

Benchmark- Final Project Plan and Leadership Reflection

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Executive Summary

1.1 Business Case: Based on my research and analysis, I got to know that almost all construction industries are facing more challenges as compare to other industries. Every year, there are up to 1000 workers die in this industry, just because of the safety reason. Moreover, I also found that, in this industry, there is a lake of skilled workers who can work on quality assurance. That's the reason behind failure of construction project and poor customer satisfactions. Technology adoption and emerging new technologies in this industry is the biggest concern of every construction business today. The Second biggest concern of construction business is criticizing the others to build modeling. But, innovative technologies can solve all of this problems of construction sites.

1.2 Porter's Competitive Strategy: Proposed technology adoption plan is beneficial for every construction industries as it will be able to synchronize with company's goals and objectives. Moreover, the competitive strategies are also associates with that adoption to support the MOV of an industry. Cost leadership, Differentiation Focus, Differentiation, and Cost Focus are porter's strategies. The adoption of proposed technologies would be beneficial for all of these Porter's competitive strategies. Let's take a look with respect to Measurable Organizational Value.

1.3 Measurable Organization Value (MOV): As I have stated in my previous assignment, proposed technology of can speed up the Measurable Organization Value of any construction industry. As we all know, to run any business successfully, organization should attract the customers and without competitive strategies this is not possible. Many construction industries today face the higher death rate of workers, which is most affected factor on Measurable

Organization Value (MOV) of any organization. The main idea behind this proposal is to provide the fulfillment to their clients and also develop healthy customer relationship by delivering efficient products. Additionally, the Measurable Organizational Value (MOV) also includes the stakeholder's satisfaction. Also these sensors automatically keep track on assets used in particular Industry, which also can be helpful to gain desired MOV (Measurable Organizational Value). Furthermore, the MOV is also consider as the measurable success of any project, which can be measure during or at completion of development.

Project Scope and Project Timeline

2.1 Project Scope: The scope of anticipated adoption is used to determine the key deliverables of project such as: Project goal, Objectives, key requirements, and end result. Moreover, meetings and communication with client and stakeholders also helpful to decide the project scope.

Key Objectives: The key objective of this project is to develop the innovative technologies in the construction industries to overcome the death rate of workers on job site. Moreover, the other objective of the adoption is to develop consumer satisfaction by deliver exceptional end product under desired timeline (Schedule). Hence, organization can increase the revenue of organization.

Goals: Main organizational goals of the project are given as below, which can be helpful to achieve desired output (end product).

- ✓ Technology adoption for worker's safety,
- ✓ Technology adoption Generate high revenue,
- ✓ Production within decided budget,
- ✓ Development of quality product on time,

- ✓ Customer and Stakeholders satisfaction.

2.2 Project Timeline: As I said before in my previous assignment, “created Microsoft project plan shows the activity and the duration of completion of particular activity with the timeline. Moreover, “technology has developed so rapidly in recent years, it’s hard to choose which are most significant. By taking a look at the two and a half decades we may be able to get a good idea of where things may be headed,” he (J. Westland, 2018) says.”

Project Budget

Project budget represents the written report of amount of money obtainable to expense over the phase of time, on equipment purchasing and to adopt the innovative technology.

Following table shows the entire project budget.

| Budget Sheet and Expenses | |
|---------------------------------------|-----------------------|
| ITEM | COST/ EXPENSES |
| Acquisition of Plot | \$75,000.00 |
| Plot Design | \$82,000.00 |
| Equipment Purchasing | \$65,500.00 |
| Technical Equipment | \$45,000.00 |
| Cloud Purchasing (2-Months) | \$176.00 |
| Installation and Delivery and Testing | \$65,500.00 |
| Closing | \$2,500.00 |
| | \$335,676.00 |
| Additional Expenses | \$43,000.00 |
| Total | \$378,676.00 |

Now let’s take a look on Technical software and cloud expenses adopted to successfully run this project under budget. Proposed project will use the Google cloud to store the data. All the secure data and information related to workers, clients, stakeholders and all government policies can be saved in this highly secure cloud. As we had talk about Serverless computing,

Google cloud is the best option as it is event-driven cloud. Moreover, the Google cloud allows user to store up to 5 TB of data. The price of this cloud is approximately \$0.44 per month.

| Technology Package | |
|---------------------------|-----------------------|
| ITEM | COST/ EXPENSES |
| Cloud Storage/ Software | \$10,176.00 |
| Hardware | \$35,000.00 |
| Installation/ Texting | \$20,000.00 |
| Total | \$65,176.00 |

Human Resources Plan

As we all know HR plan is a significant portion of every business. This plan can keep track on every human activity until the completion of project. For proposed project, this plan includes: Roles and Responsibilities of crew, Roles and Responsibilities metrics based on RACI (Responsible, Accountable, Consult, Inform).

Roles & Responsibilities:

| Team Member | Role |
|---------------------------------------|---|
| Project Owner/ Client | Owner or Landlord of the property. Responsible for making all the transaction of money. |
| Project Manager (Contractor) | Responsible to deliver effective and successful end product for owner. |
| Accountant | Responsible to making all documents and statements related to budget and cash flow statements of project. |
| Development Lead (IT Team) | The development leaders are responsible to develop software and install technological equipment for project. |
| Architecture/ Design Engineers | Responsible to construct designed documents for particular construction. |
| Testing Lead | Responsible to test software installed. Additionally, they are also responsible to check errors and fault in end product. |

| | |
|----------------|--|
| Workers | Main stockholders of entire project responsible to build efficient and effective construction buildings and project. |
|----------------|--|

Responsibility Matrices:

| | Contractor | IT Team/ Architecture Team | Execution Manager | Workers | Accountant |
|------------------------------------|------------|----------------------------------|----------------------|---------|------------|
| Requirement/Specification Analysis | A | R | R | C | C |
| Architectural Design | A | R | C | | C |
| Technical Installation/ Design | A | R | | | |
| Equipment/ Software Testing | A | R | C | | I |
| Execution | A | C | R | C | C |

Communication Management Plan

Here is the communication plan for proposed project of construction industry. It includes the sections like: Objectives of communication plan, Deliverables in terms of Timeframes (Goal/ Milestones), Communication Staff, and Communication medium. Each sections are given as below.

- ✓ **Objectives (Purpose and what need to be communicate?):** As a part of project, every stakeholder, leaders, business owners and workers should communicate about the general preparation and execution of the project. Moreover, every character should follow the communication hierarchy to deliver efficient product. Entire process is also known as “Communication Requirement and Specification Analysis”. To add, communication keeps all characters of project in one loop, as a whole.

✓ **Deliverables in terms of Timeframes:** Communication plan will improve the chances of accomplishment of project on-time.

✓ **Communicating Staff:** It includes the all character, taking part in communication process.

| Stakeholder | Name | Title/ Role | Phone | Email |
|-----------------|------|---------------------------|-----------------|---------------------|
| Owner | ABC | Landlord of project | (345) 562-7890 | xyz@abc.com |
| Project Manager | PMI | Contractor | (765) 892-9348 | ter@hsd.org |
| Accountant | ACC | Auditor | (984) 123-4563 | uir.12@grtf.in |
| IT Manager | ITM | IT Executive | (756) 084- 0091 | etc.et@hae.com |
| Architecture | ARC | Planning Manager | (832) 453- 9836 | jrtfjf.yere@hfi.org |
| Design Engineer | EDE | Design Manager | (675) 121- 9999 | opqr.eer@erdf.com |
| Testing Lead | TST | Analyst | (863) 919- 6319 | zxw@yho.com |
| Union Leader | LDR | Leader of worker union | (602) 743- 8943 | tuv123@ekta.com |

**Contact information is just for assignment purpose. It's not correct at all.*

✓ **Communication Medium/ Tools:** Most important aspect of collaboration plan is communication medium through which, people are able to conveying the message or important data. Additionally, it is the medium by which, message or information transfer from higher level to lower level and back to higher level form lower level in organization. Sometime this medium also known as “communication channel.” Below table shows the communication channels used in proposed project.

| Intermediate | Description |
|--------------|---|
| Email | Message passes electronically via laptops and computers. |
| Meetings | Gathering of stakeholders, especially the members of a project for discussion on requirements and decision. |
| Phone | Type of one to one or group conference communication process via smartphones. |
| Video Chat | Allows stakeholders to collaborate remotely, even visual taking about project. |

| | |
|---------------------------|--|
| Face-to-Face | One type of personal meeting, especially done for special reasons. |
| Written Communication | Important when discussing about literatures, memos, booklets, government policies, notices and announcements related to project. |
| Newsletters | Medium to notify workers about what is going on in project. |
| Document Sharing Software | To arrange principal papers so that workers can approach them immediately. |
| Social Media | Used to enrich knowledge sharing documents, and to connect employees and organization. |

Business Process Map

Wearable technology presents the opportunity to improve safety, reduce injuries, improve efficiencies and enhance quality of life for construction workers.” this technology adoption is very beneficial for an industry who are looking for higher safety, compactness and efficiency for their workers. Today, there are approximately, three types of wearables are available in the market like sensing wearables, visibility wearables, and tactile wearables. “Sensors can be placed in between interior and exterior walls to detect moisture that could lead to mold. . BIM model drive stakeholders to keep their eyes on various segments of project. Also, BIM modeling provides the scheduling infrastructure for work events. Stakeholders can also, save their time to re built the sample model of construction. As this technology allows them to update and remove features in recent infrastructures or sample models.

Failure Mode Effect Analysis

Failure Model and Effect Analysis (FMEA), is the procedure of categorizing the abilities of breakdown that contains the risk for that particular process, product and project failure. Sometimes it also represented in a way of Failure Models, Effect and Critically Analysis, i.e. FMECA. “The model consists of failure mode, effect of failure, cause of failure, and analysis of

the failure mode, says Juran (2018).” Participation in FMEA process is important for every member of the project. Let’s take a look on particular group and why they should participate in FMEA process.

✓ **Legal, Risk, Compliance, Audit:** M. Carnell says, “In a FMEA we just created an opportunity for a law suit. If we do identify it and it occurs and we don't do anything about it, we just need to write a check because our court case will last a second.” It means, he (Carnell, 2019) never see the legal, risk, audit and compliance group sit in FMEA participation.

✓ **Information Technology:** Technology team is better understanding in cybersecurity threat who can affect the particular activity or process of project. “The team also can identify the potentials of the risk as a security tools. Hence, it is necessary for IT team to participate in FMEA process, Asllani et. al. (2018).”

✓ **Process Owner:** Participation of Process Owner can help us to drive excellent demonstration of the process to do and check list of activities that we need to complete from the beginning. Process Owner is the person who own all the activities and legal movements of the project, that’s the major reason why process owner should participate in FMEA process.

Data Flow Diagram

As we all know, the Data flowchart (DFD) depicts the logic models and expresses data transformation in an exceedingly system. It includes a mechanism to model the information flow and supports decomposition for instance details of the info flows and functions. a knowledge flowchart cannot present information on operation sequence. Therefore, it's not a process or procedure modeling method. DFD is employed for the assessment of existing and projected systems and its elements.

Security Controls Mapping

Today, almost all construction industries are worrying about the safety of their workers. Moreover, some of corporate rules and regulations that should adhere every construction industry are:

- ✓ Workers safety rules
- ✓ Background check and credit regulations
- ✓ Agreement (Between subcontractors and owner) regulations
- ✓ Salary agreement rules
- ✓ Transportation safety rules
- ✓ Multi-Employer citation policy
- ✓ Personal protective equipment policy

Based on United States Department of Labor. (n.a), “there is one tool Occupational Safety and Health Administration (OSHA) used to inform internal staff and the public of significant occupational safety and health issues concerning hazard recognition, evaluation, and control in the workplace and at emergency response sites.” I believe, every construction industry must adhere the Regulatory Compliance and Security Controls to overcome the risk of hazard and any type of misconduct that could happen in construction site. To add, I can also say that, regulatory compliance endure industry to protect against financial regulations, data breaches, fraud, safety regulations for the safety of workers and labor units. Therefore, the main focus of OSHA (Occupational Safety and Health Administration) today is, rather helping and enduring the workers comply than less enforcement. less prosecution meaning more boundary for miscalculation if an unplanned delay in building site welfare leads to a damage and workers are accidentally shorted on their earnings.

Key Performance Indicators and Three Performance Practices

10.1 Key Performance Indicators: As we all know, KPIs (Key Performance Indicators) are amount of computable costs, that represents how essentially an organization is accomplishing their business goals. Moreover, the overall performance of company also represented by high level of Key Performance Indicators. As its shows the overall performance, as a manager we have to define our business KPIs very wisely. Based on the research (Klipfolio.com, n.a), “Once we have selected our KPIs, we will have to track them in an actual reporting tool. KPI management can be done using software i.e. dashboard reporting software, giving our whole organization perceptions into our current presentation.”

Here, I have decided to perform my project on construction Industry. Let’s talk about Key Performance Indicators (KPIs) of construction industry. “In any manufacturing company like construction, KPIs are frequently used to optimize the activities and set values for appraisal, says S. Kristen (2019).” Here are some KPIs of construction industry.

- ✓ Schedule
- ✓ Worker Safety and Inspection
- ✓ Worker Productivity
- ✓ Construction Reports and Documents
- ✓ Quality and Closeout plans
- ✓ Request for Information
- ✓ Change Order

10.2 Performance Practices: “Performance management is a system, not a task. It is a set of integrated management practices that are deliberate to help accomplish two main objectives: maximize employee’s potential, and increase employee satisfaction,” says Sawalha (2017).

Organizations that area unit serious concerning rising their performance, money or otherwise, regularly hunt for higher business practices. The quickest and simplest way to enhance is to check and learn from alternative eminent organizations.

Here, are listed some best performance practices. Conducting a formal review of performance, retaining talent, developing leaders from within, keeping employee engaged, train your reviewers, pinpoint the sources of ineffective performance, create action plans to develop performance, etc. According to me best three performance practices are listed below with description of each.

1) Retaining Talent: Workers who have regular conferences with management to deliberation performance, solve disputes and receive coaching square measure a lot of possible to remain with the corporate. According to L. Sawalha (2017)., “if staff see that their management team is fitting the work to develop them professionally, facilitate them succeed with their goals, and reward performance on a standardized basis, then they're a lot of incentivized to each stick with the corporate and work more durable.”

2) Conducting A Formal Review of Performance: An systematized worker review will facilitate inspire associate degree worker to thrive in their career, and facilitate employers retrieve quality work from their team members. Worker evaluations are a chance to course correct issues, lay the groundwork for a team member’s advancement inside the corporate and make useful documentation for unit of time issues.

3) Keeping Employee Engaged: “Studies show that staff do best with feedback on a monthly or quarterly basis, with regular check-ins serving as a zone to drawback solve, regulate goals as necessary, and to refresh them specialize in the goal. In fact, firms wherever staff meet to review

goals quarterly or additional often area unit nearly five hundredth additional probably to own above-average monetary performance, Sawalha (2017) said.”

Compensation and Rewards

Compensation refers to any or all forms, returns and tangible services and advantages workers receive as a part of a worker relationship as mentioned higher than. On the opposite hand reward management system in line with Mamatha (n/a), maintenances with the formulation and implementation of methods and policies, the aim of that square measure to reward folks fairly, equitably and systematically in accordance with their worth to the organization and so facilitate the organization to realize its strategic goals. Moreover, according to author (Wong, 2019), “for the compensation to be thought-about as psychological feature issue, it has to be variable. Your business would be able to absorb such variable value because it isn't a hard and fast work force value.”

Compensation for Engineers: Every engineers work on engineering and hi-tech devices as well as tools, engines and instrumentation. Owing to their broad approach to engineering, they'll realize employment in many producing industries, as well as part, power production and artificial intelligence. They usually add skilled workplace settings however might visit production facilities or machine sites. That's the reason, compensation differs by leader and placement engineers.

Compensation for Manager and Analysts: Research states that, a good Project Managers are the midpoint of each roaring construction company. They act as a frontage of the project, the middle of the flow of data, and therefore the individuals you've created accountable to manage and mitigate the risk of each project you perform. They're given responsibility for the money outcomes of them comes, and are thus directly answerable for the company's gross profits or

losses. “With all of this responsibility, it’s straightforward to examine why hiring the right project managers is thus important to the success of your company. In spite of what the economy is doing, nice project managers can continually be in high demand. So as to draw in them and keep them on your team, you wish to own a compensation and incentive scheme that rewards them for his or her skills and keeps them actuated to perform at a high level, day in and time out, C. Wong. (2019).”

Implementation Plan

According to Mohamed Sami (2012), “selecting a Software Development System methodology may be a challenging task for several organizations and software engineers. Before considering a framework for choosing a given System methodology, we want to define the various types and illustrate the benefits and drawbacks of these models.” Moreover, the selection of system is also based on some selection criteria i.e.;

- ✓ **Learn about Models:** Author Sami (2012) also said, “to choose the right system, as a development manager, we should have sufficient experience and be familiar with the systems that will be chosen and understand them correctly.
- ✓ **Needs of Stakeholders:** Also one method of right system selection is to study the business domain, stakeholders need and specifications, commercial priorities, technical skill and talent, and technology controls to be able to choose the right System development system against their selection criteria.
- ✓ **Principles:** As a manager we have to build some principles to select the development system. That criteria should be based on system reliability, complexity, scheduling, visibility, reusability of component, and cost etc.

11.1 Testing Procedures: Here, in this project, my selected technology is wearables for the most increasingly concern of worker's and labor's safety. The advancement of Wearable Technology can overcome this problem. Today, there are approximately, three types of wearables are available in the market like sensing wearables, visibility wearables, and tactile wearables. But, the testing procedure of this technology is also the main concern of IT industries. For that, Quality Assurance is important to integrate that wearable device with software. That the reason, as a project manager you should train your worker with that device, it's safety guidelines and standards. Some of Testing Standards of wearable technology are as below:

- ✓ **Material Testing:** Material testing includes three types of testing itself. Chemical, Physical and performance testing. Performance testing focuses on conformity to the standard indicators set by the businesses and the way well a tool withstands climate, friction, pressure, etc.
- ✓ **Firmware Testing:** Firmware testing focuses on experience of user expectations. Moreover, it also manages the variety of frameworks associated with that device, and monitoring how data and information is being stored. One feature of firmware testing is security testing, which includes how private and protected data stored in that device.
- ✓ **Hardware Testing:** Hardware testing of most devices are done based on wireless testing, life of battery and electrical safety.

11.2 Prototype Process and Environment: Jacob Skinner (2020) believes that, "prototyping does not in itself provide a finished product, so careful consideration of the goal and objectives of the prototype is a really important first step." His (J. Skinner, 2020) research shows how wearable technology is created through prototyping iterations. There are five stages in wearable prototyping and environment.

- ✓ **Feasibility Prototype:** This prototype is incredibly specific, therein it's not a product prototype, but is aimed toward understanding a particular key technology. The aim of a Feasibility Prototype is to rapidly establish evidence. After the work is complete and therefore the prototype has been wont to prove or disprove whether a way or technology will add the merchandise context, there's likely a reevaluation of the proposition and also the setting of grounded, evidence-based targets for development.
- ✓ **System Prototyping:** It acts as a platform to develop all elements of the electronics, including sensors, processors, wireless communication technologies and therefore the firmware code which acts to run the system. “It doesn't physically look anything just like the finished product, but allows critical early development of the sensor and digital systems, without the time and price of cramming it all into a small form factor, says Jacob (2020).”
- ✓ **Form Factor Prototyping:** Jacob (2020) says, “a user will almost always connect with a wearable product through both the physical device and also a smartphone type interface. These aspects of the user journey are extremely important and should not be left to chance, or added as an afterthought later.”
- ✓ **Production Prototyping:** “Production Prototypes are all about making the product a reality. Detailed design refinements, exhaustive testing and production tooling result in large numbers of units being delivered with low failure rates and low unit cost. Along the way, users increasingly get a full experience of the product in all its glory (Jacob, 2020)”
- ✓ **Concept Prototyping:** This prototyping is a physical rendering of the eventual product supported the shape Factor Prototype, complete with a consolidated set of electronic and digital elements, derived from the System Prototype.

Support Plan

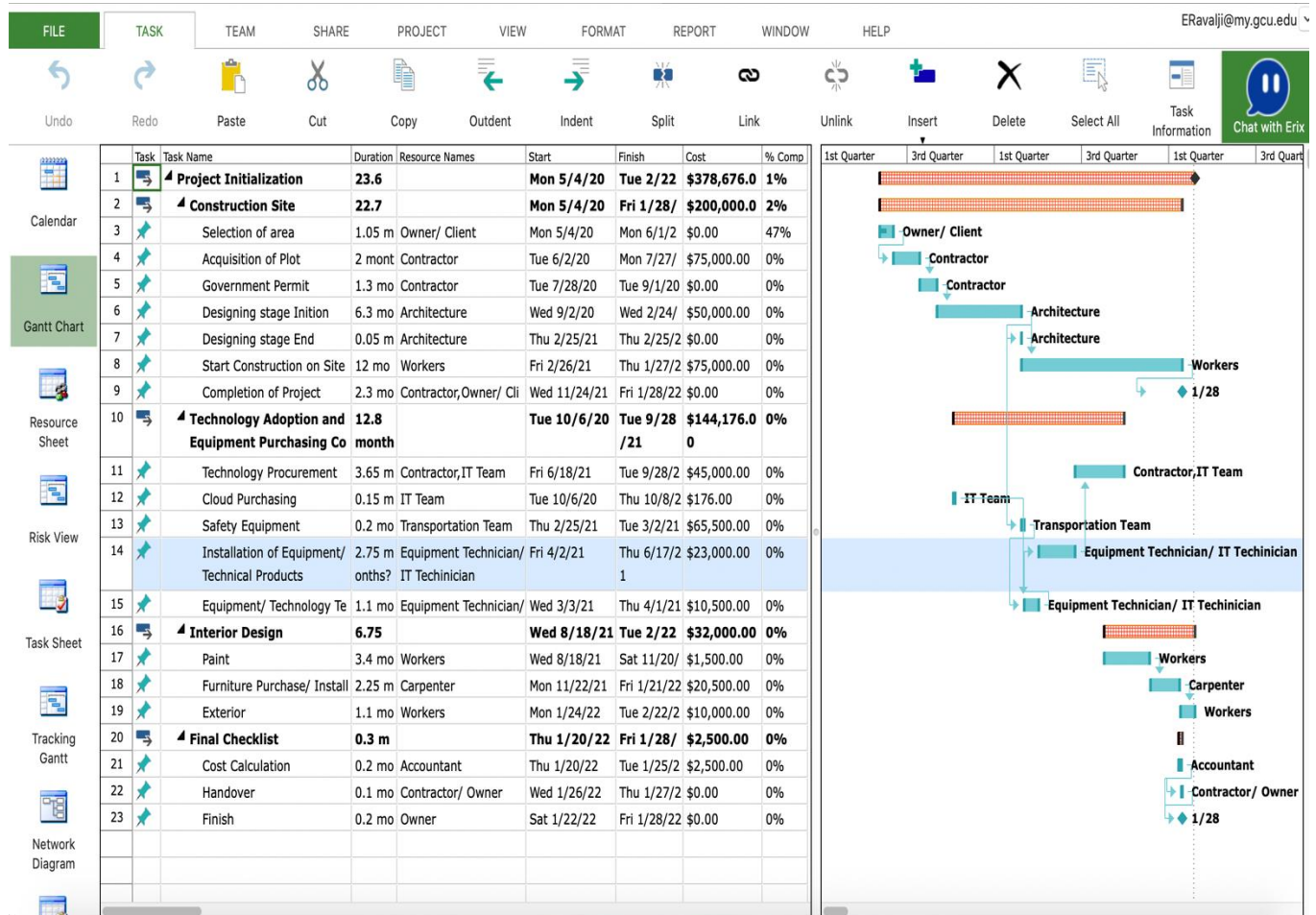
Relationship with a highly qualified technical support team with a technical support plan is an effective management to manage and maintain technology this day. Remaining on top for device connectivity ensures our technology works, the reason, it should whilst the technology system continues to quickly grow.

- ✓ **End- User:** End-user here means, the workers. Workers are always concern about their safety. Wearable devices provide that safety to them. But what if there would be a problem with device? To support this, Galbraith (2019) says, “sensors and communication between devices can bring faster response times to emergency issues and improve the security of the top user.”
- ✓ **Operational, Technical Support and Maintenance:** Additionally, to improving the safe of their labor Galbraith (2020) says, “sensors and IoT (Internet of Things) can make it feasible for contractors to adjust the performance of the equipment on their construction site.” There is also support and maintenance team working to provide a support if there is any problem with wearable devices.

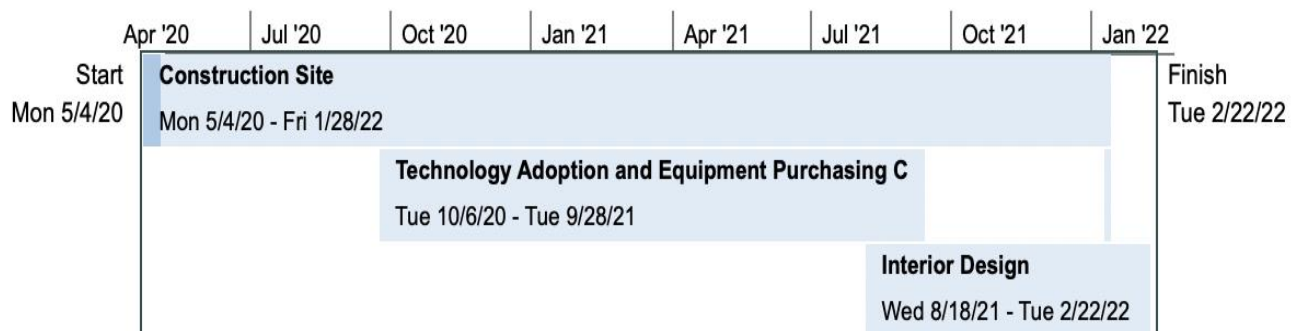
Appendix

Project Plan:

1) Scope



2) Timeline:



Technology Cost and NPV:

| A27 | | Budget Sheet and Expenses | |
|---|----------------|-------------------------------------|-----------------------------------|
| Task Name | Cost | Resource Names | Data Given |
| Project Initialization | \$378,676.00 | | Project Manager \$120.00 |
| Construction Site | \$200,000.00 | | Network Engineer \$95.00 |
| Selection of area | \$0.00 | Owner/ Client | System Design Engineer \$90.00 |
| Acquisition of Plot | \$75,000.00 | Contractor | Senior Programmer/Analyst \$85.00 |
| Government Permit | \$0.00 | Contractor | Programmer/Analyst \$75.00 |
| Designing stage Initiation | \$50,000.00 | Architecture | System Test Engineer \$75.00 |
| Designing stage End | \$0.00 | Architecture | Software Test Engineer \$65.00 |
| Start Construction on Site | \$75,000.00 | Workers | Support Team Manager \$55.00 |
| Completion of Project | \$0.00 | Contractor,Owner/ Client,Workers | |
| Technology Adoption and Equipment Purchasing Cost | \$144,176.00 | | |
| Technology Procurement | \$45,000.00 | Contractor,IT Team | |
| Cloud Purchasing | \$176.00 | IT Team | |
| Safety Equipment | \$65,500.00 | Transportation Team | |
| Installation of Equipment/ Technical Products | \$23,000.00 | Equipment Technician/ IT Technician | |
| Equipment/ Technology Testing | \$10,500.00 | Equipment Technician/ IT Technician | |
| Interior Design | \$32,000.00 | | |
| Paint | \$1,500.00 | Workers | |
| Furniture Purchase/ Installation | \$20,500.00 | Carpenter | |
| Exterior | \$10,000.00 | Workers | |
| Final Checklist | \$2,500.00 | | |
| Cost Calculation | \$2,500.00 | Accountant | |
| Handover | \$0.00 | Contractor/ Owner | |
| Finish | \$0.00 | Owner | |
| Budget Sheet and Expenses | | | |
| ITEM | COST/ EXPENSES | | |
| Acquisition of Plot | \$75,000.00 | | |
| Plot Design | \$82,000.00 | | |
| Equipment Purchasing | \$65,500.00 | | |
| Technical Equipment | \$45,000.00 | | |
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| Technology Package | | | |
| ITEM | COST/ EXPENSES | | |
| Cloud Storage/ Software | \$10,176.00 | | |
| Hardware | \$35,000.00 | | |
| Installation/ Texting | \$20,000.00 | | |
| Total | \$65,176.00 | | |
| Budget Sheet with NPV | | | |

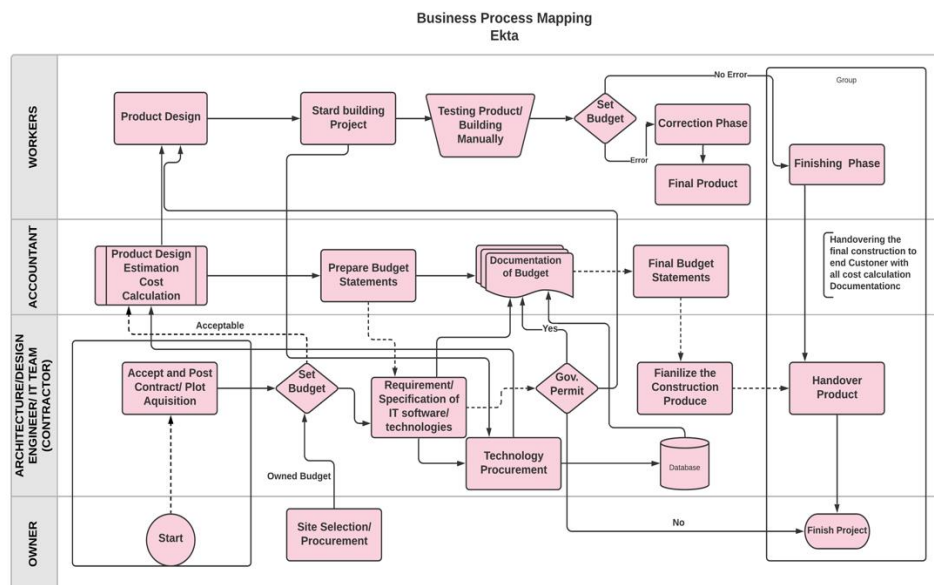
Communication Plan:**1) Staff:**

| Stakeholder | Name | Title/ Role | Phone | Email |
|-----------------|------|---------------------------|-----------------|---------------------|
| Owner | ABC | Landlord of project | (345) 562-7890 | xyz@abc.com |
| Project Manager | PMI | Contractor | (765) 892-9348 | ter@hsd.org |
| Accountant | ACC | Auditor | (984) 123-4563 | uir.12@grtf.in |
| IT Manager | ITM | IT Executive | (756) 084- 0091 | etc.et@hae.com |
| Architecture | ARC | Planning Manager | (832) 453- 9836 | jrtfjf.yere@hfi.org |
| Design Engineer | EDE | Design Manager | (675) 121- 9999 | opqr.eer@erdf.com |
| Testing Lead | TST | Analyst | (863) 919- 6319 | zxw@yho.com |
| Union Leader | LDR | Leader of worker union | (602) 743- 8943 | tuv123@ekta.com |

2) Medium:

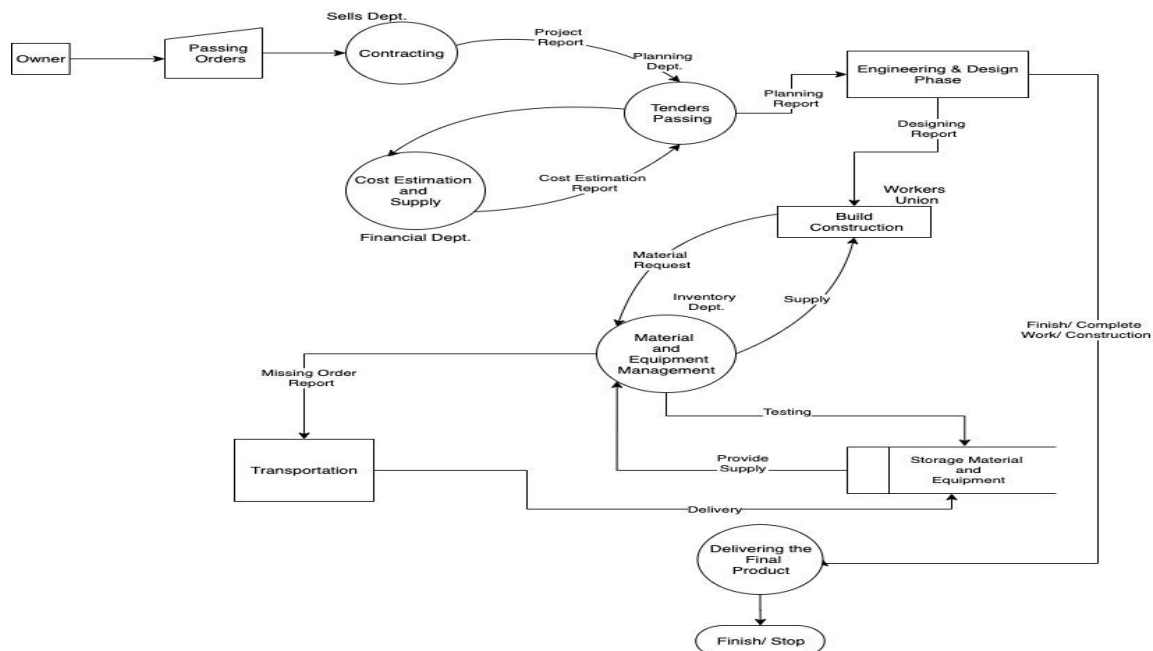
| Intermediate | Description |
|---------------------------|--|
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| Phone | Type of one to one or group conference communication process via smartphones. |
| Video Chat | Allows stakeholders to collaborate remotely, even visual taking about project. |
| Face-to-Face | One type of personal meeting, especially done for special reasons. |
| Written Communication | Important when discussing about literatures, memos, booklets, government policies, notices and announcements related to project. |
| Newsletters | Medium to notify workers about what is going on in project. |
| Document Sharing Software | To arrange principal papers so that workers can approach them immediately. |
| Social Media | Used to enrich knowledge sharing documents, and to connect employees and organization. |

Business Process Mapping:



FMEA:

| FMEA | | | | | | | | | | | | | | | | |
|--|--|---|---|-------------------------------|--|--------------------|---|--------------------|-----|---|---|---|-------------------|--------------------|--------------------|-----|
| Process/Product Name: Construction Building | | | | | | | | | | | | | | | | |
| Prepared By: Ekta Ravalji | | | | | | | | | | | | | | | | |
| Responsible: Authorized Person | | | | FMEA Date (Orig.): n.a | | | | (Rev.): n.a | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| Process Step/Input | | Potential Failure Mode | Potential Failure Effects | SEVERITY (1 - 10) | Potential Causes | OCURRENCE (1 - 10) | Current Controls | DETECTION (1 - 10) | RPN | Action Recommended | Resp. | Actions Taken | SEVERITY (1 - 10) | OCURRENCE (1 - 10) | DETECTION (1 - 10) | RPN |
| What is the process step, change or feature under investigation? | | In what ways could the step, change or feature go wrong? | What is the impact on the customer if this failure is not prevented or corrected? | | What causes the step, change or feature to go wrong? (how could it occur?) | | What controls exist that either prevent or detect the failure? | | | What are the recommended actions for reducing the occurrence of the cause or improving the failure? | Who is responsible for making sure the actions are completed? | What actions were completed (and when) with respect to the RPN? | | | | |
| Site Selection/ Procurement | | Unexperienced person select the site or a person with less knowledge of site and area | Consumer lose some money, as they appoint unexperienced person | 7 | not properly analyze the site area | 5 | Site inspection | 4 | 140 | Reselection of site or Modification of construction site | Contractor | analysis of site 8/10 | 8 | 2 | 4 | 64 |
| Accept and Post Contract/ Plot Acquisition | | Unprepared undercomplete documentations of plot | Could be announced as unauthorized owner of property | 6 | Not reading the property document before Acquisition | 4 | Read terms and conditions properly | 5 | 120 | Sign documents after knowing all conditions | Owner of Project/ property | completion of documentations 10/10 | 9 | 7 | 3 | 189 |
| Requirement/ Specification of IT software/ technologies | | Unaccuracy in defining the requirements/ Specifications of IT equipment | failure in forecasting of weather and safety of workers | 6 | install unused software and data storage servers | 6 | Define requirements and specification of software and safety equipment accurately | 5 | 180 | Update software under specification and their requirement severity | IT team | Updated all equipment and safety tools | 7 | 6 | 5 | 210 |
| Product Design | | Misconception in understanding the design elements of project | Could get wrong pettern of presentation | 5 | Chooosen wrong data to create design | 4 | Selection of proper data and elements | 7 | 140 | Change the elements of design | Designing Team/ Architecture | Design Of Project 8/10 | 5 | 8 | 6 | 240 |
| Prepare Budget Statements | | Forgot to add assets data used for project | Would make a wrong payment (Over budget/ Under budget) | 6 | Wrong amount of assets | 6 | analysis of budget statements | 5 | 180 | Count of assets and reliabilities should properly defined | Accountant | Preparation of budget sheet including Assets and Reliabilities 7/10 | 5 | 3 | 7 | 105 |
| Start building project | | Unappropriate use of building material | End product will be defective | 7 | Potential quantity and quality of material used | 6 | Roughness of material should be under control | 3 | 126 | Should find the quality of building materials | Contractor, Workers | Building material is properly used | 4 | 2 | 7 | 56 |
| Correction Phase | | Outcome would be defective constitution | Customer dissatisfaction/ disappointment and loose trust | 3 | Errors not properly solved | 5 | Error/fault and problem detection techniques | 2 | 30 | Trying to solve the problems or fault using accurate amount of material | Workers, Testing Team | All fault is under correction phase | 2 | 9 | 6 | 108 |
| Final Budget Statements | | Forgot to add assets data used for project | Would make a wrong payment (Over budget/ Under budget) | 6 | Wrong amount of assets | 6 | analysis of budget statements | 5 | 180 | Count of assets and reliabilities should properly defined | Accountant | Preparation of budget sheet including Assets and Reliabilities | 5 | 3 | 7 | 105 |
| Finalize the construction product | | Contractor could not able to handover the project on time | Customer dissatisfaction/ disappointment and loose trust | 5 | overwhelming the due dates | 9 | Regular meetings and collaboration of stakeholders | 2 | 90 | proper tracking on all process and scheduling the meeting on time for progress | contractor | tracking and meetings were on time | 6 | 2 | 8 | 96 |

Data Flow Diagram:

Security Controls Mapping Template:

| Security Controls Mapping Template | | | | |
|--|--|---|---|---|
| Regulatory Compliance | | Security Controls | | Safeguard |
| Rule (i.e., HIPAA: 164.XXX PCI: Section 1.1.4) | Description | Code (i.e. NIST: AC-4, COBIT: A16, CIS: CSC 5.1) | Title (i.e., NIST: Information Flow Enforcement, COBIT: Manage Changes, CIS: Minimize administrative priv.) | Policy or Procedure to Develop for Enforcement |
| Rule 75:27428-27429 | Protects and improves the health and safety of working men and women | OSHA: 75:27428-27429 | Steel Erection | Safety policies of workers |
| Rule 75:47905-48177 | Construction Standard to update and specify industry work practices necessary to protect employees during the use of cranes and derricks in construction. | OSHA: 1926 | Cranes and Derricks in Construction | Employer must ensure equipment is in safe operating condition via required inspections and that employees in the work zone are trained to recognize hazards associated with the use of the equipment and any related duties that they are assigned to perform |
| Standard- 29 CFR | The prime contractor and any subcontractors may make their own arrangements with respect to obligations which might be more appropriately treated on a jobsite basis rather than individually. | SHRC: 1910:16 | General Interpretations | To the extent that a subcontractor of any tier agrees to perform any part of the contract, he also assumes responsibility for complying with the standards in this part with respect to that part. |
| Rule 44 FR 11034 | significant economic impact on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. | DOT: 44 FR 11034 | Transportation Safety Rules | Since this is a routine matter that will only affect air traffic procedures and air navigation, it is certified that this rule |
| Rules 70:59290-59292 | This notice reschedules an informal hearing on the proposed standards on electric power generation, transmission, and distribution and on electrical protective equipment | CFR: 70:59290-59292 | Electric Power Generation, Transmission, and Distribution; Electrical Protective Equipment; Extension of Comment Period; Change in Date of Public Hearing | OSHA encourages members of the public to participate in this rulemaking by submitting comments on the proposal, and by providing oral testimony and documentary evidence at the informal public hearing that the Agency will convene after the comment period ends. |
| Rule 72:64341-64430 | Many Occupational Safety and Health Administration (OSHA) health, safety, maritime, and construction standards require employers to provide their employees with protective equipment | OSHA: 72:64341-64430 | Employer Payment for Personal Protective Equipment | OSHA issued a proposal to require employers to pay for all protective equipment, including personal protective equipment (PPE), with explicit exceptions for certain safety shoes, prescription safety eyewear, and logging boots |
| Directive CPL 02-00-124 | The purpose of this Directive is to clarify the agency's multi-employer citation policy. | OSHA CPL: 02-00-124 | Multi-Employer Citation Policy. | This Directive clarifies the Agency's multi-employer citation policy and suspends Chapter III, C. 6. of OSHA's Field Inspection Reference Manual (FIRM) |

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