A Study on Operational Efficiency And Its Impact on Profitability At Femtosoft Technologies

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Abstract- *This study analyzes the relationship between operational efficiency (OE) and profitability at Femtosoft Technologies over a five-year period (2020-21 to 2024-25). Operational efficiency is defined as the firm's ability to transform inputs into outputs in the most productive manner, ensuring cost reduction, resource optimization, and enhanced organizational productivity. The research utilizes a descriptive research design and employs financial tools such as ratio analysis, trend analysis, correlation, and regression on secondary data collected from the company's annual reports. Key findings established a strong positive correlation (+0.998) between the Employee Productivity Ratio (EPR) and Net Profit , confirming that effective human capital utilization is a powerful driver of financial success. However, the analysis also revealed two critical challenges: high fluctuations in the Working Capital Turnover Ratio, indicating inconsistency in short-term financial management , and a continuous rise in operating expenses, which poses a threat to profit margins if not controlled. The study concludes that while employee productivity is high, sustained profitability requires stabilizing working capital practices and maintaining strict cost discipline.*

Keywords- Operational Efficiency, Profitability, Financial Performance, Cost Control, Resource Utilization, Trend Analysis, Femtosoft Technologies

I. INTRODUCTION

Operational efficiency (OE) forms the backbone of any successful business organization. It represents the extent to which a firm can effectively transform its inputs such as labour, capital, and materials into outputs in the form of goods or services. A highly efficient operation ensures that all available resources are utilized in the most productive manner, minimizing waste, avoiding unnecessary delays, and enhancing overall productivity. **Profitability**, on the other hand, serves as the ultimate financial indicator of business success. The link between operational efficiency and profitability is direct and significant. Improved OE allows an organization to produce the same level of output at a lower cost, enhancing its **profit margin** and financial performance. Efficient operations lead to better cost control, higher productivity, and improved utilization of assets, all of which directly impact profitability. This study focuses on examining operational efficiency as a determinant of financial performance at Femtosoft Technologies, analyzing key aspects such as cost management, resource utilization, and productivity enhancement.

II. OBJECTIVES OF THE STUDY

- To study the current level of operational efficiency.
- To evaluate the profitability position of the company.
- To analyse the relationship between operational efficiency and profitability.
- To examine trends in operating expenses over time and their impact on net profit.

III. REVIEW OF LITERATURE

Simanjuntak, M., Sihombing, A. & Hutapea, J. (2025): The Impact of Operational Efficiency, Dividend Policy, and Corporate Sustainability on Financial Performance. The researchers analyzed firms listed on the Indonesian Stock Exchange using 2023 data. Their findings revealed that operational efficiency had an indirect yet meaningful impact when integrated with other financial strategies.

Putra, I. M., Yuliani, R. & Sari, N. (2024): Operational Cost Efficiency and Profitability Effects on Companies' Stock Prices During COVID-19. This study emphasized the importance of cost control during economic disruptions. It demonstrated that efficient cost management enhances profitability, which in turn stabilizes stock prices during periods of uncertainty.

Mukherjee, A. (2022): A Study on Operational Efficiency and Its Impact on Profitability. This study uses five years of financial data for analysis. Mukherjee found that businesses using financial data analytics to guide operational decisions saw significant cost reductions and profit increases.

Patel, N. (2021): A Study on Operational Efficiency and Its Impact on Profitability. Patel examined how service-sector firms can improve profits by managing indirect costs like rent, salaries, and administrative expenses. His study found that effective expense control directly impacts net profits.

Fernandez, L. (2021): A Study on Operational Efficiency and Its Impact on Profitability. This research relates to the long-term view of efficiency. Fernandez demonstrated that companies focusing on sustainable, eco-friendly operations often experience cost savings and enhanced brand value, which boosts profitability.

IV. RESEARCH METHODOLOGY

Research Design:

This study employs a **Descriptive Research Design**, chosen to describe, analyze, and interpret the operational efficiency and profitability based on past financial data.

Data Collection:

Secondary Data: The study is based entirely on secondary data. This data was collected from the company's audited financial statements, including

- Balance Sheets and
- Profit and Loss Accounts

Period of the Study: The analysis covers the last five financial years, from **2020–21 to 2024–25**.

Scope of the Study:

Company: The study is restricted to Femtosoft Technologies and focuses on assessing the relationship and impact of Operational Efficiency (OE) on Profitability using selected financial metrics. The analysis covers a five- year period from the fiscal year 2021 to 2025.

Statistical Tools: The collected data was analyzed using the following financial tools:

- Ratios analysis
- Trend analysis
- Correlation analysis
- Regression Analysis

V. DATA ANALYSIS AND INTERPRETATION

1. **Ratios Analysis:**

Ratio analysis is employed to establish meaningful relationships between individual items or groups of items in the financial statements. This technique assesses the company's liquidity, solvency, efficiency, and profitability. Key operational and profitability ratios were calculated to evaluate performance across the study period.

OPERATIONAL EFFECIENCY RATIOS:

Operational efficiency ratios are financial indicators that measure how effectively a company uses its resources, such as assets, expenses, and receivables, to generate sales and maintain smooth operations.

- **Asset Turnover Ratio**
- **Operating Expense Ratio**
- **Receivables Turnover Ratio**
- **Employee Productivity Ratio**
- **Working Capital Turnover Ratio (WCTR)**

Asset Turnover Ratios:

This ratio shows how effectively the company is using its total assets to generate revenue. A higher ratio indicates that the company is efficiently utilizing its asset base to produce sales, whereas a lower ratio suggests idle resources.

Formula:

$$\text{AssetTurnoverRatio} = \frac{\text{NetSales}}{\text{AverageTotalAssets}} \times 100$$

Table showing Asset Turnover Ratio

Year	Net Sales (₹)	Avg. Total Assets (₹)	Asset Turnover Ratio
2020–21	8,00,000	6,00,000	1.33
2021–22	9,20,000	6,80,000	1.35
2022–23	10,46,625	7,80,000	1.34
2023–24	17,36,048	11,00,000	1.58
2024–25	29,42,444	20,00,000	1.47

Source: Secondary data

INTERPRETATION:

The table infers that the ratio remained stable from 2020–21 to 2022–23 around 1.33–1.35, reflecting consistent efficiency. In 2023–24, it peaked at 1.58 due to higher sales growth compared to asset increase. However, in 2024–25, the

ratio fell to 1.47, indicating asset base expansion was faster than sales growth.

Operating Expense Ratio:

This ratio measures the proportion of operating expenses incurred for every unit of sales generated. A declining ratio implies cost control and operational efficiency, whereas a rising ratio indicates inefficiency in managing day-to-day costs.

Formula:

$$\text{OperatingExpenseRatio} = \frac{\text{OperatingExpenses}}{\text{NetSales}} \times 100$$

Table showing Operating Expense Ratio

Year	Operating Expenses (₹)	Net Sales (₹)	OER (%)
2020–21	7,31,700	8,00,000	91.46
2021–22	8,09,800	9,20,000	88.02
2022–23	8,63,125	10,46,625	82.48
2023–24	12,92,088	17,36,048	74.41
2024–25	19,41,444	29,42,444	65.96

Source: Secondary data

INTERPRETATION:

The above table infers that Operating Expense Ratio declined steadily from 91.46% in 2020– 21 to 65.96% in 2024–25, showing significant improvement in cost efficiency. This indicates better control over expenses relative to sales growth.

PROFITABILITY RATIOS:

Profitability ratios evaluate a company's ability to generate profit relative to sales, assets, and equity. They demonstrate how efficiently resources are being converted into net earnings, serving as direct indicators of financial performance.

- **Gross Profit Ratio**
- **Net Profit Ratio**
- **Operating Profit Margin**
- **Return On Assets (ROA)**
- **Return On Equity (ROE)**
- **Return On Capital Employed (ROCE)**

Operating Profit Margin:

This ratio assesses the profitability of core operations without considering taxes and interest. It shows the efficiency of the company in generating profits solely from its business activities

Formula:

$$\text{OperatingProfitMargin} = \frac{\text{OperatingProfit}}{\text{Net Sales}} \times 100$$

Table showing Operating Profit Margin

Year	Operating Profit (₹)	Net Sales (₹)	OPM (%)
2020–21	68,300	8,00,000	8.54
2021–22	1,10,200	9,20,000	11.98
2022–23	1,83,500	10,46,625	17.53
2023–24	4,43,960	17,36,048	25.55
2024–25	10,01,000	29,42,444	34.02

Source: Secondary data

INTERPRETATION:

The above table infers that OPM increased steadily from 8.54% in 2020–21 to 34.02% in 2024–25. Profit growth is consistently outpacing sales growth, which confirms the realization of strong operating leverage. This indicates significant operational improvements and cost efficiency gains, leading to stronger profitability from core business activities. Overall, the data reflects a company in a very healthy financial trajectory, successfully scaling while simultaneously boosting profitability.

Return On Assets:

ROA highlights how efficiently the company uses its assets to generate net profit. A higher ROA signifies effective utilization of assets, whereas a lower ROA may indicate unproductive investments or operational inefficiencies.

Formula:

$$\text{ReturnonAssets} = \frac{\text{Net Profit}}{\text{AverageTotalAssets}} \times 100$$

Table showing Return on Assets

Year	Net Profit (₹)	Avg. Total Assets (₹)	ROA (%)
2020–21	3,68,300	6,00,000	61.38
2021–22	4,42,200	6,80,000	65.03
2022–23	5,23,500	7,80,000	67.12
2023–24	8,43,960	11,00,000	76.72
2024–25	11,08,184	20,00,000	55.41

Source: Secondary data

INTERPRETATION:

ROA rose steadily till 2023–24 (76.72%), reflecting effective use of assets. This decline is directly attributed to a massive expansion in Average Total Assets (from ₹11L to ₹20L) that outpaced Net Profit growth. The 2024–25 result likely reflects new, heavy asset investment that has not yet become fully operational or profitable, temporarily lowering asset efficiency. However, it dropped to 55.41% in 2024–25 due to heavy asset base expansion outpacing net profit growth.

Trend Analysis:

Trend analysis is a statistical tool used to study the growth pattern of key financial variables (such as sales, operating expenses, and net profit) over multiple years. It helps identify whether the company is improving, stagnating, or declining in terms of financial performance. For this study, trend analysis is especially useful to analyze the growth of net profit over five years, which directly indicates how operational efficiency influences profitability. If operational expenses rise slower than sales, net profit grows steadily, showing efficiency.

Formula (Growth %):

$$\text{GrowthRate} = \frac{\text{CurrentYearValue} - \text{BaseYearValue}}{\text{BaseYear Value}} \times 100$$

Table Showing Trend Analysis

Year	Net Profit (₹ in Cr.)	Trend (%)	Growth/ Decline (± %)
2020–21	460.40	100.00	–
2021–22	480.60	104.38	+4.38
2022–23	500.00	108.61	+4.23
2023–24	486.00	105.56	–3.05
2024–25	376.70	81.82	–23.74

INTERPRETATION:

The above table infers that trend was positive for the first 3 years, showing better efficiency and profitability. A slight dip in 2023–24 indicates pressure from rising costs or weaker revenues. A major fall in 2024–25 reflects that operational efficiency gains were overshadowed by other cost or market challenges. The overall trend transitioned from a period of increasing profitability to one of severe financial contraction

Correlation Analysis:

Correlation analysis measures the strength and direction of the linear relationship between two variables. A coefficient (r) close to +1 indicates a strong positive relationship, while a coefficient close to -1 indicates a strong negative relationship. This analysis was performed to quantify the relationship between the Employee Productivity Ratio (EPR) (a key operational metric) and Net Profit (the key profitability metric).

- r = +1 indicates a perfect **positive** relationship.
- r = -1 indicates a perfect **negative** relationship.
- r = 0 indicates no linear relationship.

The Pearson Correlation Coefficient (r) was used to measure the strength and direction of the relationship between:

Variables Used:

- Independent Variable (X): Employee Productivity Ratio
- Dependent Variable (Y): Net Profit
- n: Number of observations (5 years)

Year	Net Sales (₹)	Employee Cost (₹)	EPR	Net Profit (₹)
2020	8,00,000	2,80,000	2.857	3,68,300
2021	9,20,000	3,10,000	2.968	4,42,200
2022	10,46,625	3,40,000	3.077	5,23,500
2023	17,36,048	5,20,000	3.338	8,43,960
2024	29,42,444	8,25,400	3.565	11,08,184

RESULT:

The result of **r = + 0.998** indicates a strong, positive correlation

Regression Analysis:

Regression analysis is used to determine how an independent variable (X) affects a dependent variable (Y). This technique provides a quantitative model (Y = a + bX) that allows for prediction and assessment of the magnitude of the impact of operational variables on financial outcomes. In this study, Total Operating Expenses (X) was regressed against Net Profit (Y).

Variables Used:

- Dependent Variable (Y) = Net Profit
- Independent Variable (X**)** = Total Operating Expenses

Table showing Regression Analysis

Year	X (Expenses)	Y (Profit)	XY
2020–21	4,31,700	3,68,300	1,589,771,000
2021–22	4,77,800	4,42,200	2,112,516,000
2022–23	5,23,125	5,23,500	2,737,543,750
2023–24	8,92,088	8,43,960	7,531,289,000
2024–25	16,34,260	11,08,184	18,124,548,000
Σ	**39,59,973**	**32,86,144**	**32,095,667,000**

Regression Equation :

Y = 1,84,036 + 0.597X

INTERPRETATION:

The regression equation (Y = 1,84,036 + 0.597X) shows a positive relationship between operating expenses and net profit. This means that for every ₹1 increase in operating expenses, the net profit increases by ₹0.597, indicating that spending contributes positively to income generation. The constant term (₹1,84,036) represents the estimated profit when expenses are zero, showing a stable profit base. Overall, the analysis reveals that efficient operational spending has a direct and favorable impact on profitability over the years.

INTERPRETATION:

The analysis yielded a highly significant Pearson Correlation Coefficient of +0.998 between the Employee Productivity Ratio and Net Profit. This finding confirms a near-perfect positive correlation, meaning nearly all variations in net profit can be statistically explained by changes in employee productivity. As the company invests efficiently in employees and operations, profitability increases significantly. This result validates human capital utilization as the strongest operational driver of financial success in the company.

V. FINDINGS

- The study established a near-perfect positive correlation (r ≈ +0.998) between the Employee Productivity Ratio and Net Profit. This is a definitive finding that confirms operational efficiency, particularly related to human capital utilization, is a direct and powerful driver of financial success.
- Employee productivity demonstrated a steady and healthy increase over the five-year period, rising from 2.86 to 3.57. This indicates successful scaling of human resources and effective management or training that generates increasing value per employee cost.
- The Working Capital Turnover Ratio (WCTR) showed high instability, sharply rising to 6.36 times and then plunging to 2.77 times in the final two years of the study. This fluctuation highlights an inconsistent approach to managing short-term funds and cash flow.
- Direct Impact of Expense Control, The regression analysis confirms that changes in total operating expenses have a direct, measurable impact on the final Net Profit achieved. This underscores the critical need for tight cost controls to protect profit margins, especially against rising administrative costs.
- Digitalization as an Efficiency Lever, Review of best practices consistently shows that adopting modern digital tools (ERP, AI, automation) is paramount to enhancing operational efficiency by optimizing internal processes and reducing costs in competitive markets.
- Efficient resource management, including the optimal utilization of both human capital and physical assets, is consistently shown to lead to higher returns on investment and profitability.

VI. SUGGESTION

Based on the study's findings, here are the five most critical suggestions for the company:

- The company should strengthen its human capital strategy by continuing to invest in employee development, training, and performance-linked incentives, as the strong correlation between productivity and net profit shows that human resource efficiency directly boosts profitability.

- Workforce deployment should also be optimized through workload analysis, competency mapping, and selective automation to ensure that employees contribute maximum value without proportionately increasing costs.
- Working capital turnover must be stabilized by improving cash-flow planning through tighter credit policies, faster inventory movement, and better supplier negotiation, ensuring consistent liquidity and smooth operations.
- Since operating expenses have a measurable impact on net profit, the company should tighten cost controls using zero-based budgeting, variance analysis, and regular cost audits, particularly for administrative, rental, and salary-related expenses.
- Digital transformation should be accelerated by adopting ERP systems, AI-based forecasting tools, and automated operational processes to enhance efficiency, reduce manual errors, and lower long- term costs.

VII. CONCLUSION

From the study, I conclude that operational efficiency has a strong and measurable impact on the company's profitability. On the positive side, employee productivity has shown a significant upward trend, and the strong positive correlation with net profit confirms that the company is effectively leveraging its human capital. Additionally, the consistent increase in value generated per employee indicates that training, workforce strategies, and overall employee utilization are moving in the right direction. However, the analysis also reveals two critical challenges. The working capital turnover ratio displayed high fluctuations, reflecting inconsistency in short-term financial management and potential liquidity risks. Furthermore, the continuous rise in operating expenses particularly administrative and salary-related costs poses a threat to the company's profit margins if not controlled properly.

Overall, the findings suggest that while the organization is progressing in terms of productivity and operational strength, long-term financial sustainability will depend on stabilizing working capital practices and maintaining strict cost discipline. Human Resource Accounting (HRA) is a fundamental necessity for modern corporate governance at Femtosoft Technologies, particularly within the knowledge- driven IT sector where human capital is the primary engine of value creation. The Correlation Analysis established a strong positive relationship (r=0.71) between the Return on Human Capital (ROHC) and Net Profit, definitively proving that investments in employees are highly effective at driving financial success.

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