

**Pilot Project for the Furniture Industry of Pakistan:  
Preparation of a Suitable Cost Model for Ammar  
Furnishers**



**FINAL YEAR PROJECT UG 2018**

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This is to certify that the

Final Year Project Titled

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has been accepted towards the requirements  
for the undergraduate degree

**in**

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## ABSTRACT

The furniture industry of Pakistan is characterized as a small scale, non-organized industry which lacks modern technology and education and depends upon manual labor utilizing outdated tools. Furthermore, there is no specific costing methodology being utilized by majority of small scale business's in this industry and there is a high degree of reliance on estimations and approximations in calculating costs associated with products. Hence, for our final year project, we decided to study a business and devise a costing model, as a pilot project, that reflects the customized nature of business in this industry. We chose a small-scale furniture business, Ammar furnishers, located in Multan as the subject of our project. We gathered relevant data by observing the business's processes, inquiring the management and labor along with making verifications from third parties and implemented the concepts of costing in order to devise an effective and efficient costing model that, in our knowledge, best reflects the customized nature of industry. The cost model will not only help the businesses in costing their products accurately but will also assist in achieving desired profit margins.

## TABLE OF CONTENTS

ACKNOWLEDGEMENTS .....	1
INTRODUCTION.....	2
DELIVERABLES OF THE PROJECT .....	2
CHAPTER 1 .....	4
<b>FURNITURE INDUSTRY OF PAKISTAN</b> .....	4
CHAPTER 2 .....	7
<b>AMMAR FURNISHERS</b> .....	7
2.1. EXISTING COSTING METHODOLOGY .....	8
CHAPTER 3 .....	11
<b>DEVELOPMENT PROCESS OF THE COSTING MODEL</b> .....	11
CHAPTER 4 .....	15
<b>IMPLEMENTATION OF COST MODEL</b> .....	15
CHAPTER 5 .....	17
<b>PROBLEMS</b> .....	17
CHAPTER 6 .....	19
<b>LEARNING OUTCOMES</b> .....	19
REFERENCES.....	22
APPENDIX.....	23

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## INTRODUCTION

After taking notice of a few concerns of the owner of Ammar Furnishers regarding the extent of information that will be required for our project, we decided to pursue a project in order to construct an appropriate costing model for the owner providing him with the actual per unit cost of all his products. Our aim was rather complex as all data provided to us was in the form of raw data files and estimates of the overall current costs they were charging their customers. There has been no costing model, which we know of, that is being utilised by furniture retail outlets hence our project will present as a pilot study into the costing discipline in the furniture industry.

## DELIVERABLES OF THE PROJECT

The aim of this project, as mentioned above, was to construct and design an appropriate costing model for Ammar Furnishers that is dealing with the manufacturing and finishing of customised furniture products to clients on an order basis much like other furniture outlets in Pakistan. Ammar Furnishers relies heavily on estimations while approximating the direct costs of the products manufactured and a rough margin is predetermined on gory of product which in turn determines the end price charged to the client. Our task was to consider the complexities involved while evaluating the per unit costs of the customized furniture products and to formulate an effective cost model which, according to our understanding and knowledge, will eventually help the business in determining the actual and not approximate per unit cost of each custom-made product.

We further expanded our scope by considering non-manufacturing costs and arriving at the total costs which were to assist the business in arriving at the desired profit margins. While determining the costs we were to gather all costs of direct material and labour and the unit of each variable being utilised during the manufacturing process.

For the evaluation and verification of the efficiency of our costing model, a variance analysis was conducted by comparing the direct costs produced by the cost model with the costs estimated by the owner of the business, on a sample of orders taken. The variance analysis eventually assisted us by helping us identify the differences which were analysed to determine the cause of these errors which could have be possibly made on our part or because

of the current method of estimation adopted by the business. This approach helped us correct several errors made in the model and re-evaluate the costing techniques we utilised to help us develop a more dynamic cost model which is utilised by multiple furniture retail outlets and not just to Ammar Furnishers. If we were to give examples, after an initial cost analysis we compared our costs with those of the owner however the cost of centre table was highly insignificant from the point of view of the owner, hence we reviewed the model to detect that we did not incorporate the cost of chairs. Moreover, the cost of a king and queen size bed was way above the range of acceptable costs given by owner and after a review we realised that we had excessively charged the unit quantity of wood being utilised hence we adjusted the values in accordance with further information provided to us by the owner. These mistakes helped us better our model to construct a dynamic user friendly model for not just the owner of Ammar Furnishers but other furniture retail outlets in Pakistan.

Finally, our project was to provide the business with a make and buy decision by considering the relevant costs regarding manufacturing and outsourcing the products and to give an appropriate recommendation per product for which we have considered both, the qualitative factors along with quantitative factors of production. Based on our knowledge and understanding, we have recommended the owner to either outsource or produce, being mindful of both profitability and cost savings, and this will help him evaluate whether to continue with the outsourcing activity or to expand the scale of business's production.

## CHAPTER 1

### FURNITURE INDUSTRY OF PAKISTAN

Pakistani craftsmanship and innovation with regards to their wooden furniture is globally appreciated however despite the remarkable skillset, Pakistan's share in the international furniture market is insignificant and the furniture industry contributed only marginally in the overall GDP of Pakistan (Arifeen, M. 2010). According to a recent study; PFIMTEI (Pakistan Furniture Industry, trade and export information), there are around 8000 plus manufacturing units all across the country with Gujrat, Peshawar, Lahore, Karachi, Sargodha and Chiniot being the leading furniture hubs in the country (Ahmad, R. 2017).

Majority of these units are busy manufacturing well-crafted and polished wooden furniture and this is due to the high demand and durable nature of wooden furniture however it should be noted that most of these manufacturing units are utilising out-dated tools and there is almost no automation in the processes ("A look into Pakistan's furniture Industry", 2011). Currently, there are two major clients; consumer and contract, who are fuelling the demand in the Furniture industry. The contract markets are those markets which supply to hotels, restaurants, offices, armed forces etc through tenders.

This industry itself is categorized into non-organized small-scale furniture manufacturers and the cottage industry, which is purely labour intensive. Although technology has infiltrated many industries in Pakistan, the furniture industry has shown no particular interest to join others on this bandwagon to modernization. Moreover, there are no specific operational controls or costing techniques utilised by the owners and all of the work is done on registers, which are tallied at month end just to have a basic estimate of the total sales. However, it should be known that majority of the sole proprietors lack the proper education and are merely working on approximations/estimations during their costing of products and their employee payrolls are dependent on the market rates as most of these workers are hired on a part-time or temporary basis. Even if these individuals utilise technology they lack the basic skillset to operate and maintain costing records which leads to increased costs and operational inefficiency. Most of these small scales businesses do have an arbitrary costing system however these systems have not been effective or efficient due to their improper or partial use. The country is currently facing international competitions from China, India and



Malaysia however Pakistan's sole competitive edge is being derived from the skillset of its craftsmen who have learned this detailed and exquisite woodwork from their ancestors.

Corporate giants like IKEA have a well-defined costing structure due to the standardization of their products which make similar costs to be applicable for the units that are being produced as they are replicas. The Pakistani furniture industry is focusing on individual clients concerns and this makes standardization impossible and customization more likely. Although the product does not lack the craftsmanship relative to those provided by its international competitors however due to lag in operational competence and management, the furniture industry of Pakistan has approximately no significant contribution in the overall export business. Moreover, the situation seems to be deteriorating due to high prices and poor quality being supplied by local vendors who are solely interested in charging excessive profit margins.

For Pakistan to move from the existing small-scale cottage industry manufacturing to a Small Medium Enterprises (SME) culture, it will have to adopt new technologies and develop a mechanism which will help maintain this adopted technology which will encourage process efficiency in the long term however will require training workforce.

In order to reap maximum benefits from the furniture industry we have identified a need for a better, effective and efficient costing system to better analyse the cost of the products in order to help price end -products competitively and help bridge the managerial lag. A specific costing technique will help precisely identify the accurate costs of labour and raw material which will enable the manufacturers and vendors optimize their production while minimizing their costs to achieve their targeted profit margins. Identifying the exact cost of any unit will help the vendor have a better idea of what prices are to be charged per unit produced in order to achieve the desired profit margins.

As mentioned earlier, aggressive competition and loss of competitive edge due to several reasons; one of them being increased costs of products resulting into increased product prices that are unable to compete with cost effective competitors, is a major threat to this industry. An effective costing system reflective of the customized nature of the business of the industry will help the industry players to develop a clear understanding of their product costs. This is going to be a contributing factor towards cost minimization along with optimal resource and capacity utilization. Not only will it help minimize costs, Ammar Furnishers having a better

understanding of its cost structure, will be able to effectively price tenders based on better evaluation.

Other than cost minimization, industry players can efficiently strategize their product's pricing. Strategic pricing along with cost minimization can help them to achieve targeted profits. Apart from this we will be conducting a cost benefit analysis of the outsourced processes in comparison insourced processes of Ammar furniture to study their impact on the business and give recommendations accordingly.

## CHAPTER 2

### AMMAR FURNISHERS

Located in the heart of Multan Cantt, Ammar Furnishers is a furniture manufacturing and retailing business, established in the early 1970s by Mr. Abbas Noor-ud-din and is being currently handled by his son, Mr. Shoaib Abbas. The business manufactures customized furniture for its customers, with its wide range of products including: beds, sofas, tables, chairs, console, show cases and wardrobes. Ammar Furnishers has one retail outlet and three workshops, each of which has been set up for carrying out specific tasks and processes. Moreover, the owner tends to outsource the manufacturing, whom he pays according to the per unit cost, if the manufacturing workshops in case additional orders are taken in bulk and workshops are already working at 100% utilization capacity.

As per raw figures provided by the owner of the business, given below in Exhibit 1, Ammar Furnisher's monthly sales range from around 2 million to 2.5 million, and the owner has set his annual profit margin to an estimated range of 15% to 20%. Currently there is no proper data management system in place and sales are kept on manual ledgers however there is a general receivables sheet maintained by the owner who is a business graduate hence does not lack the ability to manage and maintain the costing model that we will prepare for him. The owner understands the need for a more organized book keeping system and an overall costing model. The cost model will eventually provide him with an exact per unit cost of the products which provide him with a better understanding of where potential operational efficiency can be achieved and competitively price his products.

Cost of Main Products	
Products	Range Provided
Bed Set	45,000-150,000
Sofa set	30,000-100,000
Centre Table	10,000-40,000
Dining	40,000-100,000
Showcase	10,000-50,000
Wardrobe	15,000-50,000
Console and Mirrors	15,000-70,000

**Exhibit 1 Raw Data initially provided by the owner.**

## 2.1. EXISTING COSTING METHODOLOGY

Currently the owner of Ammar Furnishers, like all other manufacturers is utilising mere estimation/approximation approach to come up with the costs of products. No inventory is being properly maintained and records are being kept on plain registers. Although this practice maybe widely accepted by all furniture retailers however it is not an efficient one.

Approximation can lead to significant errors in costing if we consider all the cost-saving that can be achieved if the retailer were to adopt an accurate system of costing. The owner will be better able to negotiate with his customers as he knows how much the product will cost him according to which he can lower down the prices. In the long-run this can prove to be very profitable for the business as profit margins can be set more appropriately.

Approximation can lead to pricing errors as there is a human element involved and if orders are being take at a price which is lower than cost due to some pricing mistake by the retailer he will incur a significant loss on the order. Considering the market dynamics in Pakistan are very unpredictable with electricity shortages, strikes and political riots, it has become necessary to take into account all these factors as they impact the business and the overall cost the owner will incur which can be very difficult.

Mr. Shoaib is participating in tenders offered by the Armed Forces and it is necessary to competitively price these tenders in order to get a contract. Hence, the owner can better price his products if he has a clear idea of his costs. The current approximation technique might give the owner a lower probability of attaining the contract relative to the one in which the owner prices his products affectively utilising a proper costing methodology.

An effective costing system reflective of the customized nature of the business in the furniture industry will help industry players to develop a clear understanding of their product costs. This is going to be a contributing factor towards cost minimization along with optimal resource and capacity utilization. Not only will it help minimize costs, Mr. Shoaib will have a better understanding of its cost structure, will be able to take effective tenders based on better evaluation.

It is important to understand that no specific costing methodology can be utilized in isolation to price goods in the furniture industry. The basic product-line that a furniture outlet offers is similar as it can include home, kitchen or office furniture, however each product is customised according to consumer preferences, which makes incorporating the specific customisation for every product into the costing model a challenging task however possible. Due to no standard products are being produced in bulk or even in small batches. Each product is customized according to the needs of the individual customer who is ordering it hence the challenge is to incorporate these customizations into the standard cost of the product.

## 2.2. EXISITNG VALUE CHAIN OF AMMAR FURNISHERS

Customers usually visit the retail outlets to select from the wide variety of available sample products which are at display in the outlet. Moreover, they are given different furniture and lifestyle catalogues they can choose from or they can even provide the retailer with an image of a sample they would like replicated. The order is taken on simple registers; the original copy is given to the customer who is to provide a 30-40% advance. The order is forwarded to the workshop with the sample and the customisations requested by the customer. Inventory is checked for the required raw materials and they are procured if not available in stock.

Mr. Shoaib does not maintain a specific record of the raw material that is kept in the inventory and the stock is maintained on a monthly or need-base basis depending on the nature of the product. There is a minimum requirement which is currently being maintained

for the main types of products e.g. wood, sheets, nails. Exhibit 2 lists down the raw materials utilised with respect to the three main processes. There are no specific distributors for the products and the rates depend on the current market prices of the products. Mr. Shoaib has two individuals employed at his retail outlets and temporary staff is hired in the workshops who are being paid daily according to the labour rates in the market and the intensity of the work and the skills required. Each of the three workshops are owned and no rent expense is incurred from the facilities and a supervisor is in charge at the workshops and is responsible for managing inventory and staff to ensure that all orders are dispatched on time and are made in accordance with the order details provided by the customer.

The process flow diagram, in the appendix, highlights the current flow of raw material and equipment in Ammar Furnishers.

The flow chart illustrates the three main processes which include;

- Manufacturing and Assembling: At this stage, the raw material is molded into shapes that are assembled as structures of the ordered product.
- Clothing and Stitching: The fabric is then stitched onto the structure developed in the first process however this is solely dependent on the type of furniture and the customizations which are requested.
- Finishing and Fixtures: At last, the furniture is polished which is a necessary stage for all types of furniture unlike the Clothing and stitching process.

## CHAPTER 3

### DEVELOPMENT PROCESS OF THE COSTING MODEL

In order to come up with an effective model, several visits to the manufacturing facilities and the retail outlets were set up to have a clear view of the overall processes in place, determine the structure of the business, its current costing methodology and standard costs associated with each raw material and process. The existing information provided to us by the owner was insufficient hence specific costs of all products needed to be gathered to ensure we could arrive at an accurate product cost through our model.

Over the course of our degree we have been taught several types of costing methodologies marginal costing, standard costing, process costing, absorption costing and job-order costing. We have utilised concepts from these costing methodologies to come up with a hybrid system of costing which in our opinion is suitable for Ammar Furnishers and could potentially be utilised by others in the furniture industry. It should be noted that on a conceptual standpoint, process costing is utilised when there are identical products being mass produced however job order is used in case of unique products and smaller production sizes. Ammar Furnishers, like other furniture outlets is majorly focusing on customization of all the products in accordance with clients and the general fashion trends. Hence, we have utilised mere concepts from both costing techniques to formulate the new costing model and have not utilised the full costing approach in isolation.

#### **STEP 1:**

Firstly, we listed down the categories of products that Ammar Furnishers are manufacturing. We listed down seven categories namely; Bed, Sofa, Centre Table, Dinning Set, Console, Mirrors, Showcase, Wardrobes and Office furniture. Then, utilising the basics of process costing, we sorted the overall manufacturing process into three processes as mentioned below along with the types of direct material utilised in each process:

- **Manufacturing and Assembling:** At this stage, the raw material is molded into shapes that are then assembled as structures of the product. The types of direct materials utilized at this stage were Wood, Venair, Sheets, Lasani, Nails, Glue, Foxy.
- **Fabric stitching:** The fabric; cloth or foam, is then stitched onto the structure developed in the first process.

- **Finishing:** At last, the furniture is polished and the direct materials utilized in the process are Lakh Dana, Spirit, Petrol, Lacquer, Shiner, Color, Handles, Glass and mirrors.

The price of all the raw materials and the appropriate labour costs are mentioned in the Exhibit 2 and 3 in the Appendix. Wood and Venair are purchased from the nearby wood market referred to as the “lakar market” and the slabs/sheets are transported to the manufacturing workshop for the cost of PKR 400 and there are approximately 4 visits per monthly. Twenty-five (25) slabs/sheets are delivered per trip which narrows down the cost to PKR 16 per slab/sheet.

### **STEP 2:**

After identifying the processes, we segregated each unit according to the type of product that is being offered for retails. The products along with specifications are mentioned below;

- **Bed:** Single, Queen, King
- **Sofas:** 4/5/7 Seater or a Dewaan
- **Center Table:** 2x4, 3x3, 4x4
- **Center Table:** 6/8/10 Seater
- **Showcase:** 4x6, 6x6
- **Wardrobes:** 4x6, 6x6

In order to derive a standard cost for each product category the quantity sheet had to be carefully structured which will provide us with the amount of a raw material or the number of labour hours which are required for a certain product as per the nature of the workshop. Our quantity sheet is attached in the appendix as exhibit 5. Each quantity was multiplied with the price of that specific material or the type of labour employed and all costs were summed to derive the total direct cost incurred. By deriving standard costs for each product category, we have applied the concept of standard costing however not in isolation.

### **STEP 3:**

Overheads were to be included in the standard cost hence depreciation of the tools and machinery were to be evaluated. Information regarding the assets are mentioned in Exhibit 4 in the Appendix. All machinery was old and majority of it was fully depreciated with no scrap value and finding the costs of the products was difficult as owner kept no receipts however gave us estimated prices of the products being utilised in the workshops.



Depreciation was being recorded on a straight-line basis and the accumulated depreciation was summed along with salary, rental and electric expenses mentioned in Exhibit 2 above. It should be noted that we obtained raw production figures from the owner of Ammar Furnishers, for the previous three months and an average unit production was evaluated on that basis, the result of which was 44 units per month. Exhibit 6 in the Appendix provides the necessary overhead calculation which were made to derive the final overhead absorption rate (OAR) which was PKR 1580.44, calculated by dividing total overheads with the total units of wood being consumed. The OAR was added to the previously calculated standard costs. And Exhibit 7 in the appendix provides us with total standard costs per product.

#### **STEP 4:**

Finally, we identified further categories of the customizations and they are mentioned below:

- **Bed:** Thick Frame, Cloth work (Simple/Velvet/Leather), Carving (Normal/Extensive)
- **Sofa:** Velvet, Leather, Basic/Carved wooden attachments
- **Center Table:** Normal/Extensive Carving, Design Glass, Round Table
- **Dining Table:** Glass top, Double top, Design Glass, Round Table
- **Showcase:** Normal/Extensive Carving, Design Glass

At this point, job order costing was utilised and job quantity sheets were updated to incorporate the extra material or labour hours which were too be applicable on the customisation. The costs for each customisation were determined and added to the standard costs for a product according the client orders. The sample job quantity and job sheets are given in the Appendix as Exhibit 8 and Exhibit 9 for beds.

As an example, if we consider two orders for beds; a) Queen Size bed, thick frame, velvet cloth and intensive carving, b) King Size bed, thick frame, leather cloth, normal carving, the total cost is calculated as follows while utilising the cost model.

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Queen Size	56153.82
Thick Frame	9527.143
Intensive Carving	6949.5
Velvet Cloth	1261.929
<b>Total Cost</b>	<b>73892.39</b>

King Size	66460.32
Thick Frame	11557.94
Leather Cloth	-1211.515
Normal Carving	6715.125
<b>Total Cost</b>	<b>83521.87</b>

**CHAPTER 4****IMPLEMENTATION OF COST MODEL**

The differences between the end costs derived by utilising the cost model were compared to estimated costs given by the owner of Ammar Furnishers which helped us to further understand business's operational efficiency and capacity utilization. The results of this analysis helped us provide the owner with recommendations to optimize resource utilization. The owner provided us with a specific profit margin in accordance with which we calculated the appropriate prices that are to be charged. The prices that owner was previously charging were compared the prices we have calculated and a variance analysis was conducted which is given in Exhibit 10 in the appendix. The variance analysis provided a comparative analysis of the maximum and minimum prices that could be charged to clients. Although pricing is done according to the percentage profit charge however our analysis provides Mr. Shoaib with the flexibility required to attract more clients while not compromising on quality of products used in production and also competing effectively in the market catering to the price sensitive consumers.

It should be noted that the basic goal of any business, big or small, is profitability and the best or optimal way a company can maximize their profitability is through product specialization because it ultimately helps can reduce their costs. However, if a business is unable to achieve cost minimization then there is an option where products can be procured from an external manufacturer. We compared the in-house cost of manufacturing each product as well as the cost which we will incur if we outsource product manufacturing which the owner of Ammar Furnishers is already doing along with the production in his workshops. Outsourcing production has its pros and cons and before focusing on the cost savings the owner needs to consider both the qualitative and quantitate factors. The person to whom Mr. Shoaib is outsourcing his production should be reliable and needs to understand the significance of delivering products in the given time frame. The finished products should be checked to ensure they are not of a sub-standard quality and the categorization of responsibilities should be clear and not inappropriate.

Majority of the times outsourcing proves to be cost effective and considering the risks; delays in production due to electricity shortages, political rallies, religious extremist mobs disrupting the operations in local workshops, can eventually lead to revenue shortfall. However, these

external factors cannot be controlled and by outsourcing Ammar Furnishers can share the risk factor and control it to a certain degree.

However, it should be noted that Ammar Furnishers can manufacture these products in their workshops, which will be outsourced at a cost lower than external manufacturers. Exhibit 11 in the Appendix provides a clear recommendation, per product, about whether the product should be manufactured or outsourced. All products which are costly to produce within the workshops should be clearly monitored by the owner in terms of potential abnormal losses. A make or buy decision needs to be made in terms of each product, provided the costs cannot be reduced without compromising on quality. Hence, products can be procured at a lower price than the overall costs to manufacture them. As Mr. Shoib had asked us to evaluate this potential opportunity and clearly define which products will be costlier to produce and outsourcing would be a better option. He wished to do so as is finding it harder to manage the entire product line as a sole proprietor. As per our recommendations, we have advised Mr Shoib to outsource the production of Deewan, 7 seater sofas and all products categories of Centre tables. This will help in share both the overall responsibilities and the stress that he is currently under. Even though the cost of manufacturing wardrobe in house is greater but we would still recommend him to manufacture it as the cost difference is minimal. The differences in the costs are due to the quality of labour that is employed in retail outlets of the outsourcing facility due to which the normal loss is restricted in the processes while using material. Moreover, the machines that are currently being operated in Ammar Furnishers are full depreciated hence impacts the efficiency of production hence these qualitative factors were also accounted for during this analysis.

## PROBLEMS

First and foremost, being ACF students, the scope of our final year project was limited to accounting and finance. For conducting a value adding project in the field of accounting or finance, our group required cooperation from any company willing to give us an opportunity to work with them, for them. Unfortunately, our group members were unable to get a viable contact hence we were unable to find a business/company. This led to a prolonged period of not having a clear idea of both the topic and scope of our final year project where the ideas soon became dependent upon the cooperation of the company, availability of information and feasibility of the project. Finally, the desperate search for a company that would willing provide us with all the necessary information for carrying out an effective project, led us to contact Ammar Furnishers which is in Multan however despite the geographical distance between us it wasn't like we had other options.

Developing a costing model for the furniture industry of Pakistan that is categorized into small scale, non- organized industry may seem easy but it was not a simple task to accomplish. An industry which lacks modern technology, educated owners and is not following formal methods for keeping records, as mentioned earlier, can pose several hurdles while designing an effective cost model.

The communication gap was one of the major issues we faced while conducting our project. Ammar furnishers, located in the heart of Multan, is approximately an eight-hour drive from Islamabad hence, to gather and collect all of the data required to us, a number of visits to Multan had to be scheduled. Communication through media was ineffective however majority of the concerns that arose during our project with regards to the nature of the processes or the quantity of materials being used was dependent on an effective communication between Mr Shoaib and our group. The fact that the business was located eight-hours away from our working station, not only cost us as several trips were to be scheduled but also set us back in terms of timely conducting our task due to increased waiting time until the information was gathered and communicated.

As it has been discussed previously in the report, Ammar furnishers does not keep formal records and does not maintain data in an effective manner. It has been costing its products on mere estimations and approximations. Minimal data, most of which relates to the business's

payables and receivables, is maintained on simple registers. Hence, to gather relevant data, alternatives sources had to be utilized. Apart from observations made and inquiry of the labour hours, major source of data was the owner of Ammar furnishers himself.

Since the business did not maintain a record of all the data, in certain situations, even the owner of the business was not of any help to us. An example of which can be that the business did not maintain any information regarding the purchase price and the useful life of its assets beings used. Verification of such an information had to be done by inquiring other furniture workshops utilizing similar assets. Similarly, since the business does not have specific suppliers, a similar procedure was followed for wholesale prices of a few raw materials used by the business.

On the other hand, the data that was provided to us, was in raw form. The business provided us with ranges and estimates. This form of data was not easily understandable and interpretable for us. As mentioned above, even after the provision of data which was in raw form, number of concerns and doubts arose that either had to be dealt with using either the ineffective communication media or by visiting the business in Multan which in our case, was mostly the latter.

Lastly, research and literature review before conducting any project is of great importance. To better understand and analyse the nature and dynamics of the furniture industry in Pakistan, to set a platform for us to conduct the project and to give us direction, it was crucial to go through any literature and research done previously on this sector. Unfortunately, we were unable to conduct an extensive literature review or research as minimal information that was relevant to the scope of our project, has been published regarding the small-scale furniture industry of Pakistan.

**LEARNING OUTCOMES**

We believe that learning is a continuous improvement of the human mind, humans learn and we tend to adopt to change. The purpose of our undergraduate degree has been to better prepare us for the corporate world and to say the least, over the four years we have been constantly challenged to an extent that we believe we have become capable of adapting to the corporate environment.

The major thing which we learned in the project was the practical implementation of all concepts that had been taught to us through the course of our degree which were no longer mere concepts printed on books and taught to us through case studies. Hence, the final year project helped us apply all those concepts which will eventually help us better utilise the knowledge base we have created through these four years practically.

We have studied different types of cost models, in isolation, in different accounting courses and we were given several mini-projects which helped us develop better our research and evaluating skills. Our final year project helped us understand how each model can be used in a hybrid system rather than in isolation and the model chosen depends on the specific business we deal with. We had an amalgamation of different models which included standard, process, absorption all of which had been taught to us however we also incorporated job order costing into our model which helped us learn another type of costing model. We learned a lot about these methods once we implemented them and it was intriguing to see such different concepts being linked together to formulate the direct costs of all the furniture products.

Working side by side a fully operational business helped us better understand how a process flow is being followed even in a small-scale business and how one the output of one process is affected with others. Dealing with the business involves being mindful of confidentiality regarding the information they share with us and their potential future plans. Moreover, the owner had to be updated every week with our progress and any problems we faced were to be communicated to him. This communication gap helped us better understand the agency problems that might incur in other business and larger corporations, these concepts were taught to us through courses like Audit and Assurance, Corporate Reporting, Business Management etc. Our company was a small-scale manufacturing and retail outlet however

the size of business does not necessarily eliminate the agency issues only makes them of a smaller scale.

We were also in communication with the supervisors in the workshops along with workers and our tone of communication changed significantly will addressing them relative to when we addressed the owner. The change did not communicate the level of respect we had for both parties but the formalities which come with those on positions of authority. This helped us better evaluate the cultural aspects of the business environment, taught to us through courses like Business Communication and Organisational Behaviour, which will surely help us affectively develop our work life circles in the corporate environment.

Every type of business has a different approach in performing their operations and it is important to have an affective operational management plan which was taught to us through courses like Operational Management, International Business etc. Ammar Furnishers is a sole proprietorship hence we had a small range of operations and supply chain which needed to be carefully assessed to determine the appropriate costing techniques that were to be utilised.

Our focus, during this four years degree has been towards accrual basis of accounting and this was our first interaction with a business which utilised cash basis of accounting in their operations. We learnt about how the owner had been historically maintaining his business and keeping track of transactions in order to better manage his creditors and debtors. The business had been organically growing and management of cash flows was essential for the owner. This business scenario helped us understand the critical nature of cash flow management in business cycles and how it can determine its survival in the competitive industry.

The importance of affective decision making has been taught to us through several courses in the realm of accounting, finance and management as it costing techniques, financial models, managerial theories are developed to aid individuals better manage their businesses through affective decision making which would eventually increase their profitability. Decisions regarding the pricing of products are considered critical and specially if we are dealing with price sensitive consumers in a competitive environment. The owner wished to maintain his current contribution margin of around 25% which meant that we had to price each product keeping in mind the new costs determined through the model and evaluate the “make or buy decision” in terms of the end prices calculated. We had learnt this concept in our management accounting courses repeatedly and the practical implementation helped us better understand



the importance of this concept for a business keeping in mind both the qualitative and quantitative factors.

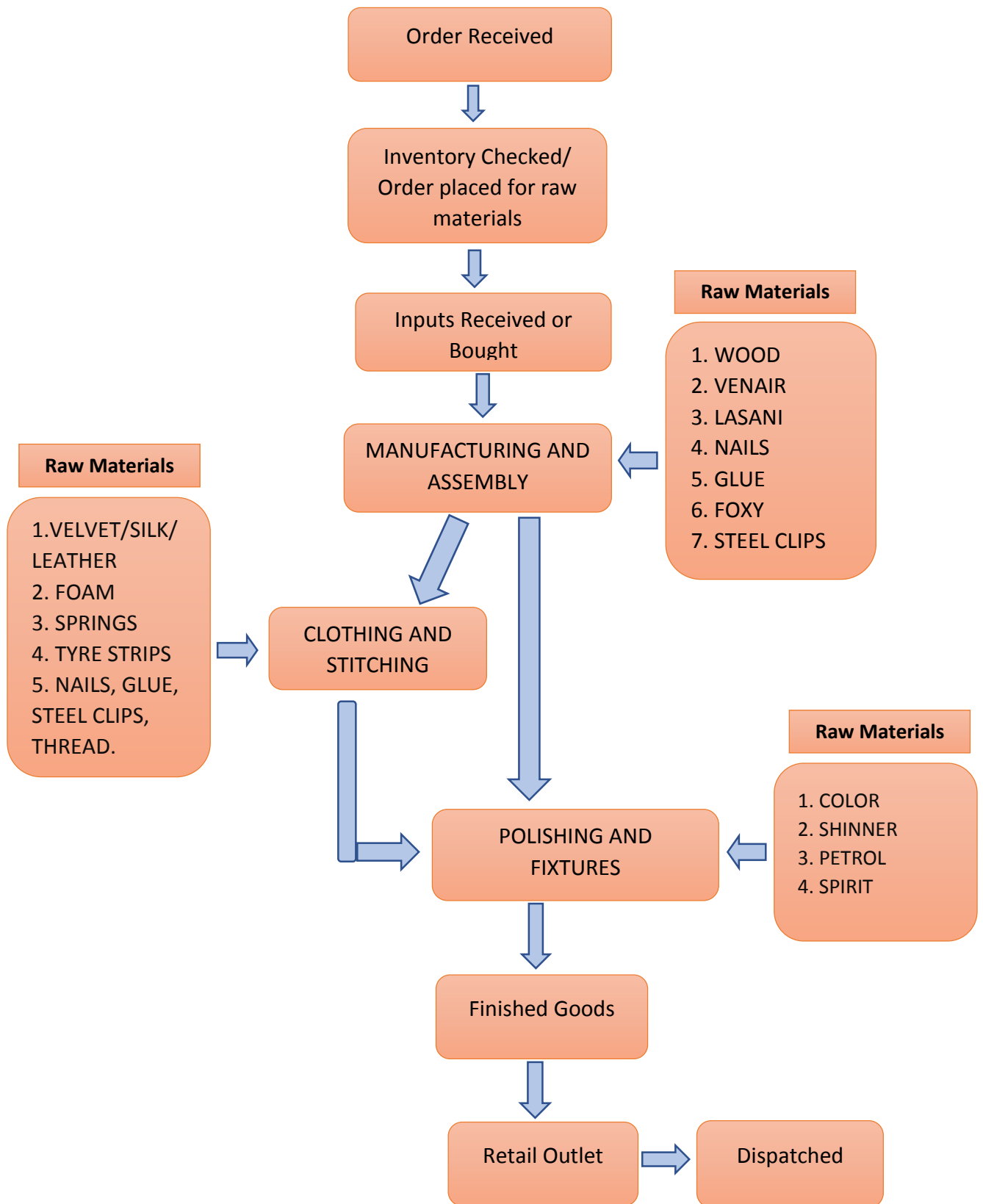
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## APPENDIX



Direct Materials (Prices in PKR)					
Manufacturing & Assembly	Price	Polishing and fixtures	Price	Clothing and Stitching	Price
Wood	8016 (8x4 Slab)	Lakh dana	1200 per litre	Cloth	600/- meter
Venair	2016 (8x4 Sheet)	Spirit	65 per litre	Velvet	660/- meter
Lasani 1/2 inch	800 (8x4 Sheet)	Petrol	89 per litre	Leather	340/- meter
Lasani	1500 (8x4 Sheet)	Lacquer	350 per litre	Thread	15 per spool
Nails	200 (50 Nails per box)	Kerosene	110 per litre	Foam	900/- meter
Glue	500 Packet	Colour	100 per box	Tyre strips	50 per box
Steels clips	500 per set	Handles	600 (4 handles)	Springs	200 per set
Foxy	500 per bottle	Glass (per sq. ft)	125 – 8mm	Nails	200 per box
			190- 12mm	Glue	500 per packet
		Mirror	100 (5mm/sq ft)		

**Exhibit 2**

Labor Costs	
Skilled	PKR 1000 per day (8 hours a day)
Unskilled	PKR 500 per day
Supervisor (per workshop)	PKR 30,000 Monthly
2 Employees in the Retail outlets	PKR 25,000 Monthly (each)
Electricity Charges	
Manufacturing & Assembly	PKR 15,000
Polishing & Fixtures	PKR 6,000
Clothing & Stitching	PKR 18,000
Retail Outlet	
Rent	PKR 40,0000
Electricity Charges	PKR 30,000

**Exhibit 3**

Assets	Cost	Useful Life	Life Remaining	Scrap Value
Manufacturing & Assembly				
Wood Cutter	150,000.00	20	0	0
Modular	160,000.00	15	5	0
Clothing and Sticing				
Stitching Machine 1	800,000.00	30	0	0
Stitching Machine 2	950,000.00	30	0	0
Stitching Machine 3	1,150,000.00	30	15	0
Punch Machine	200,000.00	15	8	0
Polishing and Fixtures				
Compressor	30,000.00	10	6	0
Spray Gun 1	2,500.00	2	1	0
Spray Gun 2	3,500.00	2	0	0
Spray Gun 3	2,000.00	2	2	0

**Exhibit 4**

QUANTITY TABLE																
MANUFACTURING & ASSEMBLY	Bed			Sofas			Center table			Dinning set			Show case		Wardrobes	
	Single	Be	Queen Si	King size	4 Seater	5 Seater	7 Seater	deewan	2 x4	3 x3	4x4	6 seater	8 seater	10 seater	4x6	6 x6
<u>DIRECT MATERIAL</u>																
WOOD	2	3.5	4.25		0.6	1	1.9	1.5	0.5	0.6	0.75	1.5	2.5	3.25	1	1.5
VENAIR	3	6	8						2	2	2.5	0.5	0.8	1	1	2
LASANI 1/2 INCH	0	0	0						1	1	1					
LASANI	0	0	0													
NAILS	2	3	4		2	4	9	2	1	2	2	2	2	2	1	2
GLUE	2	3	3									3	3	3	0.5	1
STEEL CLIPS	1	3	3									2	3	2	2	3
FOXY	1	2	2						0.5	1	1	1	1	1	1	1
<u>DIRECT LABOUR</u>																
SKILLED	5	7	7.5		3	3	5	3	3	3	3	6	8	8	3	4
UNSKILLED	5	7	7		3	3	5	4	3	3	3	6	8	8	3	4
<u>POLISHING AND FIXTURES</u>																
<u>DIRECT MATERIAL</u>																
LAKH DANA	1	2	2						0.5	1	2	2	3	4	1	2
SPIRIT	1	2	2						1	1	1	1	1	1	1	2
PETROL	0.5	1	1						0.5	0.5	1	2	3	3	2	1
LACQUER	0.5	1	1						1	1	1	2	3	3	2	3
KEROSENE	1	2	2						1	1	1	2	3	3	2	3
COLOUR	0	0	0						1	1	1	2	3	3	1.5	2.5
HANDLES	2	4	4						8	9	16	24	36	36	1	2
GLASS																
MIRROR																
<u>DIRECT LABOUR</u>																
SKILLED	3	7	7						3	3	3	2	3	2	2	3
UNSKILLED	3	7	7						3	3	3	2	3	2	2	3
<u>CLOTHING AND STITCHING</u>																
<u>DIRECT MATERIAL</u>																
CLOTH					14	18	32	7				4	6	8		
FOAM					7	12	16	5.5				5	7.5	9		
TYRE STRIPS					8	10	16	5								
SPRINGS					4	5	7	2								
THREAD					3	3	4	4				1	1	1.5		
NAILS					4	5	6	6				2	3	4		
GLUE					1	1	2	2				0.75	1	1.25		
<u>DIRECT LABOUR</u>																
SKILLED					6	8	12	4				3	4	6		
UNSKILLED					6	8	12	4				3	4	6		

Exhibit 5

<b>OVERHEAD CALCULATION</b>	
<b>(EXPENSE PER MONTH IN PKR)</b>	
<b>MANUFACTURING AND ASSEMBLY</b>	
SUPERVISOR SALARY	30,000.00
ELECTRICITY EXPENSE	15,000.00
<b>POLISHING AND FIXTURES</b>	
SUPERVISOR SALARY	30,000.00
ELECTRICITY EXPENSE	6,000.00
<b>CLOTHING AND STITCHING</b>	
SUPERVISOR SALARY	30,000.00
ELECTRICITY EXPENSE	18,000.00
DEPRECIATION	11,263.89
RENT OF RETAIL OUTLET	40,000.00
SALARIES	50,000.00
ELECTRICITY OF RETAIL OUTLET	35,000.00
<b>TOTAL OVERHEADS</b>	<b>140,263.89</b>
<b>TOTAL UNITS OF WOOD CONSUMED</b>	<b>88.75</b>
<b>OAR</b>	<b>1,580.44</b>

Exhibit 6

BUSINESS RESEARCH FINAL PROJECT REPORT

	BED			SOFAS			
	Single Bed	Queen Size	King size	4 Seater	5 Seater	7 Seater	deewan
<b>MANUFACTURING AND ASSEMBLY</b>							
<u><b>DIRECT MATERIAL</b></u>							
WOOD	16,032	28,056	34,068	4,810	8,016	15,230	12,024
VENAIR	6,048	12,096	16,128	-	-	-	-
LASANI 1/2 INCH	-	-	-	-	-	-	-
LASANI	-	-	-	-	-	-	-
NAILS	400	600	800	400	800	1,800	400
GLUE	1,000	1,500	1,500	-	-	-	-
STEEL CLIPS	500	1,500	1,500	-	-	-	-
FOXY	500	1,000	1,000	-	-	-	-
<u><b>DIRECT LABOUR</b></u>							
SKILLED	625	875	938	375	375	625	375
UNSKILLED	313	438	438	188	188	313	250
<b>POLISHING AND FIXTURES</b>							
<u><b>DIRECT MATERIAL</b></u>							
LAKH DANA	1,200	2,400	2,400	-	-	-	-
SPIRIT	65	130	130	-	-	-	-
PETROL	45	89	89	-	-	-	-
LACQUER	175	350	350	-	-	-	-
KEROSENE	110	220	220	-	-	-	-
COLOUR	-	-	-	-	-	-	-
HANDLES	1,200	2,400	2,400	-	-	-	-
GLASS	-	-	-	-	-	-	-
MIRROR	-	-	-	-	-	-	-
<u><b>DIRECT LABOUR</b></u>							
SKILLED	375	875	875	-	-	-	-
UNSKILLED	188	438	438	-	-	-	-
<b>CLOTHING AND STITCHING</b>							
<u><b>DIRECT MATERIAL</b></u>							
CLOTH	-	-	-	8,400	10,800	19,200	4,200
FOAM	-	-	-	6,300	10,800	14,400	4,950
TYRE STRIPS	-	-	-	400	500	800	250
SPRINGS	-	-	-	800	1,000	1,400	400
THREAD	-	-	-	45	45	60	60
NAILS	-	-	-	800	1,000	1,200	1,200
GLUE	-	-	-	500	500	1,000	1,000
<u><b>DIRECT LABOUR</b></u>							
SKILLED	-	-	-	750	1,000	1,500	500
UNSKILLED	-	-	-	375	500	750	250
<b>TOTAL DIRECT COST</b>	28,775	52,966	63,273	24,142	35,524	58,278	25,859
<b>OVERHEADS</b>	3,161	5,532	6,717	1,897	3,161	6,006	4,741
<b>TOTAL PRODUCTION COST</b>	31,935	58,498	69,989	26,039	38,684	64,284	30,600

**Exhibit 7: Total Cost of Products**

BUSINESS RESEARCH FINAL PROJECT REPORT

	CENTER TABLE			DINING SET			SHOW CASE		WARDROBES	
	2 x4	3 x3	4x4	6 seater	8 seater	10 seater	4x6	6x6	4x6	6x6
<b>MANUFACTURING AND ASSEMBLY</b>										
<b><u>DIRECT MATERIAL</u></b>										
<b>WOOD</b>	4,008	4,810	6,012	12,024	20,040	26,052	8,016	12,024	-	-
<b>VENAIR</b>	4,032	4,032	5,040	1,008	1,613	2,016	2,016	4,032	8,064	10,080
<b>LASANI 1/2 INCH</b>	800	800	800	-	-	-	-	-	3,200	4,000
<b>LASANI</b>	-	-	-	-	-	-	-	-	1,500	3,000
<b>NAILS</b>	-	-	-	400	400	400	200	400	200	400
<b>GLUE</b>	500	1,000	1,000	1,500	1,500	1,500	250	500	1,000	1,500
<b>STEEL CLIPS</b>	-	-	-	-	-	-	1,000	1,500	1,000	1,500
<b>FOXY</b>	250	500	500	500	500	500	500	500	500	500
<b><u>DIRECT LABOUR</u></b>										
<b>SKILLED</b>	375	375	375	750	1,000	1,000	375	500	375	500
<b>UNSKILLED</b>	188	188	188	375	500	500	188	250	188	250
<b>POLISHING AND FIXTURES</b>										
<b><u>DIRECT MATERIAL</u></b>										
<b>LAKH DANA</b>	600	1,200	2,400	2,400	3,600	4,800	1,200	2,400	1,200	2,400
<b>SPIRIT</b>	65	65	65	65	65	65	65	130	65	130
<b>PETROL</b>	45	45	89	178	267	267	-	-	-	-
<b>LACQUER</b>	350	350	350	700	1,050	1,050	700	1,050	700	1,050
<b>KEROSENE</b>	-	-	-	220	330	330	220	330	220	330
<b>COLOUR</b>	100	100	100	-	-	-	150	250	200	300
<b>HANDLES</b>	-	-	-	-	-	-	600	1,200	600	1,200
<b>GLASS</b>	1,000	1,125	2,000	-	-	-	3,000	4,500	-	-
<b>MIRROR</b>	-	-	-	-	-	-	-	-	2,400	3,600
<b><u>DIRECT LABOUR</u></b>										
<b>SKILLED</b>	375	375	375	-	-	-	250	375	250	375
<b>UNSKILLED</b>	188	188	188	-	-	-	125	188	125	188
<b>CLOTHING AND STITCHING</b>										
<b><u>DIRECT MATERIAL</u></b>										
<b>CLOTH</b>	-	-	-	2,400	3,600	4,800	-	-	-	-
<b>FOAM</b>	-	-	-	4,500	6,750	8,100	-	-	-	-
<b>TYRE STRIPS</b>	-	-	-	-	-	-	-	-	-	-
<b>SPRINGS</b>	-	-	-	-	-	-	-	-	-	-
<b>THREAD</b>	-	-	-	15	15	23	-	-	-	-
<b>NAILS</b>	-	-	-	400	600	800	-	-	-	-
<b>GLUE</b>	-	-	-	375	500	625	-	-	-	-
<b><u>DIRECT LABOUR</u></b>										
<b>SKILLED</b>	-	-	-	375	500	750	-	-	-	-
<b>UNSKILLED</b>	-	-	-	188	250	375	-	-	-	-
<b>TOTAL DIRECT COST</b>	12,875	15,151	19,481	28,373	43,080	53,953	18,855	30,129	21,787	31,303
<b>OVERHEADS</b>	790	948	1,185	2,371	3,951	5,136	1,580	2,371	1,580	2,371
<b>TOTAL PRODUCTION COST</b>	13,665	16,099	20,666	30,743	47,031	59,089	20,435	32,499	23,367	33,673

Exhibit 7 Continued: Total Cost of Products



BUSINESS RESEARCH FINAL PROJECT REPORT

	Customisations																	
	Thick Frame			Cloth Work			Normal Carving			Extensive Carving			Velvet			Leather		
	Single	Queen	King	Single	Queen	King	Single	Queen	King	Single	Queen	King	Single	Queen	King	Single	Queen	King
<b>Manufacturing &amp; Assembly</b>																		
<b>Direct materials</b>																		
Wood	0.5	1	1.25	-0.25	-0.5	-0.75	0.5	0.75	0.75	0.5	0.75	0.75	-0.25	-0.5	-0.75	-0.25	-0.5	-0.75
Venair				0.25	0.5	0.75							0.25	0.5	0.75	0.25	0.5	0.75
Lasani 1/2 inch																		
Lasani																		
Nails	0.5	0.5	0.5															
Glue	0.25	0.5	0.5															
Steel clips																		
Foxy	0.25	0.5	0.5															
<b>Direct labour</b>																		
Skilled							1.5	2	3	3	4	5						
Unskilled							1.5	2	3	3	4	5						
<b>Polishing and Fixtures</b>																		
<b>Direct material</b>																		
Lakh dana	0.25	0.57	0.59	-0.13	-0.29	-0.35							-0.13	-0.29	-0.35	-0.13	-0.29	-0.35
Siprit	0.25	0.57	0.59	-0.13	-0.29	-0.35							-0.13	-0.29	-0.35	-0.13	-0.29	-0.35
Petrol	0.13	0.29	0.29	-0.06	-0.14	-0.18							-0.06	-0.14	-0.18	-0.06	-0.14	-0.18
Lacquer	0.13	0.29	0.29	-0.06	-0.14	-0.18							-0.06	-0.14	-0.18	-0.06	-0.14	-0.18
Kerosene	0.25	0.57	0.59	-0.13	-0.29	-0.35							-0.13	-0.29	-0.35	-0.13	-0.29	-0.35
Colour																		
Handles																		
Glass																		
Mirror																		
<b>Direct Labour</b>																		
Skilled							0.5	0.75	0.75	0.75	1	1						
Unskilled							0.5	0.75	0.75	0.75	1	1						
<b>Clothing and Sticking</b>																		
<b>Direct material</b>																		
Cloth				2.5	3.5	4							-2.5	-3.5	-4	-2.5	-3.5	-4
Foam				1.5	3	3.5							1.5	3	3.5	1.5	3	3.5
Tyre strips																		
Springs																		
Thread				1	1	1							1	1	1	1	1	1
Nails				1.5	2	2							1.5	2	2	1.5	2	2
Glue				0.75	1	1							0.75	1	1	0.75	1	1
Velvet													3	4	4.5			
Leather																3	4	4.5
<b>Direct labour</b>																		
Skilled				2	3	3.5							2	3	3.5	2	3	3.5
Unskilled				2	3	3.5							2	3	3.5	2	3	3.5

**Exhibit 8: Job Sheets Quantity**

		Customisations																	
		Thick frame			Cloth Work			Normal Carving			Extensive Carving			Velvet			Leather		
		Single	Queen	King	Single	Queen	King	Single	Queen	King	Single	Queen	King	Single	Queen	King	Single	Queen	King
<b>Direct materials</b>																			
Wood	4008	8016	10020	-2004	-4008	-6012	4008	6012	6012	6012	4008	6012	6012	-2004	-4008	-6012	-2004	-4008	-6012
Venair				504	1008	1512								504	1008	1512	504	1008	1512
Lasani																			
Nails	100	100	100																
Glue	125	250	250																
Steel clips																			
Foxy	125	250	250																
<b>Direct labour</b>																			
Skilled							187.5	250	375	375	500	625							
Unskilled							93.75	125	187.5	187.5	250	312.5							
<b>Polishing and Fixtures</b>																			
<b>Direct material</b>																			
Lakh dana	300	685.7143	705.8824	-150	-342.857	-423.529								-150	-342.857	-423.529	-150	-342.857	-423.529
Siprit	16.25	37.14286	38.23529	-8.125	-18.5714	-22.9412								-8.125	-18.5714	-22.9412	-8.125	-18.5714	-22.9412
Petrol	11.125	25.42857	26.17647	-5.5625	-12.7143	-15.7059								-5.5625	-12.7143	-15.7059	-5.5625	-12.7143	-15.7059
Lacquer	43.75	100	102.9412	-21.875	-50	-61.7647								-21.875	-50	-61.7647	-21.875	-50	-61.7647
Kerosene	27.5	62.85714	64.70588	-13.75	-31.4286	-38.8235								-13.75	-31.4286	-38.8235	-13.75	-31.4286	-38.8235
Colour																			
Handles																			
Glass																			
Mirror																			
<b>Direct Labour</b>																			
Skilled							62.5	93.75	93.75	93.75	125	125							
Unskilled							31.25	46.875	46.875	46.875	62.5	62.5							
<b>Clothing and Stitching</b>																			
<b>Direct material</b>																			
Cloth				1500	2100	2400								-1500	-2100	-2400	-1500	-2100	-2400
Foam				1350	2700	3150								1350	2700	3150	1350	2700	3150
Tyre strips																			
Springs																			
Thread				15	15	15								15	15	15	15	15	15
Nails				300	400	400								300	400	400	300	400	400
Glue				375	500	500								375	500	500	375	500	500
Velvet														1980	2640	2970	1020	1360	1530
Leather																			
<b>Direct labour</b>																			
Skilled				250	375	437.5								250	375	437.5	250	375	437.5
Unskilled				125	187.5	218.75								125	187.5	218.75	125	187.5	218.75
<b>COST</b>	4756.625	9527.143	11557.94	-1699.31	-3455.57	-5062.76	4383	6527.625	6715.125	4711.125	6949.5	7137	1195.688	1261.929	228.4853	235.6875	-18.0714	-1211.51	

Exhibit 9: Job Sheets (Costs per customisation)

BASIC PRODUCT	PRICES ACCORDING TO CURRENT SYSTEM				PRICES ACCORDING TO THE MODEL				VARIANCE		
	CUSTOMIZATION 1	CUSTOMIZATION 2	COST	MARGIN	PRICE	COST	RETAIL OUTLET OH	TOTAL COST		MARK UP	PRICE
SOFA 5 SEATER	WOODEN ATTACHMENT	CARVING	54,000	15000	69,000	55,585	3,263.71	58,848.83	11,769.77	70,618.60	1,618.60
QUEEN BED	CLOTH WORK	CARVING	68,000	10000 TO 15000	83,000	67,847	4,351.61	72,198.70	14,439.74	86,638.44	3,638.44
8 seater DINING	DOUBLE TOP	-	48,000	15000	63,000	48,741	3,263.71	52,004.60	10,400.92	62,405.52	(594.48)
SOFA 7 SEATER	-	-	50,000	12000 TO 15000	65,000	55,964	5,076.88	61,040.44	12,208.09	73,248.53	8,248.53
CENTER TABLE 4*4	EXTENSIVE CARVING	ROUND TABLE	30,000	5000 TO 7000	37,000	28,964	1,595.59	30,559.17	6,111.83	36,671.00	(329.00)

Exhibit 10. Variance Analysis of a sample order.

OUTSOURCING						Outsource Based on Cost
	Standard Cost	Manufacturing	Polishing	Clothing	Total Cost Difference	YES / NO
	<b>Bed</b>					
Single	28,775	23000	6000	3000	32000	(3,226) No
Queen	52,966	35000	12000	7000	54000	(1,034) No
King	63,273	45000	15000	8000	68000	(4,728) No
	<b>Sofas</b>					
4 Seater	24,142	7000		21000	28000	(3,858) No
5 Seater	35,524	8000		27000	35000	524 Yes
7 Seater	58,278	12000		37000	49000	9,278 Yes
Dewaan	25,859	5000		13000	18000	7,859 Yes
	<b>Center Table</b>					
2x4	12,875	7500	3000		10500	2,375 Yes
3x3	15,151	8500	3500		12000	3,151 Yes
4x4	19,481	12000	4500		16500	2,981 Yes
	<b>Dinning Set</b>					
6 Seater	28,373	28000	8000	7000	43000	(14,628) No
8 Seater	43,080	34000	10000	9000	53000	(9,920) No
10 Seater	53,953	44000	15000	12000	71000	(17,048) No
	<b>Showcase</b>					
4x6	18,855	15000	4000		19000	(146) No
6x6	30,129	24000	6000		30000	129 Yes
	<b>Wardrobe</b>					
4x6	21,787	15000	6000		21000	787 Yes
6x6	31,303	20000	8000		28000	3,303 Yes

**Exhibit 11: Make or Buy decision.**