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Execution of Six Sigma Methodology: Airlines Industry

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Abstract:- This paper focuses on the potential uses of Six Sigma Methodology to improve effectiveness and efficiency in the aviation industry. The material, diagrams, statistics, and data in this document were gathered from reliable sources such as publications, journals, and other published works focusing on the Six Sigma Methodology in the improvement of aviation processes. Employee time waste, airline departure times, aircraft maintenance, and customer luggage management are among the operations that will be evaluated.

Keywords:- *Airlines, Six Sigma, Critical to Quality, Flight Delays.*

I. INTRODUCTION

Businesses use six sigma as a statistical way of monitoring process variance in order to improve the efficiency and capabilities of their operations. This strategy has the effect of increasing staff morale, increasing profitability, and improving the quality of goods and services produced by a company. The Six Sigma approach may tremendously assist the aviation sector, as it is critical for organizations in the aviation industry to maintain optimal efficiency. The efficiency of the aviation industry has a direct and personal impact on its customers (Aviation, 2018) in such a critical way that a minor inconvenience can cause customers to miss flights, lose luggage, and, because of the ripple effect, cause delays that can permanently impact people's lives, such as the loss of business and employment opportunities.

II. IMPROVING CUSTOMER SATISFACTION

Many clients have complained about and reported lost bags after arriving at their various places throughout the world. In the United States, two out of every thousand baggage are lost in airports. As a result, customer satisfaction among air travelers is low. Six Sigma teams can gather Critical to Quality (CTQ) requirements through interviews and surveys to guarantee that airport luggage handling operations match consumer expectations. CTQ requirements are a set of characteristics that must be present in a product or service to satisfy a client. These specifications are organized into a CTQ Tree (University, 2020) with Needs, Drivers, and Requirements (As seen on Figure 1 Below). Clients will employ drivers to test the effectiveness of the product, such as how frequently the customer loses their bags, and requirements are measurable elements of performance that drivers must meet to satisfy the consumer. The CTQ tree is produced by following the three basic procedures outlined below (University, 2020):

i. Identifying and identifying important requirements
ii. Determination and validation of drivers in terms of what customers value most.
iii. Determination of the performance requirements that these CTQ drivers must be there.

III. IMPROVING DEPARTURE TIME

The most well-known source of flight delays in airports is the inability to get many passengers to walk from their waiting bays to their planes for takeoff (Sinai, 2003). Misapplied regulations, redundancy, duplication of processes, and other delays can all cause delays. The Six Sigma methodology includes methods for eliminating redundancies, delays, and duplications so that clients can be placed in their reserved seats as soon as feasible for on-time departures. Because these technologies are non-emotional and rely just on raw data, they are more suited to removing estimated boarding times. These are some of the tools available:

i. Failure Model and Effects Analysis (FMEA): This method helps companies identify and eliminate weak points in their operations that could lead to inefficiency. In this example, FMEA would identify places where redundancies exist and document the activities done to correct and eliminate these flaws

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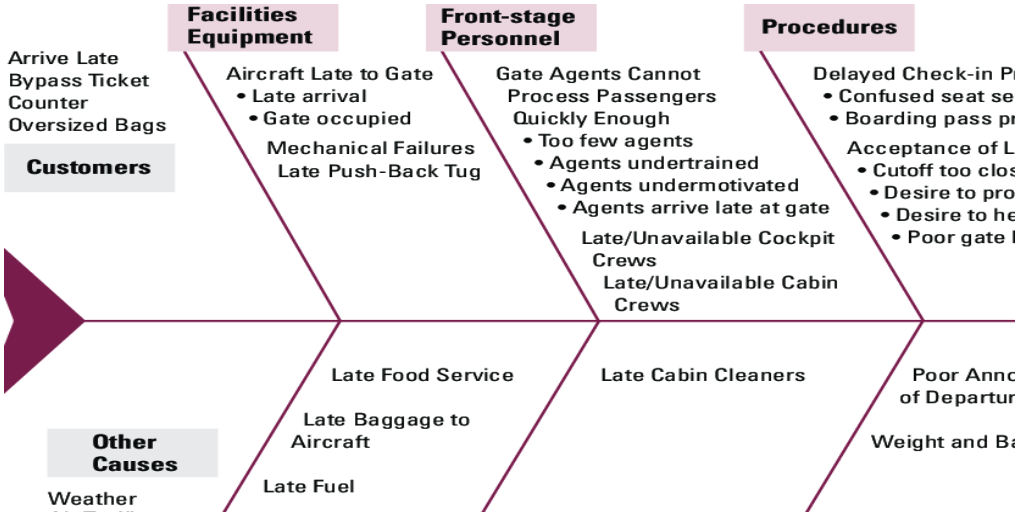

Figure 1: Cause and Effect Chart for Flight Departures

ii. Histograms: A histogram is a graphical tool that displays data as an image, which analysts can use to spot patterns in the reasons of sluggish departures and gain insight into how to correct them.

iii. Pareto Charts: These charts are like histograms, but they are organized in decreasing order of magnitude. It gives a graphical representation of data.

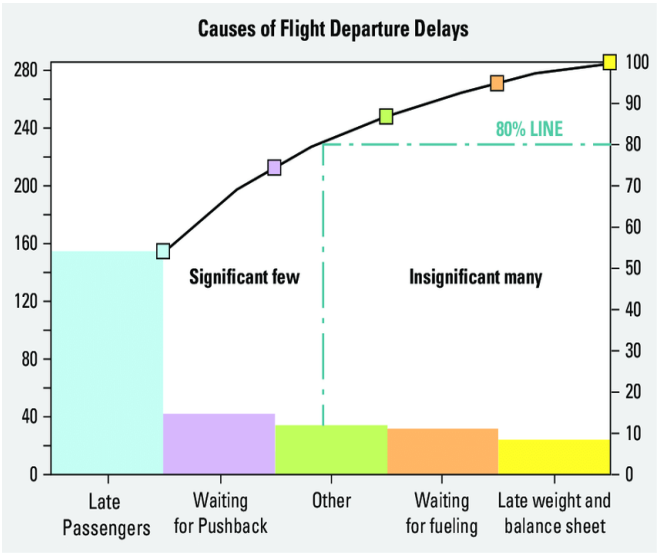

Figure 2: Pareto Chart on Causes of Late Flight Departures

IV. EFFECTIVE AIRCRAFT MANAGEMENT AND MAINTENANCE

Round airplanes, according to (Nouvelage, 2020), diminish ticket income for airports. The use of efficient Maintenance, Repair, and Overhaul (MRO) operations in airports can help to alleviate this. Six Sigma can assist MRO professionals in performing their maintenance work efficiently and effectively in the following ways:

1) It aids in the coordination of various levels of shop maintenance.
2) It aids in the optimization of an MRO crew's time on assigned tasks.
3) Data collection, reporting, and analysis help to enhance procedures.
4) Six Sigma include communication technologies that allow for real-time communication across all levels of maintenance, repair, and overhaul.
5) By delegating tools and duties to maintenance specialists, the MRO team wastes less time.

V. CONCLUSION

Finally, the six-sigma methodology is a vital instrument for sustaining the aviation industry's efficacy and efficiency. The concept can be used to avoid consumers from losing luggage at airports, to prevent airport staff from wasting time for maximum efficiency, to arrange departure times with minimal delays, and to increase overall customer happiness. The aviation sector can expect maximum earnings, minimal expenditures, and minimal losses if this methodology is implemented.

VI. REFERENCES

[1]. Aviation, U. (2018). Aviation Benefits: contributing to global economic prosperity. *Uniting Aviation*. From https://unitingaviation.com/news/economic-development/aviation-benefits-for-a-better-future/

[2]. Nouvelage, E. (2020). Inside the airline industry's meltdown. *The Guardian*. From https://www.theguardian.com/world/2020/sep/29/inside-the-airline-industry-meltdown-coronavirus-pandemic

[3]. Sinai, C. M. (2003). Network Effects, Congestion Externalities, and Air Traffic Delays: Or Why Not All Delays Are Evil. *Network Effects, Congestion Externalities, and Air Traffic Delays* From https://repository.upenn.edu/cgi/viewcontent.cgi?article=1001&context=real-estate_papers

[4]. University, V. (2020). How to Use a CTQ Tree. *Villaniva University*. From https://www.villanovau.com/resources/six-sigma/how-to-use-ctq-tree/