Internship Report

On

ERP-Enabled Assembly Cost Budgeting and Variance Reporting: A Study on IFAD Autos PLC

Submitted by

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Submitted to

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Bachelor of Business Administration



Date of Submission: April 28, 2025

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LETTER OF TRANSMITTAL

April 28, 2025

Sumon Sheikh
Lecturer and Assistant Exam Coordinator
Department of Business Administration
Sonargaon University (SU)

Subject: Submission of Internship Report on "*ERP-Enabled Assembly Cost Budgeting and Variance Reporting: A Study on IFAD Autos PLC*."

Dear Sir,

With most respectfully to state that I am pleased to submit my internship report titled "***ERP-Enabled Assembly Cost Budgeting and Variance Reporting: A Study on IFAD Autos PLC***". This report is an essential part of my BBA degree requirements, and I had the privilege of completing my internship at IFAD Autos PLC under your guidance. This report reflects the current marketing practices employed by organizations in our country. I have made an effort to include relevant details while keeping the report concise. I kindly request your assessment of this report. Your feedback would be greatly appreciated. Thank you for your time and consideration.

Yours Sincerely,

_____

Md. Ferdous Toufiq
ID: BBA2301028105
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Major: Accounting
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CERTIFICATE OF SUPERVISOR

I hereby confirm that the internship report titled **"*ERP-Enabled Assembly Cost Budgeting and Variance Reporting: A Study on IFAD Autos PLC*"** has been prepared in fulfillment of the BBA program requirements at the Department of Business Administration, Sonargaon University (SU). The report was conducted by Md. Ferdous Toufiq, with ID BBA2301028105, under my guidance. I assure you that the report and its contents will not be utilized for any other intentions.

_____

Sumon Sheikh
Lecturer and Assistant Exam Coordinator
Department of Business Administration
Sonargaon University (SU)

DECLARATION OF STUDENT

I am Md. Ferdous Toufiq, a student in the Bachelor of Business Administration program with ID BBA2301028105 at Sonargaon University. I want to sincerely state that the report titled "***ERP-Enabled Assembly Cost Budgeting and Variance Reporting: A Study on IFAD Autos PLC***" has been genuinely prepared by me. During the preparation of this report, I ensured full compliance with international copyright regulations. I also want to clarify that this report has not been submitted anywhere else for the purpose of obtaining a degree.

Yours Sincerely,

_____

Md. Ferdous Toufiq
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I would like to extend my gratitude for the invaluable assistance and sincere cooperation provided by various individuals in the preparation of this report. It's impossible to adequately thank all the wonderful people who directly or indirectly contributed to the successful completion of this report. I am deeply appreciative of their kind collaboration and support.

First and foremost, I would like to express my thanks to the divine power. Additionally, my foremost appreciation goes to my supervisor, Sumon Sheikh, Lecturer and Assistant Exam Coordinator at Sonargaon University (SU), for his crucial guidance, scholarly insights, and unwavering support throughout my study period.

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EXECUTIVE SUMMARY

In the assembly & manufacturing sector, production costs—encompassing direct materials, labor, and overhead expenses—represent a major component of total operational expenditures. Accurate estimation and management of these costs are critical for ensuring profitability, optimizing resource allocation, and supporting strategic decision-making. However, traditional budgeting methods, which often rely on manual calculations and disconnected systems, are prone to errors, delays, and inefficiencies, limiting their usefulness in fast-paced production environments. This study proposes the design and implementation of an Enterprise Resource Planning (ERP)-based budgeting and performance evaluation system, specifically tailored to manufacturing organizations. The system integrates budgeting with key ERP modules such as Production Planning (PP), Materials Management (MM), Human Capital Management (HCM), Finance (FI), and Controlling (CO). This integration enables centralized control, real-time data access, automated workflows, and transparent reporting, thus addressing many limitations of manual systems. A core feature of the proposed system is its ability to compare budgeted costs with actual expenditures and perform variance analysis at multiple responsibility center levels—such as departments, production units, or cost centers. This allows managers to identify inefficiencies, investigate root causes, and implement corrective actions proactively. To validate the system, this research presents a step-by-step methodology, including requirement analysis, ERP module configuration, process flowchart design, dummy data creation, and variance computation using simulated production scenarios. The system's architecture, user interaction design, class diagrams, and data models are documented in detail. Sample reports and dashboards—such as Budget vs. Actual summaries, cost breakdowns, and center-wise performance charts—demonstrate the practical benefits of ERP-based cost control. The findings confirm that ERP systems can significantly enhance accuracy, responsiveness, and transparency in production budgeting processes, providing a strong foundation for informed decision-making in manufacturing enterprises.

Keywords: ERP, budgeting system, variance analysis, production cost, labor cost

CHAPTER 1: INTRODUCTION

1.1 Introduction

Assembly & manufacturing companies today face intense market competition, volatile input prices, and the constant pressure to optimize operational efficiency. In such a landscape, cost control and accurate budgeting have become essential components of sustaining profitability and ensuring long-term business viability. Among all areas of operational expenditure, production costs—comprising direct materials, direct labor, and manufacturing overhead—typically represent the largest and most variable segment. Hence, effective management of these costs through precise budgeting is critical.

However, many organizations still rely on traditional budgeting methods, such as spreadsheet-based planning or free software tools. These systems often operate independently of actual production workflows and do not reflect real-time data, making them prone to delays, inaccuracies, and inefficiencies. Consequences of such limitations include overproduction or underproduction**,** resource wastage, mispricing of products, and lost revenue due to suboptimal cost estimation.

To overcome these challenges, many companies are adopting Enterprise Resource Planning (ERP) systems**,** which offer a modular, integrated, and data-driven approach to managing all business processes. ERP systems consolidate functions such as production planning, procurement, inventory management, labor tracking, cost control, and financial accounting into a centralized platform. This integration enables real-time data access**,** automated process flows**,** and consistency across departments, significantly enhancing accuracy and responsiveness in budgeting and cost management.

This Internship proposes the design, implementation, and evaluation of an ERP-based production budgeting system tailored for assembly & manufacturing companies. The system supports the formulation of detailed production budgets, records and monitors actual production costs, and performs variance analysis to identify deviations between planned and actual performance. By leveraging the capabilities of ERP modules—such as Production Planning (PP), Materials Management (MM), Human Capital Management (HCM), Finance (FI), and Controlling (CO)—the proposed system enables comprehensive and transparent cost monitoring.

The research methodology includes the development of a prototype ERP budgeting system, populated with simulated actual data to demonstrate its application in practical scenarios. Through this demonstration, the study highlights how ERP-based systems can be used not only for budgeting but also for real-time performance tracking, strategic decision-making, and continuous improvement in manufacturing environments.

In summary, this internship aims to show how ERP systems can transform the traditional approach to production cost budgeting by making it more accurate, timely, transparent, and actionable**.** The findings are expected to benefit manufacturing companies seeking to modernize their budgeting processes and achieve stronger cost control through digital solutions.

1.2 Benefits and Drawbacks of ERP-Based Budgeting

Enterprise Resource Planning (ERP) systems provide a powerful foundation for production cost budgeting by automating, integrating, and enhancing data-driven processes across an organization. However, alongside the numerous benefits, there are also some limitations that need to be considered.

1.3 Benefits of ERP-Based Budgeting

Benefit	Description
1. Integration Across Departments	ERP systems connect finance, production, procurement, HR, and inventory modules, enabling seamless data sharing and eliminating duplication or mismatched data entries.
2. Automation Reduces Errors	Manual data entry is minimized, reducing human error in calculations, data entry, and report generation. Automated variance analysis improves accuracy.
3. Transparent Reporting	Real-time reports and dashboards allow stakeholders to view budget performance transparently, helping ensure compliance and traceability.

4. Timely Alerts and Responses	ERP systems can be configured to trigger automatic alerts for budget overruns, material wastage, or labor inefficiencies, allowing corrective actions quickly.
5. Department-Level Accountability	Budgeting by cost center enables managers to monitor and control their departmental costs, increasing ownership and responsibility for financial performance.
6. Scalable to Large Enterprises	ERP systems like SAP, Oracle, and Odoo are designed to handle large data volumes and multi-location operations, making them suitable for large-scale manufacturing enterprises.
7. Strong Basis for Decision-Making	Real-time access to budget vs. actual performance provides management with accurate insights for forecasting, planning, and strategic decisions.

1.4 Drawbacks of ERP-Based Budgeting

Drawback	Description
1. High Initial Cost	Implementation of ERP systems often requires substantial upfront investment in software, hardware, training, and consulting.
2. Complexity in Setup	Customizing budgeting modules to fit specific business needs may require technical expertise and significant time.
3. Resistance to Change	Employees accustomed to spreadsheets or manual systems may resist transitioning to ERP platforms due to learning curves.
4. Data Dependency	Accurate budgeting relies heavily on clean and up-to-date master data. Inaccurate data can compromise the reliability of outputs.
5. Maintenance and Upgrades	Continuous support is needed to keep the system updated and secure, which adds to operational costs.
6. Over-Engineering Risk	Some organizations may implement overly complex budgeting structures that hinder usability rather than enhancing control.

1.5 Summary Comparison Table

Factor	Benefit	Drawback
Integration	Seamless flow of data across departments	Complex implementation and training required
Accuracy	Automation reduces manual errors	Depends on clean and accurate data
Transparency	Real-time dashboards and variance reports	Risk of data overload and misinterpretation
Scalability	Suitable for large enterprises	May be too complex or costly for small firms
Decision Support	Provides actionable insights	Insights only as good as the quality of data entered

1.6 Study Objectives

The primary objective of this study is to design and implement an integrated ERP-based budgeting and performance evaluation system tailored for assembly & manufacturing organizations, with the aim of enhancing cost estimation accuracy, enabling real-time variance analysis, and improving decision-making through centralized data management and automated reporting.

1.7 Scope of the Study

This study focuses on the development and validation of an ERP-based budgeting and performance evaluation system specifically for assembly & manufacturing enterprises. It encompasses the integration of key ERP modules—Production Planning (PP), Materials Management (MM), Human Capital Management (HCM), Finance (FI), and Controlling (CO)—to streamline cost estimation, budget monitoring, and variance analysis. The system is tested using simulated production scenarios, with emphasis on cost control at various responsibility center levels (e.g., departments, production units, cost centers). The study does not cover implementation in live industrial environments but provides a comprehensive prototype framework and performance demonstration using dummy data.

1.8 Limitations of the Study

While this study provides a comprehensive framework for implementing an ERP-based budgeting and performance evaluation system in manufacturing settings, several limitations should be acknowledged:

1. **Simulated Environment:** The system was tested using actual but limited data. As such, its practical effectiveness in live environments may vary and requires further empirical validation.

2. **Scope of ERP Modules:** The study focuses only on selected ERP modules (PP, MM, HCM, FI, and CO). Other potentially relevant modules, such as Sales and Distribution (SD) or Quality Management (QM), are not included, which may limit the system's applicability to broader operational contexts.

3. **Industry-Specific Customization:** The prototype is designed for general manufacturing processes and does not account for industry-specific customization (e.g., pharmaceuticals, automotive, or electronics), which may require additional module configuration or integration.

4. **User Adaptability and Training:** The study does not evaluate user adaptability, training challenges, or organizational resistance that may arise during the actual implementation of the system in a company.

5. **Cost and Infrastructure Constraints:** The financial and technical resources required to deploy a full-scale ERP system are not assessed. Small and medium enterprises (SMEs) may face challenges related to system affordability, IT infrastructure, and technical expertise.

CHAPTER 2: LITERATURE REVIEW

2.1 Literature Review

Budgeting stands as a cornerstone in managerial accounting and strategic business planning. A wealth of academic and industrial research has delved into the design, implementation, and evaluation of budgeting systems within organizations.

2.2 Academic Perspectives on Budgeting Practices

Cheung (1986) conducted an analysis of budgetary control practices in Hong Kong companies, emphasizing the critical need to align budgeting processes with overarching corporate objectives. Furthering this discourse, Joshi et al. (2003) revealed that firms in Bahrain employed budgeting not solely for planning purposes but also as tools for performance appraisal and resource allocation.

2.3 Industrial Applications of Budgeting Models

In the industrial realm, Guimarães et al. (2012) introduced a mathematical programming model tailored for annual production budgeting within the beverage industry. This model aimed to optimize resource allocation and production scheduling. Similarly, Cesarotti et al. (2009) proposed a comprehensive framework for energy budgeting in manufacturing plants, focusing on enhancing efficiency and promoting sustainability.

2.4 Integration of ERP Systems in Budgeting

The advent of Enterprise Resource Planning (ERP) systems has revolutionized budgeting by integrating cost management with other vital business functions. Atkinson et al. (2012) highlighted the pivotal role of ERP systems such as SAP, Oracle, and Odoo in facilitating accurate and automated budget planning alongside real-time variance monitoring. In a practical application, Cui et al. (2011) developed a material budgeting system within the shipbuilding industry, leveraging ERP modules to enhance transparency and control over material costs.

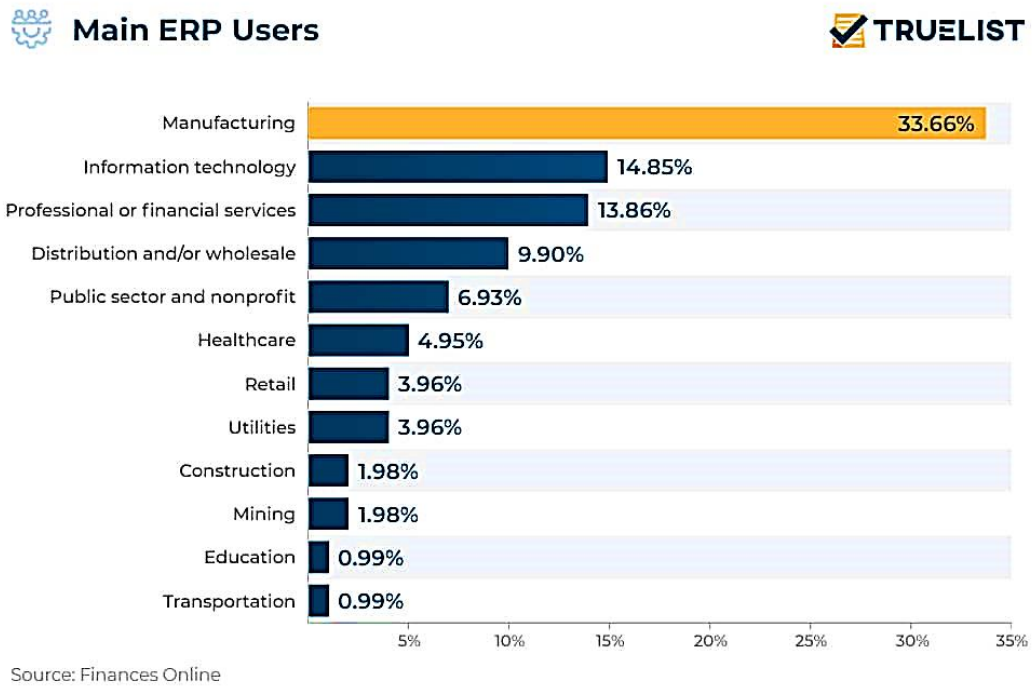
2.5 ERP Adoption Trends in the Manufacturing Sector

The manufacturing sector has witnessed a significant uptick in ERP adoption, driven by the need for integrated systems that streamline operations and enhance decision-making. Key statistics include:

- Market Share: Manufacturing accounts for 47% of ERP users, marking it as the largest segment utilizing ERP systems.
- Operational Efficiency: Implementation of ERP systems in manufacturing has led to a 13% reduction in operating costs and a 10% decrease in administrative expenses.
- Cost Savings: ERP adoption has resulted in a 22% reduction in inventory levels and a 23% decrease in operational costs, underscoring the financial benefits of ERP integration.

2.6 Visual Representation of ERP Adoption Growth

To illustrate the growth trajectory of ERP adoption in the manufacturing sector, consider the following chart:



The literature underscores the transformative impact of ERP systems on budgeting processes within the manufacturing industry. By facilitating integrated cost management, enhancing transparency, and enabling real-time variance analysis, ERP

systems have become indispensable tools for modern manufacturers aiming to optimize their budgeting practices and overall operational efficiency.

CHAPTER 3: COMPANY PROFILE

3.1 Company Profile

IFAD Autos PLC is a public limited company based in Dhaka. It specializes in assembling commercial vehicle and manufacturing bus bodies. The company was established in 1985 and currently operates with 300 employees at her assembly plant.

Here is the company's vision & mission and the journey.

Vision: To provide high quality, safe, state of the art mobility solutions that created value for customers & supports the economic growth and quality of people of the Bangladesh.

Mission: Our mission is to contribute to the journey of the smart Bangladesh by offering high quality mobility solutions for people and products at the right price. We will do that by driving somtinuous innovations, using state of the art technologies. Providing reliable after sales services while adding value for all stakeholders.

The company lacks an ERP system to streamline its production budget and analyze variance. This internship focuses on proposal for ERP-Enabled assembly cost budgeting and variance reporting.

CHAPTER 4: METHODOLOGY

4.1 Methodology

This research adopts a quantitative system development approach, specifically focusing on the design, implementation, and evaluation of an ERP-based production budgeting system for assembly companies. The goal is to enhance the accuracy, transparency, and efficiency of production cost budgeting and variance analysis.

4.2 Requirement Analysis

In the initial phase, key user roles and business processes were identified. These include:

- User Roles:
- Production Manager – enters standard production budgets and monitors cost variances.
- Inventory Officer – updates raw material usage and stock levels.
- HR Officer – inputs labor hours and wage rates.
- Finance Officer – approves budgets and reviews variance reports.
- Business Processes:
    - Estimate sales projections
    - Capacity utilization based on man power
    - Standard cost estimation
    - Actual cost recording
    - Budget vs. actual variance analysis

4.3 System Design

In this phase, detailed design diagrams were created, including:

- Workflow Diagram:
- Entity Relationship Diagram (ERD): Shows relationships between tables such as Materials, Production Orders, Labor Records, and Cost Budgets.
- User Interface Mockups: Sample interfaces were designed for users to input budget data, view dashboards, and generate reports.

4.4 ERP Module Setup

ERP modules were selected and configured to mirror the real-world production environment:

- Production Planning Module: Used to define Bill of Materials (BoM) for finished goods using actual data.
- Material Management Module: Tracks material purchase and consumption using actual stock entries.
- Labor Module: Records attendance and labor utilization for actual employees.
- Cost Control Module: Allows entry of both standard and actual costs for comparison.

4.5 System Design and Implementation

To enable effective budgeting and variance analysis, a dedicated ERP-based system needs to be designed to manage production planning, overhead estimation, labor capacity monitoring, and actual cost recording. This system integrates modules such as Sales Planning, Production Planning (PP), Human Resource Management (HRM), and Controlling (CO) to ensure data centralization and real-time analysis capabilities.

The implementation involves uploading budgeted and actual data into the ERP system, setting up automated calculations, and establishing standardized workflows across departments.

4.5.1 Budgeted Production Quantity

First, we will need actual production quantity and overhead of FY 23-24 in order to make budget for FY 24-25. Based on Market Analysis and previous production quantity, sales team has will generate sale projection for FY 24-25. And based on that projection, now we will calculate our budget for production, overhead, labor hour capacity through ERP module.

Need to upload following production plan which The Sales Team has given below projection for FY 24-25.

Table 1: Chassis & Cabin Sales Projection FY 24-25

Model Group	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	FY 24-25
Chas-1616	60	40	40	35	35	40	35	50	45	55	70	45	550
Chas-ECOMET	56	52	54	58	63	49	54	54	50	49	63	48	650
Chas-BUS	66	57	73	48	66	73	90	122	81	81	109	71	937
Chas-LCV	23	22	22	23	24	28	28	30	20	22	26	21	289
Total Chassis	205	171	189	164	188	190	207	256	196	207	268	185	2,426
Cabin	116	92	94	93	98	89	89	104	95	104	133	93	1,200

4.5.2 Budgeted Overhead Cost

Need to upload last year actual production quantity and overhead cost into ERP. Budgeted overhead cost will be revise based on below factor

a. Increase/ decrease production quantity and

b. Capacity Utilization.

Table 2: Assembly Production Quantity of FY 23-24

Assembly	Jul'23	Aug'23	Sep'23	Oct'23	Nov'23	Dec'23	Jan'24	Feb'24	Mar'24	Apr'24	May'24	Jun'24	FY 23-24 Total
16 Ton	62	6	8	12	21	35	24	35	73	67	24	64	431
Cabin Total	84	84	77	74	74	74	82	82	82	82	82	82	959
Chas-BUS	48	24	53	33	48	8	64	92	112	73	91	27	673

Table 3: Chassis Assembly Overhead of FY 23-24

Fixed		Variable			Nature
Demand Charge	Salary	Total	Electricity	Direct Labour	Expense Head
87,000	844,065	2,067,022	97,536	1,969,486	Jul-23
87,000	1,378,640	2,036,416	66,930	1,969,486	Aug-23
87,000	1,378,640	2,052,619	83,133	1,969,486	Sep-23
87,000	1,378,640	2,030,115	60,629	1,969,486	Oct-23
87,000	1,378,640	2,051,719	82,233	1,969,486	Nov-23
87,000	1,378,640	2,053,519	84,033	1,969,486	Dec-23
87,000	1,378,640	2,068,822	99,336	1,969,486	Jan-24
87,000	1,378,640	2,112,931	143,445	1,969,486	Feb-24
87,000	1,378,640	2,058,920	89,434	1,969,486	Mar-24
87,000	1,378,640	2,068,822	99,336	1,969,486	Apr-24
87,000	1,378,640	2,123,733	154,247	1,969,486	May-24
87,000	1,378,640	2,049,018	79,532	1,969,486	Jun-24
1,044,000	16,009,107	24,773,654	1,139,822	23,633,832	FY 2023-24

Total Producti	Chas-LCV	Chas-ECOME
142	-	32
188	115	43
133	60	12
152	73	34
84	7	8
82	-	39
151	12	51
223	72	24
240	-	55
164	-	24
268	48	105
175	24	60
2,002	411	487

Table 4: Cabin Assembly Overhead of FY 23-24

Fixed			Variable			Nature	Grand Total			
Others	Demand Charge	Salary	Total	Electricity	Direct Labour	Expense Head		Total	Depreciation	Others
178,084	217,500	191,909.26	1,125,533	677,745	447,788	Jul-23	7,175,289	5,108,267	1,750,000	2,427,201
168,494	217,500	313,452	940,310	492,522	447,788	Aug-23	6,621,151	4,584,735	1,750,000	1,369,095
169,213	217,500	313,452	955,746	507,957	447,788	Sep-23	6,784,119	4,731,500	1,750,000	1,515,860
168,854	217,500	313,452	948,028	500,240	447,788	Oct-23	6,604,018	4,573,904	1,750,000	1,358,264
170,652	217,500	313,452	986,616	538,828	447,788	Nov-23	6,662,757	4,611,038	1,750,000	1,395,398
167,415	217,500	313,452	917,157	469,369	447,788	Dec-23	6,667,652	4,614,133	1,750,000	1,398,493
167,415	217,500	313,452	917,157	469,369	447,788	Jan-24	6,715,009	4,646,187	1,750,000	1,430,546
172,809	217,500	313,452	1,032,922	585,134	447,788	Feb-24	6,829,183	4,716,253	1,750,000	1,500,613
169,573	217,500	313,452	963,463	515,675	447,788	Mar-24	6,801,251	4,742,331	1,750,000	1,526,691
172,809	217,500	313,452	1,032,922	585,134	447,788	Apr-24	6,709,259	4,640,437	1,750,000	1,424,796
183,237	217,500	313,452	1,256,733	808,945	447,788	May-24	6,858,553	4,734,820	1,750,000	1,519,180
168,854	217,500	313,452	948,028	500,240	447,788	Jun-24	6,655,415	4,606,397	1,750,000	1,390,756
2,057,411	2,610,000	3,639,879	12,024,615	6,651,156	5,373,459	FY 2023-24	81,083,655	56,310,001	21,000,000	18,256,894

	Depreciation	270,833	270,833	270,833	270,833	270,833	270,833	270,833	270,833	270,833	270,833	270,833	270,833	3,250,000
	Total	1,983,860	1,789,047	1,805,202	1,797,124	1,837,510	1,764,815	1,764,815	1,885,974	1,813,279	1,885,974	2,120,213	1,797,124	22,244,938
Grand Total		3,109,394	2,729,357	2,760,947	2,745,152	2,824,126	2,681,973	2,681,973	2,918,895	2,776,742	2,918,895	3,376,946	2,745,152	34,269,553

As we can see the Chassis sales requirement has increased over all 21% and cabin has increased 25%. Now we need to adjust our overhead. But before increasing overhead we need to first calculate our plant production capacity. Then based on capacity if it's over 100%, overhead needs to be adjusted.

4.5.3 Production Capacity Based on Labour Hour

To calculate capacity, we need to determine required labor hour per model. After multiplying labour hour per unit with budgeted quantity we will have required labour hour. Need to calculate separately the assembly time of each unit model wise and upload it to ERP. When preparing budget existing labour hour capacity is calculated by actual labour at that time.

For example:

Chas-1616 labour hour per unit 73 hour

Budgeted Monthly Required Labour Hour = (Per unit Labour Hour*Budgeted monthly Quantity) =(73*60)

=4,359 Hours

Table 5: Assembly Labour Hour Requirement-Model Wise

Model Group	Labour Hour Per Unit	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	FY 24-25
Chas-1616	73	4,359	2,906	2,906	2,543	2,543	2,906	2,543	3,633	3,270	3,996	5,086	3,270	39,961
Chas-ECOMET	73	4,069	3,778	3,923	4,214	4,577	3,560	3,923	3,923	3,633	3,560	4,577	3,488	47,227
Chas-BUS	58	3,836	3,313	4,243	2,790	3,836	4,243	5,231	7,091	4,708	4,708	6,336	4,127	54,463
Chas-LCV	48	1,114	1,066	1,066	1,114	1,163	1,356	1,356	1,453	969	1,066	1,259	1,017	13,998
Labour Hour Requirement		13,378	11,063	12,138	10,661	12,119	12,066	13,054	16,101	12,579	13,330	17,258	11,901	155,649
Existing Labour Hour		13,104	13,104	13,104	13,104	13,104	13,104	13,104	13,104	13,104	13,104	13,104	13,104	**157,248**
Labour Hour Exceed/ Shortage		(274)	2,041	966	2,443	985	1,038	50	(2,997)	525	(226)	(4,154)	1,203	1,599

Table 6: Cabin Labour Hour Requirement-Model Wise

Labour Hour Exceed/ Shortage	Existing Labour Hour	Cabin Requirement
		31
1,604	5,200	3,596
2,348	5,200	2,852
2,286	5,200	2,914
2,317	5,200	2,883
2,162	5,200	3,038
2,441	5,200	2,759
2,441	5,200	2,759
1,976	5,200	3,224
2,255	5,200	2,945
1,976	5,200	3,224
1,077	5,200	4,123
2,317	5,200	2,883
25,200	62,400	37,200

Existing Monthly Labour Hour= Total Employee number* Daily Work Hour* Monthly Avg. Working Day

=63*8*26 =13,104 Hours

Total Daily Work Hour= Employee ID (In-Out Time based on Fingerprint attendance uploaded on ERP)

As we can see we are using ((155,649/ 157,248) *100) =99% Labour Hour Capacity based on June-2024 Manpower. So, no need to hire new employee or raise salary overhead. We will only raise 21% Variable cost for assembly unit and 25% variable cost for Cabin Unit This year budget from last year.

Table 7: Chassis Production Budgeted Overhead FY 24-25

As per calculation here is the 21% increased overhead budget for FY 24-25.

Nature	Expense Head	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	FY 24-25
Variable	Direct Labour	2,383,078	2,383,078	2,383,078	2,383,078	2,383,078	2,383,078	2,383,078	2,383,078	2,383,078	2,383,078	2,383,078	2,383,078	28,596,936
	Electricity	118,018	80,985	100,591	73,361	99,502	101,680	120,197	173,568	108,215	120,197	186,638	96,234	1,379,185
	Total	2,501,096	2,464,063	2,483,669	2,456,439	2,482,580	2,484,758	2,503,275	2,556,646	2,491,293	2,503,275	2,569,716	2,479,312	29,976,122
Fixed	Salary	844,065	1,378,640	1,378,640	1,378,640	1,378,640	1,378,640	1,378,640	1,378,640	1,378,640	1,378,640	1,378,640	1,378,640	16,009,107
	Demand Charge	87,000	87,000	87,000	87,000	87,000	87,000	87,000	87,000	87,000	87,000	87,000	87,000	1,044,000
	Others	2,427,201	1,369,095	1,515,860	1,358,264	1,395,398	1,398,493	1,430,546	1,500,613	1,526,691	1,424,796	1,519,180	1,390,756	18,256,894

													Total	Depreciation
Grand Total														
7,609,363													5,108,267	1,750,000
7,048,798													4,584,735	1,750,000
7,215,169													4,731,500	1,750,000
7,030,343													4,573,904	1,750,000
7,093,618													4,611,038	1,750,000
7,098,891													4,614,133	1,750,000
7,149,461													4,646,187	1,750,000
7,272,899													4,716,253	1,750,000
7,233,625													4,742,331	1,750,000
7,143,711													4,640,437	1,750,000
7,304,536													4,734,820	1,750,000
7,085,709													4,606,397	1,750,000
86,286,123													56,310,001	21,000,000

Table 8: Cabin Assembly Budgeted Overhead FY 24-25

As per calculation here is the 25% increased overhead budget for FY 24-25.

Fixed		Variable			Nature
Demand Charge	Salary	Total	Electricity	Direct Labour	Expense Head
217,500	191,909.26	1,406,917	847,181	559,735	Jul-24
217,500	313,452	1,175,388	615,652	559,735	Aug-24
217,500	313,452	1,194,682	634,947	559,735	Sep-24
217,500	313,452	1,185,035	625,299	559,735	Oct-24
217,500	313,452	1,233,270	673,535	559,735	Nov-24
217,500	313,452	1,146,447	586,711	559,735	Dec-24
217,500	313,452	1,146,447	586,711	559,735	Jan-25
217,500	313,452	1,291,152	731,417	559,735	Feb-25
217,500	313,452	1,204,329	644,594	559,735	Mar-25
217,500	313,452	1,291,152	731,417	559,735	Apr-25
217,500	313,452	1,570,916	1,011,181	559,735	May-25
217,500	313,452	1,185,035	625,299	559,735	Jun-25
2,610,000	3,639,879	15,030,769	8,313,945	6,716,824	FY 24-25

	Others	**178,084**	**168,494**	**169,213**	**168,854**	**170,652**	**167,415**	**167,415**	**172,809**	**169,573**	**172,809**	**183,237**	**168,854**	**2,057,411**
	Depreciation	**270,833**	**270,833**	**270,833**	**270,833**	**270,833**	**270,833**	**270,833**	**270,833**	**270,833**	**270,833**	**270,833**	**270,833**	**3,250,000**
	Total	**1,983,860**	**1,789,047**	**1,805,202**	**1,797,124**	**1,837,510**	**1,764,815**	**1,764,815**	**1,885,974**	**1,813,279**	**1,885,974**	**2,120,213**	**1,797,124**	**22,244,938**

4.5.4 Recording Actual Production, Overhead & Labour Hour

The accurate recording of actual production output, overhead costs, and labour hours is a foundational requirement for precise cost budgeting and variance analysis at IFAD Autos PLC. In the proposed ERP-based system, multiple departments would be responsible for inputting their specific data, following a coordinated workflow to ensure real-time information is available for cost analysis.

Production Department: Responsible for recording the actual quantity of finished and semi-finished goods produced. This data would be entered into the ERP system immediately after each shift or production batch completion through production order forms.

Human Resources (HR) Department: Responsible for managing and recording employee attendance and labour hour allocation. The ERP system would integrate attendance machines (biometric or RFID) with job allocation modules, automatically capturing labour hours against specific production orders.

Accounts and Finance Department: Responsible for recording actual overhead costs, such as utility expenses (electricity, water, gas), indirect labour costs, maintenance costs, depreciation, and other factory overheads. These costs would be entered into designated cost centers within the ERP system monthly or as they occur.

Table 9: Chassis Assembly Actual Production FY 24-25 YTD

The actual chassis production quantity of nine months needs to be uploaded on ERP. Every model should have a unique part number and a BoM. Production team needs to upload production quantity model wise and CKD material will be consumed based on individual BoM. Here is the actual production quantity.

Part No	Segment	Part Description	Jul'24	Aug'24	Sep'24	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25	Total
123	16 Ton	TUSKER SUPER-1616IL/1	12	-	20	20	30	30	12	7	-	131
124	16 Ton	TUSKER SUPER-1616IL/2	80	-	36	44	50	30	40	20	40	340
573	Tusker Junior	ECOMET-1214-XL (WB-5550 MM S/C)	1	-	11	12	12	24	24	-	35	119
133	Tusker Junior	ECOMET-1214-XL (WB-4750 MM S/C) TRUCK CHASSIS	19	56	20	48	36	36	60	36	24	335
129	Tusker Junior	ECOMET-1214-XL	-	1	33	24	24	-	-	-	-	82
126	Tusker Junior	ECOMET-1214 (WB-4200 MM) TRUCK	-	-	3	-	-	-	-	-	-	3

Total Production Quantity:	537	531	529-S	528	529	524	138
	Chas-BUS	Chas-BUS	Chas-LCV	Chas-LCV	Chas-LCV	Tusker Junior	Tusker Junior
	B-1818 (EAGLE-180) BUS	B-1616 BUS CHASSIS (52 SEATS)	DOST PLUS PICKUP	DOST PLUS PICKU	DOST PLUS CHASSI	ECOMET-1012 (WB-3970 MM) TRUCK	ECOMET-1212 (WB-4200 MM) TRUCK
185	24	7	24	-		6	12
117	-	24	24	-	-	12	-
175	-	24	24	-		-	-
223	-	48	-	24		3	-
229	-	48	-	-	-	9	-
234	12	67	-	-	11	-	-
220	8	28	-	-	36	-	12
187	15	72	25	-	-	-	12
214	31	48	-	-	-	-	12
1,784	90	366	97	24	47	30	48

Table 10: Cabin Assembly Actual Production FY 24-25 YTD

The actual cabin production quantity of nine months needs to be uploaded on ERP. Every model should have a unique part number and a BoM. Production team needs to upload production quantity model wise. Here is the actual production quantity.

Part No	Segment	Jul'24	Aug'24	Sep'24	Oct'24	Nov'24	Dec'24	Jan'25	Feb'25	Mar'25	Total
123-3	16 Ton	66	14	50	71	111	63	51	43	29	498
124-3	Tusker Junior	35	63	25	68	24	75	69	36	65	460
116-3	Tusker Junior		-		24	36		-		-	60
133-3	Tusker Junior	3	1		-	-		-	12	-	16
129-3	Tusker Junior	17	-	27	-	-		12	12	22	90
126-3	Tusker Junior	5	19		-	-		-		-	24
		126	97	102	163	171	138	132	103	116	1,148

Table 11: Chassis Actual Overhead FY 24-25 YTD

As same as production quantity, accounts & finance team will upload actual overhead cost center wise. Common cost will be allocated based on appropriate basis. Here is the chassis assembly cost center wise incurred actual overhead for 3 quarters of FY 24-25.

Nature	Expense Head	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	FY 24-25
Variable	Direct Labour	2,167,068	2,066,397	2,133,001	2,047,708	2,134,997	2,143,064	2,156,190	2,068,164	2,269,064	-	-	-	19,185,652

Grand Total	Fixed							
	Total	Depreciation	Others	Demand Charge	Salary	Total	Electricity
6,602,864	4,172,797	2,596,164	767,277	87,000	722,356	2,430,068	263,000
6,466,702	4,097,628	2,602,992	718,837	87,000	688,799	2,369,074	302,677
6,501,767	4,105,766	2,602,992	704,774	87,000	711,000	2,396,001	263,000
6,330,894	4,244,034	2,603,011	871,454	87,000	682,569	2,086,860	39,152
6,592,670	4,410,088	2,604,110	1,007,313	87,000	711,666	2,182,582	47,585
6,554,422	4,369,514	2,604,272	963,887	87,000	714,355	2,184,908	41,844
6,541,201	4,356,073	2,604,272	946,071	87,000	718,730	2,185,128	28,938
6,813,824	4,695,751	2,604,272	1,315,091	87,000	689,388	2,118,073	49,909
6,962,403	4,669,457	2,604,272	1,221,831	87,000	756,355	2,292,945	23,881
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
59,366,747	39,121,108	23,426,357	8,516,534	783,000	6,395,217	20,245,638	1,059,986

Table 12: Cabin Actual Overhead FY 24-25 YTD

As same as production quantity, accounts & finance team will upload actual overhead cost center wise. Common cost will be allocated based on appropriate basis. Here is the chassis assembly cost center wise incurred actual overhead for 3 quarters of FY 24-25.

Nature	Variable			Fixed			
Expense Head	Direct Labour	Electricity	Total	Salary	Demand Charge	Others	Depreciation	Total
Jul-24	468,441	156,500	624,941	156,147	43,500	138,221	907,862	1,245,730
Aug-24	440,644	179,173	619,817	146,881	43,500	141,291	907,862	1,239,534
Sep-24	468,006	156,500	624,506	156,002	43,500	114,633	907,862	1,221,997
Oct-24	489,925	342,947	832,872	163,308	217,500	124,757	907,862	1,413,427
Nov-24	522,502	380,413	902,915	174,167	217,500	155,471	907,862	1,455,000
Dec-24	470,744	354,907	825,651	156,915	217,500	388,317	907,862	1,670,594
Jan-25	537,912	297,569	835,481	179,304	217,500	133,337	907,862	1,438,003
Feb-25	520,856	379,029	899,885	173,619	217,500	190,355	907,862	1,489,336
Mar-25	537,794	275,103	812,897	179,265	217,500	178,940	907,862	1,483,567
Apr-25	-	-	-	-	-	-	-	-
May-25	-	-	-	-	-	-	-	-
Jun-25	-	-	-	-	-	-	-	-
FY 24-25	4,456,824	2,522,141	6,978,964	1,485,608	1,435,500	1,565,321	8,170,758	12,657,187

Grand Total	**1,870,672**	**1,859,351**	**1,846,503**	**2,246,299**	**2,357,915**	**2,496,244**	**2,273,484**	**2,389,221**	**2,296,464**	**-**	**-**	**-**	**19,636,152**

CHAPTER 5: RESULT AND DISCUSSION

5.1 Result and Discussion

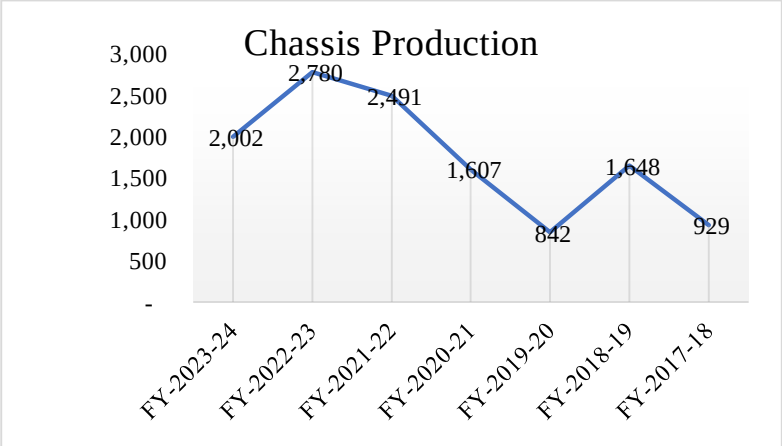
The ERP system provides dynamic, real-time reports and exportable dashboards that support decision-making and performance monitoring. These reports focus on comparing planned vs actual performance, analyzing variances, and providing insights by cost centers and resources.

5.2 Total Productivity Graph

Upon uploading All the production data ERP will show the curve of increase or decrease in productivity in a long journey.

Table 13: Chassis Assembly Productivity Life

(I) Chassis Assembly Line	Unit	Total (7 years & 9 months)	FY-2024-25 (Jul'24-Mar'25)	FY-2023-24	FY-2022-23	FY-2021-22	FY-2020-21	FY-2019-20	FY-2018-19	FY-2017-18
		14,083	1,784	2,002	2,780	2,491	1,607	842	1,648	929
	Growth/(De-Gro). %		-11%	-28%	12%	55%	91%	-49%	77%	
ABP for FY 24-25	2,426									
Achievement on ABP	74%									

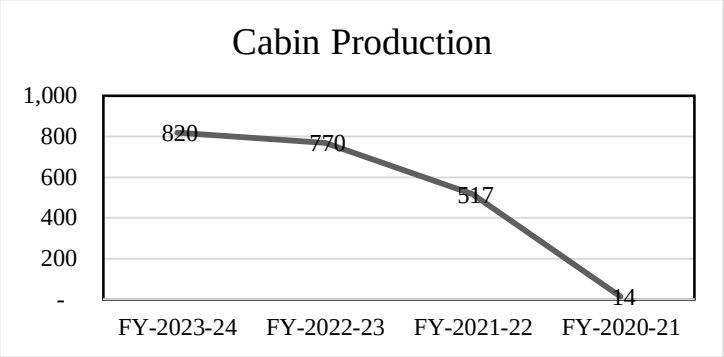


As we can see here, over the span of 7 years and 9 months, the Chassis Assembly Line has produced a total of 14,083 units. In the current fiscal year 2024–25 (up to March 2025), 1,784 units were produced, achieving 74% of the Annual Business Plan (ABP) target of 2,426 units.

Table 14: Cabin Assembly Productivity Life

(I) Cabin Assembly Line	Unit	Total (4 years & 9 months)	FY-2024-25 (Jul'24-Mar'25)	FY-2023-24	FY-2022-23	FY-2021-22	FY-2020-21
		3,274	1,153	820	770	517	14
	Growth/(De-Gro). %		41%	6%	49%	3593%	

ABP for FY 24-25	1,200
Achievement on ABP	96%



We can see, the Cabin Assembly Line has produced a total of 3,274 units over the past 4 years and 9 months, showing strong year-over-year growth, particularly in recent periods. In FY 2024–25 (July 2024–March 2025), the line produced 1,153 units, achieving 96% of the Annual Business Plan (ABP) target of 1,200 units, indicating solid alignment with planned objectives.

5.2.1 Comparison Report

ERP will produce a dashboard report where Production, Overhead and capacity utilization will be compared from last year same period resulting Growth/ de-growth and achievement percentage from budgeted amount. This report needs to monthly and year to date report.

Table 15: Chassis Assembly Capacity Utilization Monthly Report

(I) Chassis Assembly Line		Monthly Report				
Capacity Utilization based on Units		**Mar-25**	**Mar-24**	**ABP Mar-25**	**Growth / (Degrowth)**	**Achievement on ABP**
Capacity of Production in Units (Avg Model Mix)		**200**	**200**	**200**	**-13%**	**109%**
Demand of Production from Sales department		**214**	**240**	**196**		
Actual Production in Units		**214**	**240**	**196**		
Production Capacity Utilization %		**107%**	**120%**	**98%**		
Capacity Utilization based on Man Hour	**Per unit Man Hours**	**Mar-25**	**Mar-24**	**ABP Mar-25**	**Growth / (De-growth)**	**Achievement on ABP**
16 Ton	**104**	**4,146**	**7,567**	**3,628**	**-28%**	**100%**
Tusker Junior	**104**	**7,360**	**5,701**	**5,597**		
Chas-BUS	**73**	**5,740**	**8,138**	**6,539**		
Chas-LCV	**58**	**1,395**	**-**	**1,628**		
Total Required production Time in hours		**18,641**	**21,406**	**17,392**		
Total Production Capacity in hours		**15,603**	**14,531**	**14,531**		
Production Capacity Utilization %		**119%**	**147%**	**120%**		

5.2.2 Monthly Report Summary (Table:15)

As we can see from the report, Actual Production: 214 units in March 2025, matching the sales department's demand and exceeding the ABP target of 196 units.

Production Capacity: 200 units (based on average model mix).

Utilization Rate: 107%, indicating efficient use of production capacity.

Comparison with March 2024: Production decreased by 13% (from 240 to 214 units), suggesting a slight drop in output.

ABP Achievement: 109%, showing strong performance against the monthly plan despite the year-on-year drop.

Capacity Utilization Based on Man-Hours: Total Required Production Time: 18,641 hours in March 2025, compared to 21,406 hours in March 2024, showing a 28% reduction—potentially due to model mix or improved efficiency.

Total Available Capacity: 15,603 hours, up from 14,531 last year.

Utilization Rate: 119% of available capacity, indicating overtime or extended operations to meet demand.

Key Notes: Both unit-based and man-hour-based utilization exceed 100%, reflecting high operational pressure and efficient output delivery. Despite a slight drop in production units compared to the previous year, the achievement of 109% vs ABP reflects solid planning and execution. Reduced total man-hours despite high production suggests either improved efficiency or a lighter model mix.

Table 16: Chassis Assembly Capacity Utilization Year to Date Report

(I) Chassis Assembly Line	**YTD Report 9 Months**				
Capacity Utilization based on Units	**Mar-25**	**Mar-24**	**ABP Mar-25**	**Growth / (Degrowth)**	**Achievement on ABP**
Capacity of Production in Units (Avg Model Mix)	**1,800**	**1,800**	**1,800**		
Demand of Production from Sales department	**1,784**	**1,395**	**1,766**	**22%**	**101%**
Actual Production in Units	**1,784**	**1,395**	**1,766**		
Production Capacity Utilization %	**99%**	**78%**	**98%**		

Capacity Utilization based on Man Hour	Per unit Man Hours	Mar-25	Mar-24	ABP Mar-25	Growth / (Degrowth)	Achievement on ABP
16 Ton	**104**	**48,822**	**28,609**	**39,389**	**40%**	**105%**
Tusker Junior	**104**	**63,956**	**30,890**	**50,792**		
Chas-BUS	**73**	**33,131**	**35,020**	**49,116**		
Chas-LCV	**58**	**13,950**	**19,704**	**12,788**		
Total Required production Time in hours		**159,859**	**114,223**	**152,084**		
Total Production Capacity in hours		**115,195**	**115,195**	**115,195**		
Production Capacity Utilization %		**139%**	**99%**	**132%**		

5.2.3 Year to Date Summary (Table:16)

Actual Production: 1,784 units over 9 months (Jul'24–Mar'25), perfectly matching the Sales department's demand and slightly exceeding the ABP target of 1,766 units.

Production Capacity: 1,800 units based on the average model mix.

Utilization Rate: 99%, showing efficient use of installed capacity.

Comparison with FY 2023–24 YTD: Production increased by 22% (from 1,395 to 1,784 units), reflecting improved performance and demand fulfillment.

ABP Achievement: 101%, indicating excellent alignment with business planning.

Capacity Utilization Based on Man-Hours: Total Required Production Time: 159,859 hours in FY 2024–25 YTD, compared to 114,223 hours in FY 2023–24 — a 40% increase, driven by higher output or a shift in product mix toward labor-intensive models.

Total Available Capacity: 115,195 hours (same as last year).

Utilization Rate: 139%, indicating sustained overtime and operational stretch to meet production requirements.

Key Notes: Both unit-based and man-hour-based utilization significantly exceed 100%, indicating strong demand and continuous production effort. The achievement of 101% against ABP reflects disciplined execution. However, the 139% man-hour utilization signals operational stress, which may require resource balancing or capacity enhancement. The sharp increase in labor hours despite only a 22% increase in unit output suggests a heavier model mix or lower production efficiency compared to the previous year.

Table 17: Cabin Assembly Capacity Utilization Monthly Report

(II) Cabin Manufacturing		Monthly Report				
Capacity Utilization based on Units		Mar-25	Mar-24	ABP Mar-25	Growth / (De-growth)	Achievement on ABP
Capacity of Production in Units (Average Model Mix)		130	75	130	-67%	122%
Demand of Production from Sales department		116	117	95		
Actual Production in Units		116	117	95		
Production Capacity Utilization %		89%	156%	73%		
Capacity Utilization based on Man Hour	Per unit Man Hours	Mar-25	Mar-24	ABP Mar-25	Growth / (De-growth)	Achievement on ABP
Total Required production Time in hours	43	5,541	3,197	5,541	25%	77%
Total Production Capacity in hours		5,552	4,263	4,263		
Production Capacity Utilization %		100%	75%	130%		

5.2.4 Monthly Report Summary (Table:17)

Actual Production: 116 units in March 2025, closely aligned with the Sales department's demand and exceeding the ABP target of 95 units.

Production Capacity: 130 units based on the average model mix.

Utilization Rate: 89%, indicating moderate use of available capacity.

Comparison with March 2024: Production slightly decreased by 1 unit (from 117 to 116), yet capacity utilization dropped significantly from 156% to 89%, suggesting a possible increase in installed capacity or more balanced operations.

ABP Achievement: 122%, indicating strong performance relative to the monthly plan.

Capacity Utilization Based on Man-Hours:

Total Required Production Time: 5,541 hours in March 2025, compared to 3,197 hours in March 2024, showing a 25% increase, likely due to more complex models or higher labor content per unit.

Total Available Capacity: 5,552 hours, up from 4,263 hours in the previous year.

Utilization Rate: 100%, reflecting full use of available workforce time.

ABP Achievement: 77%, indicating that while unit output targets were exceeded, labor hour targets were under-utilized, possibly due to conservative planning or operational efficiency.

Key Notes: Unit-based performance exceeded expectations with 122% achievement on ABP, despite a notable drop in capacity utilization compared to the previous year. Full utilization of available man-hours demonstrates efficient workforce deployment. The rise in total production hours, despite nearly stable output, suggests a shift to more labor-intensive models or reduced productivity. Overall, the Cabin Manufacturing line met output expectations while maintaining operational stability.

Table 18: Cabin Assembly Capacity Utilization Year to Date Report

(II) Cabin Manufacturing		YTD Report				
Capacity Utilization based on Units		**Mar-25**	**Mar-24**	**ABP Mar-25**	**Growth / (Degrowth)**	**Achievement on ABP**
Capacity of Production in Units (Average Model Mix)		**1,005**	**675**	**675**		
Demand of Production from Sales department		**1,129**	**625**	**870**	**22%**	**89%**
Actual Production in Units		**1,153**	**625**	**870**		
Production Capacity Utilization %		**115%**	**93%**	**129%**		
Capacity Utilization based on Man Hour	**Per unit Man Hours**	**Mar-25**	**Mar-24**	**ABP Mar-25**	**Growth / (Degrowth)**	**Achievement on ABP**
Total Required production Time in hours	**43**	**49,147**	**26,641**	**37,084**		
Total Production Capacity in hours		**41,342**	**41,342**	**41,342**	**54%**	**133%**
Production Capacity Utilization %		**119%**	**64%**	**90%**		

5.2.5 Year to Date Report Summary (Table:18)

Actual Production: 1,153 units over the first nine months of FY 2024–25, exceeding both the Sales department's demand of 1,129 units and the ABP target of 870 units.

Production Capacity: 1,005 units based on the average model mix.

Utilization Rate: 115%, indicating that the Cabin Manufacturing line operated significantly above its installed capacity to meet demand.

Comparison with FY 2023–24 YTD: Production increased from 625 to 1,153 units, a substantial improvement supported by a capacity increase from 675 to 1,005 units.

ABP Achievement: 129%, showing a strong and consistent over-performance against planned targets.

Capacity Utilization Based on Man-Hours:

Total Required Production Time: 49,147 hours in FY 2024–25 YTD, compared to 26,641 hours in the same period last year, reflecting a heavier or more labor-intensive model mix.

Total Available Capacity: 41,342 hours, unchanged from the previous year.

Utilization Rate: 119%, indicating full capacity usage and additional effort beyond normal working hours.

ABP Achievement: 90%, suggesting that despite the high output, the labor hour requirement remained within expected levels.

Key Notes: The Cabin Manufacturing line demonstrated outstanding year-to-date performance with 129% ABP achievement in unit output. Production grew significantly year-over-year, supported by increased capacity and efficient execution. Man-hour utilization exceeded capacity at 119%, reflecting high operational pressure. The results indicate strong demand fulfillment, robust planning, and effective management of labor and resources.

Let us go through one-by-one line that how ERP will calculate based on given data.

5.2.6 Capacity Utilization Based on Production Units

1. Capacity of Production in Units (Avg Model Mix) = Based on man power average Production capacity
2. Demand of Production from Sales department = Taken from FY 24-25 Budget
3. Actual Production in Units = Total Production qnty from actual FY 24-25
4. Production Capacity Utilization % = (Actual Production in Units/ Capacity of Production in Units) %
5. Growth / (De-growth)= Production Capacity Utilization % Mar’25- Production Capacity Utilization % Mar’24
6. Achievement on ABP= Production Capacity Utilization % Mar’25/ Production Capacity Utilization % ABP

5.2.7 Capacity Utilization Based on Man Hour

1. Total Required production Time in hours= Summation of (total production segment wise* Required Per Unit Man Hours)
2. Total Production Capacity in hours= Actual Total Labour Hour for March-2025 (Given actual data above)
3. Production Capacity Utilization %= Total Required production Time in hours/ Total Production Capacity in hours
4. Growth / (De-growth) = Production Capacity Utilization % Mar'25- Production Capacity Utilization % Mar'24
5. Achievement on ABP= Production Capacity Utilization % Mar'25/ Production Capacity Utilization % ABP

5.2.8 Factory Overhead Variance

From ERP dashboard we can analysis same sort of comparison just like capacity utilization. We can analyze overhead absorption increase/ decrease from previous year same period and achievement from our budget FY 24-25. This report will show both Monthly and year to date (For this report its total 9 months)

Table 19: Monthly Assembly Overhead Variance

Assembly	Mar-25	Mar-24	ABP Mar-25	Cost Increased /(Decreased)	Budget Variances
Salary & Wages	**0.30**	**0.29**	**0.28**	**3%**	**8%**
Electricity	**0.01**	**0.03**	**0.02**	**-67%**	**-37%**
Others	**0.12**	**0.14**	**0.15**	**-13%**	**-20%**
Depreciation	**0.18**	**0.18**	**0.18**	**0%**	**0%**
Total	**0.61**	**0.64**	**0.63**	**-5%**	**-3%**

Table 20: Year to Date Assembly Overhead Variance

Mar-25	Mar-24	ABP Mar-25	Cost Increased /(Decreased)	Budget Variances
1.69	**1.73**	**2.53**	**-2%**	**-33%**
0.15	**0.17**	**0.16**	**-12%**	**-7%**
0.50	**0.89**	**1.39**	**-43%**	**-64%**
1.58	**1.58**	**1.58**	**0%**	**0%**
3.92	**4.36**	**5.66**	**-10%**	**-31%**

5.2.8.1 Overhead Variance Analysis Summary (Table: 19 & 20)

Salary & Wages: Actual cost increased by 3% compared to March 2024 and exceeded ABP by 8%, indicating higher labor costs likely due to increased production or overtime.

Electricity: Cost dropped significantly by 67% compared to last year and came in 37% below ABP, possibly reflecting improved energy efficiency or reduced operational hours.

Others (miscellaneous overheads): Down 13% YoY and 20% under budget, suggesting tighter control or less auxiliary expenditure.

Depreciation: No change compared to both last year and ABP, indicating consistent fixed asset cost allocation.

Total Overhead: Decreased by 5% YoY and was 3% below ABP, showing overall cost containment at the monthly level despite slight increases in labor expenses.

Year-to-Date (YTD) Overview (Jul 2024 – Mar 2025):

Salary & Wages: Marginal decrease of 2% compared to last year and 33% under the ABP, highlighting effective labor cost management over the fiscal period.

Electricity: Down 12% YoY and 7% below ABP, again pointing to efficient energy usage.

Others: Significant reduction of 43% compared to last year and 64% below budget, reinforcing strong cost control on variable overheads.

Depreciation: Remained constant across all time frames, as expected for fixed cost components.

Total Overhead: Declined by 10% from the previous year and came in 31% under budget, indicating comprehensive overhead cost efficiency for the year.

Overall, the assembly overhead costs are well-managed both monthly and YTD. Despite slightly increased labor costs in March, the year-long trend shows improved budget discipline and efficiency. Electricity and miscellaneous costs show notable savings, contributing to positive variance against ABP. Stable depreciation ensures predictability in fixed overheads. Total YTD overhead savings of 31% against ABP reflect strong operational cost control.

Table 21: Monthly Cabin Overhead Variance

Cabin Manuf.	Mar-25	Mar-24	ABP Mar-25	Cost Increased /(Decreased)	Budget Variances
Salary & Wages	**0.07**	**0.06**	**0.06**	**17%**	**12%**
Electricity	**0.05**	**0.02**	**0.07**	**159%**	**-33%**
Others	**0.02**	**0.01**	**0.02**	**37%**	**6%**
Depreciation	**0.03**	**0.03**	**0.03**	**0%**	**0%**
Total	**0.17**	**0.12**	**0.18**	**38%**	**-8%**

Table 22: Year to Date Cabin Overhead Variance

Mar-25	Mar-24	ABP Mar-25	Cost Increased /(Decreased)	Budget Variances
0.38	**0.34**	**0.58**	**12%**	**-34%**
0.24	**0.14**	**0.67**	**70%**	**-65%**
0.11	**0.10**	**0.15**	**11%**	**-31%**
0.24	**0.24**	**0.24**	**0%**	**0%**
0.97	**0.82**	**1.64**	**18%**	**-41%**

5.2.8.2 Overhead Variance Analysis Summary (Table: 21 & 20)

Monthly Overview (March 2025):

Salary & Wages: The cost increased by 17% compared to March 2024 and was 12% higher than the ABP, indicating higher labor expenses, possibly due to increased production or additional labor requirements.

Electricity: The cost surged by 159% compared to last year but was 33% below the ABP, potentially due to seasonal factors, energy-saving measures, or lower operational hours than expected.

Others: Costs rose by 37% compared to March 2024 and were 6% higher than the ABP, reflecting some unplanned overheads or incidental costs.

Depreciation: There was no change compared to both last year and the ABP, signaling consistent depreciation costs.

Total Overhead: Total monthly overhead increased by 38% compared to last year but came in 8% below budget, reflecting higher expenses in some areas, but overall, the result was favorable versus the budget.

Year-to-Date (YTD) Overview (Jul 2024 – Mar 2025):

Salary & Wages: Increased by 12% year-over-year and came in 34% under the ABP, highlighting strong cost control over labor despite the increase.

Electricity: The YTD cost surged by 70% compared to the previous year but was 65% below the ABP, suggesting more efficient energy consumption than initially forecasted, despite a sharp increase in costs compared to last year.

Others: Increased by 11% year-over-year and were 31% below budget, showing reasonable cost control with some unplanned expenditures.

Depreciation: Stayed unchanged, indicating stable costs for fixed assets as expected.

Total Overhead: YTD overheads increased by 18% compared to last year and were 41% below budget, reflecting a strong performance in managing costs despite increases in some areas.

Monthly and YTD overhead costs reflect effective management despite some increases in specific categories. Salary and wages were higher than the ABP, which could indicate more workforce utilization. Energy efficiency and cost-saving efforts are visible in the reduced electricity variance despite a sharp increase year-over-year.

Overall, YTD performance shows savings against the budget, with 41% lower overheads than planned, demonstrating efficient cost control strategies.

Table 23: Variance of Factory Overhead Per Unit -Model Wises

Part No	Description	Factory Overhead Assembly			Factory Overhead Cabin			Total Conversion costs			Cost Increased /	Budget Variances
		Current Year	LYSP	ABP	Current Year	LYSP	ABP	Actual (Avg.)	LYSP	ABP		
123	**TUSKER SUPER-1616IL/1 TRUCK CHASSIS**	25,409	39,561	38,566	8,384	13,085	18,898	93,140	106,223	113,036	-12%	-18%
124	**TUSKER SUPER-1616IL/2 TRUCK CHASSIS**	25,409	39,561	38,566	8,384	13,085	18,898	93,140	106,223	113,036	-12%	-18%
523	**ECOMET-1012 (WB-3250 MM) TRUCK CHASSIS**	25,409	39,561	38,566	8,384	13,085	18,898	79,259	92,638	97,433	-14%	-19%
524	**ECOMET-1012 (WB-3970 MM) TRUCK CHASSIS**	25,409	39,561	38,566	8,384	13,085	18,898	79,259	92,638	97,433	-14%	-19%
125	**ECOMET-1212 (WB-3970 MM) TRUCK CHASSIS**	25,409	39,561	38,566	8,384	13,085	18,898	79,259	92,638	97,433	-14%	-19%
529	**DOST PLUS CHASSIS**	14,248	22,184	21,626				30,192	50,274	36,132	-40%	-16%
529-S	**DOST PLUS CHASSIS**	14,248	22,184	21,626				30,192	50,274	36,132	-40%	-16%
518	**DOST PICKUP 1 TON**	14,248	22,184	21,626				30,192	50,274	36,132	-40%	-16%
528	**DOST PLUS PICKUP**	14,248	22,184	21,626				30,192	50,274	36,132	-40%	-16%

574	**DOST LEO PICKUP**	14,248	22,184	21,626				30,192	50,274	36,132	-40%	-16%
539	**PARTNER-(2820 MM WB-1.5 TON) CHASSIS**	14,248	22,184	21,626				30,192	50,274	36,132	-40%	-16%
531	**B-1616 BUS CHASSIS (52 SEATS)**	17,810	27,730	27,032				78,056	83,984	82,421	-7%	-5%
548	**B-1818 (B-180 PRIME RTD & AS) / 11M Prime Bus Chassis**	17,810	27,730	27,032				80,422	86,350	84,732	-7%	-5%
537	**B-1818 (EAGLE-180) BUS CHASSIS 52 SEATS**	17,810	27,730	27,032				80,422	86,350	84,732	-7%	-5%
138	**ECOMET-1212 (WB-4200 MM) TRUCK CHASSIS**	25,409	39,561	38,566	8,384	13,085	18,898	109,068	122,447	127,242	-11%	-14%
126	**ECOMET-1214 (WB-4200 MM) TRUCK CHASSIS**	25,409	39,561	38,566	8,384	13,085	18,898	110,461	123,840	128,635	-11%	-14%
129	**ECOMET-1214-XL TRUCK CHASSIS**	25,409	39,561	38,566	8,384	13,085	18,898	110,461	123,840	128,635	-11%	-14%
133	**ECOMET-1214-XL (WB-4750 MM S/C) TRUCK CHASSIS**	25,409	39,561	38,566	8,384	13,085	18,898	110,461	123,840	128,635	-11%	-14%
573	**ECOMET-1214-XL (WB-5550 MM S/C)**	25,409	39,561	38,566	8,384	13,085	18,898	116,065	129,444	135,577	-10%	-14%

As we can see here,

1. Strong cost efficiency across all product lines.
2. Most parts show cost reductions compared to both last year and budget, with some dropping over 35–45%.

3. Budgeting appears conservative, or operations have significantly improved.
4. Highlighted ECOMET series (532, 533, etc.) are high-cost parts that also achieved notable savings—this likely contributed to favorable YTD financials.

5.3 Exportable Formats

Reports are available in multiple formats to support analysis and presentation:

Format	Description
PDF	Professional-grade report with charts and tabular summaries.
Excel	Raw data with formulas for extended analysis.
CSV	Lightweight data export for third-party systems.
HTML	Embedded reports viewable via browser/intranet.
Dashboard View	Interactive for internal use via web or mobile.

5.4 Summary

The ERP system's robust reporting and output functionality enables stakeholders to:

- Track variances with high accuracy.
- Analyze inefficiencies by department or cost type.
- Generate quick insights via dashboards.
- Export data in required formats for meetings or audits.

CHAPTER 6: RECOMMENDATION AND CONCLUSION

6.1 Recommendation

Manufacturing organizations are strongly encouraged to adopt ERP-based budgeting and performance evaluation systems to enhance the accuracy, efficiency, and responsiveness of their cost management processes. By integrating budgeting functions with core ERP modules—such as Production Planning, Materials Management, Human Capital Management, Finance, and Controlling—firms can achieve real-time cost tracking, automated variance analysis, and centralized decision-making. It is recommended that companies invest in staff training and change management initiatives to ensure successful system adoption. Furthermore, future developments should focus on incorporating predictive analytics and machine learning capabilities within ERP platforms to further optimize cost forecasting and strategic planning.

Future developments could include:

- AI-driven forecasting models
- Automated alerts for critical cost variances
- Predictive maintenance budgeting

These improvements would further optimize production operations and cost management.

6.2 Conclusion

This research demonstrates that ERP-based production cost budgeting enhances control, efficiency, and accuracy in assembly & manufacturing environments. By integrating budgeting, actual tracking, and variance analysis into a single system, businesses can make data-driven decisions and prevent cost overruns. The application of ERP also provides transparency and accountability at the unit level.

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