



MGMT 321 - ENGINEERING PROJECT MANAGEMENT
Sewing Station
Final Report

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1. Introduction

Sewing Station is an innovative mobile application that will bridge the gap between tailors and customers to revolutionize their interaction in the sewing industry. With its intuitive interface, the application offers unparalleled convenience in locating tailors across various regions. Serving as a cutting-edge communication platform, Sewing Station simplifies the process of connecting users with skilled tailors with just a tap. Our mission is to provide stranded individuals with seamless access to expert sewing services, ensuring ease and efficiency in addressing any clothing-related needs or technical challenges.

This platform will help tailors market themselves on an application where customers can look for tailors closest to them as well as explore their services with a single touch on their phones. With the fashion industry growing rapidly and the textile industry supporting brands with eye-catching unstitched clothing pieces, Sewing Station will ensure convenience. In this application, tailors can showcase their expertise, display their portfolio of work and efficiently manage orders, while customers can locate nearby tailors, explore their offerings, and arrange for services. The main goal of this application is accessibility for the customers and tailors.

Moreover, our platform's aim is to simplify the search process for potential customers looking for suitable tailors. Instead of having to rely on asking around, users can conveniently find everything they need in one centralized platform. With Sewing Station, customers can easily navigate through a diverse range of tailors and their offerings, ensuring a hassle-free experience. Additionally, our platform provides quality assurance, alleviating concerns about product authenticity and reliability. By offering a streamlined and organized approach to finding sewing services, Sewing Station empowers customers to discover what they need with ease and confidence.

2. Project Need

The Sewing Station project is rooted in the rich culture of getting clothes tailored in Pakistan. In the local context, having garments custom-made by skilled tailors is a common and well-known practice. A substantial portion of the population in Pakistan, particularly the middle and lower income groups, prefer to have their clothes tailored by local tailors [1]. Findings by Gallup Pakistan suggest that only the high income population of Pakistan prefer ready-made clothes while the rest of the population is more inclined towards tailor stitched clothes [1]. However, this cultural norm presents a challenge, particularly during festive seasons like Eid, where the demand for tailoring services skyrockets. The surge in orders during such occasions makes it exceptionally challenging for individuals to find available and reliable tailors promptly. Furthermore, the scarcity of skilled tailors often leads to inflated prices, influenced by factors such as location and the timing of festivals. This pricing variability adds a layer of complexity to

the already daunting task of securing tailor services. Recognizing this prevalent issue, our project draws inspiration from everyday observations in our surroundings and daily lives. Many people struggle to locate tailors, and even when they manage to do so, they heavily rely on references from family or friends. This application aims to address these challenges by providing a user-friendly platform that connects individuals with nearby tailors, offering a convenient and efficient solution to this old challenge of finding skilled tailors in your local area. Moreover, a lot of the talent in Pakistan goes to waste because of no proper recognition and a limited customer reach, particularly the talents of the home based female tailors. “Home-based female tailors, however, do not get as many orders as a tailoring shop. We get to stitch about 10 to 15 suits to earn a meager amount of Rs 10,000 per month,” [2]. Therefore, our platform also aims to expand the connections of the tailors and increase their customer reach so that their talents and efforts can be recognized and appreciated.

3. Pestel Analysis

3.1. Political

Government support for SMEs, as evidenced by initiatives such as loans, subsidies, and training programs provided through platforms like the Prime Minister's Youth Business Loan Scheme, can play a crucial role in encouraging the adoption of applications like ours among small and medium businesses. Additionally, regulations concerning data privacy, intellectual property, and e-commerce could significantly influence the development and operation of the app. However, the impact of such support can be tempered by political instability, as political uncertainty can create economic instability, affecting consumer spending and willingness to invest in new technologies. The textile industry faces challenges such as power shortages and rising electricity prices, which reduce productivity and hinder competitiveness against cheaper suppliers from countries like China and India [3].

Engaging with government support programs can help provide funding and training opportunities for small and medium businesses using our platform. Moreover, facilitating connections between local businesses and suppliers can reduce dependence on imports from countries like China and India. We can create a platform within Sewing Station that allows businesses to source materials and components domestically, fostering resilience against external factors such as fluctuating prices and supply chain disruptions.

3.2. Economical

Pakistan's economic growth plays a pivotal role in shaping consumer behavior and disposable income, directly impacting the potential user base and revenue generation for the app. Pakistan's flourishing textile industry, ranking as the 8th largest exporter in Asia and contributing over 60% to the country's total exports, highlights the significant economic footprint of this sector [6].

Despite facing competition from other countries known for superior quality garments, Pakistan's garment industry maintains demand from international markets like the USA, Europe, Japan, and Australia, reflecting its resilience and potential for further expansion [7]. Figure 1 below shows the contribution of the textile industry towards the economy:

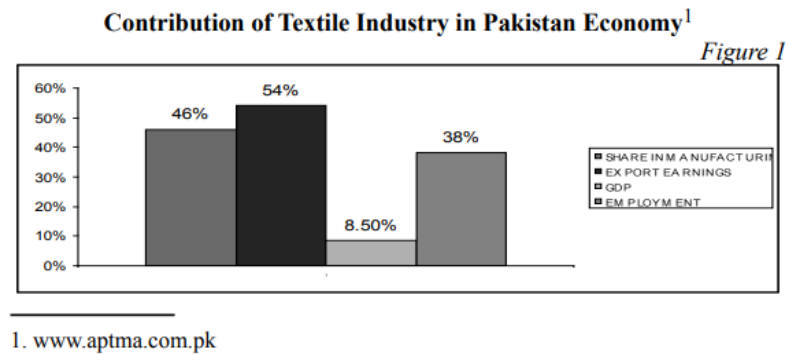


Figure 1

The impact of the textile industry on Pakistan's economy is very likely to grow, hence, it becomes an opportunity for our application to have better potential in the market. Concurrently, the rising internet penetration and increased smartphone usage within the country expand the app's potential market, presenting a promising opportunity for growth. However, the dynamics of inflation pose a challenge, as it can significantly impact the cost of materials and services for tailors, potentially squeezing their margins and leading to price hikes for customers. Our application solves this issue by providing customers with multiple options for tailors, therefore, there will be a competitive advantage here allowing the tailors to have reasonable rates in order to sell their products.

3.3. Social

The social aspect of PESTEL analysis reveals significant insights into consumer behavior in the fashion industry. According to data from the Gilani Research Foundation, a substantial portion of the population in Pakistan, particularly the middle and lower income groups, prefer to have their clothes tailored by local tailors, with a notable preference for male tailors as shown in Figure 2 [1]. This indicates a deeply ingrained cultural practice and preference for customized clothing, aligning with the growing demand for customization highlighted in changing consumer preferences. Furthermore, research by Gallup Pakistan underscores the socioeconomic divide in clothing purchasing habits, with higher income groups more inclined towards ready-made garments while others opt for tailored solutions [1]. According to World Bank data, 40% of Pakistan's population consists of low income people, whereas only 4% consists of high income individuals [9].

The research mentioned above shows that most of Pakistan's population is inclined towards getting their clothes stitched and with the growing poverty, many people would prefer tailors

over ready-made garments. These findings emphasize on the preferences of society and how they choose to engage in the fashion market. Hence, our application will become a prominent platform between the individuals of Pakistan.

“If you do not stitch your clothes yourself, do you get them stitched from a male tailor or a female tailor?”

Male Tailor	48%
Female Tailor	14%
Both	29%
No response	8%

“What is the main reason for getting your clothes stitched from this specific tailor?”

Good tailoring	55%
Low price	15%
Nearby	12%
Can't stitch on your own due to lack of time	8%
Others	1%
No response	12%

Figure 2

3.4. Technological

In the dynamic landscape of fashion and technology, staying attuned to changing consumer preferences is crucial for success. The data from the Pakistan Telecommunication Authority (PTA) disclosed that the number of 3G and 4G users in Pakistan will be 124.16 million by the end of February 2023 [10]. The growing demand for convenience, customization, and on-demand services presents a prime opportunity for adoption of innovative applications. Size Stream Company, exemplified by its online measurement applications like “methreesixty”, epitomizes this trend by streamlining the size-taking process [4]. Users can effortlessly provide their measurements online, eliminating the need to visit tailors and leverage the company's transport system for seamless clothing transactions. Figure 3 below conveys how sizestream digital body measurements model looks like:

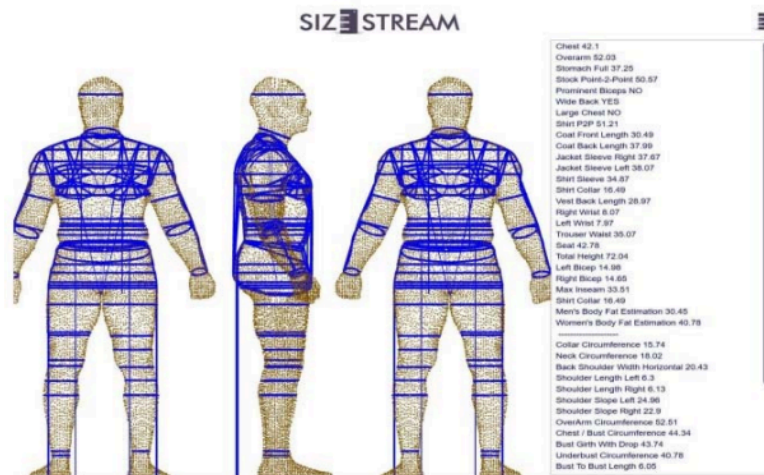


Figure 3

Furthermore, technology that enables users to dress up avatars based on their body shape, as showcased in the industry, enhances the customer experience [4]. This aligns with evolving fashion trends and preferences but also allows users to convey their envisioned final fit to tailors, establishing a bridge between technology and personalized fashion. Using social media for marketing, customer reviews, and feedback becomes integral, shaping perceptions and contributing to the overall success of such applications in the competitive fashion tech landscape. Our application plans to use this marketing aspect to promote the tailors' businesses and gain attention from the local audience.

3.5. Environmental

This platform can help to empower tailors to showcase and sell upcycled wedding clothes, creating a unique market niche. The process of upcycling demands meticulous attention to detail, particularly when working with delicate materials commonly used in wedding attire. By offering a dedicated space for tailors to sell their upcycled creations, we not only provide a sustainable option for users but also promote eco-friendly practices within the fashion industry. This initiative not only supports the creativity and craftsmanship of tailors but also aligns with the growing demand for sustainable and ethical fashion choices, contributing to a more environmentally conscious approach in the realm of wedding attire.

3.6. Legal

At our platform, we prioritize doing things the right way. This means adhering to the rules and regulations that protect both the tailors who collaborate with us and the customers who rely on our service. We are dedicated to ensuring fair treatment for our tailors, including proper compensation and a supportive working environment. For our customers, their safety and satisfaction are paramount. We implement measures to safeguard them against scams, data

breaches, and any unfair practices. Protecting their personal information is a top priority, and we work diligently to maintain their privacy and provide a positive experience. Clarity and transparency are essential in all our interactions. We establish clear agreements that outline each party's responsibilities, covering everything from payments to issue resolution. This helps prevent misunderstandings and promotes a harmonious working relationship.

When it comes to payments, we prioritize security and compliance. We utilize trusted payment systems to ensure transactions are conducted safely and securely. Customer financial information is kept confidential and handled with the utmost care. In the event of any issues or disputes, we have procedures in place to address them promptly and fairly. Our goal is to ensure that everyone involved is treated equitably and that problems are resolved with integrity and transparency. Overall, our platform is committed to upholding high standards of professionalism and ethics. We strive to create an environment where all users feel safe, respected, and well-supported.

4. Project Scope

4.1. Objectives

The primary aim of the Sewing Station project is to create an online platform tailored for tailors, set to launch within a **15 month** timeframe, by **the end of June 2025**. This platform serves as a centralized hub, uniting small-scale tailors and vendors in one virtual space. The overarching goal is to provide them with access to both national and global markets, thereby unlocking significant growth opportunities for their businesses. Simultaneously, this initiative ensures enhanced accessibility for customers seeking tailor-made services. The project will require an amount of **Rs. 0.7 million** approximately. The cost has been carefully divided into four major domains; development (61.9%), marketing (17.3%), deployment (6.1%) and maintenance (14.7%).

4.2. Deliverables

- **Project Planning:** Define the scope, objectives, and resource requirements to ensure a clear project roadmap for Sewing Station.
- **Risk Management:** Identify potential risks like data breaches, technology failures, or market resistance, and create mitigation strategies to reduce their impact.
- **Scheduling:** Establish a detailed timeline with milestones to track project progress, ensuring on-time delivery.
- **Front End:** Design a user-friendly interface that is visually appealing and easy to navigate, focusing on simplicity and intuitiveness.
- **Back End:** Develop a robust infrastructure that supports user interactions, data storage, and secure transactions, ensuring high performance and reliability.

- **Completion:** Finalize all development tasks, ensuring the product meets the initial requirements and objectives set out in the planning phase.
- **Security:** Implement robust security measures to protect user data, including encryption, secure authentication, and secure data storage.
- **Functional Testing:** Test the application's features to ensure they work as intended and meet user needs without errors or bugs.
- **User Acceptance Testing:** Invite selected users to test the application to gather feedback and ensure it meets user expectations before full launch.
- **Security Testing:** Conduct thorough security assessments to identify and fix vulnerabilities, ensuring the application is safe for end-users.
- **Marketing:** Develop and execute a comprehensive marketing strategy to create awareness and attract users to the platform.
- **Launch:** Roll out the application to the public, following a strategic plan to ensure a smooth and successful launch.
- **Documentation:** Create comprehensive guides and support materials to help users and tailors understand and use the application effectively.
- **Customer Support:** Establish a responsive support system to address user inquiries, troubleshoot issues, and provide guidance.
- **Tailor Support:** Provide resources and assistance to help tailors effectively use the platform and grow their businesses.
- **Dealing with Competition:** Analyze competitor platforms and create strategies to differentiate Sewing Station, offering unique value to users and tailors.
- **Dealing with Changes:** Develop a flexible approach to accommodate changes in user requirements or market trends, ensuring the platform remains relevant and competitive.

4.3. Milestones

Phase 01: This phase lasts for about 60 days where we focus on the planning of the project i.e. defining the need, scope and the requirements and allocating the resources for the project. **(01 March 2024 - 03 May 2024)**

Phase 02: This phase lasts for about 90 days where we focus mainly on the design and the development of the application and testing each component. The design aspect of it is to be completed within the first 30 days while the development phase continues for another 60 days after the design is complete. Unit testing continues alongside design and development and lasts for 30 days. **(04 May 2024 - 01 August 2024)**

Phase 03: This phase commences once each component passes unit testing. All these components are combined and one complete system is created. This phase takes about 40 days. **(02 August 2024 - 11 October 2024)**

Phase 04: The primary focus of this phase is to test the system and validate and verify the functionality of the complete product. This is done for about 40 days. **(12 October 2024 - 21 November 2024)**

Phase 05: This is the last phase of the project creation which focuses on wrapping up the project, doing the final user testing of the product, marketing the product and creating relevant documents. The entire phase lasts for about 222 days where four major activities are done simultaneously. The phase starts with User Acceptance Testing which lasts for the entire phase period and is done in two iterations i.e alpha testing and beta testing. About 5 days after the start of User Acceptance Testing, Security Testing is done for 20 days. Marketing and Documentation is done simultaneously with the beta testing and last for 70 and 30 days respectively. **(22 November 2024 - 24 June 2025)**

Phase 06: This is the maintenance phase which commences once the product is released in the market and lasts throughout the product lifetime. We continue to look for the upcoming risks, market competitions and changing trends in the market and reengineer our product to meet those standards. Moreover, we continue to answer customer and tailor queries and provide continuous support. **(24 June 2025 - Present)**

4.4. Technical Requirements

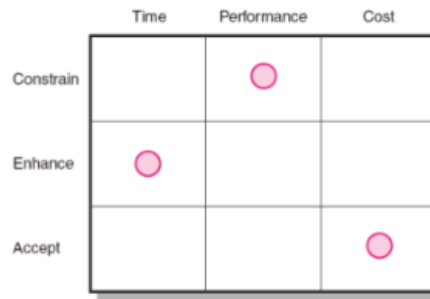
1. Implement a secure and scalable mobile application infrastructure to ensure data protection and accommodate future growth.
2. Develop the app to be usable and available across various platforms, including iOS and Android for mobile phones, as well as responsive designs for computers, laptops, and tablets.
3. Design an intuitive and user-friendly interface to enhance the user experience for both tailors and customers.

4. Implement a robust database management system to efficiently handle and store tailor and customer information securely.
5. Develop a content management system that simplifies the management of tailor profiles, portfolios, and product listings for both tailors and customers.
6. Implement a comprehensive search feature to enable customers to easily find tailors based on specific criteria.
7. Incorporate support for real-time notifications and communication to facilitate instant updates and interactions between customers and tailors.
8. Ensure swift platform performance by optimizing loading times and responsiveness. Provide a user guide to assist new users in navigating the platform seamlessly.
9. Establish a social media PR team to actively promote the Sewing Station app across various channels. Integrate social media sharing features to enhance user engagement and platform visibility.
10. Ensure the platform's responsiveness, allowing it to adapt seamlessly to various screen sizes and resolutions for a consistent user experience.

4.5. Limits and Exclusions

1. The Sewing Station app absolves any liability for damage or loss caused by the tailors or associated courier services during the course of business transactions.
2. The platform will not assume responsibility for the quality, authenticity, and reliability of the services provided by tailors registered on the app. Users are advised to engage in due diligence before availing of any services.
3. Tailor businesses found in violation of the platform's laws, rules, or regulations will not be permitted to register on or continue using the site.
4. Any technical faults arising from the tailor's or the customer's devices or internet connection are not within the responsibility of the Sewing Station platform.
5. The platform does not provide any warranty or guarantee for the services offered by tailors on the app. Users are encouraged to communicate directly with tailors for specific assurances or clarifications.

5. Project Priority Matrix

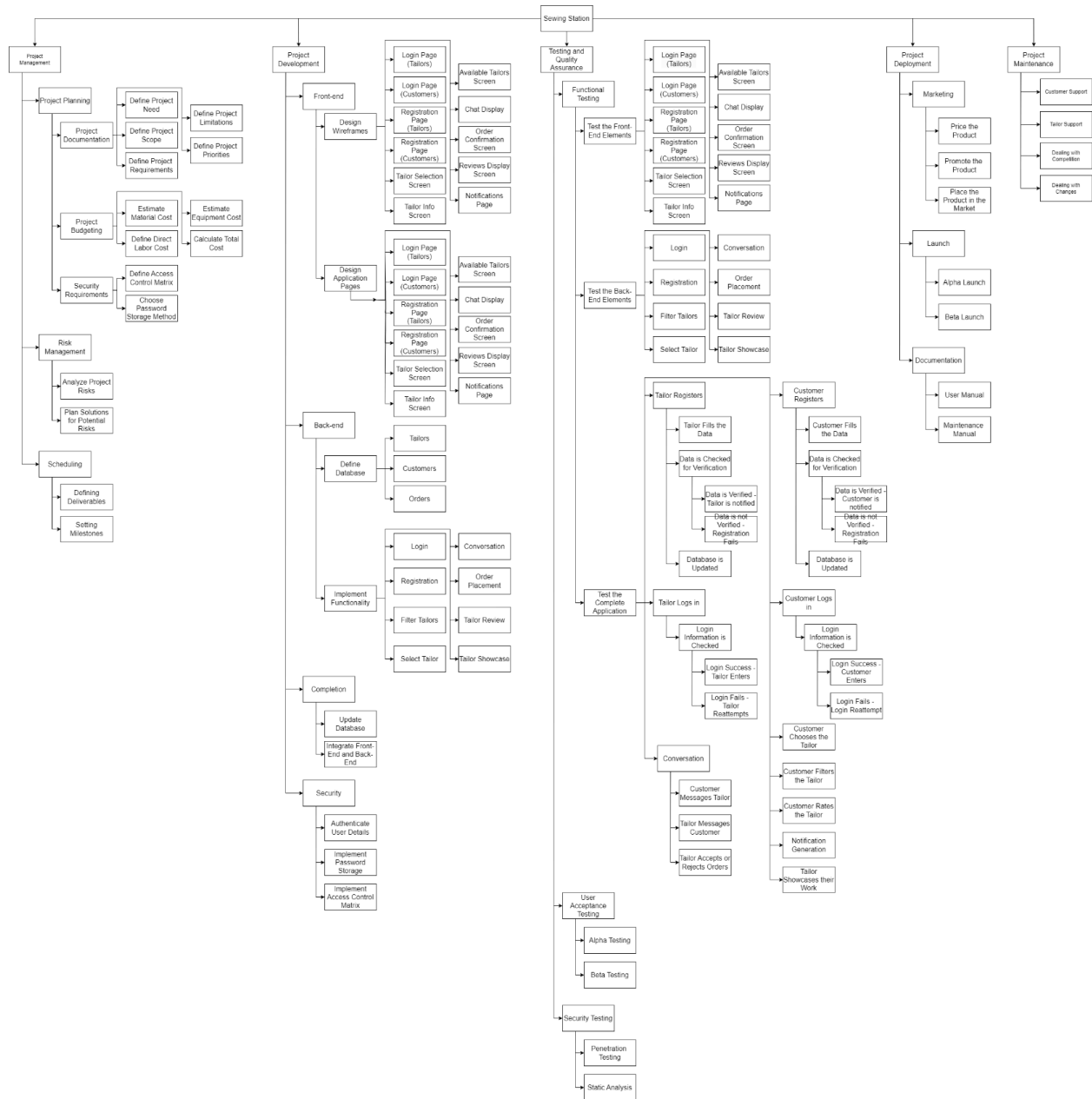


Constraining performance helps to deliver customers the important features and since we are enhancing time, that means the challenge faced by users regarding finding tailors can be solved urgently. Moreover, accepting cost will help provide the project resources to expedite the process. Since enhancing time may require some expensive equipment or hiring more developers, hence, accepting cost is the best way to go about it. Also, constraining the scope saves us from scope creep and since we are trying to cut down time too while spending as much as we want to on the product, a high quality application for users can be guaranteed.

6. Work Breakdown Structure

The link to the Work Breakdown Structure: [Link](#)

Work Breakdown Structure:

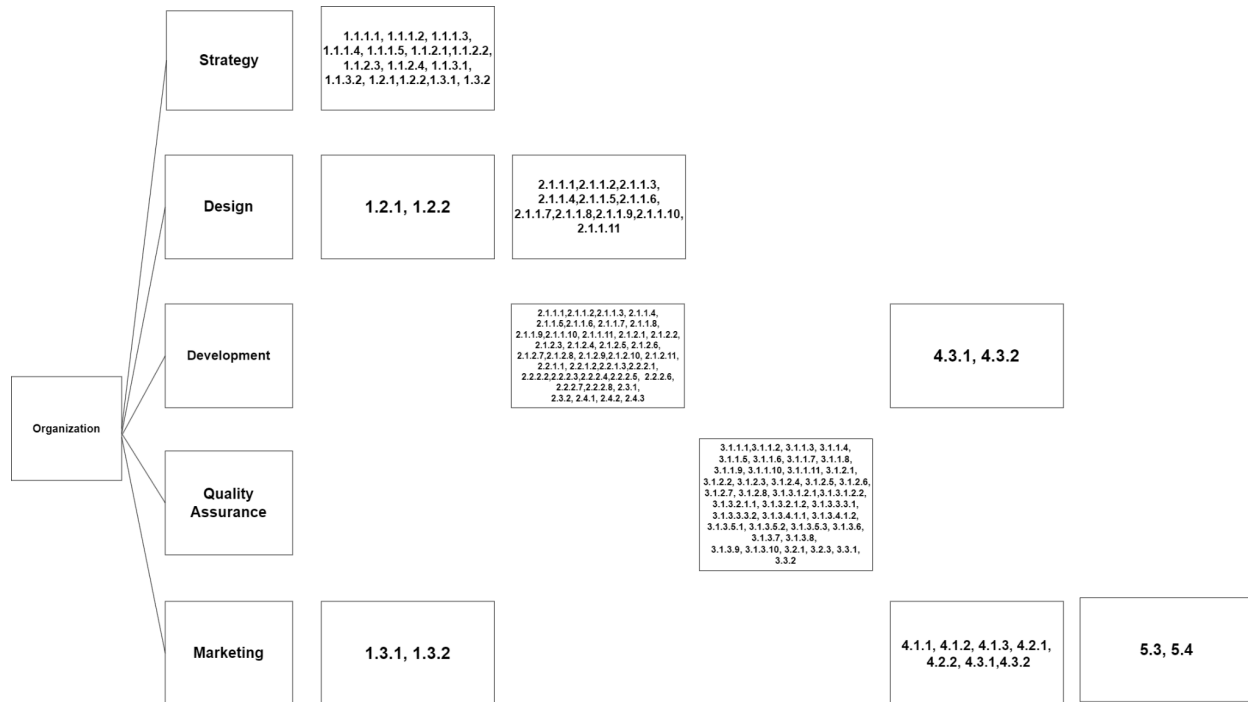


WP 1.1.1.1 - 1.1.1.5 WP 1.1.2.1 - 1.1.2.4 WP 1.1.3.1 - 1.1.3.2 WP 1.2.1, 1.2.2 WP 1.3.1, 1.3.2	WP 2.1.1.1 - 2.1.1.11 WP 2.1.2.1 - 2.1.2.11 WP 2.2.1.1 - 2.2.1.3 WP 2.2.2.1 - 2.2.2.8 WP 2.3.1, 2.3.2 WP 2.4.1 - 2.4.3	WP 3.1.1.1 - 3.1.1.11 WP 3.1.2.1 - 3.1.2.8 WP 3.1.3.1.2.1, 3.1.3.1.2.2 WP 3.1.3.2.1.1, 3.1.3.2.1.2 WP 3.1.3.3.1, 3.1.3.3.2 WP 3.1.3.4.1.1, 3.1.3.4.1.2 WP 3.1.3.5.1 - 3.1.3.5.3 WP 3.2.1, 3.2.2 WP 3.3.1, 3.3.2	WP 4.1.1 - 4.1.3 WP 4.2.1, 4.2.2 WP 4.3.1 - 4.3.2	WP 5.1 - 5.4
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7. Integration of Work Breakdown Structure and Organization

7.1. Integration

Link to the Integration: [Link](#)



7.2. Aligning project objectives with the overall business strategy

Sewing Station is a project aimed at providing a platform for local tailors to connect easily with potential customers in Pakistan. To align project objectives with the overall business strategy, the team will make sure that the platform's features, functionalities, and marketing efforts are fitted to support local tailors and promote their craft. This will require conducting market research to understand the needs of both tailors and customers, developing a clear value proposition that highlights the unique offerings of local tailors, and creating a complete marketing plan.

7.3. Ensuring proper resource allocation

Proper resource allocation is vital for the success of the Sewing Station project. The project team will need to allocate resources such as time, budget, and personnel effectively. This will involve identifying the critical resources required for tasks such as app development, marketing campaigns, and customer support. Regular observation of resource usage will ensure that resources are utilized efficiently throughout the project lifecycle.

7.4. Establishing communication channels between project stakeholders

Effective communication is essential for ensuring the success of Sewing Station. The project team will establish clear communication channels with stakeholders, including local tailors, potential customers, and business partners. Regular meetings will be scheduled to update stakeholders on project progress, gather feedback, and address any concerns. Additionally, a project dashboard will be created to provide stakeholders with real-time updates on key metrics and milestones. Communication tools such as email, chat, and video conferencing will be utilized to facilitate communication and collaboration among team members and stakeholders.

7.5. Implementing a project management framework

To ensure the timely completion of tasks, the project team will implement a project management framework tailored to the needs of the Sewing Station. The framework will involve breaking down the project into manageable tasks, setting clear deadlines and milestones, and monitoring progress regularly. A project governance structure will be established to define roles and responsibilities, and reporting requirements will be outlined to ensure transparency and accountability throughout the project.

7.6. Monitoring and controlling project risks

The Sewing Station project team will prioritize monitoring and controlling project risks to reduce potential discrepancies and ensure successful project completion. This will involve identifying risks specific to the project, assessing their impact and likelihood, and developing mitigation strategies to address them. Regular risk assessments will be conducted throughout the project lifecycle, and the project plan will be adjusted as needed to minimize the impact of identified risks. Additionally, performance metrics will be tracked to monitor project progress and identify any areas requiring correct action.

8. Coding of the Work Breakdown Structure

1. Project Management

1.1. Project Planning

1.1.1. Project Documentation

1.1.1.1. Define Project Need

1.1.1.2. Define Project Scope

1.1.1.3. Define Project Requirements

1.1.1.4. Define Project Limitations

1.1.1.5. Define Project Priorities

1.1.2. Project Budgeting

1.1.2.1. Estimate Material Cost

1.1.2.2. Define Direct Labor Cost

- 1.1.2.3. Estimate Equipment Cost
 - 1.1.2.4. Calculate Total Cost
 - 1.1.3. Security Requirements
 - 1.1.3.1. Define Access Control Matrix
 - 1.1.3.2. Choose Password Storage Method
 - 1.2. Risk Management
 - 1.2.1. Analyze Project Risk
 - 1.2.2. Plan Solutions for the Identified Risks
 - 1.3. Scheduling
 - 1.3.1. Defining Deliverables
 - 1.3.2. Setting Milestones
2. Project Development
- 2.1. Front-End
 - 2.1.1. Design Wireframes
 - 2.1.1.1. Login Page for Tailors
 - 2.1.1.2. Registration Page for Tailors
 - 2.1.1.3. Login Page for Customers
 - 2.1.1.4. Registration Page for Customers
 - 2.1.1.5. Screen to Filter out Tailors
 - 2.1.1.6. Screen to Display Relevant Tailors
 - 2.1.1.7. Chat Screen
 - 2.1.1.8. Order Confirmation Screen
 - 2.1.1.9. Reviews Page for each Tailor
 - 2.1.1.10. Page to Display Tailors' Works
 - 2.1.1.11. Notifications Page
 - 2.1.2. Design Application Pages
 - 2.1.2.1. Login Page for Tailors
 - 2.1.2.2. Registration Page for Tailors
 - 2.1.2.3. Login Page for Customers
 - 2.1.2.4. Registration Page for Customers
 - 2.1.2.5. Notifications Page
 - 2.1.2.6. Screen to Filter out Tailors
 - 2.1.2.7. Screen to Display Relevant Tailors
 - 2.1.2.8. Chat Screen
 - 2.1.2.9. Order Confirmation Screen
 - 2.1.2.10. Reviews Page for each Tailor
 - 2.1.2.11. Page to Display Tailors' Works
 - 2.2. Back-End
 - 2.2.1. Define Database

- 2.2.1.1. Customer
 - 2.2.1.2. Tailor
 - 2.2.1.3. Orders
 - 2.2.2. Implement Functionality
 - 2.2.2.1. Login
 - 2.2.2.2. Registration
 - 2.2.2.3. Filtering Tailor
 - 2.2.2.4. Selecting Tailors
 - 2.2.2.5. Conversation between Customer and Tailor
 - 2.2.2.6. Order Placement
 - 2.2.2.7. Customers give their Reviews
 - 2.2.2.8. Tailors Share their Work
 - 2.3. Completion
 - 2.3.1. Update Database
 - 2.3.2. Integrate Back-End and Front-End
 - 2.4. Security
 - 2.4.1. Authenticate User Details
 - 2.4.2. Implement Password Storage
 - 2.4.3. Implement Access Control Matrix
- 3. Testing and Quality Assurance
 - 3.1. Functional Testing
 - 3.1.1. Test the Independent Functionality of Front-End Elements
 - 3.1.1.1 Login Page for Tailors
 - 3.1.1.2. Registration Page for Tailors
 - 3.1.1.3. Login Page for Customers
 - 3.1.1.4. Registration Page for Customers
 - 3.1.1.5. Notifications Page
 - 3.1.1.6. Screen to Filter out Tailors
 - 3.1.1.7. Screen to Display Relevant Tailors
 - 3.1.1.8. Conversation
 - 3.1.1.9. Order Confirmation Screen
 - 3.1.1.10. Reviews Page for each Tailor
 - 3.1.1.11. Page to Display Tailors' Works
 - 3.1.2. Test the Independent Functionality of Back-End Elements
 - 3.1.2.1 Login
 - 3.1.2.2. Registration
 - 3.1.2.3. Filtering out Tailors
 - 3.1.2.4. Selecting Tailors
 - 3.1.2.5. Conversation

- 3.1.2.6. Order Placement
 - 3.1.2.7. Giving Reviews
 - 3.1.2.8. Tailor Entering their Works
 - 3.1.3. Test the Overall Functionality of the Application
 - 3.1.3.1. New Tailor Registers
 - 3.1.3.1.1. Tailor Fills in the Data
 - 3.1.3.1.2. Data is Checked for Verification
 - 3.1.3.1.2.1. Tailor gets a Confirmation
 - 3.1.3.1.2.2. Registration Request Fails
 - 3.1.3.1.3. Database is Updated
 - 3.1.3.2. Already Registered Tailor Logs in
 - 3.1.3.2.1. Log-in Information is Checked in the Database
 - 3.1.3.2.1.1. Tailor Enters their Personal Page
 - 3.1.3.2.1.2. Login Fails
 - 3.1.3.3. New Customer Registers
 - 3.1.3.3.1. Customer Fills in the Data
 - 3.1.3.3.2. Data is Verified
 - 3.1.3.3.2.1. Customer gets a Confirmation
 - 3.1.3.3.2.2. Registration Request Fails
 - 3.1.3.3.3. Database is Updated
 - 3.1.3.4. Already Registered Customer Login
 - 3.1.3.4.1. Log-in Information is Checked in the Database
 - 3.1.3.4.1.1. Customer Enters Home Page
 - 3.1.3.4.1.2. Login Fails
 - 3.1.3.5. Conversation
 - 3.1.3.5.1. Tailor Messages the Customer
 - 3.1.3.5.2. Tailor Accepts or Rejects the Order
 - 3.1.3.5.3. Customer Messages the Tailor
 - 3.1.3.6. Customer Filters out the Tailors
 - 3.1.3.7. Customer Chooses the Tailor
 - 3.1.3.8. Customer Rates the Tailor
 - 3.1.3.9. Tailor Showcases their Works
 - 3.1.3.10. Tailor and Customer Receive Relevant Notifications
- 3.2. User Acceptance Testing
 - 3.2.1. Alpha Testing
 - 3.2.2. Beta Testing
- 3.3. Security Testing
 - 3.3.1. Penetration Testing
 - 3.3.2. Static Analysis

4. Project Deployment
 - 4.1. Marketing
 - 4.1.1. Price the Product Appropriately
 - 4.1.2. Promote the Product
 - 4.1.3. Place the Product in the Market
 - 4.2. Launch
 - 4.2.1. Alpha Launch
 - 4.2.2. Beta Launch
 - 4.3. Documentation
 - 4.3.1. User Manual
 - 4.3.2. Maintenance Manual
5. Project Maintenance
 - 5.1. Customer Support
 - 5.2. Tailor Support
 - 5.3. Dealing with Competition
 - 5.4. Dealing with Changes in the Market

9. Responsibility Matrix

***Given the In-depth assortment of tasks we have made 5 separate sections to clearly show the responsibility**

1. Responsible
2. Accountable
3. Consulted
4. Informed
5. Approval

Work Package	Strategy	Development	Design	Quality Assurance	Marketing
Project Management					
1.1.1.1	1				
1.1.1.2	1				
1.1.1.3	1	3			
1.1.1.4	1	3			

1.1.1.5	1				
1.1.2.1	1				
1.1.2.2	1				
1.1.2.3	1				
1.1.2.4	1				
1.1.3.1	1				
1.1.3.2	1				
1.2.1	1			3	
1.2.2	1			3	
1.3.1	1				
1.3.2	1	3	3	3	4
Project Development					
2.1.1.1		3	1		
2.1.1.2		3	1		
2.1.1.3		3	1		
2.1.1.4		3	1		
2.1.1.5		3	1		
2.1.1.6		3	1		
2.1.1.7		3	1		
2.1.1.8		3	1		
2.1.1.9		3	1		
2.1.1.10		3	1		
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2.1.2.7		1	3		
2.1.2.8		1	3		
2.1.2.9		1	3		
2.1.2.11		1	3		
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2.2.2.1		1			
2.2.2.2		1			
2.2.2.3		1			
2.2.2.4		1			
2.2.2.5		1			
2.2.2.6		1			
2.2.2.7		1			
2.2.2.8		1			
2.3.1		1			
2.3.2		1			
2.4.1		1			
2.4.2		1			
2.4.3		1			
Testing and Quality Assurance					

3.1.1.1		4, 2	4, 2	1	
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3.1.3.6		4, 2		1	
3.1.3.7		4, 2		1	
3.1.3.8		4, 2		1	
3.1.3.9		4, 2		1	
3.1.3.10		4, 2		1	
3.2.1	4			1	
3.2.2	4			1	
3.3.1	4			1	
3.3.2	4			1	
Project Deployment					
4.1.1	1				3

4.1.2					1
4.1.3					1
4.2.1	1			5	3
4.2.2	1			5	3
4.3.1	1	3			
4.3.2	1	3			
Project Maintenance					
5.1	1				
5.2	1				
5.3	1				3
5.4	1				3

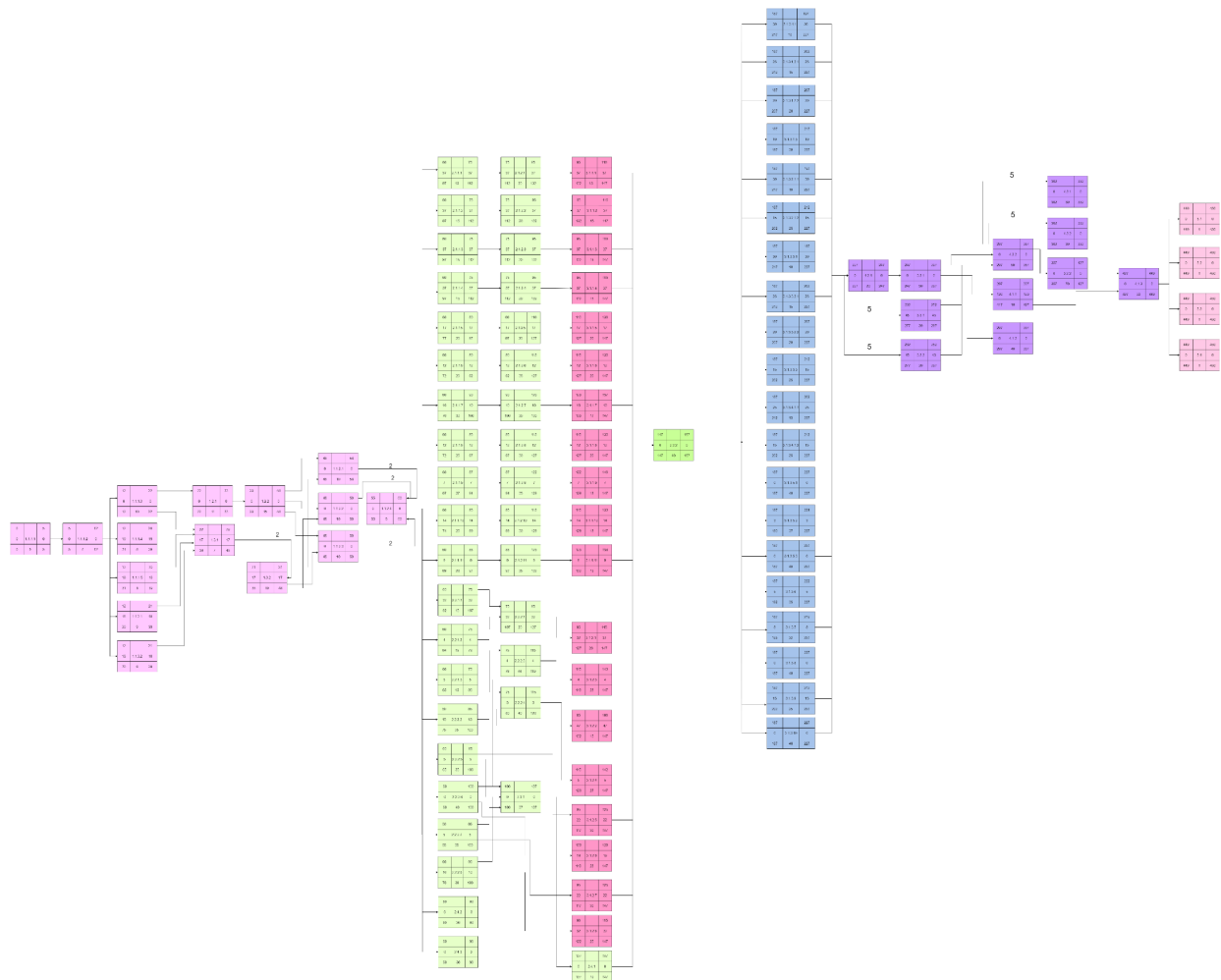
10. Project Communication Plan

What Information?	Target Audience?	When?	Method of Communication?	Provider?
Project Status Report	Project Team and Customer	Weekly	Email	Project Manager
Issue Report	Project Team and Customer	Weekly	Email	Team Lead
Changes in Scope	Project Team, Stakeholder, Customer, Senior Manager	Need Basis	Meeting	Project Manager
Milestone Check-in	Senior Management	Bi-monthly	Meeting	Project Manager
Outsourcing Performance	Project Team and Customer	Need Basis	Meeting	Project Manager
Gating	Senior	When Needed	Meeting	Project Office

Decisions	Management and Project Manager			
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11. Project Network

Link to the Project Network: [Link](#)



12. Analysis of the Project Network

Although the network has multiple critical paths, the slack on the remaining paths are quite high. The activities that define the time of the parallel activities have a slack of 0. This means that if

the most important activity is set in parallel with some least important activity with duration more than that important activity, then we might get some slack to delay that important activity. This gives us room to work on the important activities more efficiently.

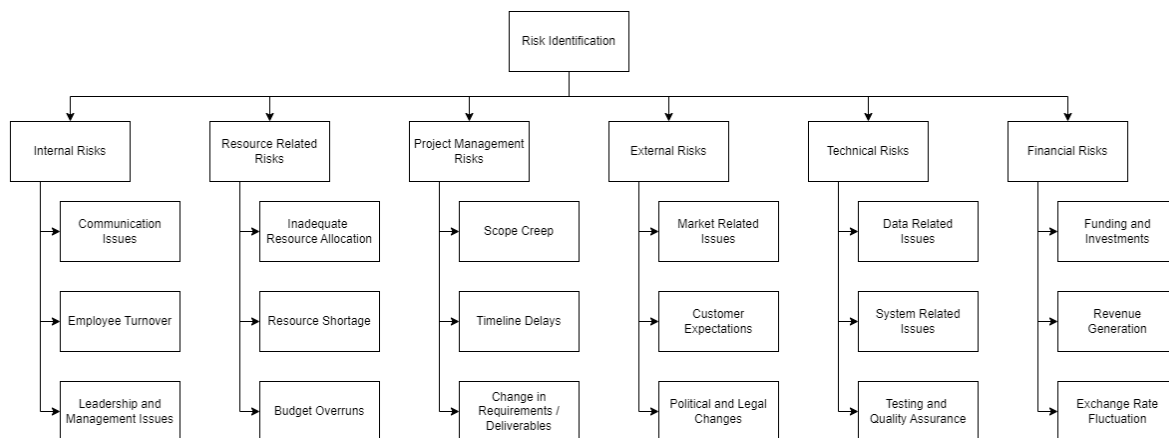
13. Gantt Chart

The PDF of the Gantt Chart has been attached to the assignment.

14. Risk Analysis

14.1. Risk Identification

Link to Risk Breakdown Structure: [Link](#)



14.2. Risk Analysis

Scale for Analysis:

Impact:

1 (Very Low): The impact is negligible.

2 (Low): While the risk does impact the project, the impact is not so major and can often be ignored.

3 (Moderate): While the risks do not cause very major damage, it is still advisable to find a solution.

4 (High): The risks cause some noticeable damage.

5 (Very High): The risks impact the entire project quite significantly.

Likelihood:

1 (Rare): Unlikely to occur within the project timeframe.

2 (Occasional): May occur once or a few times during the project.

- 3 (Moderate): Expected to occur at some point during the project.
- 4 (Highly Likely): Very strong possibility of occurring during the project.
- 5 (Almost Certain): Expected to occur multiple times during the project.

Difficulty of Detection:

- 1 (Very Easy): Easily identified through routine monitoring or project activities.
- 2 (Easy): Detectable with some focused monitoring or attention.
- 3 (Moderate): Requires dedicated effort or expertise to identify.
- 4 (Difficult): May be challenging to detect without specific procedures or warnings.
- 5 (Very Difficult): Highly likely to go unnoticed until significant impact occurs.

Risk	Impact	Likelihood	Detection Difficulty	Severity	When
Internal Risks					
Communication Issues	4	3	2	24	Changes within the project are not properly communicated to the entire team and/or the stakeholders.
Employee Turnover	4	1	1	4	Losing a key member of the team midway.
Leadership and Management Issues	4	2	2	16	Ineffective leadership and management practices within the project.
Resource related Risks					
Inadequate Resource Allocation	3	3	2	18	Not allocating the resources like time and budget properly.
Resource Shortage	3	3	2	18	Quantity of available resources does not meet the requirements of the project.
Budget Overruns	1	3	2	6	Cost of the entire project exceeds what was initially planned.
Project Management Risks					

Scope Creep	4	1	2	8	Project requirements expand beyond the decided scope.
Timeline Delays	5	5	2	50	Project deadlines are not met; some activity is delayed.
Change in Requirements / Deliverables	3	2	1	6	Modification of initial requirements and deliverables of the project.
External Risks					
Market Related Issues	2	2	2	8	Changes in the target market like the increasing competition or the change in industry trends.
Customer Expectations	3	2	2	12	Changing expectations of the end-users.
Political and Legal Changes	2	2	3	12	Change in regulations and country standards for businesses.
Technical Risks					
Data related Issues	3	3	3	27	These include loss of data and troubles in recovery and risks related to unauthorized access and data privacy.
System related Issues	4	3	3	36	Technical issues within the project's system like platform compatibility, system reliability and performance.
Testing and Quality Assurance	4	3	3	36	Deficiencies in testing processes or quality assurance measures.
Financial Risks					

Funding and Investment	4	3	1	12	Issues in getting funds for the project.
Revenue Generation	4	3	2	24	Not being able to generate enough revenue from the product.
Exchange Rate Fluctuation	3	3	2	18	Inflation and change in the currency value.

14.3. Risk Planning / Response Development

Risk	Response	Contingency Plan	Trigger	Who is Responsible
Internal Risks				
Communication Issues	Mitigate - Improve communication protocols and provide communication training.	Hold regular team meetings, establish backup communication channels, and appoint communication ambassadors.	Misunderstandings and confusion	Communications Department
Employee Turnover	Retain - Ensure a positive work culture; offer professional development opportunities; provide competitive compensation.	Cross-train team members; document critical knowledge	Increase in the Resignation Rates and Decrease in Team Morale	Human Resource Department
Leadership and Management Issues	Mitigate - Provide leadership training; establish clear roles and responsibilities;	Designate interim leadership; conduct regular leadership evaluations;	Poor Performance; Increase in Conflicts and Disagreements	Management Team

	encourage open communication.	provide coaching or mentoring.		
Resource related Risks				
Inadequate Resource Allocation	Mitigate - Conduct thorough resource planning and forecasting; involve key stakeholders in resource allocation decisions; prioritize tasks based on resource availability.	Monitor resource utilization regularly; adjust resource allocations as needed; seek approval for additional resources if required.	Increase in resource conflicts; decrease in productivity due to resource constraints; failure to meet project milestones due to inadequate resources	Department Managers
Resource Shortage	Transfer - Establish partnerships with external vendors or subcontractors; negotiate resource-sharing agreements with other departments.	Develop a resource escalation process; prioritize critical tasks; explore alternative solutions.	Inability to secure necessary resources within the organization	Department Managers
Budget Overruns	Mitigate - Implement cost-saving measures; prioritize expenditures based on project objectives; optimize resource utilization to minimize the	Identify cost-saving opportunities; renegotiate contracts; reallocate funds	Increase in project scopes; unforeseen expenses; changes in market conditions	Project Managers

	impact of budget overruns.			
Project Management Risks				
Scope Creep	Avoid - Implement strict change control procedures; clearly define project scope.	Assess change requests rigorously.	Increase in Change Requests	Stakeholder Management Team
Timeline Delays	Mitigate - Set realistic deadlines.	Reallocate resources; negotiate with stakeholders for deadline extensions.	Missed Milestones; Delays in Critical Activities	Scheduling Department
Change in Requirements / Deliverables	Retain - Maintain flexibility in project planning; conduct thorough impact assessments.	Establish change management processes.	Changes in stakeholder requirements	Project Management Team
External Risks				
Market Related Issues	Transfer - Diversify market exposure; monitor industry trends; establish strategic partnerships.	Conduct market research; adjust marketing strategies.	New Competitors; Economic Downturns; Change in Industry Trends.	Marketing Team
Customer Expectations	Retain - Maintain open communication with customers.	Conduct customer surveys, gather feedback regularly, and adjust project plans based on customer input.	Increase in Customer Complaints	Customer Service Team

Political and Legal Changes	Transfer - Obtain legal counsel; establish compliance protocols.	Monitor legislative updates regularly..	Changes in government policies, or legal disputes affecting project operations.	Compliance Team
Technical Risks				
Data related Issues	Mitigate - Implement data encryption, conduct regular backups, and establish data governance policies.	Develop data recovery procedures, train staff on data security best practices, and monitor data integrity.	Data breaches, loss of critical data, or failure to comply with data protection regulations.	IT Department
System related Issues	Avoid - Conduct thorough system testing, implement robust cybersecurity measures, and invest in reliable infrastructure.	Develop system redundancy, establish disaster recovery protocols, and maintain technical support agreements.	System crashes, software bugs, or hardware failures affecting project operations	IT Department
Testing and Quality Assurance	Mitigate - Implement comprehensive testing procedures, conduct regular quality audits, and prioritize defect resolution.	Allocate additional resources for testing, extend project timelines, and adjust quality standards as needed.	Increase in defect rates, failure to meet quality benchmarks, increasing customer complaints related to product/service quality.	Quality Assurance Team
Financial Risks				
Funding and Investment	Transfer - Seek alternative funding sources, secure financing	Develop fundraising strategies; negotiate	Insufficient funding; loss of investor confidence	Finance Department

	agreements, and diversify revenue streams.	payment terms with suppliers.		
Revenue Generation	Mitigate - Identify new revenue opportunities, optimize pricing strategies.	Develop sales forecasting models, diversify customer base, and adjust marketing tactics to stimulate demand.	Decline in sales revenue, loss of key clients, failure to penetrate target markets effectively	Sales Team
Exchange Rate Fluctuation	Transfer - Negotiate forward contracts, and diversify currency exposure.	Monitor exchange rates and adjust pricing strategies.	Volatility in exchange rates; disruptions in international markets.	Finance Department

14.4. Risk Monitoring / Response Control

Risk	Monitoring
Internal Risks	
Communication Issues	Monitor feedback from team members and stakeholders regarding communication clarity.
Employee Turnover	Have regular discussions with the employees to understand their needs and track their satisfaction levels.
Leadership and Management Issues	Make use of performance reviews and feedback mechanisms to evaluate leadership effectiveness.
Resource related Risks	

Inadequate Resource Allocation	Track resource allocation against project requirements and adjust as needed.
Resource Shortage	Track resource utilization and availability regularly.
Budget Overruns	Schedule regular meetings to review budget and expenses.
Project Management Risks	
Scope Creep	Monitor change requests and assess their impact on project scope.
Timeline Delays	Track project milestones and deadlines against the planned schedule.
Change in Requirements / Deliverables	Implement change management processes to assess and approve changes to requirements or deliverables.
External Risks	
Market Related Issues	Stay informed about market trends, competitors, and industry developments.
Customer Expectations	Gather feedback from customers regularly through surveys, interviews, or feedback forms.
Political and Legal Changes	Stay updated on relevant political and legal developments that could affect the project.
Technical Risks	
Data related Issues	Implement data governance policies and procedures to ensure data compliance and security.
System related Issues	Monitor system performance and reliability through performance metrics and monitoring tools.
Testing and Quality Assurance	Conduct regular reviews of testing procedures and implement improvements as needed.
Financial Risks	

Funding and Investment	Develop contingency plans for securing additional funding if needed.
Revenue Generation	Monitor revenue streams and sales performance against targets.
Exchange Rate Fluctuation	Monitor currency exchange rates and their potential impact on project costs

14.5. PERT Analysis

ID	Duration	Task	a	m	b	T _e	Standard deviation	Variance
1	5	1.1.1.1	3	5	7	5	0.666666667	0.4444444444
2	7	1.1.1.2	5	7	10	7.166666667	0.8333333333	0.6944444444
3	10	1.1.1.3	6	10	15	10.16666667	1.5	2.25
4	11	1.2.1	8	11	16	11.33333333	1.333333333	1.777777778
5	15	1.2.2	7	15	19	14.33333333	2	4
6	10	1.1.2.1	6	10	15	10.16666667	1.5	2.25
7	5	1.1.2.4	3	5	12	5.833333333	1.5	2.25
8	40	2.2.2.6	37	40	50	41.16666667	2.166666667	4.694444444
9	37	2.3.1	34	37	40	37	1	1
10	10	2.4.1	7	10	13	10	1	1
11	40	2.3.2	37	40	43	40	1	1
12	40	3.1.3.8	38	40	42	40	0.666666667	0.4444444444
13	20	4.2.1	17	20	23	20	1	1
14	50	3.2.1	47	50	53	50	1	1
15	60	4.2.2	56	60	64	60	1.333333333	1.777777778
16	70	3.2.2	67	70	73	70	1	1
17	22	4.1.3	20	22	24	22	0.666666667	0.4444444444
18	1	5.1	1	1	3	1.333333333	0.3333333333	0.1111111111
						455.5	20.5	27.1388889
						Days	Z value	Probability
						for 440 days	-2.9753336	0.0015
						for 460 days	0.863806529	0.8051

Through PERT analysis, we found out that our critical path, which is the path with the most number of activities, takes an estimated time of 450 days. Now, we wanted to see what is the probability of getting done with the project earlier or later than the estimated time. For earlier, we chose 440 days and got the answer that there is a probability of 0.0015 that our project will be completed earlier. Next, we chose 460 days for the latest time and got the probability 0.8051 .

This indicates that there is a higher possibility of our project getting delayed. This implies that our project network is sensitive.

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