



# To Study Business Analytics Approach To Assessing and Improving Insurance Portfolio Efficiency

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## Abstract—

This research paper focuses on understanding how business analytics can help in improving insurance portfolio efficiency. In today's fast-growing insurance industry, companies handle a large amount of data related to customers, policies, claims, and risks. Managing this data manually is difficult and often leads to delays and errors. Because of this, many companies are now using business analytics to make better decisions.

The main purpose of this study is to analyze how business analytics can improve decision-making, reduce risks, and increase overall efficiency in insurance portfolio management. The study is based on data collected from 120 respondents using a structured questionnaire. The responses were analyzed using simple statistical methods like percentage analysis.

The findings of the study show that business analytics has a strong positive impact on insurance operations. It helps in identifying risky policies, improving claim processing speed, detecting fraud, and increasing customer satisfaction. At the same time, some challenges like lack of training and limited use of advanced tools were also identified. The study concludes that business analytics is very important for improving performance in the insurance sector. Companies that use data-driven strategies can achieve better efficiency and long-term growth.

## Keywords-

Generative AI; Business Analytics; Decision-Making; Productivity; Artificial Intelligence; Data Analysis



## I. INTRODUCTION

The insurance industry has seen rapid growth in recent years due to increasing awareness among people about financial protection and risk management. As more individuals and businesses purchase insurance policies, companies are required to handle a large volume of data on a daily basis. This data includes customer details, policy information, premium payments, claim records, and risk-related factors. Managing such a large amount of information using traditional methods has become difficult and inefficient.

With the advancement of technology, business analytics has emerged as an important tool for managing and analyzing data effectively. Business analytics refers to the use of data, statistical methods, and analytical tools to understand past performance, identify patterns, and support decision-making. Instead of relying on assumptions or experience alone, companies can now make data-driven decisions that are more accurate and reliable.

In the insurance sector, business analytics plays a very important role in improving operational efficiency. It helps companies in identifying high-risk policies, predicting claim trends, detecting fraudulent activities, and understanding customer behavior. These insights enable companies to take proactive actions, reduce losses, and improve service quality. As a result, analytics contributes to better management of insurance portfolios.

An insurance portfolio is a collection of all policies managed by a company. The efficiency of this portfolio depends on factors such as claim management, risk control, customer satisfaction, and profitability. If these factors are not properly managed, it can lead to financial losses and poor performance. Therefore, there is a need to use advanced tools like business analytics to improve portfolio efficiency.

The main objective of this research is to study how business analytics can be used to assess and improve insurance portfolio efficiency.

## II. LITERATURE REVIEW

Previous studies show that business analytics has become an important tool in modern organizations. Researchers explain that companies now depend more on data instead of traditional decision-making methods. Analytics helps in understanding past trends and predicting future outcomes, which improves overall performance. Many researchers have studied the use of analytics in the insurance industry. They found that insurance companies deal with large volumes of data related to policies, claims, and customers. Business analytics helps in improving decision-making, identifying risks, and optimizing operations..

Analytics helps companies take preventive actions and reduce financial losses .Customer Behavior and Satisfaction Research also shows that customer satisfaction is strongly connected to service quality. Analytics helps companies understand customer needs, preferences, and expectations. This improves service delivery and increases customer retention Technology and Innovation in Insurance Recent studies highlight the role of technologies like artificial intelligence and machine learning. These technologies help in faster data processing and better prediction. Companies using these tools gain a competitive advantage

Research Gap Although many studies explain the benefits of analytics, very few focus specifically on insurance portfolio efficiency. Also, limited studies provide practical insights based on real data. This research aims to fill that gap.

## III. METHODOLOGY

The research is descriptive in nature. It focuses on understanding the current use of business analytics in the insurance sector and its impact on portfolio efficiency. A quantitative approach is used in this study. This means the data collected is in numerical form and is analyzed using simple statistical methods. The use of numbers makes the results more clear and easy to interpret.

Both primary and secondary data sources are used in this research. Primary data is collected directly from respondents using a structured questionnaire. The questionnaire includes close-ended questions



and statements based on a Likert scale. A total of 120 responses were collected for the study. These responses provide real insights into how business analytics is used in practice.

Secondary data is collected from research papers, articles, reports, and online sources. This helps in building a strong theoretical background and understanding previous studies related to the topic.

The sampling technique used in this study is convenience sampling. Respondents are selected based on availability and ease of access. Although this method is simple and quick, it may not represent the entire population.

The collected data is analyzed using Microsoft Excel. Basic techniques such as percentage analysis, tabular representation, and simple charts are used. These methods help in presenting the data in a clear and understandable format.

The study considers business analytics as the independent variable and insurance portfolio efficiency as the dependent variable. The relationship between these variables is examined to understand how analytics affects performance. portfolio efficiency, while the alternative hypothesis states that it has a significant impact.

Some limitations are also present in the research. The sample size is limited, and the data is based on respondents' opinions, which may sometimes be biased. Also, advanced analytical tools are not used due to time and resource constraints.

Overall, this methodology helps in collecting relevant data and analyzing it properly to understand the role of business analytics in improving insurance portfolio efficiency.

#### IV. RESULTS AND DISCUSSION

This section presents the results obtained from the data analysis and explains their meaning in a simple way. The analysis is based on responses collected from 120 participants. The main aim is to understand how business analytics affects insurance portfolio efficiency.

The results show that a large number of respondents are aware of business analytics and its use in insurance operations. Most

participants agreed that analytics is already being used in daily processes such as policy management, claims handling, and customer service. This indicates that analytics is becoming an important part of modern insurance systems.

One of the key findings of the study is that business analytics significantly improves decision-making. Most respondents believe that data-driven decisions are more accurate and reliable compared to traditional methods. This supports the idea that using data helps managers make better choices and reduces the chances of errors.

The study also shows that analytics plays a major role in risk identification. Respondents agreed that analyzing past data helps in identifying high-risk policies and customers. This allows companies to take preventive actions and reduce future losses. It also improves the overall stability of the insurance portfolio..

Another important result is the reduction in claim processing time. Many respondents agreed that analytics and automation help in faster claim settlement. This not only improves operational efficiency but also increases customer satisfaction. Faster service leads to better customer experience and trust in the company.

The findings also highlight the role of analytics in fraud detection. Respondents believe that data analysis helps in identifying unusual patterns and suspicious activities. This reduces the chances of fraud and saves financial resources for the company.

Customer satisfaction is another area where analytics shows a positive impact. By analyzing customer data, companies can understand customer needs and preferences. This helps in providing better services and improving overall customer experience.



## V. CONCLUSION

This research study was conducted to understand how business analytics can help in improving insurance portfolio efficiency. Based on the data analysis and findings, it is clear that business analytics plays a very important role in the insurance sector.

The study shows that the use of analytics helps companies in making better and faster decisions. Instead of depending on assumptions, companies can use data to understand patterns and trends. This improves accuracy and reduces errors in decision-making.

It is also observed that business analytics helps in identifying high-risk policies and customers. This allows companies to take preventive actions and reduce potential losses. As a result, the overall performance of the insurance portfolio improves.

Another important conclusion is that analytics helps in improving customer satisfaction. Faster claim processing, better service quality, and personalized solutions make customers more satisfied and loyal to the company.

The study also highlights the importance of analytics in detecting fraud. By analyzing data, companies can identify unusual patterns and prevent fraudulent activities, which helps in saving costs.

However, some challenges were also identified. Lack of proper training, limited use of advanced tools, and technical complexity are some of the issues faced by organizations. These challenges need to be addressed for better implementation of analytics.

Overall, it can be concluded that business analytics is a powerful tool for improving insurance portfolio efficiency. Companies that adopt data-driven approaches can achieve better performance, reduce risks, and gain a competitive advantage in the market.

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