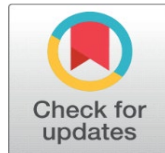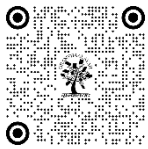# PREDICTING THE REVENUE AND EXPENDITURE OF INDIA POST: A TIME SERIES MODEL

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ABSTRACT

India Post, an organization with a significant historical role in communication and financial inclusion in India, faces challenges in today's technology-driven communication landscape. It competes against private logistics companies and banking institutions in a highly competitive environment. To stay relevant, India Post has introduced innovative schemes and technology-supported services. However, financial profitability remains a concern. The current research aims to analyse revenue and expenditure trends over the past five years and make forecasts for the next five years. The analysis is made with the help Power Bi and the forecasting is made with 95 per cent confidence level. From the trends and forecasts, It is seen that although banking services have been profitable, their revenue is expected to decline, necessitating measures to enhance their performance. Efforts should also focus on increasing revenue from money orders and postal orders. While revenue from postage is stable but largely uncertain, investments in this area should be scaled down. Additionally, the sale of stamps generates limited revenue, demanding cost-cutting initiatives. Operating expenses are consistently increasing, prompting the need to optimize them through cost-effective alternatives and employee cross-training. Raising awareness about cost-consciousness among postal employees can further contribute to reducing expenses. By efficiently managing costs, India Post can strive towards improving its financial prospects.

Keywords: India post, Time Series Analysis, Revenue Forecasting, Financial Prediction, Cost and Expenditure

1. INTRODUCTION

India Post, an exceptional organization in the country, has played a crucial role in communication and financial inclusion throughout India's history. However, in the modern era of a tech-driven society, Mobile phones with internet, emails and social networking dominate communication channels. These technologies affected the communication through letters globally. India Post also faces strong competition from private logistics companies and banking institutions. It is the need of the hour for India post to survive in the competitive environment where numerous companies are offering similar services. It has recently incorporated various innovative schemes and tech-supporting services into its offerings. Despite these efforts, the organization has been grappling with financial profitability. In order to ensure its future success, it is imperative for India Post to thoroughly understand the patterns of its revenue and expenditure and take necessary actions to attain profits.

2. REVIEW OF LITERATURE

A review of relevant articles is made and summarized below.

(Sood et al., 2022) conducted research using secondary data. The study compares the product portfolios of India's top two general insurance companies before and after liberalization. According to the researchers, insurance companies should create distinct portfolios and offer unique coverage for natural disasters and pandemic like COVID 19.

(Bhatia & Sharma, 2021) in their study, evaluates the performance of railway zones in India, using Constant Return to Scale and Variable Return to Scale data-envelopment methods. It suggests cost-saving strategies for these zones, comparing underperforming units with best practice units. According to the study, Technological innovation and staff management should be made effective to reduce costs. The study also highlights the need for consideration by stakeholders in the railway sector, including rail operators, policymakers, customers, and infrastructure managers.

(Vijaya Batth et al., 2018) conducted research with an objective to shed light on the PSUs (Public Sector Undertakings) in India's financial performance. The Altman Z Score Model is used in the study to determine financial performance. The analysis takes into account a number of the companies' financial ratios that fall under the Maharatna and Navratna categories. According to the Z-score 13 out of 15 companies showed a good financial position. But the study concludes that the PSUs still need to work on market capitalisation.

(Mathew, 2015) discusses that the advanced postal administrations such as Duetche Posts, Poste Italiane, SwissPost, etc has advanced IT to modernise their network and in turn improved the quality of services of their core businesses. These administrations are now successfully innovating and diversifying their products and services. The researcher suggests that India post should expand the IT operations efficiently to become successful.

(Babitha Thimmaiah & Pai Maroor, 2013) discussed the challenges that PSU banks and Urban Cooperative banks face when dealing with customers in light of their constantly evolving expectations, competition from other banks and the private sector. According to the study, the banks are inefficient and facing high competition. In order to revive, they should focus on understanding customer needs, target marketing strategies and improved customer satisfaction.

From the review, it is understood that the public sector undertakings struggle to compete and succeed in the highly competitive Indian markets with private players at present. Research in financial analysis in India post is comparatively less. Therefore, the current research is made to analyse the trend and forecast of revenue and expenditure of India post.

2.1. STATEMENT OF THE PROBLEM

India Post makes revenue from various businesses. It revolutionized the old postal services with its operations offering services to cater the needs of the society. The organisation also introduced new digital initiatives in banking and other services for attracting customers. However, the department's financial performance is challenging. India Post must therefore be aware of the stability and consistency of various sources of income and expenditure. It helps the organisation to understand and manage their services effectively. The current research attempts to understand and analyse trends of different revenues and expenses over the past five years. The revenue and expenditure are also forecasted for five years to arrive at a better understanding about the future outcomes.

2.2. OBJECTIVES OF THE STUDY

The current research is made with the following objectives

- To study the trend of the revenue earned and expenditure incurred by India post in the last five years.
- To forecast the revenue and expenditure of India post for the next five financial years.

2.3. SCOPE OF THE STUDY

The trend analysis and forecasting is made with the data available in the annual reports of India post. The revenue and expenditure of India post from 2018-19 to 2022-23 is considered for analysis. The forecast is made for the period of five years.

2.4. SIGNIFICANCE OF THE STUDY

It is important for any organisation to understand the trends of their revenue and expenditure as well as forecasting of future outcomes. This knowledge is important for taking business decisions regarding the dropping or developing of various ongoing businesses. India post is currently incurring losses. By studying the trend of the expenditure, better control over the spending can be possible. India post is involved in providing various services. Therefore, it is crucial for India post to understand the performance of each service and the expenditure incurred. It is also significant to predict the future outcomes of revenue and expenditure of various services. It enables the organisation to efficiently run the business in the long run and helps them make important business decisions

3. RESEARCH METHODOLOGY

1) *Nature of the study*

The study is descriptive and analytical in nature

2) *Sources of data*

The study is based on secondary data. The quantitative data used for the analysis is collected from the annual reports available on the official website of India post. Other data for the study is collected from various websites, journals and books.

3) *Tools used for analysis*

Line chart is used to analyse the trends of revenue and expenditure over the years.

The forecasting of Power BI is used to forecast the revenue and expenditure of India post. The Power BI uses exponential smoothing for the forecast. As the data is not a seasonal data, the exponential smoothing for non-seasonal data (ETS AAN) is used. The confidence level of the forecast is fixed as 95 per cent and the confidence band is also shown in the charts.

3.1. LIMITATIONS

The current research has following limitations:

- The analysis is made with the help of the Power BI software
- The results of the study is only based on quantitative data from the financial statements.

3.2. ANALYSES AND DISCUSSIONS

The Financial statements in the annual report of last five years of India post is taken for the analysis. The five revenue heads and expenditure heads are taken and the trend is studied. The trend analysis is made for all the revenue and expenditure heads with respect to the total sum of revenue and expenditure over the years. The forecasting is made for the revenue and expenditure for the next five years with the help of Microsoft Power Bi software. The Power Bi uses the exponential smoothing to forecast.

3.3. I TIME SERIES FORECASTING

Time series forecasting is one of the statistical analyses used to predict the future outcomes of the given data. It is based on the historical data. In the current study, the revenue and expenditure of India post under various heads of revenue and expenditure is analysed. For the analysis, the exponential smoothing for non-seasonal data (ETS AAN) is used. The forecast is made for the next five years with 95 per cent confidence level. The confidence band is also shown in the figures.

4. REVENUE FORECASTING OF INDIA POST

The revenue of India post is categorised under five revenue heads. The various revenue heads are 'Sale of Stamps', 'Postage Realised in Cash', 'Commission on Money and Postal Orders', 'Remuneration for Savings Bank/Savings Certificates Work and Other Receipts'. The revenue of India post from the financial year 2018-19 to 2022-23 is considered as the historical data. Based on the historical data, the forecasting for the next five years from 2023-24 to 2027-28 is done with 95 per cent confidence level.
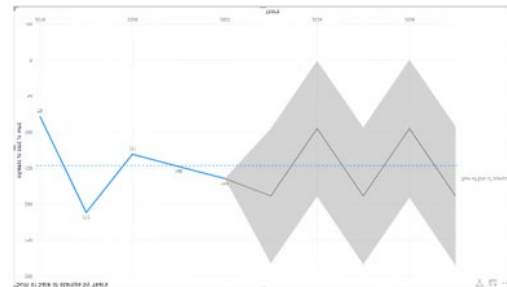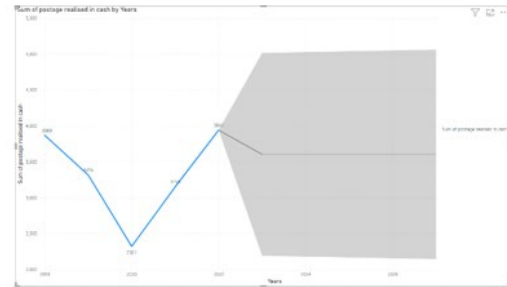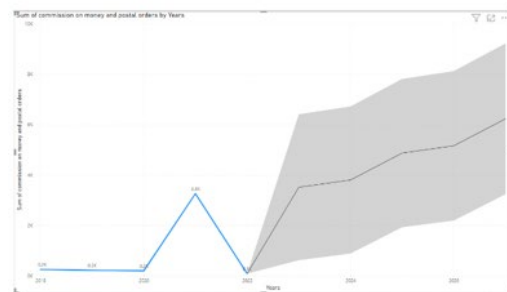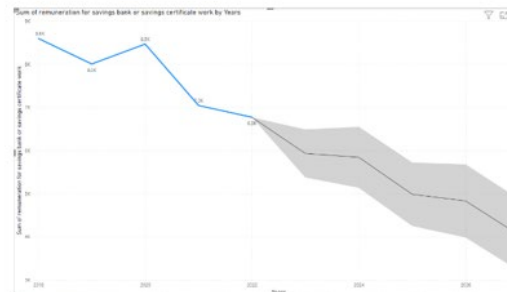

Chart 1

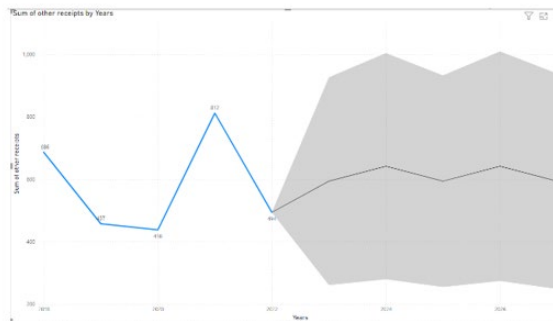*Chart 2*

Chart 4

Chart 3

Chart 5

From Chart 1, it is observed that the revenue from sale of stamps shows an unsteady growth and decline over the years. It is forecasted that the revenue will continue to show unsteady growth and decline in the next five years. Revenue forecast for the year   2023-24 is 188.54 crores with upper and lower bounds of 282.07 crores and 95.02 crores respectively. For the financial year 2024-25 the forecasted revenue is 94. 89 crores with bounds of 189.16 and 0.62 crores. For 2025-26, the forecasted revenue is 188.54 crores with upper and lower bounds 283.55 and 93.53 crores respectively. The revenue forecasted for the year 2026-27 will be 94.89 crores and can go as high as 190.63 crores and as low as 0 (no revenue). For the year 2027-28, the forecasted revenue is 188.54 crores with upper and lower bounds of 285.02 crores and 92.07 crores respectively. The growth and decline in the revenue of sale of stamps is forecasted as uneven and unstable.

Chart 2 demonstrates that the forecasted revenue of the postage for the year 2023-24 is declined to 3,603 crores from 3,940 crores in the year 2022-23. And after the financial year 2023-2024, revenue is forecasted to have a constant amount of 3,603 crores till 2027-2028 with upper and lower bounds of 5,016 and 2,190 crores respectively.

From Chart 3, it is seen that the revenue from commission from postal and money orders are forecasted to increase in the coming years. The forecasted revenue for the next five financial years are 3,513.22, 3,801.22, 4,871.11, 5,159.11 and 6,229.00 crores respectively. The upper bounds are 6,409.23 crores, 6,720.50 crores, 7,814.49 crores, 8,125.81 crores and 9,219.86 crores respectively The lower bounds are 617.20, 881.94, 1,928.02, 2,192 and 3,238 crores respectively. The forecasting shows a positive outcome but it is seen that the gap between the upper and lower bounds are relatively high when compared to other heads of revenue.

Chart 4 reveals that the revenue from the remuneration of savings bank and savings certificates shows a decreasing trend and the revenue is forecasted to decrease in the next five years. The forecasted revenue for the financial year 2023-24 is 5,923.63 crores with upper and lower bounds of 6,488.72 and 5,376.54 crores. The forecasted revenue is 5,843.56 crores with upper and lower bounds of 6,550 crores and 5,136.25 crores for the financial year 2024-25. The revenue is forecasted to decline further in the next financial year to 4,987.80 crores with upper and lower bounds of 5,723.89 crores and 4,251.71 crores. For the financial year 2025-2026, the revenue is forecasted as 4,987.80 crores with upper bound of 5,723.89 crores and lower bound of 4,251.71 crores. The revenue of the financial year 2026-27 is forecasted as 4,832.39 crores with upper and lower bounds of 5,679.47 crores and 3,985.32 crores respectively. For the financial year 2027-28, the revenue is forecasted to 4,042.96 crores. The upper and lower bounds are 4,875.40 crores and 3,210.53 crores respectively. the gap between upper and lower bound is closer when compared to other revenue heads.

Chart 5 shows that the revenue from other receipts is forecasted to increase sharply in the year 2023-24 with the revenue of 8,659.77 crores with upper bound of 15686.63 crores and lower bound of 1,632.91 crores. The forecasted revenue for the next four years from 2024-25 to 2027-28 are 9505.47, 12033.54, 12,879.23, 15,407.30 crores respectively. The upper bounds are 16,588.77 crores,19174.61 crores, 20,077.61 crores, 22,664.29 crores respectively. The lower bounds are 2,422.16 crores, 4,892.47 crores, 5,680.86 crores and 8,150.31 crores respectively. The forecasting shows a positive outcome in the next five years.

5. EXPENDITURE FORECASTING OF INDIA POST

In the financial statements of the India post, the expenditure are categorised as general administration expenses, operation expenses, expenses from agency services and other expenses. The expenses incurred from the year 2018-19 to 2022-23 is taken as the historical data and the forecast is made for the next five years up to 2027-28. The trend and forecast are demonstrated in the figure
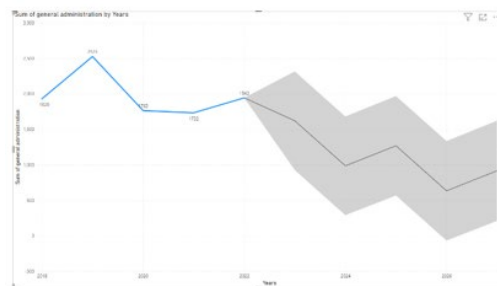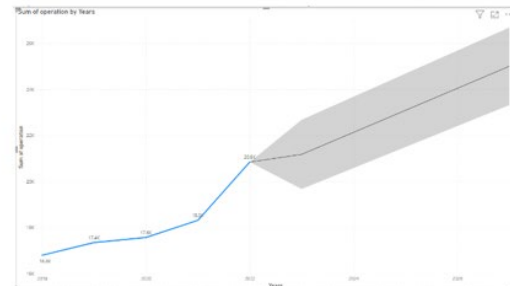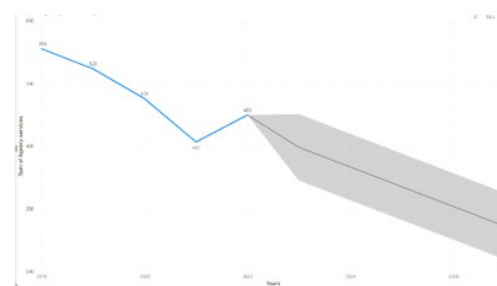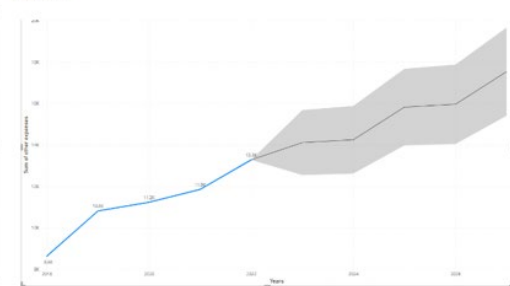

Chart 6

Chart 7

Chart 8

Chart 9

According to the charts, the general administration expenses show a decreasing trend for the next five years. It is forecasted to slightly increase in the year 2025-26 with the expenditure of 1,268.39 crores. The operation expenses

are forecasted to increase steeply in the next five years with the maximum increase in the year 2027-28 with the expenditure 25005.89 crores. The expenses from the agency services are forecasted to decrease from 2023-2024 with a sharp decline of 272.54 crores in the year 2027-28. In the case of other expenditure, it shows an increased trend with increased historical and forecasted values. The highest forecasted expenditure of other expenses are 17,536.19 crores in the year 2027-28 and the lowest forecasted expenditure is 14249.94 crores in the year 2024-25.

Overall, the general administration expenses and the expenses from the agency services showed a decreasing forecast while the operational expenses and the other expenses are forecasted to increase steeply in the next five years.

II TREND ANALYSIS

The trends of various revenue and expenditure heads of the India post is analysed with respect to the total revenue and expenditure. The trend analysis helps to understand how the changes in the amount of a revenue or expenditure head affects the total revenue and the expenditure. The trend analysis is demonstrated as a line chart and presented as figures.

6. TRENDS OF REVENUE OVER TOTAL REVENUE

The revenue from sale of stamps, postage realised in cash, commission on money and postal orders, remuneration for savings bank and savings certificate work and other receipts are taken in the Y – axis of the chart. The year of revenue and the total revenue is given in the X- axis. The line chart in the fig. demonstrates the amount of revenue from various revenue heads with respect to the total revenue in the corresponding years.
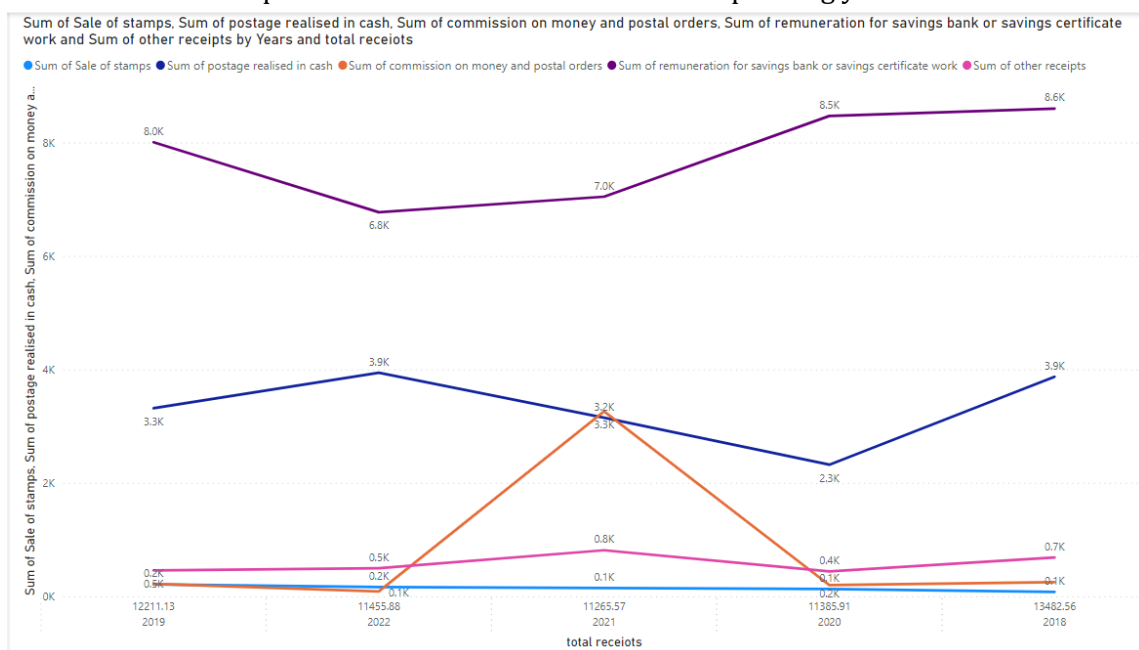

Chart 10

From Chart 10. it is evident that the revenue from sale of stamps showed a constant contribution to the total revenue and it contributes less compared to other revenue heads of India post. The revenue from other receipts shows a constant trend with a slight increase in the year 2021.The revenue from the postal and money orders shows a stable low-level contribution to the total revenue. But it steeply increased in the year 2021. The revenue from postage realised in cash is one of the positive revenue heads. It contributes constantly. The average contribution of the postage in the last five years is 3,320 crores. The revenue from the remuneration of the postal savings bank and savings certificates are considered to be one of the very important revenue earning businesses of the India post with a constant high return.

The revenue from sale of stamps from 2018-2019 to 2022-2023 is constant and very low when compared to revenue from other heads of India post. Revenue from postal and money orders and other receipts also shows a constant trend. It showed a steep high in the year 2021. But it fails to increase the total revenue as the average revenue from these businesses are low. The revenue earned from postages and from the remuneration of the savings bank/savings

certificates shows a constant increased trend over the years. The total revenue of the India post is higher when the revenue from postage and savings bank/ savings certificates are high.

7. TRENDS OF EXPENDITURE OVER TOTAL EXPENDITURE

The trends of the general administration expenses, operation expenses, expenses from the agency services and the other expenses are analysed over the years from 2018-19 to 2022-23. The trend is shown in the figure as a line chart with all the expenditure in the Y-axis and Total expenditure over years in the X- axis.
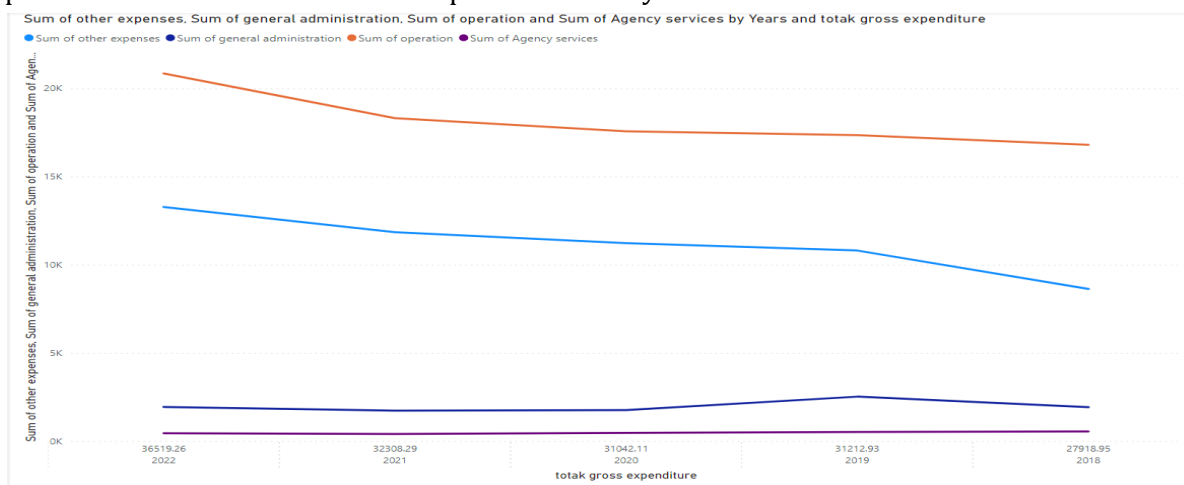

Chart 11

Chart 11 highlights that the operational expenses and the other expenses are very high and affects the total expenditure of the India post. The expenditure from agency services are constant and low. The general administration expenses also showed a constant trend with a slight increase in the year 2019. The operational expenses are high among the other expenses and are showing a high trend over the years.

8. IMPLICATIONS OF THE STUDY

India Post has recently introduced various innovative schemes and tech enabled services into its portfolio. However, despite these efforts, the organization has been struggling to achieve financial profitability.

Among the services offered, banking services have been popular and profitable, consistently generating high revenue for the organization. Nevertheless, it is projected that revenue from banking services will decline in the upcoming years. Therefore, significant measures need to be taken to boost revenue from these services. On the other hand, revenue from money orders and postal orders is expected to increase, although with a wider margin of uncertainty compared to banking services. Revenue from postage remains steady, but the forecast comes with a wide confidence band, indicating uncertainty in revenue generation. Therefore, substantial investments in postage should be reduced.Similarly, India Post should minimize costs associated with the sale of stamps, as revenue from this source is low and not showing signs of growth.

Operating expenses and other expenditures are consistently rising and predicted to increase further. It is imperative for India Post to optimize various expenses by seeking cost-effective alternatives. Additionally, cross-training should be provided to employees to enable them to perform multiple tasks. Increasing awareness among postal employees about cost-consciousness can also contribute to expense reduction. Furthermore, periodic tracking and control of other expenses should be implemented to reduce total expenditure and achieve long-term profitability. By carefully managing costs and implementing these strategies, India Post can work towards improving its financial outlook.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

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