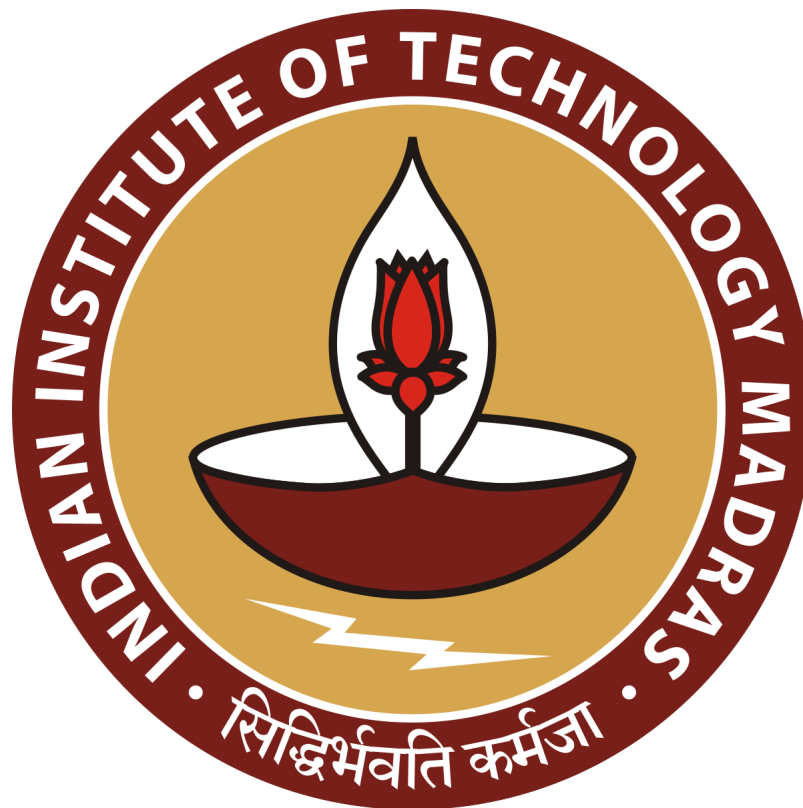


**Workforce Planning for Customized Architecture Construction: Employment
vs. Contractual Approach**

A Mid-Term Submission report for the BDM capstone Project

Submitted by

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1 Executive Summary and Title

This mid sem report focused on organizational information encompassing raw materials information, and service cost information of the organization named Eco Smarte Homes (Tharani Developers). The method worried meticulous facts collection and cleansing to make certain accuracy and consistency. Descriptive information, which includes Min, Max, Count, Average, Median, and Standard Deviation, was implemented to summarize key metrics consisting of invoices, bill amounts, gadgets, and emblem/class details.

The evaluation section worried about developing insightful graphs and visualizations to complement the statistical findings. Bar charts, line graphs, and pie charts were used to give tendencies, comparisons, and distribution patterns correctly. These graphs furnished a clean and intuitive representation of the data, facilitating less complicated interpretation and choice-making.

The findings found considerable opportunities for optimization and development inside the organization. By using a mixture of quantitative and qualitative strategies, the challenge aimed to provide comprehensive and actionable recommendations. These insights will empower decision-makers to take informed actions to decorate the business enterprise's overall performance, performance, and profitability.

As the sharing phase is underway, initial insights and graphs have been added to this document. The final report will include a more distinct and complete account of the analysis effects, making sure all stakeholders are ready to make strategic choices based totally on concrete statistics-driven proof

2 Proof of Originality



Video of interaction:

Video Link

3 Meta Data and Descriptive Statistics

The organization gave me their expenses for one of their villa projects which involves all of their expenses on how they utilize their resources. From the bank statement they provided, I have converted it to an Excel sheet so that I could first analyze the descriptive statistics and find data-oriented problems if exists.

3.1 Meta Data

I have listed down the sheets which I have used in my workbook for the analysis process.

1. Suppliers Data: This sheet has all the information about the contractors and the business people from whom he buys raw materials and contract workers.

2. Service Cost Data: This sheet has all the information about the transactions that were happening between the organization and the contractor *Munniyammal* where they are the ones who provide the workers for the construction. This captures date-based data of when there is a time interval on the supply of these workers.
3. Cement Cost Data: This sheet has information about the transaction made between different cement agencies and the organization on how the rate of cement fluctuate based on dependencies and external factors.
4. Sand and Jally Cost Data: This sheet has information about the transaction between the organization and the sand suppliers and we can possibly analyze trends on the rate of sand and jally for the construction.
5. Steel Cost Data: This sheet contains information about the transaction between the steel supplier and the organization.
6. Interiors Cost Data: This sheet contains information about the transaction between the interior designer which is a major department for building customized villas and the organization.

3.2 Descriptive Statistics

In this section, I have used the data analysis tool in Excel to get the descriptive statistics for each worksheet to make strong decisions and impressions about the data.

1. **Suppliers Data:** I have made descriptive statistics on the money that is being supplied to each supplier.

Suppliers Data	
Total Enterprises	18
Enterprise with the highest money spent	Mahalakshmi Agencies
Enterprise with the lowest money spent	Shanmugam
Mean	₹1,29,687.72
Median	₹45,960.00
Mode	₹25,000.00
Standard Deviation	₹2,13,972.23

2. **Service Cost Analysis Data:** This data speaks about the salaries that were provided to the contractor on daily basis (the data is sparse). So we can analyze the trend and also possibly check out the change requests that can be made during particular period of the project.

Service Cost Data	
Total Months	10
Mean	₹22205.90244
Median	₹16800
Mode	₹16000
Standard Deviation	₹14978.15877

3. **Cement Cost Data:** This data deals with the data about the cements been purchased from different enterprises.

Cement Cost Data	
Total Enterprises	3
Enterprise with the highest money spent	Mahalakshmi Agencies
Enterprise with the lowest money spent	Sanjay Kumar
Mean	₹36163.375
Median	₹33500
Mode	₹25000
Standard Deviation	₹19188.23953

4. **Sand and Jally Cost Data:** This data deals with the data about the sand and jally required for constructions been purchased from different enterprises.

Sand and Jally Cost Data	
Total Enterprises	5
Enterprise with the highest money spent	Thavasi
Enterprise with the lowest money spent	Arunachalam
Mean	₹23985.2
Median	₹21870
Mode	₹17639.6
Standard Deviation	₹10906.65131

5. **Steel Cost Data:** This data deals with the data about the steel been purchased from different enterprises.

Steel Cost Data	
Total Enterprises	5
Enterprise with the highest money spent	Mahalakshmi Agencies
Enterprise with the lowest money spent	Raja
Mean	₹27014.69231
Median	₹25000
Mode	₹25000
Standard Deviation	₹19621.13954

6. **Interiors Cost Data:** This data deals with the data about the interiors that are done after the construction of the villa based on the client's request which is been purchased from different enterprises.

Interior Cost Data	
Total Enterprises	4
Enterprise with the highest money spent	Triangle Traders
Enterprise with the lowest money spent	Manigandan
Mean	₹41647.57143
Median	₹29700
Mode	₹5804.857143
Standard Deviation	₹47234.06209

4 Analysis Process and Methods

As a newbie to economics and business management, I really enjoyed the phase of analysis of the data which I collected and also performed some small analyses with the help of Excel. Let me explain the outline of my analysis first.

1. Firstly, I was in search of a firm that was liberal in sharing the data.
2. Then I started to identify their problems and try to build my problem-solving approaches which were covered in the BDM theory course.
3. I have to collect the data and they did share their bank expenses, now I have to convert it to Excel by cleaning it and making appropriate worksheets for this.
4. Then I made some basic analysis on how money is being managed by the organization and how cash flow is happening.
5. At the final proposal submission I have to give the organization some meaningful insights on how to develop the firm to the next level.

4.1 Service Related Data Analysis

So, for various services like labors, JCB, paintings, electricals, etc. I have plotted a line chart on how the expenses are on a daily basis to identify when there were more expenses. With this data, we can do also a comparison on which serves a better profit - contract or employ. For this, I am trying to understand the market on how the demand is, and also how people are interested in this new concept of having customized villas rather than apartments or gated communities.

So here from the data I could see that **September** and **October** months suddenly have huge expenses compared to the others. This could possibly be because there were some change requests made at that time i.e. 3-4 months after the start of the project (the project started in June).

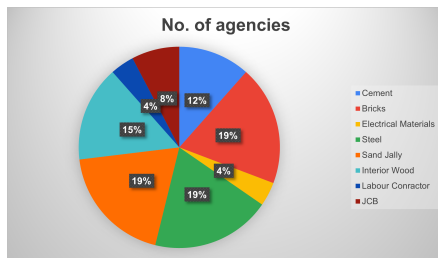
4.2 Raw Materials Related Data Analysis

There are various raw materials such as bricks, cement, steel, etc. Here too in the month of **September** and **October** we see that suddenly there is a hike in the expenses. So from these observations, there are some change requests which are made around 4-5 months after starting the project.

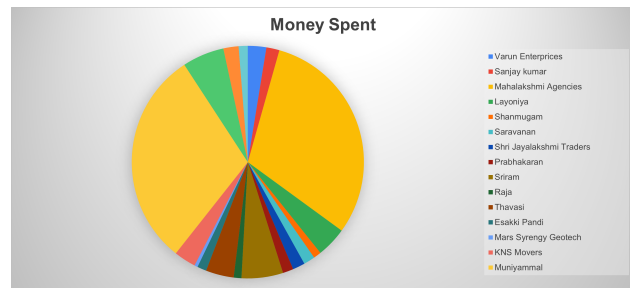
5 Result, Findings and Future plans

5.1 Suppliers Data Analysis

In the pie chart, we can visualize the contributions of each Enterprise to the various raw materials and expenses incurred by the organization. The chart will represent the proportion



(a) Pie chart on different enterprise contributing to raw materials



(b) Pie Chart on different enterprise contributing to expenses

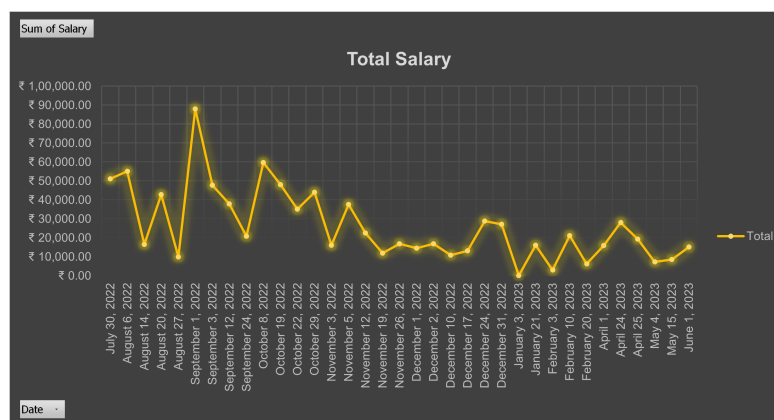
Pie chart of enterprises

of each Enterprise's involvement in supplying raw materials and the corresponding expenses they are responsible for within the overall organization.

From the charts we can see that Mahalakshmi Agencies and Munniyamal have the highest contracts where Munniyamal is the contractor who supply workers.

5.2 Service Cost Analysis

In this line graph we can see at what time will there be a higher demand or expense for the workers and when it is low.

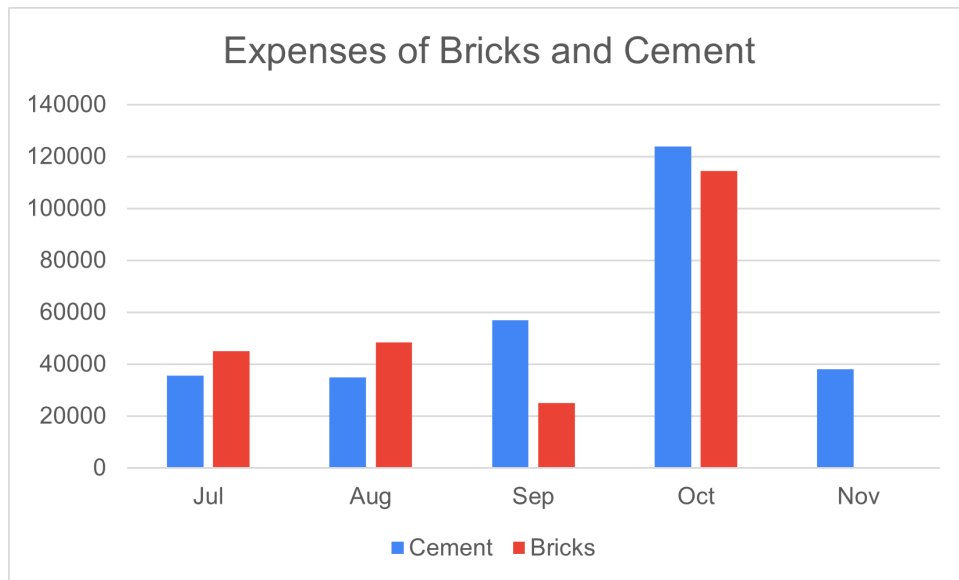


Here also we see that at the month of September the expenses are raising and then at November it again goes to normal.

Now let us have an analysis about other raw materials such as bricks, cement, steel, sand & jally, interiors etc.

5.3 Bricks and Cement

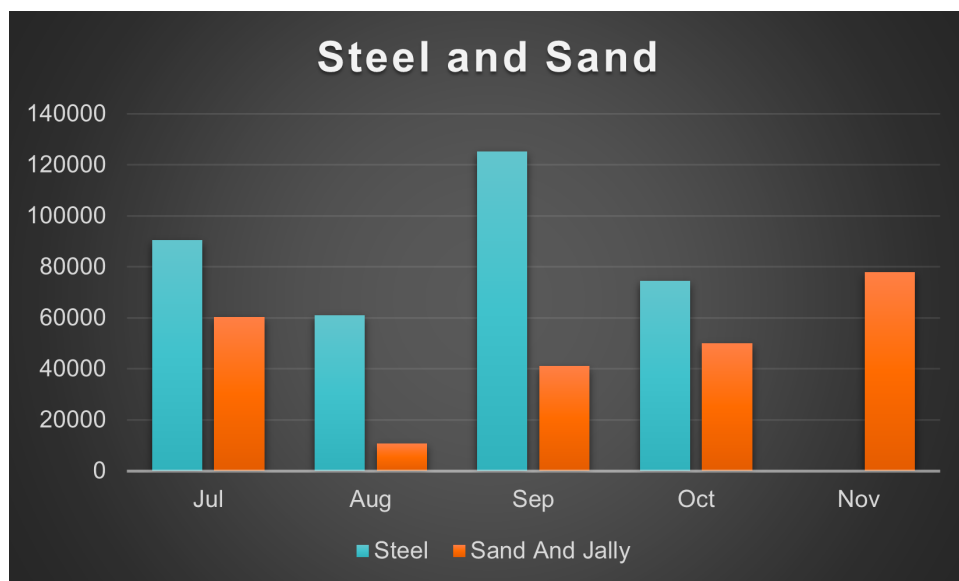
Here we will see the expenses of Bricks and cement on a monthly basis.



Here again we see that the amount increases drastically at the month of October.

5.4 Steel, Sand and Jally

Here we will see the expenses of Steel, Sand and Jally on a monthly basis.



Here again we see that the amount increases drastically at the month of September.

6 Conclusion and Futuristic view

So from the graphs, we can say that after 3-4 months of the beginning of the project, there are some change requests that are needed to be handled.

One of the ways I prefer to do this is to collect even more data on previous projects and try to stock *some* goods and use them for the change requests. This *some* can be figured out by the famous **Regression** where we have the variables such as the Cost of the project, small details about the customer, etc. so that we can stock some of the goods and make our budget so that we can handle these change requests.

The other way I approached was to check how the competitors were approaching the same problem. Their competitors in this field are the Casagrand who provide a lot of customized villas and an established firm. They actually have a document saying that they would not allow more than 3 change requests. But as a smaller firm, Eco Smarte Homes cannot make it as they are in fear of losing the client. So the first method is preferable as they are not established like Casagrand.

For the other problem, I am doing a market analysis and keep on checking the demand of the workers and their salaries to accomplish a Cost Benefit Analysis and also a Comparative Analysis to decide which suits better for this organization.