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Lean Six Sigma Deployment in Insurance Sector

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ABSTRACT: The insurance industry has experienced intense rivalry, which drives the industry to enhance its business procedures in order to achieve better results. In light of this, Lean Six Sigma (LSS) has become an essential tool for businesses looking to enhance and building their relationships with customers by providing better customer service at the lowest possible cost. LSS methodology is applying in insurance sector companies to improve service efficiency and effectiveness, which raises the total value that the companies offer to their clients. This study is between life insurance sector from one public and five private life insurance have been selected on the basis of their highest market value in a very short period of time.

KEYWORDS: lean, Six Sigma, Lean Six Sigma (LSS), insurance, control.

I. INTRODUCTION

The global services sector is currently accounting for 60–65% of the world economy due to its rapid growth. Services as a sector account for as much as 80% of the GDP in the UK and the USA, making them increasingly vital to a nation's growth trajectory by Pankaj M. Madhani [1]. The economy is one of the key sectors contributing to the service industry is insurance. Because it stimulates and maintains economic growth, the insurance sector is regarded as the foundation of any economy. The basic economy challenges for Insurance sector enterprises include constant change in the external environment brought on by more rivalry, more demanding customers and a generally uncertain economy. These shifts necessitate that Insurance sector companies be better equipped to handle obstacles, spot new opportunities, and maintain their high standards of performance. The insurance sector has seen intense rivalry, which puts pressure on its businesses to enhance their business procedures in order to perform better. In this regard, a strategy to raise the operational performance of Insurance sector must be developed. In light of this, Lean Six Sigma (LSS) has become an essential component in the service sector organisational renewal process.

II. LITERATURE OF REVIEW

In 1996, lean was pointed by James P. Womack and Daniel T. Jones studies of Toyota production system by Womack and Jones [2] and in 1986, Six Sigma was introduced by Motorola in manufacturing sector. Two methodologies can be, adapted to the insurance industry and combined productively to enable a company to achieve its strategy and goals by K. Sandner et al. [3].

The implementation of Lean Six Sigma (LSS) techniques in the manufacturing sector has yielded significant benefits for numerous organisations worldwide. LSS has given managers the skills they need to create a culture of continuous improvement, enhance products and eventually create game-changing tactics for improved and long-lasting performance. LSS adoption in service organisations is made much more challenging by the fact that these organisations transact at the customer level and that "every customer is unique". That does not, however, imply that LSS is ineffective in service-oriented settings. De-mystifying LSS tools and their suitability for service businesses is crucial. LSS is applied to a varying extent in Banking, Financials, healthcare, education, utility, food, and hospitality, among other service sector domains by Antony J [4]. This research's goal is to investigate how the implementation of LSS adds value to the insurance industry, which includes a wide range of financial services. Lean Six Sigma (LSS) is an approach to business process optimisation that seeks to maximise shareholder value by enhancing speed, quality and customer satisfaction while cutting expenses by Sunder V M [5]. It accomplishes these goals by combining Lean and Six Sigma technologies and concepts.

It is extensively used in the manufacturing and service sectors. LSS assists businesses in the acquisition of a persistent competitive advantage, especially through the combination of reduced serving expenses and better customer service. This study, conducted in this direction, examines the difficulties with LSS as well as a variety of improvement alternatives deployment in the insurance industry, offers a range of research frameworks and creates models for creating value in enterprises. There are four significant contributions to this work. It first illustrates and authenticates the service. LSS sector deployment in general and to the insurance industry specifically. This could provide greater chances for other academics to do empirical research in the LSS field application in the insurance industry by Sumninder K. Bawa [6], highlighted that imperative to identify factors which can help insurance sector and enhance the efficiencies. Roshan L. Rohilla [7], examines the financial ratio analysis from 2011 to 2022.

Control Charts for Statistical Process Control:

As we know that this statistical tool was initially developed to check the current status of the process of a manufacturing sectors by Shewhart (1924), but with the over time this technique has become very popular for examining the process of service sectors too. A process is said to be under statistical control if all points (statistics) lie within upper and lower control limits. But if a point exceeds upper control limit (UCL) or falls below the lower control limit (LCL) the process is said to be out of statistical control. In this situation all points that go outside the control limits are removed from the given data set and fresh control limits with the remaining observations are computed. Again, the remaining points are plotted with the new control limits. The process is continued until all points lie within the control limits. This is referred to as the final control chart while the first control chart is known as the trial control chart by R Radhakrishnan [8].

Lean Six Sigma methodology DMAIC is explain below as

D-Define, M- Measure, A- Analysis, I- Improve and C- Control Phase.

Define phase:

In define phase, focus or target on the problem to improve continuously to be in system so that to compute the competition and to be update for coming digitalization services.

Measure phase:

In this phase, data relating to the process are gathered. Within the 'measure' phase the actual problem is transformed into a statistical tool. A process result is determined through several factors as. The aim is the identification of critical factors that influence the process result. In order to find these factors graphical and statistical methods are used.

Analyse:

The "analysis" phase involves analyzing the data to identify the most likely reasons for any defects or issues. To guarantee that the analysis is unbiased and fair, statistical tools are used.

Improve phases:

The improvement phase will start after the data have been collected and examined to determine how to get rid of the variation-causing factors that have been found. The "improve" phase involves making the necessary adjustments to the essential factors that have been discovered so that the final products meet predetermined quality requirements.

Control phases:

Finally, in the 'control' phase, a plan will be established to maintain systematically the improvement set in place. In the 'control' phase, i.e., steps following the optimization, the process owner will be responsible for the management of the whole process and its results. Problems that are caused by the implementation of the improved process should be anticipated In advance wherever possible.

Solvency Ratio:

The solvency ratio assesses the ability of insurance firms, non-banking financial institutions, and banks to pay claims. This indicator measures a company's capacity to meet both short-term and long-term financial obligations. It refers to the insurer's ability to honour claims and maintain a prudent asset-to-liability ratio.

III. METHODOLOGY

Objective: To compare financial soundness of life insurance corporation of India by comparing the annual report by calculating financial ratio analysis and apply lean Six Sigma to enhance the efficiency.

By utilizing the annual reports from IRDA, Bajaj Allianz Life, HDFC Life, ICICI Prudential life, Max Life, SBI Life and LIC are taken for study, one can identify and analyse the impact of putting Lean Six Sigma methods into practice. There is a comparison between insurance that have adopted Lean Six Sigma and those that have not. Calculating the

ratio allows one to assess the insurance profitability, market worth and short and long term solvency, by applying 3-sigma and 6-sigma control limit chart.

IV. EXPERIMENTAL RESULTS

Collection of Data

In this study secondary data is used to analyse the ratio, this data is collected form internet, research papers and annual reports of insurance sector from (2014-2019).

Hypothesis :

Ho: There is no significance between life insurance sector.

H1: There is significance between life insurance sector.

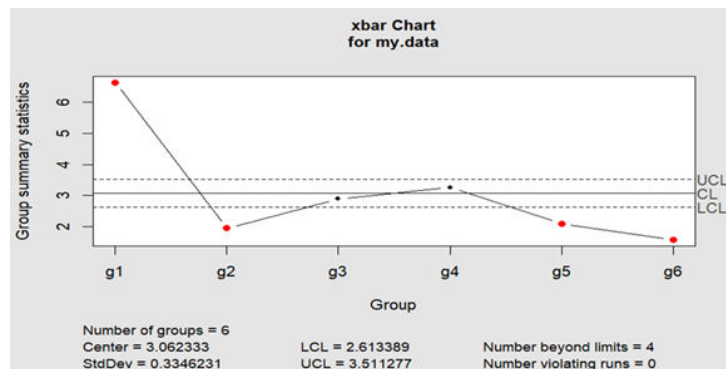
Ratio Analysis is carried out in between the Bajaj Allianz Life, HDFC Life, ICICI Prudential life, Max Life, SBI Life and LIC.

Table: Solvency Ratios of Selected Life Insurance Companies

Year/Company	Bajaj Allianz Life	HDFC Life	ICICI Prudential life	Max Life	SBI Life	LIC
2014-15	7.61	1.96	3.37	4.25	2.16	1.55
2015-16	7.93	1.98	3.20	3.43	2.12	1.55
2016-17	5.82	1.92	2.81	3.09	2.04	1.58
2017-18	5.92	1.92	2.52	2.75	2.06	1.58
2018-19	5.92	1.92	2.52	2.75	2.06	1.58

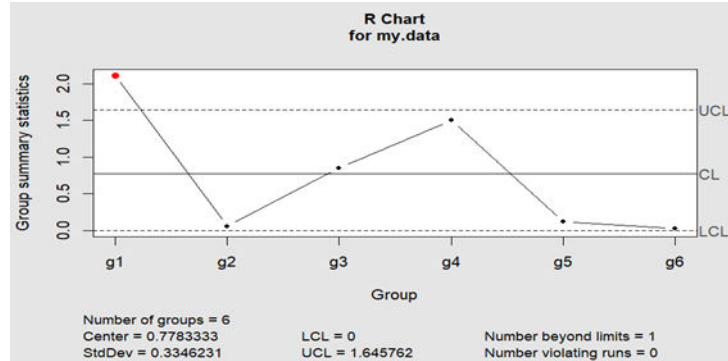
(source : by IRDA)

3 sigma X-Bar Chart:



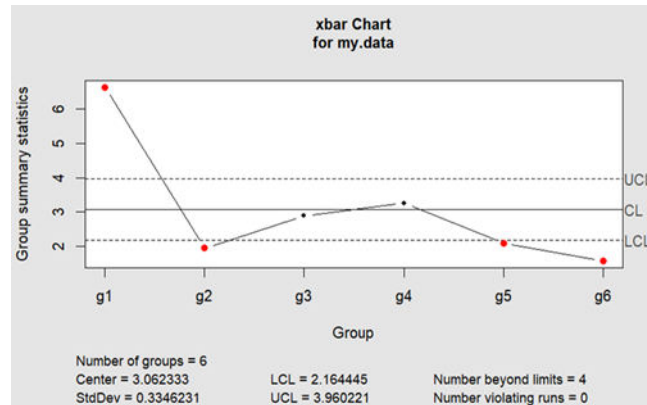
In X-bar 3 sigma chart, solvency ratio is out of control, that means Bajaj Allianz Life, HDFC Life, SBI Life and LIC is beyond the control limit and ICICI Prudential life and Max Life having within the control limit.

3 Sigma R-Chart:

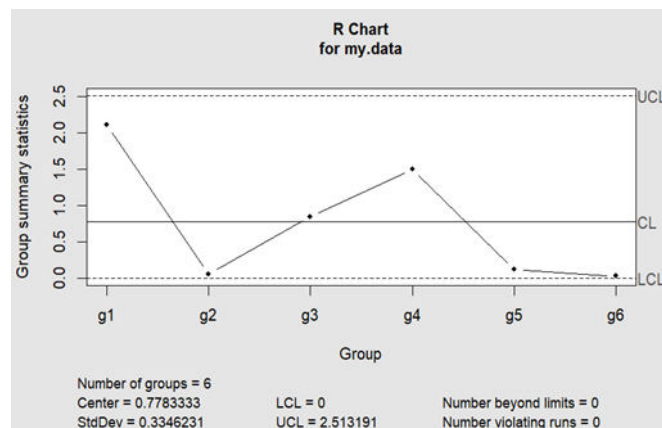


From R-chart, solvency ratio of Bajaj Allianz Life is out of control limit and HDFC Life, ICICI Prudential life, Max Life, SBI Life and LIC are within control limit. That means Bajaj Allianz Life is only one applying lean six sigma in life insurance process. HDFC Life, ICICI Prudential life, Max Life, SBI Life and LIC have to apply LSS methodology, so that to raising in profitability. So LSS is necessary to achieve the aims.

6 sigma X-Bar Chart:



6 Sigma R Chart:



As 6- sigma is apply for x-bar and R-chart, Bajaj Allianz Life, HDFC Life, SBI Life and LIC are out of control limit in x-bar chart. While ICICI Prudential life and Max Life in R chart are within the control limit. LSS methodology will be helpful in insurance sector to enhance the efficiency effectively.

V. CONCLUSION

From above control Chart x-bar and R, solvency ratio analysis of life insurance companies like Bajaj Allianz life, Max life, SBI life, ICICI Prudential life, HDFC life and LIC having too good. Lean Six Sigma is a methodology that combines the principles of lean and Six Sigma to improve service processes. Applying Lean Six Sigma can lead to significant improvements in efficiency, customer satisfaction, an employees goals to enhance the efficiency effectively in insurance sector.

REFERENCES

- [1] Madhani P M, "Lean six sigma deployment in BFSI", International J. Electronic Customer Relationship Management. Vol.11. No.3. 272–314, 2018.
- [2] Womack JP, Jones DT, Roos D, "The machine that changed the world". New York. 1990.
- [3] K. Sandner, S. Seber, M. Tellermann, Frank Walthes. A Lean Six Sigma framework for the insurance industry: insights and lessons learned from a case study. Journal of Business Economics (2020) 90:845–878 <https://doi.org/10.1007/s11573-020-00989-9> ; 2020
- [4] Antony J, Snee R, Hoerl R, "Lean Six Sigma: yesterday, today and tomorrow". Int J Qual Reliab Manag 34:1073–1093. <https://doi.org/10.1108/IJQRM-03-2016-0035>. 2017.
- [5] Sunder VM, Ganesh LS, Marathe RR, "A morphological analysis of research literature on Lean Six Sigma for services". Int J Oper Prod Manag 38:149–182. <https://doi.org/10.1108/IJOPM-05-2016-0273>. 2018.
- [6] Sumninder K. Bawa, "Financial Performance of life Insurance in Indian Insurance Industry". Pacific Business Review International, volume 6, issue 5, November 2013.
- [7] Roshan L. Rohilla, "Financial soundness of life insurance in India", international Journal of Science and Research Archive, 2023. 08(01), 330-352. 2022.
- [8] R Radhakrishnan , "Construction of Control Charts Based On Six Sigma Initiatives for the Number of Defects and Average Number of Defects per Unit" Journal of modern Applied Statistical method, Vol 10, Issue 2 pp 639-745, 2017.



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