AFFECTING ON OPERATIONAL EFFICIENCY**

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### **Abstract**

Even though, the topic operational efficiency has gained more attention and interest, it is still under researched and the related knowledge also limited. Most organizations often suffer due to operational inefficiency and high wastage which arise mainly in operations. Particular manufacturing plant where the researchers have given the consideration facing continuous efficiency drop downs during recent past. Therefore, this study was done to identify the factors affecting on operational efficiency. Theoretically, it was revealed that human, organizational and technological variables significantly affect operational efficiency, and they were integrated into the research model. The views were collected through a structured questionnaire & the views of the respondents were evaluated individually to find out proper outcome. To analyze data, Explanatory Factor Analysis (EFA) was used. Research revealed that operational efficiency is significantly determined by human factor, organizational factor and technological factor.

**Keywords:** operational efficiency, garment manufacturing organization, human factors, organizational factors, technological factors

### **Introduction**

The global apparel industry has seen remarkable changes in the past few years and it is now always on a lookout for cheap source of garment production. As per the Global Textile and Apparel Industry's vision in 2015, is expected to reach US\$805bn by 2015 from US\$650bn in 2010. At present few countries like Bangladesh, Thailand, Cambodia, Sri Lanka and Pakistan contribute major share in foreign earnings of their country from Textile and Clothing trade, though their share in the world market is not very significant.

Sri Lanka's apparel industry began to grow significantly in the 1980s because of its open economic policy as well as the trade and investment friendly environment. From end of the 20<sup>th</sup> century apparel, export industry became more important contributor to Sri Lanka's economy. It becomes second only relatively to the dollars brought in by the foreign employment. Over the past four decades it became the money revolving industry with a remarkable strength of 40% of all exports. Solely this industry ventures through private sector into the international market (Beamish, 2013).

Even though apparel industries contribute to such a considerable advancement, there is still need for the development. Over the last ten years there has been a great concern regarding the competitiveness of this industry. The reason for this is that the textile and clothing sector has experienced the most turbulent chapter in its history with respect to the competition from low wage countries, the advance in technology, the development of new production plants, the rapid progress in information technology, and the increasing demand for variety. To sustain in the competitive market, it is required to cater the products at the required quality standard and within minimum lead-time with on time delivery by improving Operational efficiency. In this manner improving operational efficiency is one of the companies' top objectives. Companies

indeed try to improve operational efficiency (Adams, 2004). To do this, the production department needs to perform at the planned level and at required standards. In this effort, single minute drop of production is monitored and recorded as it is very important. The management is eager to look into the issues that drop production because such drop may convert sea cargo into air cargo in order to ensure on time delivery, but at double the cost. Waste is a common barrier which is facing all the apparel industries caused to reduce the profit.

In terms of profit maximization, organization needs to follow optimum utilization of resource with achieving the maximum possible productivity and continuously searching for the improvements even though there are slight impacts to the overall cost involvement and everybody within the organization are encouraged to gain the maximum productivity. This can not only be achieved by the employees work at their best and there should be appropriate methods, tools and skills have to be established and those elements have to be updated periodically to cope with the changing world. Therefore, the employers and management cannot ignore the appropriate operations, methods, skills and tools to identify and implement in attaining the organizational set goals.

Based on the information gathered from the selected organization it has explained that before moving into key performance information system (KPI), they have recorded considerable inefficiency percentage. Even though KPI has implemented in the factory the improvements have been limited to a certain extent. By moving deeply in to the problematic situation currently existing in the company, the company has taken several steps to overcome that. Even if the company has taken such steps to overcome this crisis, no any considerable improvement can be observed. So, the company is in an issue of identifying the exact reasons for the continuous efficiency failures. Accordingly, this research was conducted to evaluate the factors that are affected on the operational inefficiency.

## **Literature Review**

In a business context, operational efficiency can be defined as the ratio between outputs gained from the business and an input to run a business operation. When improving operation efficiency, the output to input ratio improves. Operation efficiency is often achieved by streamlining a company's core process in order to more effectively respond to continually changing market force in a cost-effective manner (Hillier, 2012). Operational efficiency underpins the companies' most basic strategic goals. Improving customer satisfaction and increasing shareholder value both depend on achieving operational efficiency. Therefore, improving operational efficiency is one of the companies' top objectives.

### **Factors affecting operational efficiency**

#### **Human factors**

**Job Mismatch:** The incompatibility or the existence of a weak "match" between the characteristics of workplaces (skills required, competences etc.) and the characteristics (skills, level of education and localization preferences) of job seekers (Becker, 1985)

**Competency:** Competency is the capability to consistently apply a set of related knowledge, skills and abilities to successfully perform critical job functions or tasks in a defined role or work setting (Collins 2000).

**Fatigue:** Fatigue affects everyone regardless of skill, knowledge, and training. It influences directly on many people's physical and mental abilities needed to carry out even simple task (Pasupathy & Barker, 2012).

**Attitudes:** Employee attitudes directed towards the high performance of work place and further positive attitude will be a one of the major reason for the organizational success and the operational success (Bartel, 2004).

### Organizational Factors

**Supervision:** When a company has poor supervision, there is not enough responsibility for taking action for the prevention of problems, mistakes, accidents, and injuries (Bridger, 2008).

**Training & Development:** If there is no proper training procedures, Operations may not able to conduct properly and it will be a reason for low performance of employees and efficiency of operations will go down (Bertola, 2004).

**Job Security** Job security and employment protection legislation makes use of partial and general equilibrium in dynamic models (Bertola, 1990).

**Augment** A poorly conceived layout can also result in congestion, prohibitive material handling cost, increased accidents, and decreased inventory space (Banjoko, 2002).

### Technological Factors

**Maintenance:** Operational Efficiency represents the life-cycle, cost-effective mix of preventive, predictive, and reliability-centered maintenance technologies, coupled with equipment calibration, tracking, and computerized maintenance management capabilities – all targeting reliability, safety, occupant comfort, and system efficiency (Sullivan et.al, 2007).

**Research & Development:** R&D is critical to advancing energy efficiency by promoting the creation, development, and commercialization of new, energy-efficient technologies and practices (Herring & Roy, 2007).

**Process Management:** The application of knowledge, skills, tools, techniques and systems to define, visualize, measure, control, report and improve processes with the goal to meet customer requirements profitably (Forbes & Ahmed, 2010).

### Methodology

As related in the review of the literature, it has been identified that human factor, organizational factor and technological factor are major determinants of operational efficiency. Accordingly, they were integrated into a research model. Following figure shows the conceptual framework of the study.

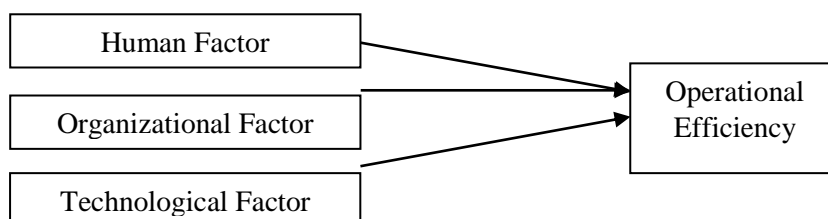


Figure 1: Conceptual Framework

Survey methodology was used because most data are descriptive and primary one. The population for this study included all line leaders of planning, production, and cutting departments in the selected organization and it included 71 respondents.

Data was obtained through administering questionnaire which was structured and designed on a five point likert scale. To increase the speed of the data collection rate and response rate, researchers first communicated with the line leaders in particular departments and delivered questionnaires by hand. First part of the questionnaire was designed to find the demographic information of the respondent. Second part consisted with the questions relating to factors affecting on operational efficiency. 60 respondents submitted the completed questionnaires with respond rate of 84.5%. Cronbach's Alpha value for all tested variables exceeded 0.7 which indicated reliability of questionnaire is in satisfactory level. The aim of the study was explained to respondents and they were assured of the privacy of their information. Gathered data were analyzed using confirmatory factor analysis method. The primary condition to use the factor analysis is the adequate sample. There must be adequate sample and sphericity in this research and it checked using Kaiser - Meyer Olkin measurement and it was 0.655. It is higher than the value of 0.5 and considered that the sample is adequate for this research study. The sphericity is there because of the Bartlett's test of sphericity is significant there.

### Findings

Using principle component method, researchers got the extraction values and every single indicator has the higher values which are higher than the 0.3 value. So, the communities complete the required condition. In here there are 03 indicators which are removed from the communities table because of they do not fulfill that required condition. Varimax method has been used for the rotation by the researchers and the coefficient display format has sorted by size and the absolute value is below the 0.3. The rotation Varimax method has been selected and used by the researchers and the coefficient display format has sorted by size and the absolute value below 0.5.

**Table1. Rotated Component Matrix**

	Component		
	1	2	3
Training & Development3	.725		
Training & Development2	.705		
Advancement1	.697		
Augment 2	.686		
Supervision1	.654		
Supervision3	.644		
Readiness 1	.596		
Training & Development1	.584		.506
Supervision4	.559		
Competencies2	.536		
Job Security1	.522		
Attitude1	.505		
Fatigue 1		.735	
Fatigue 3		.664	
Attitude3		.630	
Job Mismatch1		.627	

Process 1	.613	
Supervision 2	.599	
Fatigue 2	.537	
Competencies 1	.506	
Competencies 3	.501	
Research & Development1		.853
Maintenance 1		.738
Research & Development2		.550
Augment 4		.525
Maintenance 2		.510
Attitude 2		
<hr/>		
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization.		
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a. Rotation converged in 9 iterations.		
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According to the rotated component matrix table 1, it is understandable that the questions are grouped in to 3 components. 26 out of 34 questions were determined the factors affecting on operational efficiency and 8 questions may not determine any variable shown in the conceptual framework. 8 out of 14 questions in organizational factors are more relevant to the human factor. Likewise, some questions are categorized in to variables as above rotated component matrix which has the similarities for the particular variables.

According to the human factor, it has been identified that training and development, advancement, augment, supervision, readiness, competencies, job security, attitude and job mismatch are deciding operational efficiency. According to the organizational factor, it has been identified that fatigue, attitude, job mismatch, process, supervision, competencies are deciding operational efficiency. According to the technological factor, it has been identified research and development, maintenance and augment are deciding operational efficiency.

### Conclusion and Recommendations

According to research findings, it was revealed that company has followed better procedures to handle the employee, in order to improve efficiency of the employees. Even though the mean value shows positive impact, company should give more attention.

Management should try to create a readiness for change. It depends on creating a felt for change. Hence this is an organizational level change, can use sensitize organizations to pressure for change, reveal discrepancies between current and desired one and convey credible positive expectations for the change to generate sufficient dissatisfaction to produce change.

Regarding the organizational factors, respondents have provided their opinion remaining under agree aspect. This reflects that the organizational factor is considerably perfect in the company. Therefore, it required to improve that keeping the same level or more than that. Management should be follow work life balancing programs which is become the trend of the present business world. To get the maximum efficiency through the organizational factors management should implement good training programs and motivational programs which help employees for mind relaxing

In terms of technological factors, results revealed that it is significant on operational efficiency. Therefore, it is need to follow some development for the technology, and then can achieve best results. As we are in IT era, nobody can retain the customers only satisfying

them, should delight them. For an example before 10 or 15 years' technology development may very much lower than present world and in that time management expect to sell the product at high cost. Because there was less competition. But with the competitive and fast technological development, not to earn high profit but to survive, management should sell the products at low cost with high quality. Therefore, management should always look for the new technology adaption to reduce cost of production. Then the management may able to improve operational efficiency through the determinant of technological factors.

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