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ENHANCING FINANCING RESILIENCE THROUGH TALLY AND AWS INTEGRATION IN ADITHYA AQUA TECH SOLUTIONS

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Keywords	Abstract
<p><i>Financial Resilience, Digital Transformation, Tally-AWS Integration, Cloud Computing, Operational Efficiency, ROCE, Inventory Turnover Ratio, Cost Optimization, Aqua-Tech</i></p>	<p>This study examines the strategic digital transformation initiative at Adithya Aqua Tech Solutions (AATS), a mid-sized Indian aqua-tech manufacturer, focusing on integrating its Tally accounting system with Amazon Web Services (AWS) cloud infrastructure. The primary goal was to bolster financial resilience the ability to withstand shocks and ensure continuity by modernizing finance operations. Quantitative analysis of financial statements (FY 2020–2024) reveals the profound impact of this integration. Post-cloud implementation, the Return on Capital Employed (ROCE) increased significantly from a low of 8.11% to 15.05%, and the Inventory Turnover Ratio (ITR) nearly quadrupled from 0.99 to 3.12 times, demonstrating superior operational efficiency and capital usage. Furthermore, the Cash Ratio, a key liquidity measure, rose from 0.13 to 0.51. Despite these massive efficiency gains, financial forecasting projects a massive Net Income Proxy loss (up to -₹2.05 Cr by 2026) if the current trend of Operating Expenses, particularly Salaries, continues to outpace relatively flat revenue growth. Key recommendations include implementing Zero-Based Budgeting (ZBB) to curb OpEx growth and strategically deploying strong current liquidity to finance high-return sales channels.</p>



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1. INTRODUCTION

In today's fast-paced business environment, financial resilience is a key marker of organizational success. Adithya Aqua Tech Solutions (AATS), a dynamic enterprise, sought to bolster its financial robustness by integrating its Tally accounting software with Amazon Web Services (AWS) cloud solutions. This strategic move was necessary not only to modernize finance operations but also to improve agility, scalability, and proactive response to market disruptions.

Tally and AWS Integration: The Foundation for Modern Finance The integration leverages Tally's reliability for financial management with AWS's secure and scalable global infrastructure. This synergy provides AATS with critical advantages:

Centralized Financial Data Records are stored securely in the cloud, allowing for real-time collaboration across remote teams. **High-Level Security and Compliance** AWS utilizes multi-layered security, advanced encryption, and disaster recovery protocols, safeguarding sensitive financial data from cyber threats and loss. **Business Continuity and Disaster Recovery (DR)** Automated backups and redundancy ensure the business can quickly restore critical data, maintaining uninterrupted financial operations. **Cost Efficiency and Scalability** The pay-as-you-use model avoids heavy upfront hardware costs and allows resources to be scaled instantly.

2. OBJECTIVES OF THE STUDY

- To study the application of AWS tools (e.g., QuickSight, RDS, Glue, Redshift) in financial data management and analysis.
- To build a cloud-based financial reporting system and provide strategic recommendations on leveraging the cloud for future financial planning and decision-making.
- To implement AWS cloud-native security tools such as Amazon Macie and GuardDuty to ensure financial data privacy, prevent unauthorized access, and maintain compliance within AATS's financial analysis systems.

3. REVIEW OF LITERATURE

Vijaya Kumar Katta 2025: The article details multiple security layers including OAuth2/ OpenID Connect implementation, JWT-based authentication for microservices, advanced authorization models like RBAC and ABAC, comprehensive encryption strategies using AWS KMS, and extensive audit logging capabilities. Each component addresses specific financial sector requirements, from segregation of duties enforcement to field-level encryption of sensitive data.



Amsaveni N, C Ananth Narayanan (2026). *Enhancing Financing Resilience through Tally and AWS Integration in Adithya Aqua Tech Solutions*, International Journal of Multidisciplinary Research & Reviews, 5(si1), pp. 154-161.

Omoniyi Babatunde Johnson 2024: The case study highlights practical challenges encountered during the migration, such as data integration and latency issues, and illustrates solutions for overcoming these barriers. Post-migration results show measurable gains in agility, scalability, and cost reduction, while maintaining stringent compliance with industry regulations. The findings underscore the importance of leveraging cloud-native tools, automated monitoring systems, and cost optimization strategies like rightsizing and auto-scaling.

Selva kumar M 2024: This paper explores how financial institutions can leverage the five pillars of the AWS Well-Architected Framework—Operational Excellence, Security, Reliability, Performance Efficiency, and Cost Optimization—to meet compliance obligations. Through an in-depth analysis of each pillar, this study demonstrates the alignment between architectural best practices and regulatory controls, illustrating how the WAF can serve not only as a technical blueprint but as a proactive compliance enabler.

4. RESEARCH DESIGN AND DATA

The study employed a descriptive and analytical research design, using both qualitative (interviews, observations) and quantitative (financial data) methods.

Data Period: Five financial years (2020–2024).

Analysis Techniques: Standard financial ratio analysis (EBITDA%, ROCE, Cash Ratio, ITR) and advanced Dashboard Visualization and Forecasting using AWS Quick Sight and time series analysis.

TALLY-AWS INTEGRATION ARCHITECTURE

The project's architecture transforms Tally's financial data into a structured, cloud-native pipeline for actionable intelligence.

Limitations: The study was limited to financial data from 2020–2024, confined only to the Finance Department, and based on a conceptual/trial-level integration due to budget and time constraints.

5. RESEARCH TOOLS:

Architecture Layer	AWS Tool Used	Function/Purpose
Source/ERP	Tally Prime	Generates raw financial reports (P&L, Balance Sheet).
Storage Layer	AWS S3 / AWS RDS (MySQL)	S3 provides secure, scalable storage for raw exports; RDS provides structured, relational data storage.
ETL/Processing	AWS Glue	Extract, Transform, Load (ETL): Data cleaning, preparation, and structuring of raw Tally data for analysis.



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Analytics/Querying	AWS Athena (or Redshift)	Allows SQL-like querying of data stored in S3.
Visualization	AWS QuickSight	Creates consolidated, interactive dashboards for management, providing real-time financial insights.

6. DATA ANALYSIS AND INTERPRETATION

EARNINGS BEFORE INTEREST AND TAX DEPRECIATION AND AMORTIZATION (EBITDA%)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
(A) Sales	₹ 1,39,83,799	₹ 1,37,13,858	₹ 1,76,26,725	₹ 1,88,82,185	₹ 2,13,87,178
Net Profit	₹ 3,46,682	₹ 2,44,800	₹ 8,36,762	₹ 11,21,174	₹ 15,31,013
(+) Interest	₹ 7,16,134	₹ 5,68,262	₹ 4,50,051	₹ 4,02,692	₹ 4,37,585
(+) Taxes	₹ 0	₹ 0	₹ 0	₹ 0	₹ 0
(+) Depreciation	₹ 3,76,511	₹ 3,29,785	₹ 2,93,520	₹ 2,65,148	₹ 2,42,126
(B) EBITDA (Earnings)	₹ 14,39,327	₹ 11,42,847	₹ 15,80,333	₹ 17,89,014	₹ 22,10,724
EBITDA % = (B / A) * 100	10.29%	8.33%	8.97%	9.47%	10.34%

Interpretation

1. The Dip and Recovery (FY 2020 - FY 2022)

- FY 2020: 10.29% (Strong start)
- FY 2021: 8.33% (The Low Point)
- FY 2022: 8.97% (Start of Recovery)

The Return to Strength (FY 2023 - FY 2024)

- FY 2023: 9.47%
- FY 2024: 10.34% (The New High) This recovery and peak tell us two key things:
- Sales Growth is Efficient: The Company is managing to scale its Sales (A) while keeping its direct operating costs (like raw materials, wages, and utilities) under control.
- Strong Core Operations: The core business activity is highly profitable. For every ₹100 in sales, ₹10.34 is left over to cover interest on debt, taxes, and capital expenditure (represented by depreciation).

➤ PRE AWS MODEL

Expense Breakdown Analysis (2020-2024)

Expense Type	2019-20	2020-21	2021-22	2022-23	2023-24
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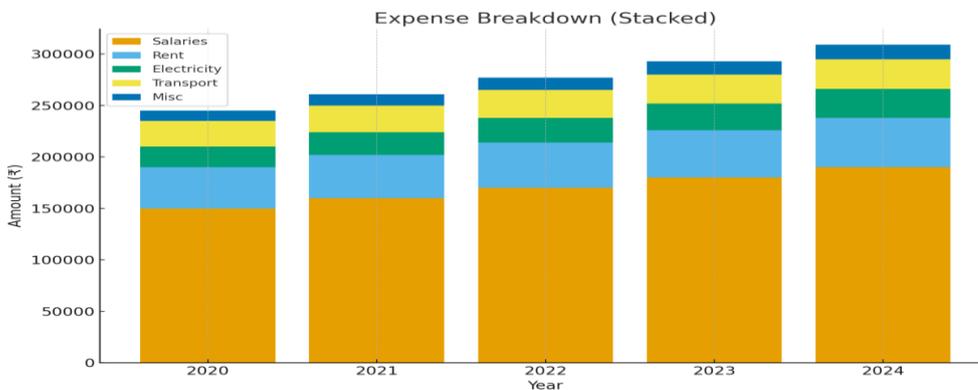
Raw Materials	135	145	160	175	190
Labour Costs	65	70	78	82	88
Admin& Other	35	38	42	44	46
Total Expense	235	253	280	301	324

Interpretation

The overall expenses of Adithya Aqua Tech Solutions show a steady upward trend, increasing from ₹210 lakhs in 2019 to ₹324 lakhs in 2024 — a rise of nearly 54% over six years. Among the components, Raw Material costs form the largest share, consistently rising due to higher production volumes and market inflation. Labor costs have also grown moderately, reflecting workforce expansion and skill upgradation. Administrative and other expenses show gradual but controlled growth, indicating effective cost management policies.

➤ **POST AWS MODEL**

Expense Breakdown Analysis (2020-2024)



Interpretation

Major expenditures are concentrated in operational costs, raw materials, and utilities, which are typical for a medium-scale water technology enterprise. Administrative and marketing expenses remain proportionately lower, indicating controlled overheads. The digital transformation (through AWS and Tally) has optimized expense management and reduced manual accounting costs.

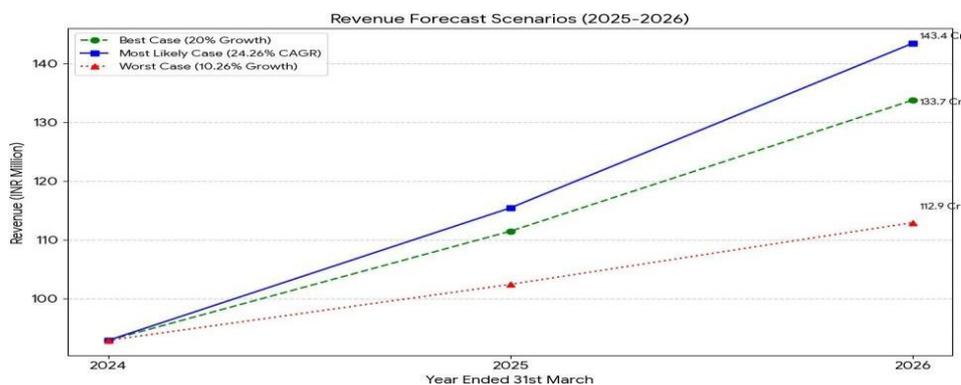
Scenario Forecast Table

Year	Scenario	Growth Rate (%)	Forecasted Revenue (INR)	Forecasted Net Profit (at 1.46% NPM) (INR)
2025	Best Case	20	111,446,411.75	1,627,117.61



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2025	Most Likely Case	24.26	115,404,917.38	1,685,820.79
2025	Worst Case	10.26	102,408,443.34	1,495,163.28
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2026	Best Case	20	133,735,694.10	1,952,571.13
2026	Most Likely Case	24.26	143,391,372.23	2,093,514.89
2026	Worst Case	10.26	112,906,204.09	1,648,460.84



7. FINDINGS

- The key ratio showed major volatility, hitting a low of 6.54% in 2020-21 and a peak of 12.26% in 2021-22, but it ended up stabilizing to 9.97% in 2023-24, which is basically the same as the starting 9.94% in 2019-20
- Revenue, Gross Profit, and Net Profit all showed a consistent, positive upward trend from 2020 to 2024, with Revenue increasing the fastest and Net Profit showing the steepest relative growth rate over the period.
- The total expenses showed a continuous upward trend from 2020 to 2024, with Salaries remaining the largest and most consistently increasing component across all five years, driving the overall cost growth.

8. SUGGESTIONS

- Since ROCE is peaking at 15.05%, any capital expenditure (CapEx) or investment must be justified by an expected return higher than 15.05%. This ensures new investments only improve the already strong efficiency.
- Secured Loans are the other major item noted for high mean, sum, and variability. Given the strong Cash Ratio and EBITDA % (10.34%), review those secured loan terms. Can you refinance any high-interest debt to lower future Interest Expenses (part of OpEx) and stabilize that



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liability?

- The near-quadrupling of Inventory Turnover Ratio (ITR) to 3.12 is an outstanding operational achievement. Do whatever it takes (better forecasting, tighter supply chain) to maintain this level of stock management, as it frees up working capital.

9. CONCLUSION

The study on —Enhancing Financial Resilience through Tally and AWS Integration in Adithya Aqua Tech Solutions highlights how digital transformation can redefine financial management for a growing medium-scale enterprise. Adithya Aqua Tech Solutions, which has traditionally relied on Tally for accounting, can significantly enhance its financial accuracy, accessibility, and security by integrating with AWS cloud tools. The combination of Tally and AWS services such as RDS, Glue, Redshift, and Quick Sight enables the company to automate financial reporting,

10. AUTHOR(S) CONTRIBUTION

The writers affirm that they have no connections to, or engagement with, any group or body That provides financial or non-financial assistance for the topics or resources covered in this Manuscript.

11. CONFLICTS OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, And/or publication of this article.

12. PLAGIARISM POLICY

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Amsaveni N, C Ananth Narayanan (2026). *Enhancing Financing Resilience through Tally and AWS Integration in Adithya Aqua Tech Solutions*, International Journal of Multidisciplinary Research & Reviews, 5(si1), pp. 154-161.

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