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Lean Service Application towards Operational Performance in Indian Postal Mailing Service –A Conceptual Model

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ABSTRACT

India postal is the one of the important service industries, it has wide network of 1,54,939 post offices is the huge postal network in the world in the business of providing mail, parcels, logistics, retail and financial services across nation. It plays a significant role in supporting the socio-economic development. This paper aims to develop a conceptual model to study the lean service activities and its influence of operational performance in Indian postal service.In recent years, postal service industry facing many challenges and competing with electronic communication through mail process and delivering mails on time is very critical issue.Evaluating such as VSM – a visual tool for value stream mapping for existing facility layout and operationalize the ESS principles (Eliminate, Simplify, Standardize) are significant and better initiation of lean service implementation. The proposed framework is at conceptual stage. It requires further implementation to be validated.

KEYWORDS:Conceptual Model, Lean Service, Postal Service, Operational performance

1. INTRODUCTION

The postal industry comes under Indian public sector managed by central government. It is a major service oriented industry utilizes the advantage of labour intensive work in India and provide a better services through integration with other departments such as airways, railways and roadways. Everyday postal department receiving more than 40,000 articles which is difficult to store and sorting process unless there is an efficient method. The present postal service is in mysterious situation of falling demand, inflexible workforce, with low morale and lack of human resource management. In present condition, customer to customer mail is on the decline, but business to business and business to customer mail are growing substantially. Insufficient infrastructure amenities such as logistic management, warehouses prevent them from growing further (Ramachandran.K,2011).

Postal organizations need to change from the traditional method to nontraditional way to improve the operational performance through productivity for a long run. In the global environment, price (tangible) is not only important factor but also customer satisfaction (intangible) is to be reflected to enhance the organizational performance. (Bard et. al, 2003). For improving the performance, no need incorporate refined tools advanced technologies to solve problems. Most of the problems can be solved with low cost and common sense approaches. (Iberahim, Mazlinda, Marhainie, & Hidayah, 2016). Lean service is one of the techniques to identify and reduce the non-value added activities (waste) and improve the operational performance through employees' coordination. The lean manufacturing implies continuous improvement that involved every postal employee both managers and workers require less cost for its implementation. (Imai, 2007).In recent years, postal service industry faces many challenges and competing with electronic communication through mail process (Lee, 2011).In the postal and mail operations, delivering mails on time is very critical issue.

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Daily, post offices needs to operate millions of mails to be delivered on time. The postal department fails to deliver the mails on time because of 7 forms of wastes in terms of excess transportation, inventory mails, over process, over production, waiting, unwanted motions and service defects. This paper aims to identify the 7 forms of waste in postal service and increasing the delivering mails with the implementation of lean manufacturing practices in the long run of sustainable performance.

This paper is organized as follows: Section 2 is the literature review for this research and finding the research gap, Section 3 is the research questions, Section 4 is research objectives, Section 5 is discussion of conceptual framework and propositions development, while, remaining section 6, 7 and section 8 has the limitations, conclusions and directions for further research.

2.LITERATURE REVIEW

To date, Lean manufacturing application not only limited to manufacturing of goods but also widely adopted in service operations. Studies on the implementation of lean service noted interesting trends started in 2005 and increasing cases across service industries such as healthcare, education, public services, hotel, financial and IT industries etc.

Table 1. Lean Service Industries - Literature Review

S.No	Authors name	Year	Main Findings
1	Womack, J.P, Jones D.T, and Ross,D,	1990	The advantage of lean manufacturing produce output with fewer inputs, i.e., space, material, human effort, and time. It conserves fewer than half of the required inventory on hand and minor defects while manufacturing a better variety of goods.
2	Comm, C. L., &Mathaisel, D. F. X.	2005	Reported that they implemented lean concepts in higher education to reduce human resource and improvement in incorporating lean practices in the public schools was a reduction in the student faculty ratio from 16.75:1 to 16:1.
3	Heuvel, Jaap Van Den Does, Ronald J.M.M. Koning, Henk De	2006	In healthcare lead time is perhaps one of the most important quality indicators. They observed that waiting times and waste strongly affect the quality perception of patients.
4	Dickson, E. W., Anguelov, Z., Vetterick, D., Eller, A., & Singh, S.	2009	Emergency department 1 had 56% increased 'PPR' in July 2007; Emergency department 2 had a similar 38% increase; emergency department 3 had a 55% increased; Emergency department 4 had a 54% increase in July 2007.
5	Mo, J. P. T.	2009	Information technology helped, 30% increase of productivity was obtained by a furnishing company by following a new scheduling system. The combined lean and IT approach is a slow process because it has more steps and requires more time to complete.
6	LaGanga, L. R.	2011	In healthcare services, a 27% growth in service capacity in terms of intake of new patients was obtained and a 12% decrease in no-show rate was obtained through improved scheduling and delivery of patient care services.
7	Mohsen F. Mohamed Isa , MumtazUsmen	2015	Did a case study using Lean Six Sigma principles and tools to study the improvement in design and construction services at a university. Significantly reduced wastes such as rework for the design and construction in time delays, quality deficiencies etc.
8	Verrier, Brunilde Rose, Bertrand Caillaud, Emmanuel	2015	Identified Lean & Green way of thinking through understanding and the practical implementation of an effective and sustainable.
9	I.Alhuraish, Robledo,C. Kobi, A.	2016	Found that companies implementing lean and six sigma were more effective in operation and financial performance.

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Table 2.Conceptual Model Variables Definition

S.No	Construct	Definition	Supporting literature
1	Lean Service	A set of tools for the elimination of waste within a service system through systematic way and reduce non value added activities.	(Womack, 1991),(Bhangale &Mahalle, 2013),(Dahlgaard & Mi Dahlgaard-Park, 2006)
2	Operational performance	The degree to which an organization achieves production improvement and achieves new target.	(Azian, Rahman, Mohd, & Mohamed, 2013),(Lu & Yang, 2015), (Ga, Yang, Hong, & Modi, 2011)
3	Socio – Technical system (STS	It is an organizational developmentapproach to complex organizational work design that recognizes the interaction between people and technology in workplaces.	Gallear.D (2016)

Initially, it is important to find the appropriate tools for implementing lean manufacturing in postal service and then how lean manufacturing will influence the operational performance. Value stream mapping (VSM) tool used to identify the existing layout problems and seven types of wastes; cellular layout tool helps to organize the single piece flow and effectively utilize the material and human resources; visual control tool helps the visual information of the entire organization; 5S tool makes good housekeeping and clean visual workplace; Kaizen tool helps to improve the process continuously; kanban tool control the inventory system through card system; standardization tool maintains the balanced workflow or procedure to get a desired output rate; single piece flow supports fast production rate and reduce throughput time between workstations; cause and effect diagram tool not only helps to identify (causes) the 7 types waste and also identify the its root and eliminate it.

3. RESEARCH GAPS

- Lack of standard models/frameworks in lean manufacturing applications in service industries area (Shradha Gupta Monica Sharma Vijaya Sunder M , 2016)
- Very few literature studies focusing on SEM (Structuring Equation Modeling) in lean manufacturing applications in service industries particularly postal service
- There is less work done on assessment on lean manufacturing applications in service and its implementation and the performance (V, Suresh, & Aramvalarthan, 2016)
- Developing countries like India servicing large populations with limited resources need process improvement and methodologies to improve quality service and reduce non value added activities(Gupta Monica Sharma Vijaya Sunder M , 2016).

4.RESEARCH OBJECTIVES

RO1: To analyze the leanservice tools and techniques adopted in postal service

RO2: To identify the best framework model to implement in Indian postal mailing service

RO3: To examine the relationship between lean service and operational performance

RO4: To analyze the process improvement in Indian postal service with limited resources

RO5: To study the relationship between lean social practices and operational performance

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RO6: To identify the interaction between lean service practices and lean social practices in improving the operational performance

5. CONCEPTUAL MODEL

Based on the work experience of the researcher and the review of the literature a conceptual frame work has been developed. Today customers' expected demand is high quality at low cost with variety of product requirements. They require quicker deliveries in batch sizes with reduced lead times. In response to this demands, companies implemented standardization process, kaizen, visual management, cellular manufacturing, and value streaming process. Batch size production needs additional frequent setups. Hence, single piece flow tool is to facilitate customers quickly with more production units. Nowadays, industries have shifted from mass production to batch production as per customer demand. Accordingly, several companies introduced the flexibility and efficiency related with cellular manufacturing to increase the flow speed. (Fullerton, 2006).

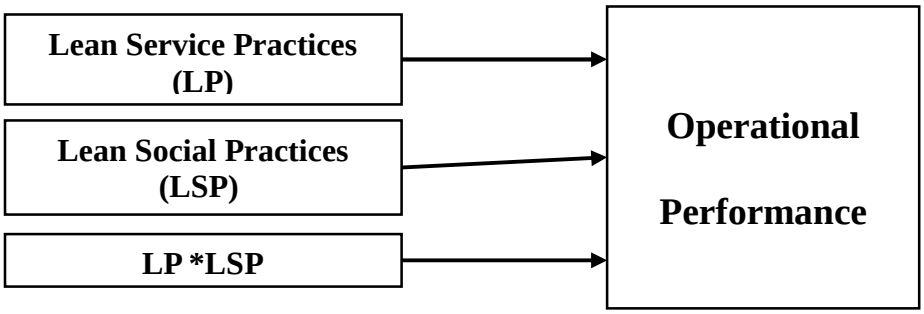

Figure 1. A conceptual framework linkage between lean service practices, lean social practices influences on operational performance

7.Limitations

Lean implementation in service is new area of research particularly postal sector. So, the resources from academicians were few and limited online journals; This research based on postal service case studies, which will require time to understand the terms and process of postal business services. Lean service will be implemented only in mail services.

8. Discussion and Conclusion

This study is undertaken to design the conceptual model for lean service practices in Indian postal service industry. Initially, the factors or determinants that contribute to the measurement of lean tools have been identified. This model development limited by considering and selecting the practice/tool/technique that is proposed by the empirical literature survey. The conceptual model will be tested by a PLS-SEM model. Practitioners and scholars may benefit from this conceptual paper as it will aid to improve the effectiveness of the operational performance (non-financial measurement) in the postal service.

9. Scope of the study

This conceptual model will be implemented only in mail services. This conceptual model can be extended to other states of Indian postal departments also. Further, this work can be extended with environmental and financial performance to improve an organizational performance.

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