Project Plan Proposal

To Develop MVP of Re-Connect Mobile Application

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1. Cover Letter

From: Team Re-Connect

Title: Building a Digital Platform "Re-Connect" for Small-Scale Local Businesses to Promote themselves and Strengthen their Online Presence

Due to the COVID-19 pandemic, one-third of small businesses in the US have had to close because of a lack of customers. 99.99% of total US business constitutes small businesses and employ 47.1% of US employees[1], but a quick google search for a service nearby results almost always in superstores or retail chains. The current solutions in the market do not emphasize the background of these businesses and list them amongst several other multinational brands and chains. As per the U.S Bureau of Labor Statistics, an average of 32.4% of small businesses fail in their first two years, 51.2% by their fifth year, and 66.4% by their tenth year[2]. Small businesses face the daunting challenge of advertising to their local community. Currently, they reach out to their customers via the age-old platform of paper ads, local TV, radio stations, and word of mouth. Thickly settled neighborhoods and cities that contain significant floating populations owing to student groups, the presence of universities, etc. pose the risk of losing existing customers without being able to acquire a new customer base on time. Re-Connect aims to solve these issues by providing visibility through a platform dedicated to small businesses that reach out to their potential customers with their offerings, stories, updates, events, and customer incentives[1].

The objective is to develop a minimum viable product (MVP) of Re-Connect, that will be first launched in Boston. The budget to develop this platform is $500,000 and the estimated time frame is 12 months. The first version of this platform will be expected to have features like Sign Up/Login, User Profile Creation, Business Listings – Category/Location tab, Map Based Search, and Discount Based Search. The platform will have two views: one for local businesses and the other for users.

The product management team has handed over the Product Pitch and Product Requirement Document (PRD), which will serve as the baseline to plan and execute this project. The resources are as follows:

1) Product Pitch
2) Link to the Product Requirement Document

[1] This product concept was developed and researched as part of the Digital Product Management class by Team Re-Connect (Fall 2021), some of the research and facts have been re-used as a part of this submission.

2. Executive Summary

The Minimum Viable Product (MVP) for Re-Connect mobile application will be developed in 12 months with a budget of $500,000. Re-Connect's product idea has been validated by the product management team, concluding that there is a need for such an online platform for small local businesses who often struggle with visibility amongst the big brands and retail chains.

Local small businesses are small stores, with few employees and often limited to a single location. These stores cater to the needs of their neighborhoods and local community. They could be restaurants, grocery stores, coffee shops, barbers, beauty stores etc. They often rely on age-old methods of advertising through newspapers, radio, magazines and through word of mouth from the local community. Re-Connect will be able to provide them with a platform that will help them to effectively advertise and market their products, share their unique story and background to tap into the emotions of customers, and to grow and maintain an average customer base.

The users of Re-Connect on the other hand will be able to have an option to have a personalized and customized experience. They also get the option to trace the source of their products, giving them a chance to stay informed about the products and services they use. Along with this, users will also be able to view their past data to explore the businesses around their neighborhood.

This project is planned to be executed in 5 phases. Timeline and forecasted for each budget is as follows:

Phase	Duration	Budget
1 - Market Research and Technical Analysis	1 month	50,000
2 - UX Design	2 months	100,000
3 - App Development	6 months	250,000
4 - Application Testing	2 months	70,000
5 - Deployment and Support	1 month	30,000

3. Project Objectives

Project Vision

The objective is to develop a minimum viable product (MVP) for Re-Connect, a digital mobile platform, that will be first launched in Boston. The objective for this project has been derived from the vision of this product which is:

For local small-scale businesses who struggle with marketing, advertising, and customer engagement, Re-connect is a digital platform that empowers these businesses by giving them visibility and strengthening their online market presence to reach out and engage with their potential customers. Thus, allowing customers to explore products and services available in their communities/neighborhoods.

Project Duration

The budget to develop this platform is $500,000 and the estimated time frame is 12 months. This estimate is just to develop the MVP of this product and launch it on both App Store and Google Play Store. The product development will be carried out in 4 phases, with each quarter serving as the timeline for each phase.

Required Resources

A team of 2 software engineers, 1 business strategist, 1 UI/UX designer, 1 marketing specialist, and 1 product manager will be assembled for this project. The finalized technical and operational needs will be defined in the project proposal, once finalized by the team. The first version of this platform will be expected to have features like Sign Up/Login, User Profile Creation, Business Listings – Category/Location tab, Map Based Search, and Discount Based Search. The platform will have two views: one for local businesses and the other for users.

Project Objective

The objective is to develop a minimum viable product (MVP) for Re-Connect, a digital mobile platform, that will be first launched in Boston. The budget to develop this platform is $500,000 and the estimated time frame is 12 months. This estimate is just to develop the MVP of this product and launch it on both App Store and Google Play Store.

Project Phases and Objectives

Phase 1 - Market Research and Technical Feasibility Assessment

- Deeply research the market to understand the competitors and their strategies
- Defining use cases for developing the app based on customer needs
- Determine the platforms and devices to build the app

Phase 2 - UI/UX

- Create Information Architecture & Workflows
- Create a working prototype

- UX Research to validate the UI/UX design
- Create a blueprint for engineers of the envisioned final app
- Define the App's Title and Description
- Define Category, keyword, and design Launch icon

Phase 3 - App Development

- Develop applications based on design specifications from phase 2
- App Development progresses subjected to agile practices
- Assign different functional teams within the project for executing tasks
- Functionality enhancements/bug fixes tracked using scrum boards

Phase 4 - Application Testing

- User Acceptance Testing (UAT) o Functional Testing
- Performance Testing
- Security Testing
- Device and Platform Testing

Phase 5 - Deployment & Support

- Create promotional videos for the app release
- Launch the first version of the app on app stores
- Future development follows Continuous Integration and Delivery/Deployment (CI/CD)

Critical Success Factors

1. Select a tool or platform to develop the framework that supports all methodologies.
2. To ensure that security and privacy are examined due to a heap of cyber-attacks on IoT devices.
3. A penetration test is crucial to ensure safety and that data will not be compromised.
4. Marketing and Analytics should be evaluated on an ongoing basis and not just at launch time to guarantee customers' regular use and so that the product's initial investment is repaid.
5. Creativity to constantly innovate and meet customer needs as the product iterates.
6. To ensure there is constant customer support since the product launch.
7. To ensure flexibility; the app created must have the capability to adapt to all new and existing devices.

Assumptions

1. Considering Boston has a higher number of floating populations, the app will be first launched in this city to capture a large number of local businesses and users.
2. The project gets completed within the proposed time frame and within budget.
3. The opportunity for this product has been validated and this product will be adopted by the target audience.

4. The team for this project has already been identified, along with technical and operational resources. The team will be working remotely for the most part.
5. All the hired team members will be available from the first day of the project.
6. Senior management will be available to monitor the project's progress.
7. The project will have an initial budget before collecting funds.

4. Project Organization

Organizational Structure

Organization chart (figure below) has been developed with an understanding that this is a visual representation of project team members, the hierarchical relationship between the team members, and the role each person plays.

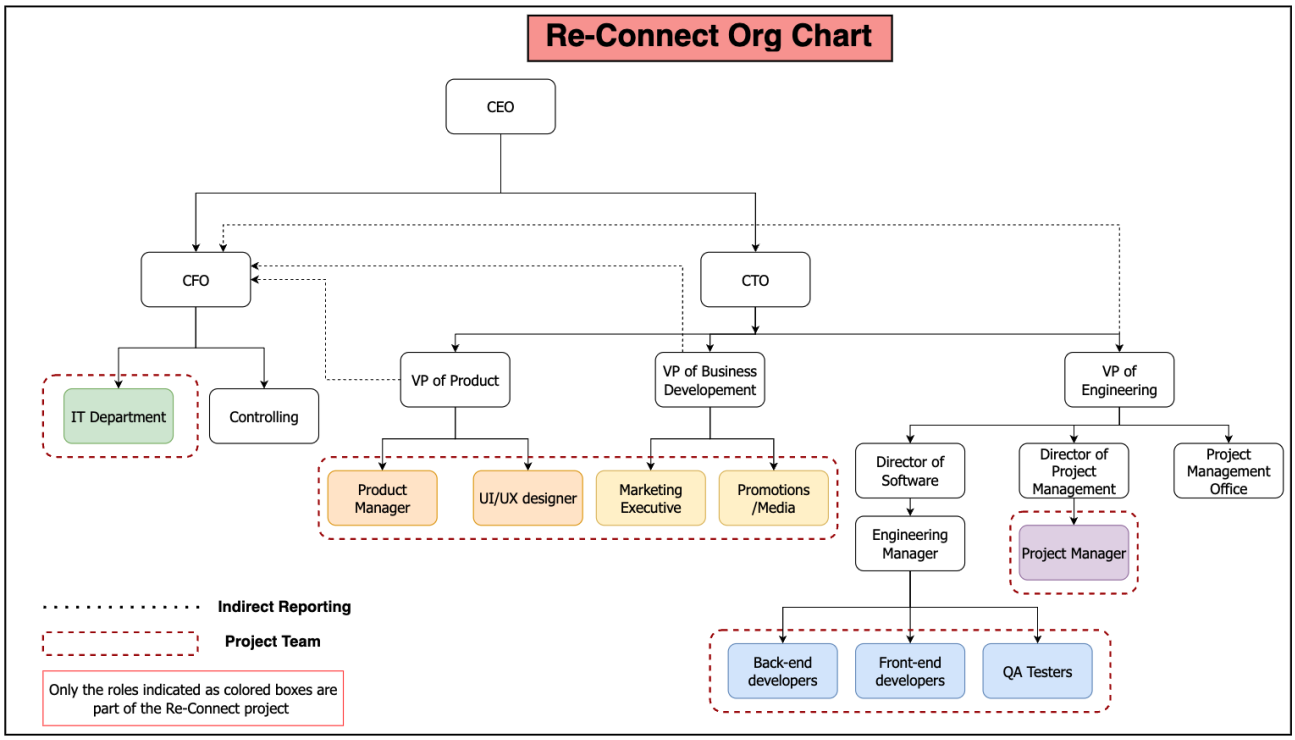


Figure1:Re-Connect Organization Char

5. Implementation Plan

Work Breakdown Structure

The WBS diagram (Figure 2) is a hierarchical and visual presentation of the Re-Connect App that shows the breakdown of the project's scope along with the task details.

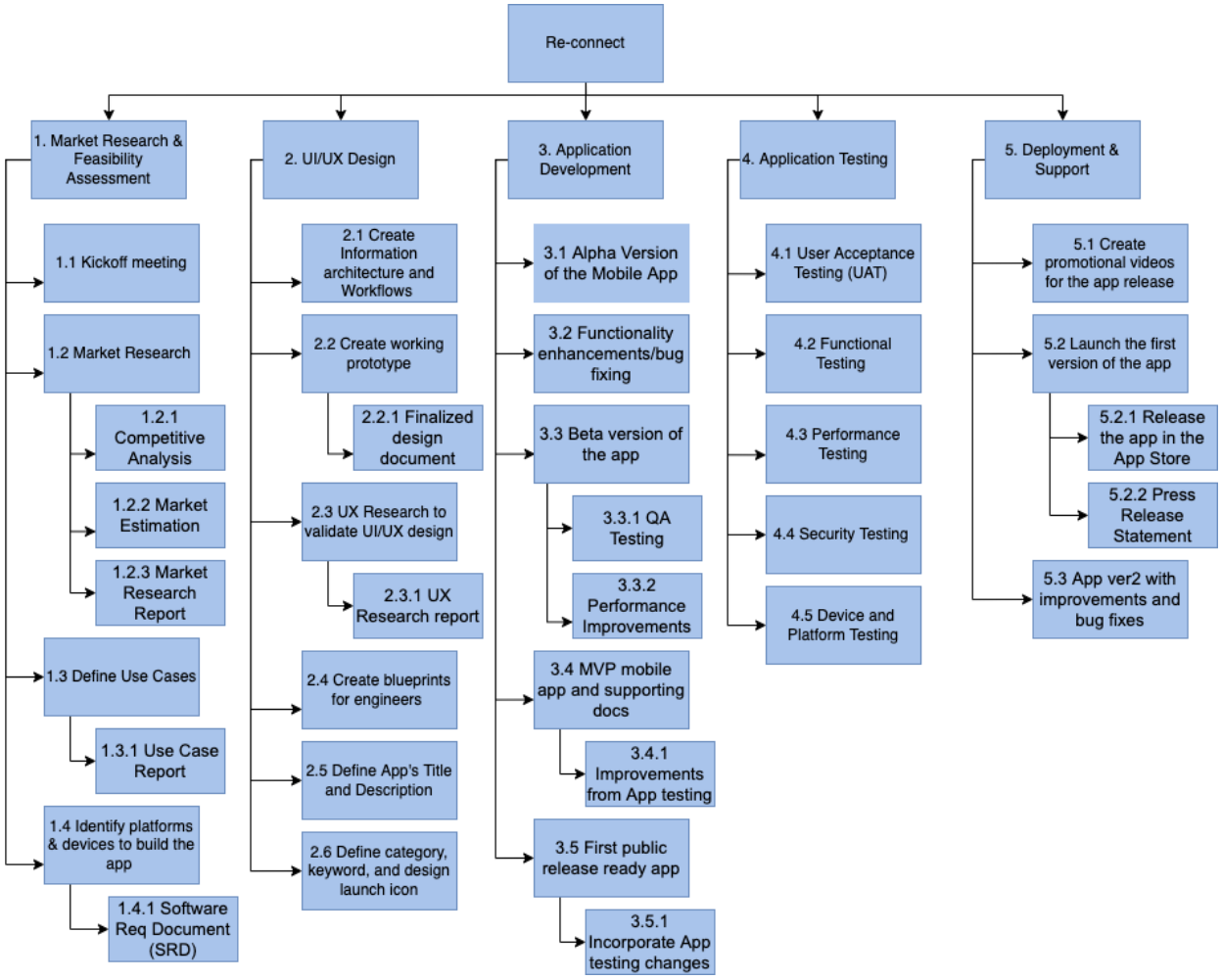


Figure 2: Reconnect's Work Breakdown Structure

Responsibility Chart

The Responsibility matrix demonstrates the responsibilities amongst teams on various tasks and their involvement at all levels. This matrix ensures that each stakeholder knows who is responsible for completing a task based on four roles categorized as Responsible, Accountable, Consult and Inform. Find the responsibility matrix implemented using draw.io here:

Responsibility Matrix

Responsibility Matrix

Tasks	Project Manager	Product Manager	Developer 1	Developer 2	UX Designer	QA Tester	Systems Test Engineer	Marketing Executive
1. Market Research and Technical Analysis								
1.1 Kick Off Meeting	R	C	R A					C
1.2 Market Research	R	C	R A					A C
1.2.1 Competitive Analysis	R	C	R A					A C
1.2.2 Market Estimation	R	C	R A					A C
1.2.3 Market Research Report	R	C	R A					A C
1.3 Define Use Cases	A	C	R A					I
1.3.1 Use Case Report	A	A	I	R		C	C	I
1.4 Identify platform & devices to build the app	A	A	I	R		C	C	
1.4.1 Software Requirement Document (SRD)	R A	C	C	C				
2. UX Design								
2.1 Create Information Architecture and Workflows		A C	C	R				
2.2 Create design prototype		A C	C		R			
2.2.1 Finalized design document	A	A C I	C		R			
2.3 UX Research to validate UI/UX design	I	A I			R			
2.3.1 UX Research report	I	A R	A	C		C	C	
2.4 Create blueprints for engineers	A	C	R					A R
2.5 Define App's Title and Description	A	I	R	C	C	C	C	A R
2.6 Define category, keyword, and design launch icon	A	I						
3. App Development								
3.1 Alpha version of the mobile app	A	A	C R	R				
3.2 Functionality enhancements/bug fixing	A	C	A R	R				
3.3 Beta version of the app	A	A					R	
3.3.1 QA Testing	A	C		R		R	I	
3.3.2 Performance Improvements	A	A	A	R	I			
3.4 MVP mobile app and supporting docs	A	A	A R	R				
3.4.1 Improvements from Application testing	A	C	A R	R		I	C	
3.5 First public release ready app	A	A	C R	R	I	I	C	I
3.5.1 Incorporate Application testing changes	A	C	R	R		I	A	
4. Application Testing								
4.1 User Acceptance Testing (UAT)	A C	A C	C			R A	A R	
4.2 Functional Testing	A	I	C			A	A R	
4.3 Performance Testing	A	I	C			A	A R	
4.4 Security Testing	A	I	C			A	A R	
4.5 Device and Platform Testing	A	I	C			A	A R	
5. Deployment & Support								
5.1 Create promotional videos for the app release	C	C				A		R A
5.2 Launch the first version of the app	A R	C		C		A		R A
5.2.1 Release the app in the App Store	A	C	R	R				R A
5.2.2 Press Release Statement	C	C	R					R A
5.3 App ver2 with improvements and bug fixes	A R	A C	R A	R A	A	R A	A R	A

Figure 3: Responsibility Matrix

R	Responsible
A	Accountable
C	Consult
I	Inform

Scheduling

GANTT Chart

To develop the Gantt chart, we have used the smartsheet project management tool to create a project plan with start and finish dates, tasks predecessors, and, assignees. To access the project plan through smartsheet here - Project Plan[2].

Re-Connect Project Plan

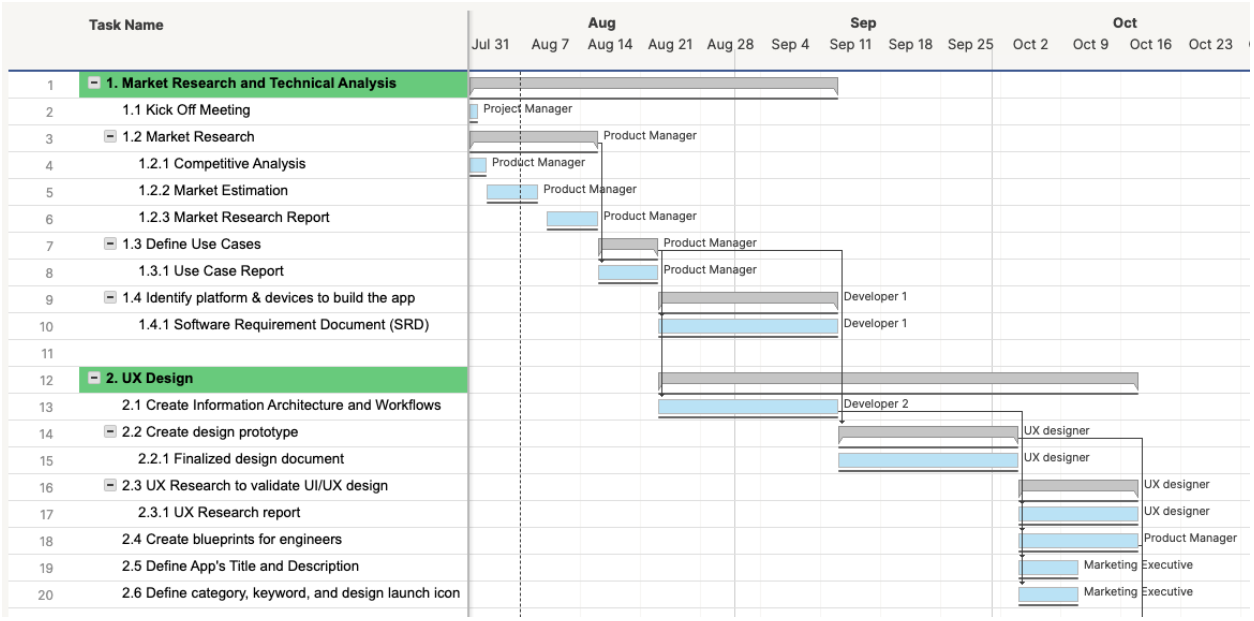
smartsheet

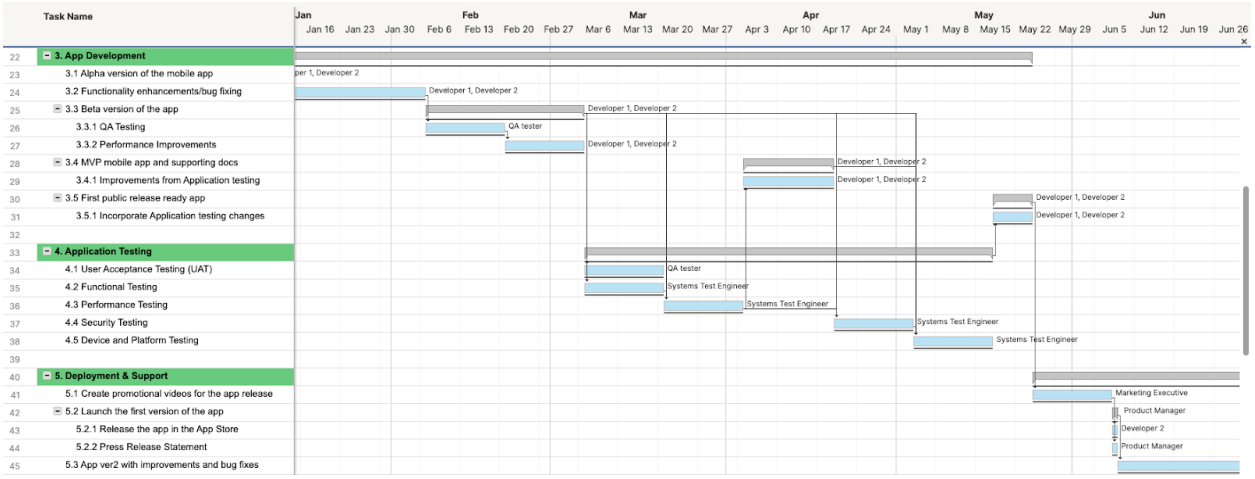
	Task Name	Duration	Start	Finish	Predecessors	Assigned To
1	**1. Market Research and Technical Analysis**	31d	08/01/22	09/12/22		
2	1.1 Kick Off Meeting	1d	08/01/22	08/01/22		Project Manager
3	1.2 Market Research	11d	08/01/22	08/15/22		Product Manager
4	1.2.1 Competitive Analysis	2d	08/01/22	08/02/22		Product Manager
5	1.2.2 Market Estimation	4d	08/03/22	08/08/22		Product Manager
6	1.2.3 Market Research Report	4d	08/10/22	08/15/22		Product Manager
7	1.3 Define Use Cases	5d	08/16/22	08/22/22		Product Manager
8	1.3.1 Use Case Report	5d	08/16/22	08/22/22	3	Product Manager
9	1.4 Identify platform & devices to build the app	15d	08/23/22	09/12/22		Developer 1
10	1.4.1 Software Requirement Document (SRD)	15d	08/23/22	09/12/22	7	Developer 1
11						
12	**2. UX Design**	40d	08/23/22	10/17/22		
13	2.1 Create Information Architecture and Workflows	15d	08/23/22	09/12/22	7	Developer 2
14	2.2 Create design prototype	15d	09/13/22	10/03/22	7, 13	UX designer
15	2.2.1 Finalized design document	15d	09/13/22	10/03/22		UX designer
16	2.3 UX Research to validate UI/UX design	10d	10/04/22	10/17/22		UX designer
17	2.3.1 UX Research report	10d	10/04/22	10/17/22	13, 14	UX designer
18	2.4 Create blueprints for engineers	10d	10/04/22	10/17/22	13, 14	Product Manager
19	2.5 Define App's Title and Description	5d	10/04/22	10/10/22	14	Marketing Executive
20	2.6 Define category, keyword, and design launch icon	5d	10/04/22	10/10/22	14	Marketing Executive
21						
22	**3. App Development**	157d	10/18/22	05/24/23		
23	3.1 Alpha version of the mobile app	60d	10/18/22	01/09/23	14, 18	Developer 1, Developer 2
24	3.2 Functionality enhancements/bug fixing	20d	01/10/23	02/06/23	23	Developer 1, Developer 2
25	3.3 Beta version of the app	20d	02/07/23	03/06/23		Developer 1, Developer 2
26	3.3.1 QA Testing	10d	02/07/23	02/20/23	24	QA tester
27	3.3.2 Performance Improvements	10d	02/21/23	03/06/23	26	Developer 1, Developer 2
28	3.4 MVP mobile app and supporting docs	12d	04/04/23	04/19/23		Developer 1, Developer 2
29	3.4.1 Improvements from Application testing	12d	04/04/23	04/19/23	39	Developer 1, Developer 2
30	3.5 First public release ready app	5d	05/18/23	05/24/23		Developer 1, Developer 2
31	3.5.1 Incorporate Application testing changes	5d	05/18/23	05/24/23	36	Developer 1, Developer 2

	Task Name	Duration	Start	Finish	Predecessors	Assigned To
35						
36	**4. Application Testing**	52d	03/07/23	05/17/23		
37	4.1 User Acceptance Testing (UAT)	10d	03/07/23	03/20/23	25	QA tester
38	4.2 Functional Testing	10d	03/07/23	03/20/23	25	Systems Test Engineer
39	4.3 Performance Testing	10d	03/21/23	04/03/23	25, 38	Systems Test Engineer
40	4.4 Security Testing	10d	04/20/23	05/03/23	25, 39, 28	Systems Test Engineer
41	4.5 Device and Platform Testing	10d	05/04/23	05/17/23	25, 40, 28	Systems Test Engineer
42						
43	**5. Deployment & Support**	71d	05/25/23	08/31/23		
44	5.1 Create promotional videos for the app release	10d	05/25/23	06/07/23	30	Marketing Executive
45	5.2 Launch the first version of the app	1d	06/08/23	06/08/23		Product Manager
46	5.2.1 Release the app in the App Store	1d	06/08/23	06/08/23	44	Developer 2
47	5.2.2 Press Release Statement	1d	06/08/23	06/08/23	44	Product Manager
48	5.3 App ver2 with improvements and bug fixes	60d	06/09/23	08/31/23	45	Product Manager

Gantt Chart View

[2] To access the project plan through smartsheet, an account is required.





PERT Analysis

Network Diagram

Network diagram has been developed using PERT Chart. In the chart below, each activity has been assigned an ID, and their corresponding predecessor and duration based on estimations.

Activity ID	Description	Predecessor	Duration
Phase 1 - Market Research and Feasibility Assessment: 01/Aug - 30/Aug			
0	Kick Off Meeting (Start)	-	1
1	Market Research	-	10
2	Define Use Cases	1	5
3	Identify platforms & devices to build the app	2	28
Phase 2 - UI/UX: 01/Sept - 31/Oct			
4	Create Information architecture and Workflows	2	15
5	Create working prototype	2,4	15
6	UX Research to validate UI/UX design	4,5	10
7	Create blueprints for engineers	4,5	10
8	Define App's Title and Description	-	5
9	Define category, keyword, and design launch icon	-	5
Phase 3 - App Development: 24/Oct - 24/Apr			
10	Develop application from design specifications	5,7	60
11	App Development Agile Iterations	10	40
12	Functionality enhancements/bug tracking	10,11	20
Phase 4 - Application Testing : 3/Apr - 23/Jun			
13	User Acceptance Testing (UAT)	10,11,12	10
14	Functional Testing	10,11,12	10
15	Performance Testing	10,11,12	10
16	Security Testing	10,11,12	10
17	Device and Platform Testing	10,11,12	10
Phase 5 - Deployment & Support: 24/Jun - 3/Jul			
18	Create promotional videos for the app release	5,8,9	10
19	Launch the first version of the app	10,14,15,16,17,18	5
20	Future Developments (CI/CD)	19	5

Table1:PERT Chart

The network diagram below is represented using the activity ID's from the above table and the duration for the activity has been mentioned right below it. The box in blue represents an activity with its ID and the box below represents the duration required.

For example

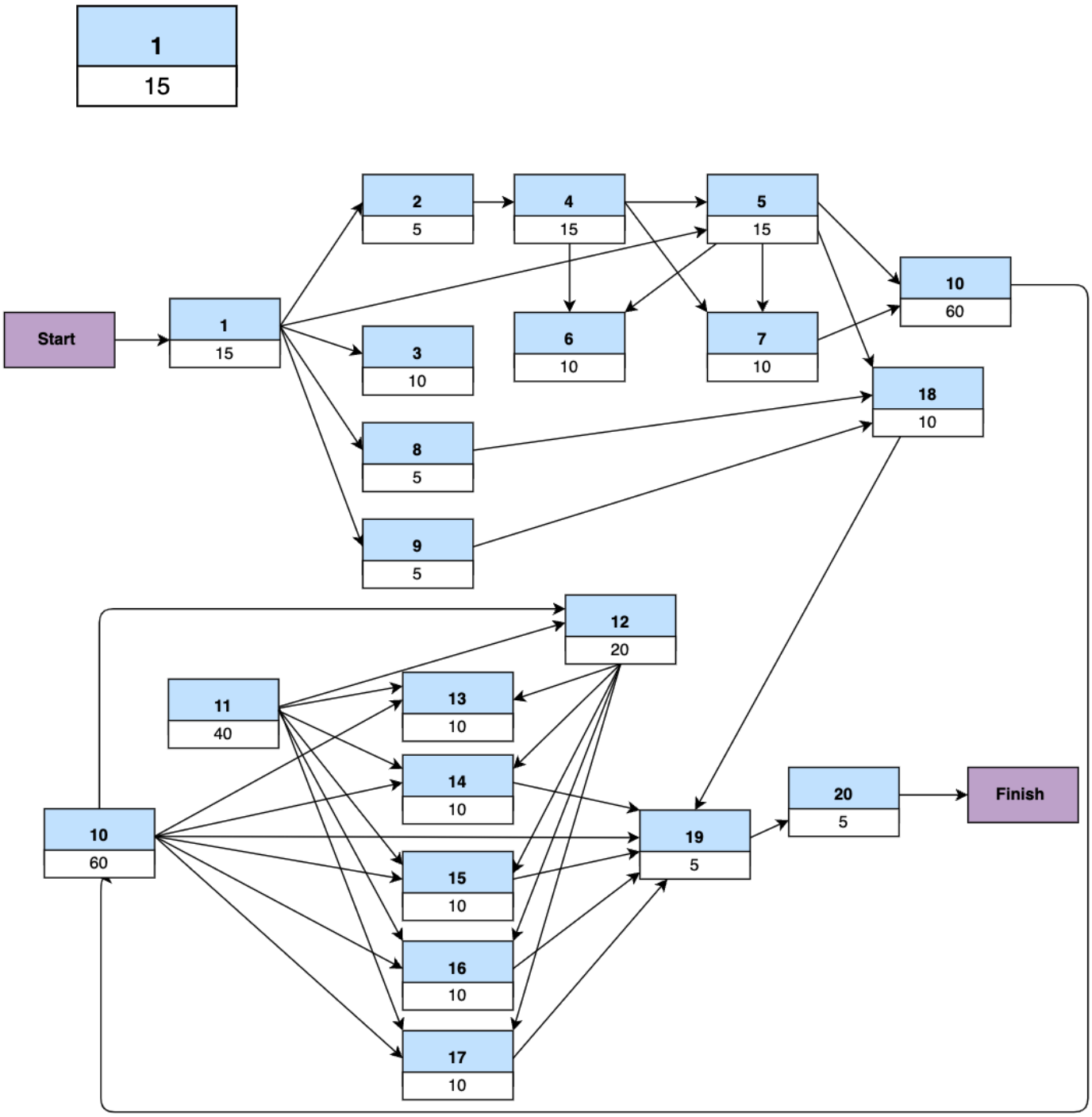


Figure2: Re-Connect Project Network Diagram

6. Risk Analysis

The top 10 risks identified for Re-Connect are[3]:

1. **Data Privacy/Security Risks:** With the increased use of the internet, data travel has increased exponentially. It is of utmost importance to protect customers' data. Insecure data storage can occur at multiple places within the app. Attackers can get access to data by breaking into the security protocols which could lead to Intellectual property loss, fraud, privacy violations, identity theft, and reputation damage.

2. **Strategy Risks:** As the app is being developed, it is important to evaluate customer needs from time to time to ensure that the developed app captures the features and functionalities that a user would want to use. Requirement analysis is the most important task before building a mobile application and misinterpretation of a requirement could lead to high risks that might be difficult to mitigate.

3. **Technical Risks:** Faulty mobile application development and design can be very risky as it would consume a lot of time and cost. Technical risks could arise from:
    a. *Algorithm:* The algorithm used should be cost and space optimal.
    b. *Platform:* The platform should be secure, stable, and should be feasible for the mobile app software to run on it.
    c. *Graphical User Interface (GUI):* The GUI should not be complicated. Careful evaluation of UX Research is necessary to avoid the risk of building a UI that the users struggle to use.
    d. Testing Strategies: Testing has to be carefully planned and executed because the faults identified after the launch of a product in the market can be difficult and expensive to mitigate.

4. **Market Risks:** The opportunity for the need of product must be thoroughly evaluated before implementation. Competitor analysis is a crucial step in researching the market to evaluate the need and use cases for the product. If the product is not a good fit for the existing market, then the implementation will be a waste of time, money, and resources.

5. **Financial Risks:** Unwanted scope expansions can lead to budget overruns. For example, new innovation or marketing ideas may need an additional budget that increases the risk of the project staying within the budget. A Reserve budget helps in managing financial risks without compromising on profit.

6. **Schedule Risks:** A timeframe of 12 months is dedicated for the completion of this project. Due to unavoidable circumstances, if this gets delayed, this could have a direct implication on the cost and the scope of this project.

[3] file:///Users/divyadarshiniupendranpiskala/Downloads/RiskAnalysisinMobileApplicationDevelopment.pdf

7. **Stakeholder Risks:** It's important to communicate with stakeholders effectively so that they understand software development projects and engage with your software development team. Stakeholders can have large effects on the success of projects, so forming great stakeholder relationships is essential.

8. **Communication-related Risks:** There should be effective and streamlined communication between the developers, UX designer, product manager, QA tester, and the project manager. Design errors due to miscommunication can often have a huge impact on the final product. Clearly defining the vision and the mission will help the team members re-align during deviations.

9. **Managerial Risks:** Senior Management can often push their teams to deliver with stringent deadlines and budget to be the first ones to launch in the market and acquire key customers. This often results in the launch of substandard software that is exposed to security risks and instability.

10. **Operational Risks:** Failed or inadequate processes, people, policies, and systems can disrupt business activities/operations. Major types of operational risks include: a) People Risk, b) Process Risk, c) System Risk, d) External Events Risk and e) Compliance Risk.

Qualitative Risk Analysis

From the top 10 risks identified above, the risk matrix (Figure No.) identifies the risks based on the probability of occurrence and their impact. For a mobile app, data security/data privacy risks would both have a high probability of occurrence and the impact would be high as well.

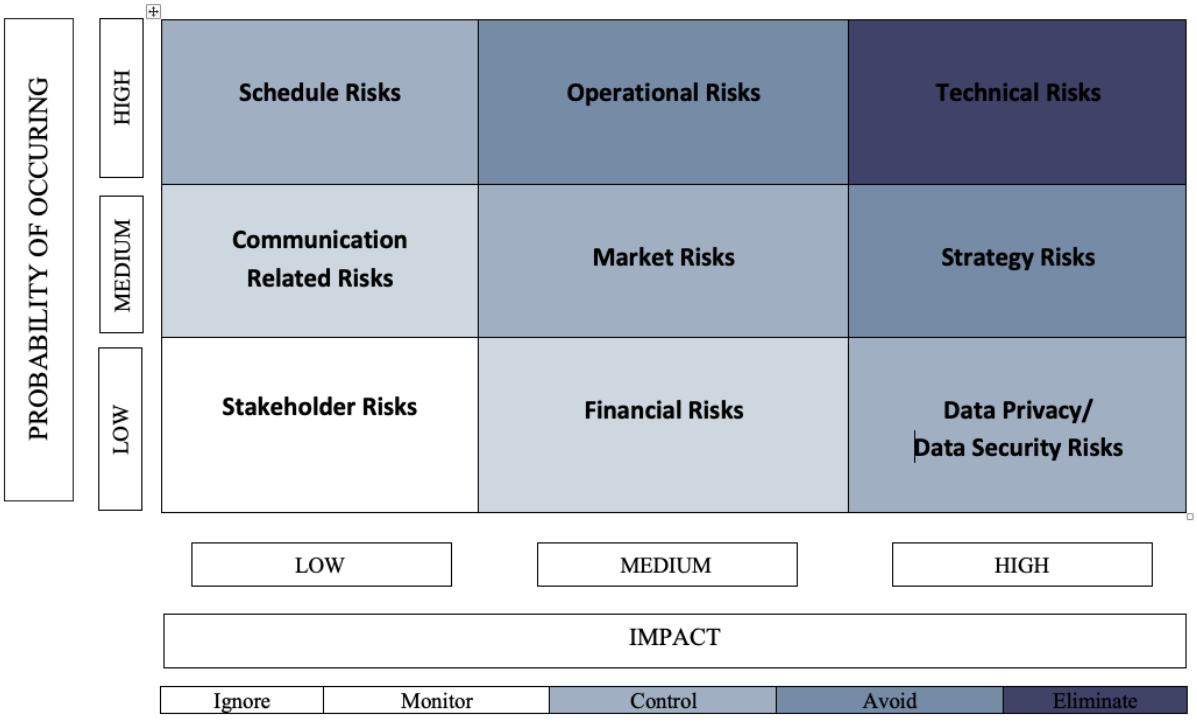


Figure: Re-Connect's Risk Matrix

Quantitative Risk Analysis

Quantitative risk analysis is performed using the Risk Priority Number (RPN) methodology which is used to analyze risks and problems identified during a Failure Mode and Effects Analysis (FMEA)[4]. To calculate RPN for a certain type of risk identified, severity, occurrence, and detection will be rated on a scale from 1 - 10. A Higher RPN number represents a higher risk.

Ratings for each factor in RPN calculations are according to the following understanding:

Occurrence: How likely would the risk occur? (1 - less likely, 10 - highly likely)
Severity: How high would the impact of the risk be? (1 - very low, 10 - very high)
Detectability: How likely that the risk that will be undetected? (1 - very low, 10 - very high)

RPN is calculated as

RPN = Severity x Occurrence x Detection

Risk Type	Severity	Occurrence	Detectability	RPN
Data Privacy/Data Security Risks	10	3	2	60
Technical Risks	6	6	2	72
Strategy Risks	7	3	2	42
Financial Risks	6	7	1	42
Schedule Risks	6	5	1	30

Table 1: FMEA RPN Calculation

[4] https://www.reliasoft.com/resources/resource-center/examining-risk-priority-numbers-in-fmea

7. Monitoring and Control Plan

The project and monitoring plan for the Re-Connect project will primarily focus on four areas: project budget monitoring, project scope monitoring, project status reporting, and project risk monitoring. The Project Manager (PM) will develop a monitoring and control plan, defined in the Product Initiation Document (PID). PID defines the project success measurement criteria, which can assess progress, ongoing viability questions, and change management[5].

Project Plan Monitoring & Control

PM will devise the project plan with the help of the Work Breakdown Structure (WBS). From this, the critical path activities will be identified that will be critical in monitoring the plan using a table with the help of features on a Gantt Chart.

Project Plan Monitoring Techniques

a) **Monitoring Project Milestones:** Project milestones provide visibility on how far the project has progressed. Milestone Slip Chart would help in analyzing and planning control measures to alter the budget, cost, and scope accordingly. It is also important to have Project Tolerances calculated that allows enabling the corrective action to be implemented within the deviation limit.

b) **Pareto Analysis:** The focus should be on executing 20% of the tasks that can achieve 80% of the benefit from the task. This can be done by estimating the value delivered by each task and then selecting the most effective tasks.

Project Budget Monitoring & Control

Constant monitoring of the actual cost vs planned cost per task is very important at every stage/phase of the project. One way of monitoring the budget is to use Earned Value Analysis.

Earned Value Analysis allows the PM to measure the amount of work actually performed that in turn helps to forecast the project's total cost and time. In other words, based on the work completed so far, a forecast for cost and time will happen from time to time.

Earned Value is defined as the budgeted cost of work performed (BCWP). This helps the PM compute burn rates or performance indices for cost and schedule[6]. Examples of indices that would be helpful:

a) *Cost Performance Index (CPI) = Earned Value (EV) - Actual Cost (AC)*

b) *Schedule Performance Index (SPI) = Earned Value (EV) / Planned Value (PV)*

[5] https://www.stakeholdermap.com/project-management/pid.html
[6] https://www.pmi.org/learning/library/earned-value-management-systems-analysis-8026#:~:text=What%20is%20Earned%20Value%20Analysis,be%20measured%20by%20progress%20achieved.

Additionally monitoring Budget at Completion (BAC) and Estimate at Completion (EAC) would help to identify budget overruns. BAC. The best estimate of the total cost at the completion of the project is represented by EAC. EAC is evaluated on a regular basis and is calculated as

c) *Estimate at Completion (EAC) = BAC / CPI*

Project Status Reporting

PM plays a significant role in ensuring that project status is reported to all the important stakeholders from time to time. Re-Connect's MVP is planned to be developed and launched in 12 months. All the tasks have been organized into 6 phases. It is critical for the PM to present the status report after each phase. The status report after each phase will serve as the basis to plan for any control measures that might be required before the next phase of the project begins. Table 1 below contains details about when the status reports need to be presented by the PM in order for the stakeholders to sign off to proceed to the next phase.

	When	Responsible
Status Report 1	After the completion of Phase 1 (Market Research and Technical Analysis)	Product Manager, Developer 1
Status Report 2	After the completion of Phase 2 (UX Design)	Product Manager, UX Designer
Status Report 3	After the completion of Phase 3 (App Development)	Developer 1, Developer 2
Status Report 4	After the completion of Phase 4 (Application Testing)	Developer 1, Developer 2, and QA Tester
Status Report 5	After the completion of Phase 5 (Deployment & Support)	Marketing Executive, Project Manager, Developer 2
Final Status Report	2 Weeks after Deployment (Post-launch Scrum Events)	Project Manager

Table 1: Status Report Schedule

Project Risk Monitoring & Control

Project risk analysis is performed by the PM from the planning phase of the project. It is very important to continuously monitor the risks from time to time in order for the PM to successfully implement risk mitigation strategies. As the project progresses, new risks are bound to come up, but the identification of risks is the most important factor in order to handle it.

The risk register is the one place where all the risks will be captured and monitored on a regular basis[7]. Risk registers are typically created at the beginning of the project. Change requests from

[7] https://sitemate.com/resources/articles/safety/risk-monitoring-and-control/

customers or change orders from the stakeholders often introduce variance in the project. To understand the impact of the introduced variance, risk analysis should be performed.

Step-by-Step Implementation of the Monitoring & Control Plan

1) Outline the project to have benchmarks and expectations established for its scope, schedule, and budget.
2) Break down the project into smaller sections and have the scope schedule and budget for each of these sub-tasks.
3) Define each team's role and what they are to be held accountable for.
4) Obtain results from each team and analyze results.
5) Identify variances in the budget, scope, and deviation from the plan.
6) Continue to monitor the variances that fall within the defined thresholds.
7) If the variance is unacceptable, identify the root cause leading to this issue.
8) Consider several options to tackle this problem.
9) Choose the optimal among all and take corrective action.
10) Implement and obtain results iteratively and repeat if the variance is still unacceptable.

The below chart explains how the process of Monitoring and Control proceeds for Re-Connect in steps with reference to its Work Breakdown Structure (WBS)

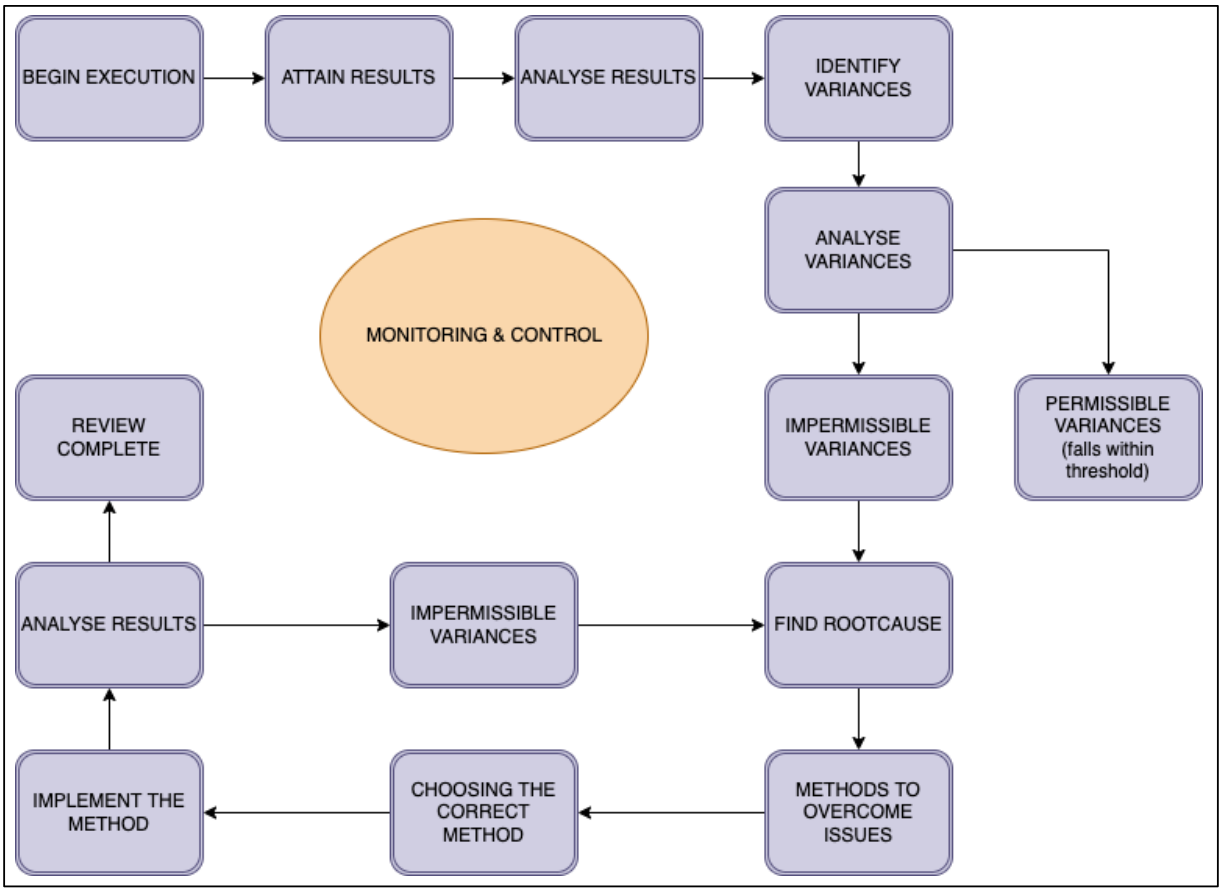


Figure 1: Step-by-Step Monitoring and Control Plan Implementation

8. Financial Plan and Resource Allocation

This project is focused on developing the MVP of the Re-Connect App. Considering this, for the first version, only the features that are valued most by the customers will be developed and launched. For a prototype project, the team assembled is small. This would mean that multiple people will have to wear multiple hats from development through testing. The app is planned to be developed in 12 months with a $500,000 budget. For calculating the budget required for this project, a study to understand the median salary of the different roles in the US was performed.

Designation	Number of resources	Project compensation for 3 months	Projected compensation for 12 months
Software Engineer	2	$40,000	$160,000
QA Tester	1	$18,750	$75,000
UI/UX Designer	1	$17,750	$71,000
Marketing Executive	1	$19,250	$19,250 (3 months only)
Product Manager	1	$25,000	$100,000
Project Manager	1	$26,650	$80,000
Technology & Operations Costs	$10,000/Year		
Total Projected Cost		**$147,400**	**$505,250**

Table 2: Total Projected Cost

Market Sizing

To understand the total market revenue potential, Total Available Market (TAM) analysis has been performed[8].

Businesses:
Total Businesses in Boston = 360,000
Around 86% of all businesses are Small and Medium Businesses
Small and Medium Businesses = 360,000 * 0.86 = 309,600

Customers:
Assuming 35% of all customers spend on Small and Medium Businesses
Average expenditure per transaction = $30

[8] This product concept was developed and researched as part of the Digital Product Management class by Team Re-Connect (Fall 2021). Some of the research and facts have been re-used as a part of this submission.

Number of transactions per week = 3
Total Transaction Value Per Week = 309,600 * 0.35 * 30 * 3 = $97,52,400

Direct Revenue Potential:
Average Transaction Fee Charged by Re-Connect = 2%
Weekly Revenue: $97,52,400 * 0.02 = $195,048 / week
Yearly Revenue: $195,048 * 52 = $10,142,496 (Approx. 10.1M) / year

Assumptions:

1. 35% of all customers spend on Small and Medium Businesses.
2. Average expenditure per transaction by a customer at a business is 30$.
3. Average number of transactions by a customer at a local business is 3 times in a week.
4. Average transaction fee that would be charged by Re-connect = 2%.
5. Ad-free platform for the initial release to increase customer base.

Task-Based Financial Planning

Figure 1 below contains a task-based cost estimate based on the project plan. This estimate reflects both the time and effort required for the task.

Project Phase	Activities/Components	Detailed Tasks to be completed	Start Date	End Date	Working Days	Responsible Person	Cost per Task
			1/8/22	12/9/22			
Market Research and technical analysis	Kick off meeting	Kick off meeting	1/8/22	1/8/22	1	Project Manager	10000
	Market research	Competitive analysis	1/8/22	2/8/22	2	Product Manager	9500
		Market estimation	3/8/22	8/8/22	4	Product Manager	12500
		Market research report	10/8/22	8/15/22	4	Product Manager	6000
	Define use cases	Use case report	8/16/22	8/22/22	5	Product Manager	6000
	Identify platform & devices to build the app	Software Requirement Document (SRD)	8/23/22	12/9/22	15	Product Manager	6000
			8/23/22	10/17/22			50,000
UI/UX design	Create Information Architecture and Workflows	Create Information Architecture and Workflows	8/23/22	12/9/22	15	Developer 2	15000
	Create design prototype	Finalized design document	9/13/22	3/10/22	15	UX designer	20000
	UX Research to validate UI/UX design	UX Research report	4/10/22	10/17/22	10	UX designer	20000
	Create blueprints for engineers	Create blueprints for engineers	4/10/22	10/17/22	10	Product Manager	17000
	Define App's Title and Description	Define App's Title and Description	4/10/22	10/10/22	5	Marketing Executive	14000
	Define category, keyword, and design launch icon	Define category, keyword, and design launch icon	4/10/22	10/10/22	5	Marketing Executive	`14000
			10/18/22	5/24/23			100,000
App development	Alpha version of the mobile app	Alpha version of the mobile app	10/18/22	9/1/23	60	Developer 1, Developer 2	40000
	Functionality enhancements/bug fixing	Functionality enhancements/bug fixing	10/1/23	6/2/23	20	Developer 1, Developer 2	40000
	Beta version of the app	QA Testing	7/2/23	2/20/23	10	QA Tester	50000
		Performance Improvements	2/21/23	6/3/23	10	Developer 1, Developer 2	40000
	MVP mobile app and supporting docs	Improvements from Application testing	4/4/23	4/19/23	12	Developer 1, Developer 2	40000
	First public release ready app	Incorporate Application testing changes	5/18/23	5/24/23	5	Developer 1, Developer 2	40000
			7/3/23	5/17/23			250,000
App testing	User Acceptance Testing (UAT)	User Acceptance Testing (UAT)	7/3/23	3/20/23	10	QA Tester	15000
	Functional Testing	Functional Testing	7/3/23	3/20/23	10	System Test Engineer	13750
	Performance Testing	Performance Testing	3/21/23	3/4/23	10	System Test Engineer	13750
	Security Testing	Security Testing	4/20/23	3/5/23	10	System Test Engineer	13750
	Device and Platform Testing	Device and Platform Testing	4/5/23	5/17/23	10	System Test Engineer	13750
			5/25/23	8/31/23			70,000
Deployment and support	Create promotional videos for the app release	Create promotional videos for the app release	5/25/23	7/6/23	10	Marketing Executive	5000
	Launch the first version of the app	Release the app in the App Store	8/6/23	8/6/23	1	Developer 2	7000
		Press Release Statement	8/6/23	8/6/23	1	Product Manager	3000
	App ver2 with improvements and bug fixes	App ver2 with improvements and bug fixes	9/6/23	8/31/23	60	Product Manager	15000
							30,000
							500,000

Figure 2: Task-Based Financial Planning

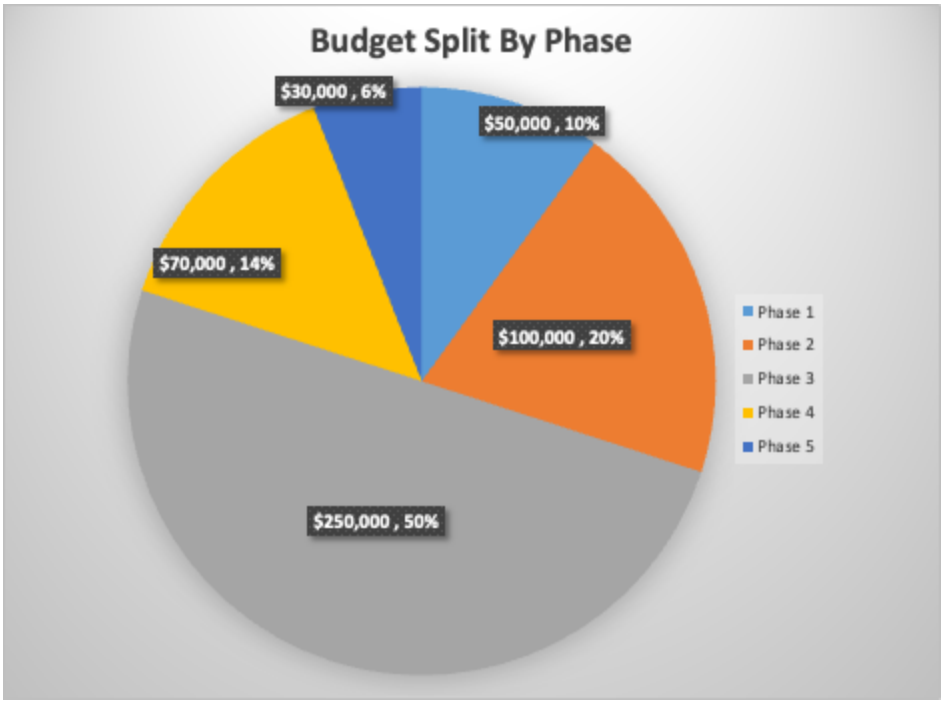


Figure 3: Budget Split by Phase

9. Conclusion

COVID-19 pandemic has displayed there was a high dependency on just a few businesses. To avoid such a situation and maintain a circular flow of economy, small local businesses need to be empowered with a strong online presence. Consumer behavior has shifted majorly during the pandemic. Consumers want to shop locally, prefer products/services tailored to their needs and engage in sustainable and clean products/services. These factors motivate us to build Re-Connect's MVP. With this detailed project plan proposed, the management team is confident of completing the task within 12 months of time and budget of $500,000. The MVP developed in this project will help evaluate the future iterations of this mobile application. As the mobile application gets mature and more customers benefit from this platform, future developments could be more focused on generating revenue from this product.

Re-connect is designed following an organized distribution of tasks among the workforce. It ensures that the team invests in intensive research to appreciate the market demand, user demand and analyze the strategies to develop a viable application that meets user needs and industry standards. Also, SWOT analysis is performed to understand the strengths, weaknesses, opportunities and threats in the current market. Risks are calculated and prioritized keeping data privacy/security risk management at the top. The app follows a strict formula to ensure that customer's data is handled with utmost care. Continuous Integration and Continuous Delivery/Deployment is fulfilled at the time of all release versions of the app thereby enabling proper monitoring and control during each phase of execution.

10. References

1. Hayes JP, Chawla SK, Kathawala Y. A comparative study of problems encountered in the development of small businesses in the US and Mexico. The Journal of Developing Areas. 2015;49(3):395-406.

2. Small business statistics. https://smallbiztrends.com/small-business-statistics. Updated 2021