



Partial Fulfilment of a Course Work on

Forest Business Furniture Design

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Industrial Management

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Part 1

1.1 Company Profile

FOREST Business Furniture is a renowned provider of bespoke commercial furniture solutions, combining craftsmanship and innovation to create exceptional workspaces. With a commitment to quality, design, and customer satisfaction, we specialize in transforming office environments into functional and aesthetically pleasing spaces that inspire productivity and collaboration.

Founded in 2010 by visionary furniture designer Polar Kaung, FOREST Business Furniture began as a small woodworking workshop in a quaint town. Polar's passion for blending natural elements with functional design has led to the company's rapid growth and reputation for producing unique and high-quality pieces. Over the years, the company expanded its team of skilled craftsmen, embraced modern technology, and earned recognition for its innovative approach to office furniture.

1.1.1 Organization Structure

In the organizational chart described in Figure 1.1, 12 employees work under four teams. The four teams are sales and customer relations team, design and planning team, manufacturing and craftsmanship team and installation and delivery team. Aside from four team there will be an admin that will work along side all teams. Firstly, the responsibility of sales team is to make advertisements for increasing the sales and getting the customer. Next, they receive customer contact, make an appointment with customer for order specifications. They handle project contract and arrange payment with customer. And when the production is completed, they ask customer when to install and deliver.

The design team works together with the customer, sales team and admin for producing estimated quotation and finished time. They have responsibilities for designing products with the customer's demands and confirming update the materials price and delivery time. Then, they finally calculate the final cost and finished time after considering all things in the project.

After receiving the order confirmation from customer, the production team starts to purchase the materials. When the materials arrive, the production process starts. In the production team, there are four multi-skilled crafts people who are able to manufacture all types of furniture's. In those four craftsmen, there are one inspector who eventually check the quality control and quality assurances. After inspecting all the products, they start to pack the order. The installation team works when the customer confirms the date to deliver and install.

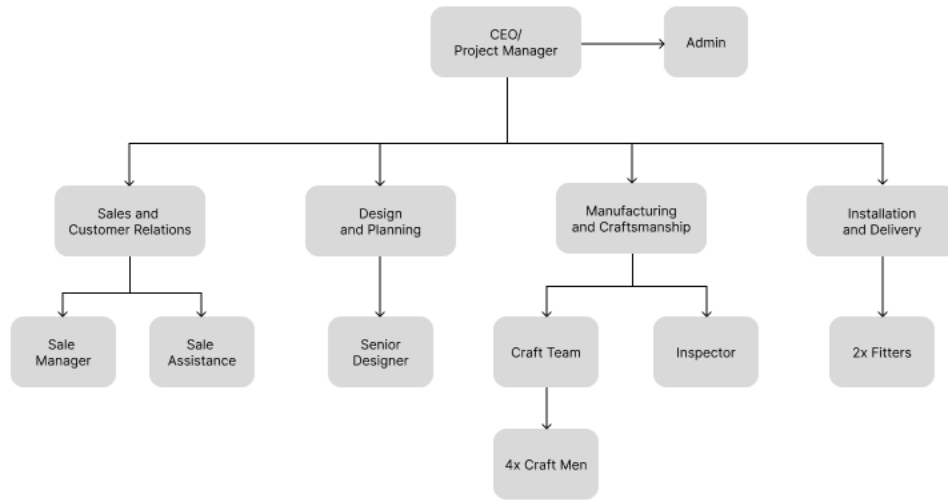


Figure 1.1: Organization Structure

1.1.2 Vision

The vision of FOREST Business Furniture is to create imaginative, custom-made furniture solutions that transform tired work settings into inspiring environments. We aim to lead the industry by seamlessly merging great craftsmanship, functionality, and aesthetics to develop furniture that not only meets the needs of our clients but also improves their work experience. Our commitment to excellence, sustainability, and personalized service drives us to consistently offer furniture that inspires creativity. Our mission stays the same as we grow: to determine the future of work environments by rethinking furniture design and setting new quality and innovation standards.

1.1.3 Mission

Our goal at FOREST Business Furniture is to create, assemble, and distribute office furniture that makes ordinary rooms into exceptional workspaces. We are dedicated to offering our clients professionally created and unique furniture options that suit their practical requirements and enhance wellbeing. We try to produce furniture items that are a tribute to our unrelenting quest of perfection, with a focus on innovation, sustainability, and high-caliber craftsmanship. We are motivated to constantly push the frontiers of creativity and usefulness because we have a keen knowledge of the tremendous effects that a well-designed workstation can have on individuals and teams.

1.2 Business Case

The company follows a straightforward sequential approach in its operations. It all begins with customers reaching out to a sales representative through phone calls, the company's website, or interactions at sales events. Once an inquiry is made, a sales team member and an admin arrange a meeting with the customer to define the order specifications. Collaborating with the design team, the sales team then creates a quotation. Using the order specifications, the design team generates designs for tables and chairs, along with installation layouts.

The company's designers and sales team assess the order to generate an estimate, which is communicated to the customer. After finalizing the design, the craftsmen commence production, considering the company's overall production capacity. The production process kicks off by coordinating with material suppliers and procuring the necessary materials beforehand.

Next, the Quality Assurance and Quality Control team examines the products, issuing a Change Order for any faulty items. Following successful QA/QC inspection, the products undergo packing and shipping. Upon arrival at the customer's location, the items are installed by the company's installers. As part of our commitment to maintaining strong customer relationships, we offer after-sales support and reasonably priced repair services for our products within a six-month timeframe.

1.2.1 IDEF (A-0) Diagram

The IDEF0 A-0 (pronounced "A minus zero") diagram presents a context-level view of the inputs, control, outputs, and mechanisms (ICOM) for a specific function in your logical model. IDEF0 stands for Integration Definition for Process Modelling, a public-domain methodology used to model businesses and their processes so they can be understood and improved. The IDEF (A-0) parent diagram of Forest Business Design manufacture process is defined in Figure 1.2

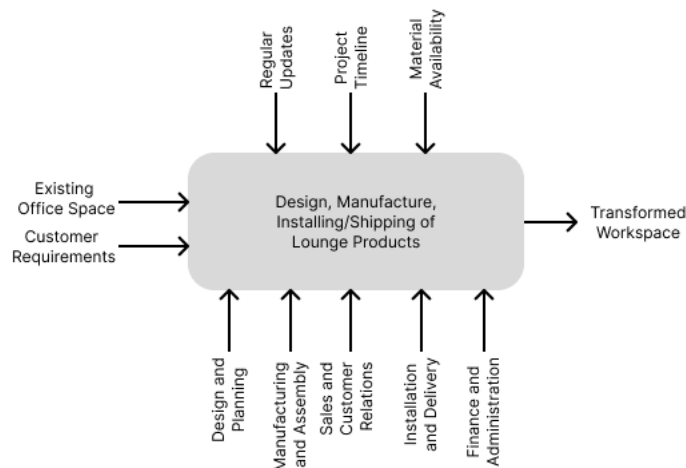


Figure 1.2: IDEF (A-0)

Purpose: To illustrate IDEF0 modeling for the designing, manufacturing and installation processes of furniture by the company.

Context: The company has required technical knowledge and skilled craftsmen to carry out the manufacturing order and need not outsource them. All operation is carried out by employees already hired by the company starting from receiving customer enquiry to installation of the furniture at the client’s place.

Viewpoint The CEO The overlooks the whole operation of the company with the approval of clients and Chief Executive Officer.

1.2.2 IDEF0 Diagram

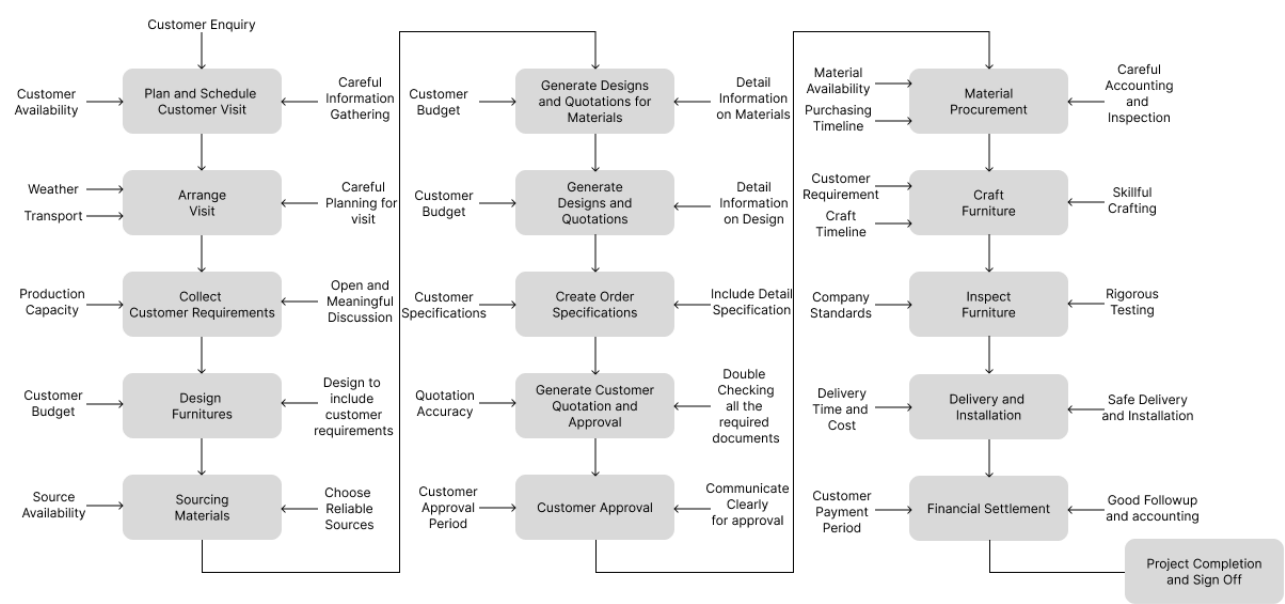


Figure 1.3: IDEF0

1.3 Appraisal or Evaluation and Summary

In figure 1.3, (IDEF0) model described step by step manufacturing process of the company. The entire process starts with receiving customer inquiry. Once the customer contacts to sale center, the clerk makes plans and arrange an appointment with sales team and admin. The sales team collect the detail requirements for the project with the company capacity in mind. Then, with the requirements, the design team starts designing along with the approximated materials required and sources. After that, the design team generates quotations on materails and the overall designs, then create a detail order specifications. Once this is done, the quotation for the custormer is made and inform the customer. After getting agreement on the design and quotation, General manager calls the project planning meeting to make step by step project plan creating work break down structure, project schedule, Gantt chart, project risks register, etc. The manufacturing process require involvement of the material suppliers. Design engineers start to design furniture depending on project specifications following the quality standard. After design is finished, craftsmen start to build furniture. During building the furniture, carpenters and staffs need to wear safety suit and helmet because safety is the biggest concern of the company. After building the designed furniture, quality control team will check the built furniture which meets customer expectation. Installation process will start after checking the built furniture and deliver the products to customer. In case the products undergo some faults in the process of manufacturing, our company gives full repairment free to customers with the aid of after sales service team. There might be a few changes here and there which can easily be adjusted in this model. For example, the customer might not always want to visit the firm, especially the repeated customers. Additionally, in case of repeated orders, the firms may also not follow the usual process of redesigning the items again and again unless there are important changes. The model shows flexibility as these steps can be omitted in the working of the firm. Instead the process follows the same route and nothing changes besides these omissions.

Part 2

2.1 Introduction

2.1.1 Project Background

Our client is Panda Express to redesign boardroom. They ordered a boardroom table with 8 chairs. They contact us 15th August 2023 and want to make appointment at 20th August 2023. After giving the product quotation, design and duration from the sale team to the customer, they agreed on the project end date is 1st December 2023 and the project cost. And we will deliver and install the furniture at that day.

2.1.2 Stakeholders and Responsibilities

Each project involves stakeholders who can be influenced by or exert an influence on the project, either positively or negatively. These stakeholders possess legal decision-making authority and may have control over project scheduling and budget-related matters. The majority of project stakeholders bear business responsibilities, which encompass funding projects, establishing scheduling parameters, and defining milestone dates.

The customer assumes the responsibility of clarifying their requirements and ensuring timely payments to the company. Conversely, the company holds the responsibility for the successful execution of the entire process. The initial responsibility is entrusted to the Sales Team, which receives customer inquiries and furnishes them with information. This team manages all aspects of customer relations, including arranging visits for customers and communicating their demands to the design team. Additionally, the Sales Team confirms the client's order.

The design team handles the project's technical aspects and commences the design process upon receiving the customer's approval. This team also collaborates with the sales team to formulate cost and time estimates. Subsequently, craftsmen manufacture chairs and tables in accordance with the client's specifications and within the designated timeframe. Quality assurance and quality control (QA/QC) oversee all matters related to product quality. They assess the products post-manufacturing and again following installation.

2.1.3 Project Specifications

The order Specifications of table and chairs are as follows

Dimensions	10ft x 4ft
Material	Oak Wood
Finish	Polished
Special Feature	Built-in AV and computer system ports

Table 2.1: Specifications of Boardroom Table

Quantity	8
Upholstery	Leather
Frame Material	Solid beech wood
Matching	Chairs should match the table's design and material
Height	18in
Width	20in
Finish	Walnut stain

Table 2.2: Specifications of Chairs

2.1.4 Project Charter

The purpose of using project charter is to make a contract between project manager and project sponsor for project agreement. To clearly distinguish the project objectives, project scope, milestones and estimate end date, project charter plays an essential role in business management.

Project Charter			
Project Title	Manufacturing Furniture for Boardroom	Project Manager	Kaung Min Khant
Project Start Date	September 1, 2023	Project Sponsor	Polar Express
Project End Date	December 1, 2023		
Total Duration	91 days		
Total Estimated Cost	\$10,000		
Project Description	Design, manufacture, and deliver bespoke boardroom furniture including a table and chairs for Polar Express		
Project Scope	Create high-quality, customized boardroom furniture		
	Meet customer specifications and preferences		
	Ensure timely delivery and installation		
Project Requirement	Material Requirement		
	Tools and Machinery Requirement		
	Workers Requirement		
	Approval Design Requirement		
	Order Specifications		
Constraints	Cost Constraints		
	Time Constraints		
	Customer Demands		
	Quality Constraints		
Risks	Unclear/Changing Scope Risk		
	Customer Schedule Conflicts/Delays Risk		
	Design Complexity Exceeds Estimates Risk		
	Customer Budget Constraints Risk		
	Supplier Delays in Material Delivery Risk		
	Skilled Labor Shortages Risk		
	Quality Control Issues		
	Delivery Delays or Damage Risk		
Project Milestones Schedule			
Design & Quotation Approval	August 27, 2023		
Manufacturing Completion	September 14, 2023		
Delivery & Installation Completion	September 21, 2023		
Project Team		Approval/Review Committee	
Project Manager	Kaung Min Khant	Customer	Polar Express
Designer	Polar Kaung		
Inspector	Panda Kaung		
Sale Manager	Panlar Kaung		

Table 2.3: Project Charter

2.2 WBS and Risks

2.2.1 Work Breakdown Structure

The project’s work breakdown structure represents a division of the project into smaller, deliverable-focused segments. This structure comprises five distinct work assignments: Customer Inquiry, Product Design, Furniture Manufacturing, Product Inspection, and Delivery and Setup. Each of these assignments encompasses its own set of tasks.

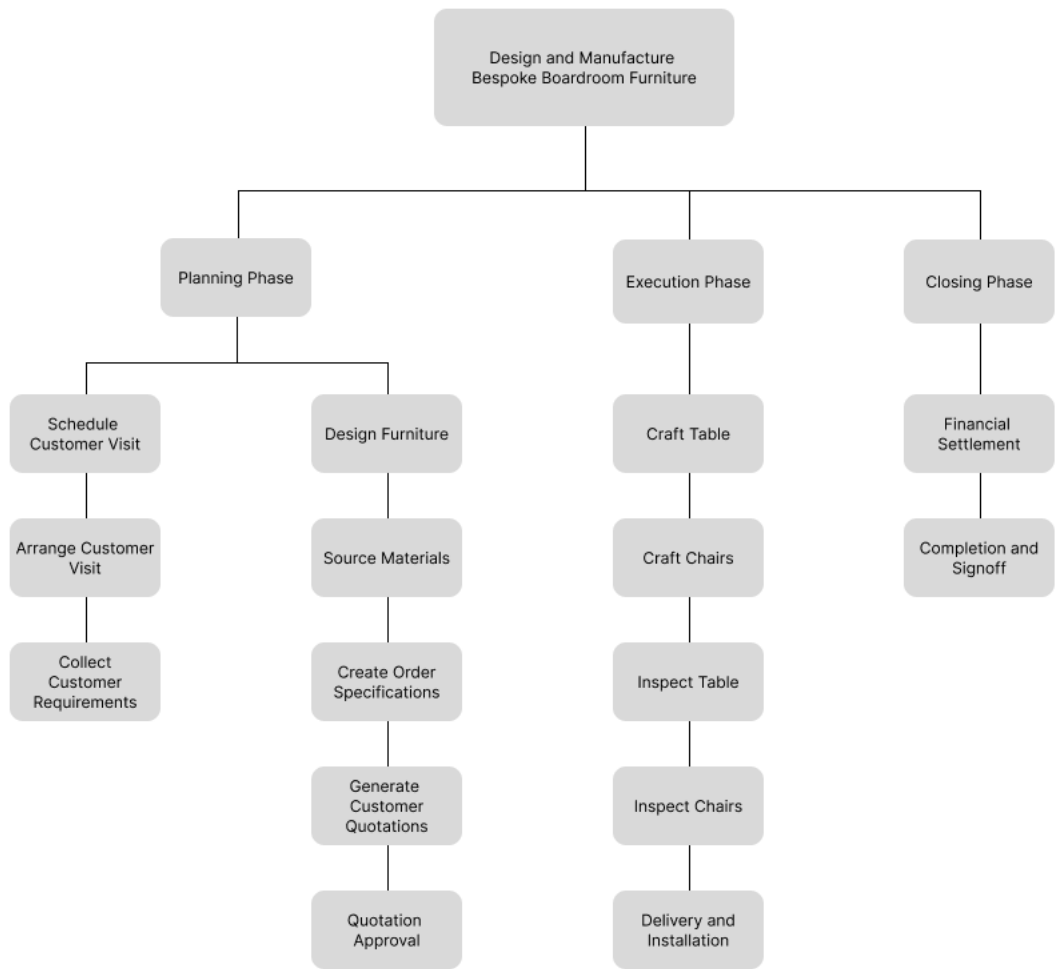


Figure 2.1: Work Breakdown Structure

2.2.2 Risk Identification Assessment and Mitigation

Work Package	Risk	Mitigation Strategy	Severity	Probability	Rank	Impact	Responsible Team
Define Scope & Objectives	Unclear/changing scope	Clearly define scope, formal change control	Moderate	Moderate	4	Delayed timelines, increased costs	Project Manager
Schedule Customer Visit	Customer schedule conflicts/delays	Flexible scheduling, proactive communication	Low	Moderate	7	Minor schedule adjustments	Sales Team
Design & Quotation	Design complexity exceeds estimates	Involve experienced designers, thorough reviews	High	Low	2	Design delays, potential rework	Design Team
Customer Receives Quotation	Customer budget constraints	Detailed cost breakdown, offer alternatives	Moderate	Moderate	3	Order cancellation/modification	Sales Team
Procure Materials & Components	Supplier delays in material delivery	Maintain supplier relationships, monitor lead times	Moderate	Moderate		Production delays, extended lead times	Procurement Team
Manufacturing	Skilled labor shortages/absenteeism	Cross-train craftsmen, ensure backup plan	High	High	1	Production delays, reduced output	Manufacturing Team
Inspection & Packing	Quality control issues	Thorough inspection, random quality checks	Moderate	Moderate	5	Rework, delayed shipping	Quality Control Team
Delivery & Installation	Delivery delays or damage	Reliable shipping, appropriate packaging	Moderate	Low	6		Delivery Team

Table 2.4: Risk and Mitigation

The risk probabilities and risk implications are qualitatively outlined in this Risk Register table. There are three levels of states in the risk table, namely Low, Moderate and High. The impact each risk can incur has also been outlined along with the possible mitigation techniques. Since each work package accompanies a certain kind of risk, the work packages are also mentioned as well. The risks are to be dealt or be prevented by the associated team.

2.3 Timeline

2.3.1 Gantt Chart

		Sept 1	Sept 5	Sept 6	Sept 7	Sept 21	Sept 22	Oct 12	Oct 13	Oct 19	Oct 20	Oct 26	Oct 27	Oct 28	Oct 29	Oct 31	Nov 1	Nov 7	Nov 8	Nov 16	Nov 21	Nov 22	Nov 25	Nov 26	Nov 27	Nov 28	Nov 30	Dec 1
Plan and Schedule Customer Visit	5 days																											
Arrange Visit	1 day																											
Collect Customer Requirements	2 weeks																											
Design Table and Chairs	3 weeks																											
Generate Designs and Quotation	1 week																											
Create Order Specification	1 week																											
Generate Customer Quotation	2 days																											
Customer Receives Quotation	3 days																											
Source Chair Materials	1 week																											
Source Table Materials	1 week																											
Manufacture Furniture (Chairs)	9 days																											
Manufacture Furniture (Table)	2 weeks																											
Inspection & Packing (Chairs)	4 days																											
Inspection & Packing (Table)	4 days																											
Deliver and Install Furniture	2 days																											
Financial Settlement	3 days																											
Project Completion and Sign-off	1 day																											

Table 2.5: Gantt Chart

2.3.2 Activity on Node

	Task	Procedure	Duaration
A	Plan and Schedule Customer Visit		5 days
B	Arrange Visit	A	1 day
C	Collect Customer Requirements	B	2 weeks
D	Design Table and Chairs	C	3 weeks
E	Generate Designs and Quotation	D	1 week
F	Create Order Specification	E	1 week
G	Generate Customer Quotation	F	2 days
H	Customer Receives Quotation	G	3 days
I	Source Chair Materials	H	1 week
J	Source Table Materials	H	1 week
K	Manufacture Furniture (Chairs)	I	9 days
L	Manufacture Furniture (Table)	J	2 weeks
M	Inspection & Packing (Chairs)	K	4 days
N	Inspection & Packing (Chairs)	L	4 days
O	Deliver and Install Furniture	M,N	2 days
P	Financial Settlement	O	3 days
Q	Project Completion and Sign-off	P	1 day

Table 2.6: Task Assignment

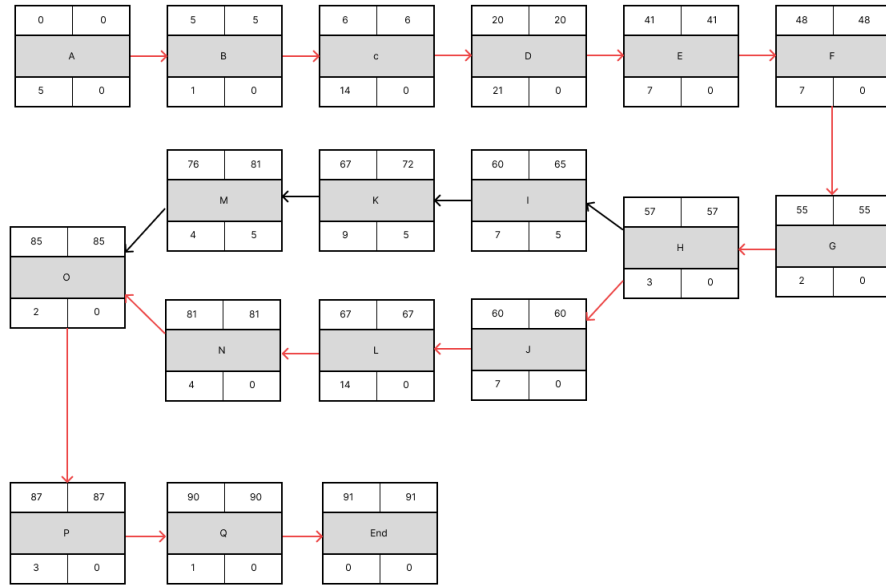


Figure 2.2: Activity-on-Arrow Diagram Featuring the critical Path1

The critical path is A-B-C-D-E-F-G-H-J-L-N-O-P-Q-END

This AON is drawn based on the project Gantt Chart described in Figure 2.5. The flow of the project activities is shown in the critical path of the project. Any delay in these activities will produce a similar delay in the total estimated time of completion of the project. The critical path is that the longest path in time from Start to Finish the project; it includes the minimum time necessary to complete the entire project. The task dependencies shown is in somewhat in a linear fashion. Completion of the first task will lead to the second task and so on. The start of second task will depend on the completion of the first task. For example, arranging the visit can only be done after planning and scheduling the visit. The customer's order confirmation will be the first significant milestone. With that, the customer's part in starting the project will be finished. The second significant milestone will be reached when the furniture is finished being manufactured, and the project's last major milestone will be when the furniture is installed. The critical path is drawn with the red arrows in the AON diagram in Figure 2.2.

2.4 Additional Information: Summary/Conclusion

2.4.1 Additional Information

The Forest Business Furniture Design firm has added a QA/QC Team to its personnel. It was a necessary addendum to complete the two previously mentioned examinations.

Although local deliveries are usually completed within a day, the distance from London to Edinburgh (where Hatley Enterprises is based) is around 400 miles, which results in eight hours minimum travel time even for a direct car drive. The shipping agent made sure to partner with a premium local delivery service was used for the safety of the products. The service does not deliver directly, instead it stops in between towns, do a quality assessment and inform the shipping agent. Therefore, it lasted around 20 hours in delivery.

References

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