

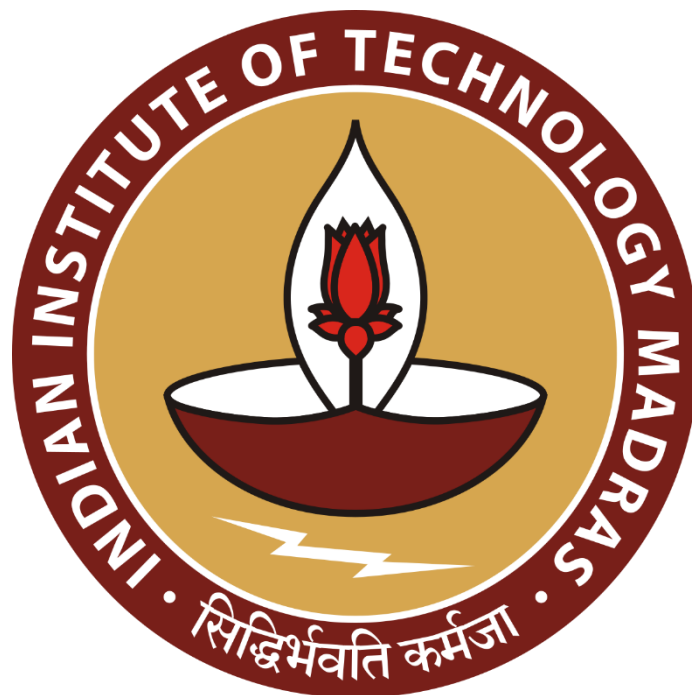
Determine Project Profitability for a Digital Marketing Agency

Final Report for the BDM capstone Project

Submitted by

Diya Gupta

22f2000902



IITM Online BS Degree Program,

Indian Institute of Technology, Madras, Chennai

Tamil Nadu, India, 600036

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1. Executive Summary

The report on ‘Determining project profitability for a digital marketing agency’ focused on profitability resource efficiency and scope hour accuracy. Key financial metrics including revenue total cost fixed cost cross profit and profit margins were evaluated to understand each projects profitability.

The project profitability index was calculated to measure efficiency in converting project costs into the venue. With a PPI of 1.27, eaten showed moderate profitability while muscle mind achieved a higher PPI of 2.06, indicating a superior cost to revenue conversion. Athens and muscle minds cross profit margins further confirms this as 18 retained 21% of its revenue as profit whereas muscle mind retained 51% showing that muscle mind whose both highly profitable and efficiently managed.

Resource efficiency was analysed by examining actual versus scope hours an individual resource utilization. The scope hours for Eaton word 246 as compared to 858 Scott hours of muscle mine indicating significant underscoring and potential inefficiencies. Is resource utilization rates highlighted that developers and interns worked a substantial number of hours while other roles were underutilized.

The most common problem that were recognised in both the projects was the fact that there is no documented change log that is initiated by the client. This results in extension of project deadline from the initial scoping that was done. Most of these changes are initiated due to lack of requirement clarity on both the client and on the agency end.

The report provides actionable insights for future projects emphasising efficient scoping enhanced utilization and targeted cost management to maximise profitability.

2. Detailed Explanation of analysis process

1. Team Interviews and Process Understanding

The initial step involved interviewing various team members to gain a comprehensive understanding of the agency's workflow. This included documenting each stage from client onboarding to project handover. The goal was to clarify roles, identify bottlenecks, and map out how tasks transition through different team members and phases. This insight was critical to interpreting project data accurately in the context of their operations.

2. Data Collection and Preparation

Once the process was understood, the next phase was gathering all relevant project data. This included:

- Task sheets for the *Etan* and *Musclemind* projects
- Hourly rates of team members (developers, interns, coordinators, and designers)
- Project revenue figures
- Total project costs (both variable and fixed)

However, the data initially received contained missing values in critical fields like start dates, time estimates, and task statuses. To ensure accuracy in subsequent analysis, these gaps were addressed collaboratively with the team. This process involved cleaning and validating the dataset, which was essential for reliable calculations and comparisons.

3. Calculation of Total and Scoped Hours

After data cleaning, the analysis began by calculating the total hours invested by the team and the scoped hours, which served as a benchmark. These were derived as follows:

- **Total Hours Invested:** This was calculated by summing the hours logged for each task in the project task sheet. This figure represented the actual effort spent by the team on the project.

- **Scoped Hours:** Scoped hours were calculated based on project revenue, using the formula:

$$\text{Scoped hours} = \frac{\text{Project Revenue}}{\text{Average Hourly Rate}}$$

where the Average Hourly Rate was a weighted rate based on the specific roles assigned to the project. It was calculated as:

$$\sum (\text{Hourly compensation of the employee}) * (\text{No of employees})$$

This gave a benchmark for hours expected to be spent, allowing a comparison of scoped vs. actual hours. This comparison provided insights into project planning accuracy and resource allocation effectiveness.

4. Resource Efficiency Analysis

With both actual and scoped hours calculated, a resource efficiency study was conducted. This involved analysing the discrepancy between scoped and actual hours to identify potential inefficiencies. Utilization rates for each role (e.g., developer, coordinator) were also examined to see if resources were being over- or under-utilized. This step was vital for understanding how effectively the project was managed from a resource allocation perspective.

5. Financial Analysis and Profit Margin Calculation

The financial aspect of the analysis involved determining key profitability metrics. The following calculations were made:

- **Total Cost:** Calculated as the sum of resource costs and fixed costs:

$$\text{Total cost} = \text{Resource Cost} + \text{Fixed Cost}$$

- **Profit:** The profit for each project was calculated as:

$$\text{Profits} = \text{Revenue} - \text{Total cost}$$

- **Profit Margin:** This was used to express profit as a percentage of revenue, giving a sense of the project's profitability relative to its revenue:

$$Profit\ Margin = \frac{Profit}{Revenue} * 100$$

6. Project Profitability Index (PPI)

The Project Profitability Index (PPI) was calculated as a final measure of project viability, using:

$$PPI = \frac{Project\ Revenue}{Total\ Cost}$$

The PPI helped quantify the financial value of each project by comparing its revenue to its costs. A PPI greater than 1 indicates a profitable project, while a PPI below 1 suggests the project may not cover its costs.

7. Task Sheet and Pivot Table Analysis

For a deeper understanding of resource productivity and task allocation, Excel's pivot tables were used to analyse the task sheet data. This allowed insights into task distribution, resource utilization, and time efficiency across various project stages. Pivot tables enabled flexible filtering and aggregation, helping identify trends in task completion and resource engagement.

Metadata and Tools Used

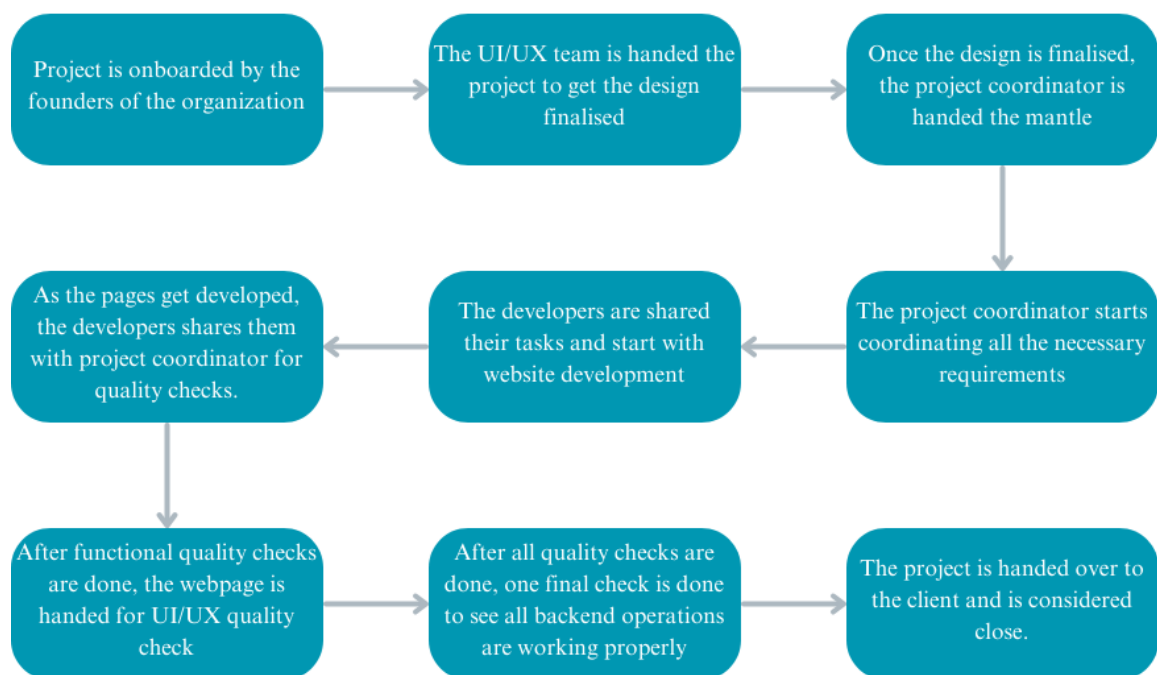
Not all data fields provided were necessary for the analysis. Key fields used included:

- Start Date
- End Date
- Resource/Task Owner
- Hours Taken
- Estimated Hours
- Overdue Status
- Task Type (Maintenance/Development)

Most calculations were performed in Excel, with pivot tables assisting in resource utilization analysis. Experimentation was done with Python for data visualization, though the primary analysis remained Excel-based.

3. Findings

The general process that starts from finalising the UI/UX design for the website and then moving forward with the development of the said design. At first the designers themselves manage getting the approval of the design and then the mantle is given to the project coordinators. According to the design, the project coordinators share all the requirements that they would need for the website launch. This can include banners for the website, content, product information and many more. Simultaneously, the developers start working on the website and as the webpages get completed, they are handed over to the project coordinator for a functional quality check and then forwarded to designers to make sure that the website matches the UI/UX design which was finalised. When all the quality checks are completed, the website goes under one final scrutiny and then gets handed over to the client.



Initially, the project teams worked without a formal system to manage daily tasks, track project progress, or record the time spent on each task. This lack of structured oversight made it difficult to monitor project milestones effectively and led to resource inefficiencies. Tasks often went unrecorded, making it challenging to identify project bottlenecks, prioritize high-impact work, or ensure that client needs

were consistently met. Consequently, the organization faced financial losses due to missed deadlines, inefficient resource use, and reduced client satisfaction.

The absence of a structured way to track daily tasks also impacted employee development. With no reliable method to measure task completion time or evaluate performance, employees lacked feedback on their work efficiency, limiting opportunities for growth and productivity improvements. Without insight into their work patterns or areas for improvement, employees were unable to address skill gaps, which hindered their professional development and career progression.

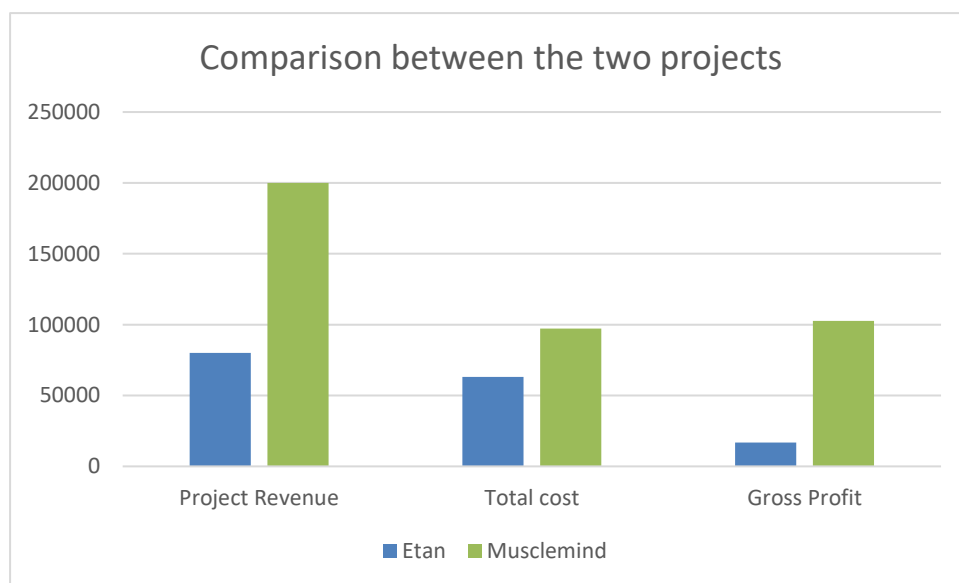
To address these issues, the organization introduced a task sheet system. This system provided both developers and managers with a clear view of all assigned tasks, deadlines, and project requirements, significantly reducing the risk of oversight. Each task entry was crafted with essential information accessible to developers and project coordinators, allowing for easier task prioritization and allocation based on team workload. For managers, this system streamlined project oversight, offering a structured and efficient means to track task progress and resource distribution.

The task sheet also tracked the time developers spent on individual tasks, providing team managers with valuable insights into task durations and overall project timelines. This enabled real-time monitoring of task completion and allowed for better identification of time efficiencies or inefficiencies. Consequently, managers gained a solid foundation for accurate performance evaluations, which allowed them to reward efficient developers and support those who required guidance, ultimately enhancing team productivity and professional growth.

In addition to these operational benefits, the task sheet improved client billing accuracy. By tracking hours per task, the organization could now charge clients based on actual work completed rather than relying on approximate or fixed costs. This shift not only increased client satisfaction through transparency but also improved revenue margins. With a more predictable and reliable revenue stream, the organization was able to confidently take on more clients, expand its workforce, and scale the business more effectively. The task sheet system thus became integral to aligning individual and organizational goals, enabling a more productive, growth-oriented environment that supports both employee development and financial stability.

Comparing Musclemind and Etan, project revenue, and profit margins.

	Etan	Musclemind
Project Revenue	80000	200000
Cost	48575	74855
Fixed Cost	14572.5	22456.5
Total Cost	63147.5	97311.5
Gross Profit	16853	102688.5
Profit Margin	0.21	0.51



The project revenue for Musclemind is almost twice as that of Etan's which makes it more cost absorbent. Etan's cost to revenue ratio comes out to be 0.78, i.e., almost 78% of the revenue has gone to cover the operational costs for the project. This gives about 21% of the profit margin of the project.

Resource Efficiency Study:

This study was conducted to check how efficiently did the resources allotted to the project worked, mostly developers and coordinators.

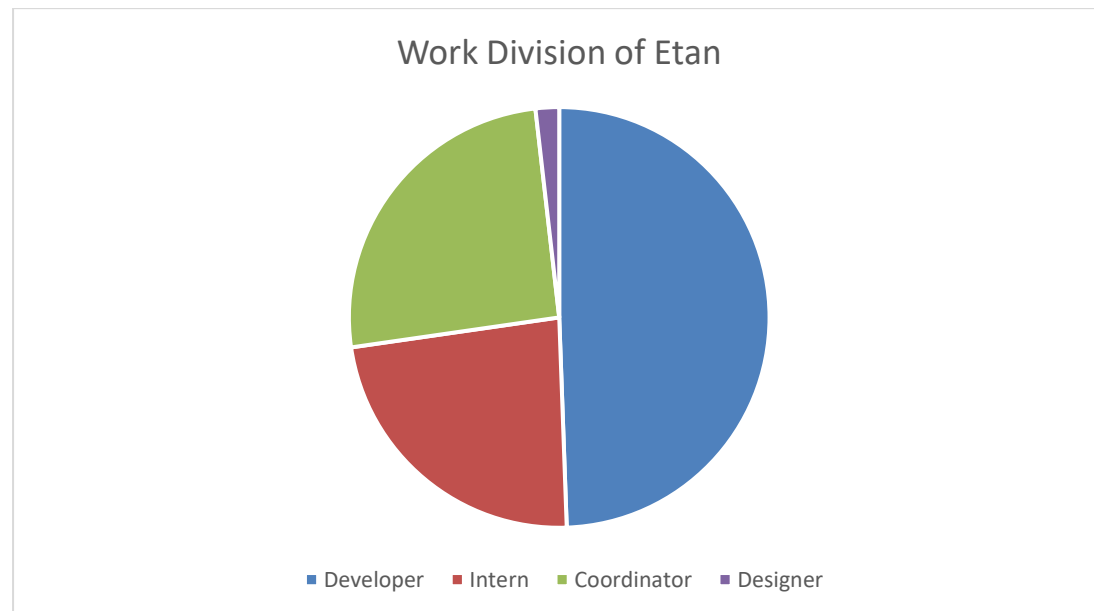
Etan's Resource Efficiency Study:

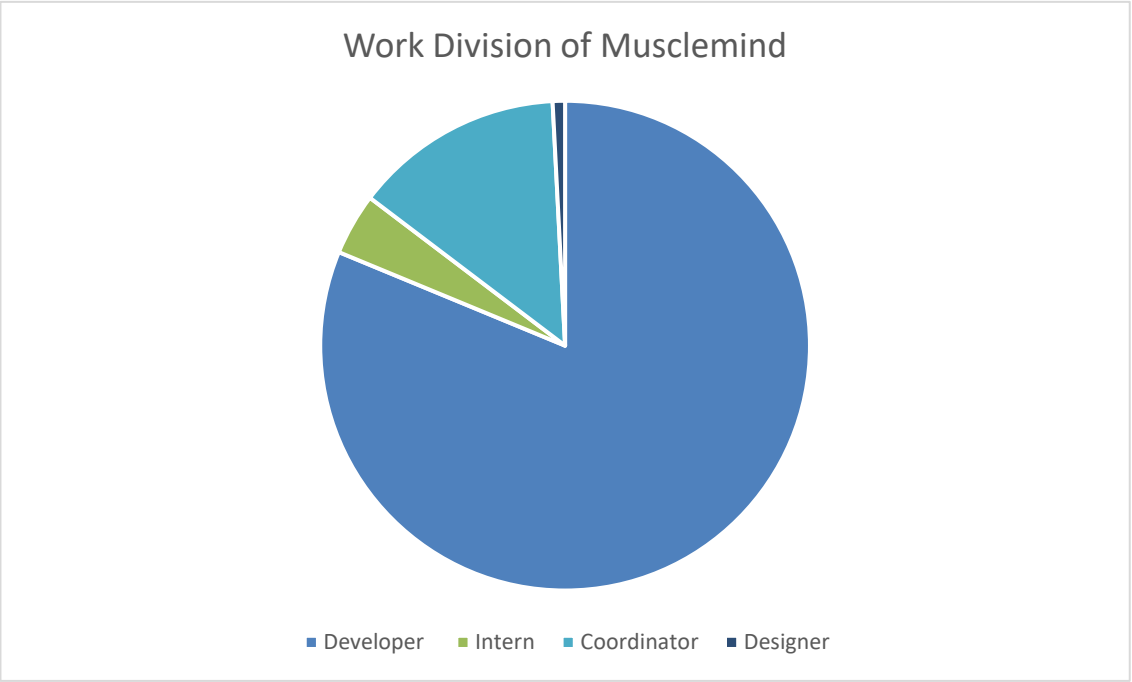
Resource	Hourly compensation. (Rs/hr)	No of hours	No of resources	Employee Utilization Rate
Developer	300	95.5	1	24.86
Intern	150	45	2	11.71
Coordinator	250	49.2	1	12.81
Designer	250	3.5	1	0.91

Musclemind's Resource Efficiency Study:

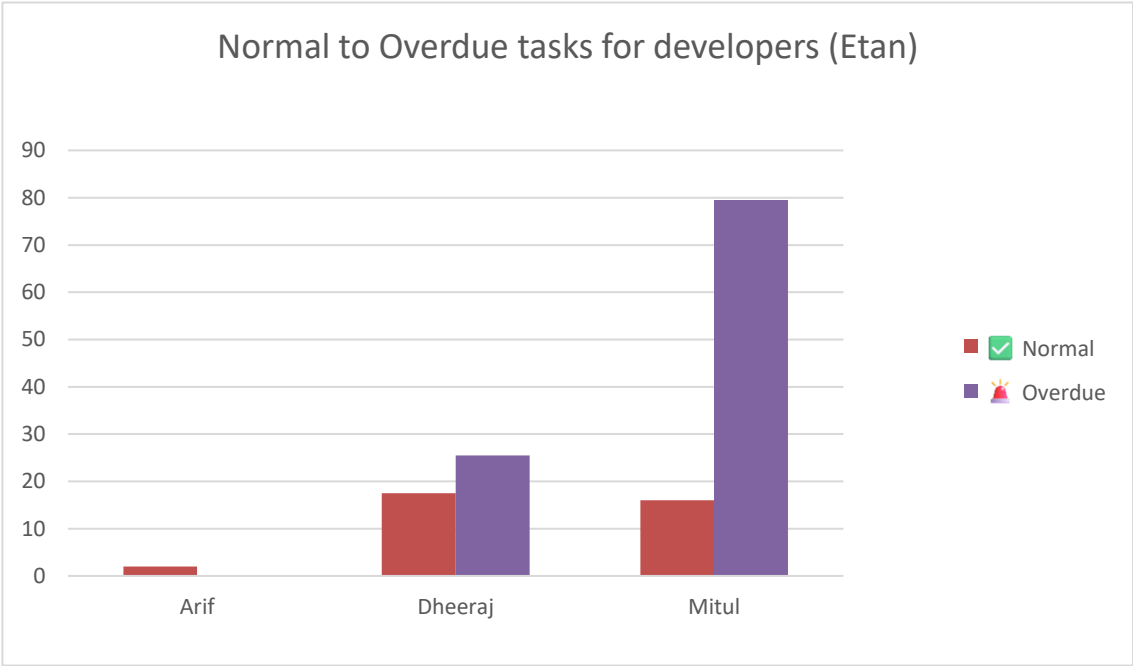
Resource	Hourly compensation (Rs/hr)	No of hours	No of resources	Employee Utilization Rate
Developer	300	199.2	2	45.28
Intern	150	10	2	2.28
Coordinator	250	34	1	7.72
Designer	250	2	1	0.45

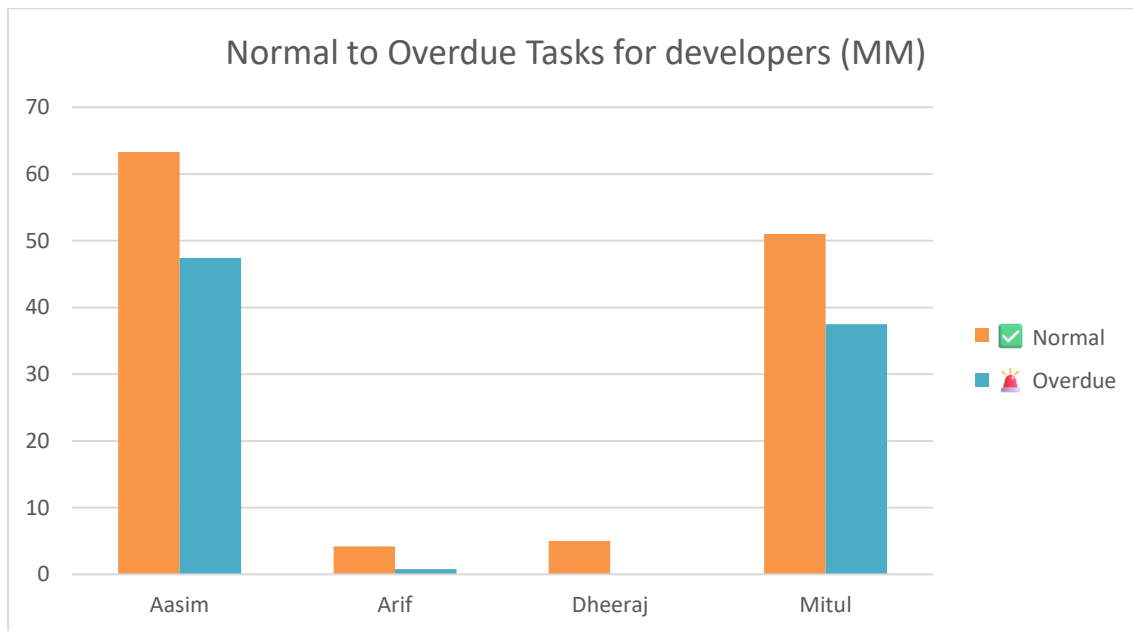
Work Division Based on Employee Utilization Rate





Comparing normal and overdue tasks for resources





Project Profitability Index

Metrics	Etan	Musclemind
Project Revenue	80000	200000
Total cost	63147.5	97311.5
Gross profit	16853	102688.5
Profit margin	21	51
PPI	1.27	2.06

For Etan,

$$\text{PPI} = \frac{80,000}{63,147.5} = 1.27$$

For Musclemind,

$$\text{PPI} = \frac{2,00,000}{97,311.5} = 2.06$$

4. Interpretation

The major factor for the extension of original project timeline and scope that came out to be is changing requirements from the client. After repetitive efforts to have everything documented and approved before it comes to the technical team many clients still present some unprecedented requirements that forces the team to rework on an entire already made section again. Due to this, efforts of both the coordinator and the developer are doubled to ensure that the new requirements are met. This concludes that for the same project revenue, which was initially scoped for say 3 weeks, the project is now extended to up to 4. This results in significant decrease in profit margins, as seen in Etan's case.

The difference between Total and scoped hours for both projects,

Etan = 170.43

Musclemind = 611.14

This helps understanding the accuracy of initial project planning. Can see in the case of Musclemind the large gap between scope and actual hours reflects a highly efficient use of time and resources with far fewer hours required than initially scoped. This is proven with the fact that 2 developers and interns working on this project together to ensure its timely execution. This outcome signifies that tasks were completed more rapidly due to streamlined processes or reduced complexities.

Financial Analysis

Revenue from musclemind was 2.5 times the revenue of Etan highlighting it as a higher value project in terms of earning. Although musclemind had higher costs overall this was expected given the larger scale of the project. The proportionally lower increase in cost compared to the revenue demonstrates cost efficiency in scaling. The gross profit for muscle mind comes to be 6 times than that of Etan, which indicates the substantial profitability of the project despite the higher initial cost. This can be concluded from the profit margin as it is double in the case of muscle mind when compared with eaten. This high profit margin indicates effective resource allocation and project management allowing to retain more earnings after covering costs. The above suggests that Musclemind was a more financially beneficial project

as compared to Etan, with higher efficiency and better scope for returns, which can influence project selection criteria.

Resource Efficiency Study

The utilization of developers in both cases are maximum, which can also be justified by the workload done by them, 45% in case of Musclemind and 24% in case of Etan. This shows that Musclemind was a better managed and efficient project, as it has a significantly higher employee utilization rate and profit margins. These are followed by the intern who provided support for the developer. The efficiency rate is much higher for Musclemind also 12% as compared to 2.3% in Etan. This shows that interns were not utilized efficiently for the project, which was rectified in the future one.

Both projects heavily relied on developers, with Musclemind showing even greater reliance. This indicates that development tasks are central to project execution, especially for larger, more complex projects like Musclemind. For both projects, the hourly cost of developers is the highest, which is justified given their high utilization and contribution to project completion. The intern role, while less costly, shows varying levels of utilization, with higher involvement in Etan than Musclemind. The organization should explore upskilling or delegating simpler tasks to lower-cost roles (e.g., interns) to optimize overall project costs.

The higher efficiency shown in muscelmind can be confirmed by the 'Overdue' tab as shown in the figure above. It is clearly visible that tasks for Musclemind were submitted on/below time than compared with Etan. This proves that Musclemind was higher in efficiency as compared with Etan.

Project Profitability Index

The PPI values for Etan and Musclemind are 1.27 and 2.06, respectively. These values indicate that Musclemind's project is more profitable and efficient compared to Etan's project. The higher PPI value for Musclemind suggests that the project has a higher revenue-to-cost ratio, which is a desirable outcome for any business.

- 1. Higher Project Revenue:** Musclemind's project revenue is significantly higher than Etan's, which could be due to various factors such as a larger market share, higher pricing, or a more effective sales strategy.
- 2. Lower Total Cost Ratio:** Musclemind's total cost ratio is lower than Etan's, which could be attributed to efficient cost management, better resource allocation, or a more streamlined production process.
- 3. Higher Profit Margin:** Musclemind's profit margin is higher than Etan's, indicating that the company can maintain a higher price for its products or services while keeping costs under control.

It is very important to note that coordination hours for resources of the project managers are not recorded in a systematic manner. So, when the client is shared the final bill in accordance to what they had originally shared, they are shared without the combined efforts of the project management team. This is important to note as the organisation is losing out of potential revenue and there is no area where project managers efforts are being considered. This is another potential bottleneck for the organisation.

4. Recommendations

After understanding the problems at large, the following recommendations and framework is suggested to the organisation to increase their efficiency, profitability and take higher performing clients in future.

- **Implement a Change Log for Client Requests:** A recurring issue across projects is the client's tendency to request changes right before key handovers or deadlines, which leads to delays, repetitive work, and additional logic-building without adjusted timelines. To address this, establish a change log that documents each request, including timestamps. This transparency will allow stakeholders to stay informed about all requests and their timing, enabling the development team to recommend realistic timelines for adjustments. This approach will enhance project efficiency and boost client satisfaction by setting clear expectations.
- **Enforce Step-by-Step Documentation:** Currently, the organization lacks a robust process for documenting progress beyond the initial Gantt chart shared at the project's start. Frequent changes in client requirements lead to timeline overruns, which can severely impact profitability, as seen in projects like "Etan" and "Musclemind". By implementing documentation at every stage, the organization can track changes systematically, allowing for appropriate adjustment requests and additional charges for each revision, protecting profit margins.
- **Maximize Use of Preexisting Shopify Features:** Despite having served over 50 clients, developers often rebuild commonly used features from scratch instead of leveraging preexisting solutions for reference. This practice increases task time unnecessarily. Standardizing the reuse of well-tested, commonly needed Shopify features will streamline development, improve task efficiency, and help deliver high-priority projects like "Musclemind" on schedule.
- **Involve Developers Early in the Design Finalization:** Including the development team in discussions during the design phase allows developers to understand client requirements and contribute valuable input before designs are finalized. This knowledge enables developers to anticipate challenges,

provide more accurate time estimates, and better align their work with client expectations, resulting in increased efficiency, particularly for complex aspects of the project.

- **Introduce a ticketing system for high priority clients:** this ticketing system can be NO Google form, with a set of predefined questions that will allow the development team and the coordination team to know what kind of change the client is requesting for, and this will also allow us to document their requirements and their changes as they are initiating in a systemised manner. The requests that come in the form can be synced with the task sheet that is followed by the technical department. This will help in efficiently managing the tasks and help in effective resource allocation.

The organization should invest time and efforts in understanding client requirements and documenting a project scope with project revenue and other important metrics like resource utilization, scoped hours and more which will allow better clarity and understanding between the client and the organization which will allow the project managers and developers to work accordingly. Considering that it was a low priority project, the number of revisions which extended its deadline and reduced profitability was a financially bad move for the organization. On the same hand, the organization should also make sure that there are no frequent changes before the project is handed over to the client since that also results in reduced profit margins.

- The organization should have initial project assessment in which they determine project feasibility based on estimated revenue and profit margins
- Detailed cost and resource estimation should be done by developing a comprehensive cost plan and allocating resources effectively
- Profitability tracking metrics and KPIs should be cleared based on what the client requirements are
- They should evaluate progress at defined milestones and adjusting for profitability if necessary.
- Constant revisions to project scope should be shared within the team.

After the project is closed, there should be a post project review in which the team should document their insights, find out the bottlenecks and come up with a solution on how

these bottlenecks can be reduced for future projects. This framework ensures a structured data driven approach to predicting and managing profitability for each project. The systematic evaluation of costs, revenue, and resource utilization at multiple points in this framework allows for informed decision making to optimise project performance and profitability over time.

Conclusion

The analysis of the Etan and Musclemind projects reveals significant insights into profitability, resource efficiency, and cost management. While both projects demonstrated healthy profit margins, Musclemind's impressive ROI and higher profit margin suggest that it was more effectively managed, possibly due to better resource allocation and cost control. The discrepancies between scoped and actual hours for both projects indicate the need for refining the scoping process to more accurately reflect resource requirements. Additionally, the heavy reliance on developers across both projects calls for better utilization of other roles and potential adjustments in task distribution to optimize costs and efficiency. Interns should provide a better support to developers which can lead to an increase in efficiency and reduced costs.

To capitalize on the lessons from Musclemind, the organization should focus on refining project scoping, optimizing resource utilization, and ensuring a more balanced workload across roles. By focusing on high-profit, development-heavy projects while minimizing the overuse of high-cost resources, the organization can maximize returns. Furthermore, implementing regular profitability reviews and developing a cost efficiency framework will enable better forecasting, cost control, and continuous improvement in future projects. By applying these recommendations, the organization will be better positioned to enhance its profitability, streamline resource management, and execute projects with greater efficiency, driving long-term success.