Project Proposal – S275931

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# Executive Summary

# Overview

I am a senior project manager at Nexus Solutions, a multinational UK based software development company. I have been assigned to manage a project to develop a Human Resources Management System (HRMS) for a large engineering company with 200 employees at three sites.

## Purpose or objectives of this proposal

The purpose of this proposal is to propose (and develop) an automated Human Reesource Management System (HRMS) software for an engineering company with 200 employees at three sites that currently has an outdated manual human resource management system that is currently facing compliance ans Quality of Service issues. The company has a budget of £700,000.00 for this project.

Objectives:

* Initiate project and project charter
* Create baseline plan and planning
* Perform objectives (accepted deliverables)
* Develop an automated Human Resource Management System that has the following functions:
  + HR administration,
  + payroll, recruitment,
  + talent management,
  + Employee data, recruitment, and application tracking
  + Time and attendance management
  + Payroll processing
  + Salaries, performance, and Benefits tracking
  + Training and development, and more.
* Form a project team to deliver the project within the budget and desired time frame. This includes:
  + Developers
  + Coders
  + UI/UX designers
  + Testers
  + Sofware Designers
  + Software Engineers
  + IT Consultants
  + Administrators?
* Gather Requirements for HRMS software (requirements analysis)
* Design HRMS software
* Code HRMS software
* Build HRMS software
* Test HRMS software
* Deploy and Release HRMS software
* Choose development methodology
* Organise DevOps team(s)
* Generate Cost Estimate
* Risk Assessment and Create Risk Management Plan
* Ensure good communication with stakeholders
* Decide on project strategies
* Come up with conflict resolution plan for the teams
* Close project and achieved project documents.
* Stick to £700,000.00 budget
* Must be completed within 1 month.
* [add more]

## Identify the problem to be solved or need to be filled.

Nexus Solutions has consulted with an UK based engineering company with 200 employees and three sites however they currently use an outdated manual human resources management system. This has resulted in problems such a quality of service and compliance issues. We have identified a solution for these problems by developing an automated Human Resources Management System software.

## What will be in scope and what is not going to be included.

Purpose of proposal is to develop HR management software for engineering company,

This project proposal is to develop Human Resources Management Software (HRMS) for an engineering company with 200 employees at three sites and a budget of £700,000.

Software features to be included in the scope are:

* HR administration,
* payroll, recruitment,
* talent management,
* Employee data, recruitment, and application tracking
* Time and attendance management
* Payroll processing
* Salaries, performance, and Benefits tracking
* Training and development.
* Must Address Compliance and Quality of Service issues the company faces

Other items to be included in the scope:

* Must be completed within one month
* Choose an appropriate project management plan
* Choose an appropriate software development methodology
* Choose the Programming Languages, IDEs, Frameworks, APIs and DevOps tools to create the software
* Choose appropriate project, task and team management tools for this project
* Gather Requirements
* Choose a cloud computing platform if required
* Risk Management Plan
* Communications Plan
* Dispute Resolution Plan
* Quality Management Plan

What Not to include:

* Any unnecessary features that the company doesn’t need to the software that will increase costs, time and resources – Known as Gold Plating
* Avoid feature creep, scope creep
* Over Engineering
* Frivolous High-Risk decisions

<https://allfront.io/blog/what-is-gold-plating-and-how-to-avoid-it/>

## Explain how the project will be conducted.

Let people know which approach to use such as agile (and challenges) , Explain how project will be conducted, how many team members/roles

For this project Agile project management will be used as this is a software development project and agile is often used for software development as its iterative nature allows for changes to be made more easily if requirements or scope changes. Agile also allows for improvements to be made throughout the project and development process based on stakeholder feedback.

There will be daily scrums where the project leaders and stakeholders meet daily with the developers, DevOps team and designers to provide feedback for to monitor progress, suggest improvements, fix mistakes and track any requirement changes and weekly sprints where the SCRUM team will set a list of tasks for the DevOps teams to complete. There should be no more than four sprints as the project’s timeframe is one month.

The advantages of Agile project management are:

* Flexibility for changes in requirements and project scope
* Easier to fix mistakes, bugs, design and code smells and antipatterns
* More room for creative problem solving
* Deadline Flexibility
* Increased project value to stakeholders due to regular updates

Challenges of Agile project management:

* Project can slip past the one month deadline because of loose planning
* Risk of loose testing letting bugs, mistakes, antipatterns, code and design smells through
* Pace of project could be too fast for some team members
* Lack of focus causing project to go out of scope

The project will be conducted using the agile method stated above.

We will follow the five steps o the project lifecycle:

1. Project Initiation – Kickoff Meeting and define scope
2. Project Planning –
   1. Financial plan
   2. Risk Management Plan
   3. Communication Plan
   4. Dispute Resolution Plan
   5. Resource Plan
   6. Project Management Plan
   7. Procurement Plan
   8. Quality Plan
   9. Acceptance Plan
3. Project Execution
   1. Team Leadership – Cast project Vision
   2. Create tasks
      1. Plan and design software
      2. Set up devops
      3. Develop, code and debug software
      4. Build software
      5. Test Software
      6. Deploy and release software
      7. Stakeholder feedback
   3. Brief team members on their tasks
   4. Make sure client deliverables are up to standard
   5. Communicate with team members and stakeholders
4. Project Monitoring and Controlling
   1. Risk Management
   2. Acceptance Management
   3. Cost Management
   4. Time Management
   5. Quality Management
   6. Change Management
5. Project Closure.
   1. Project closure paperwork and documentation
   2. Team Analysis
   3. Write evaluation and lessons learnt (Post implementation review)
   4. Project Perfoemance analysis

<https://thedigitalprojectmanager.com/projects/pm-methodology/project-management-life-cycle/>

Key roles in this project will include:

* The steering committee led by Nexus Solutions will provide senior ledership and management for this project.
* The engineering company will be the project sponsor paying the ~£700,000 for the project. They are the project owners and the primary risk takers.
* The project manager will manage the day-to-day development, operations of the project and ensure it reaches milestones on time. The project manager will communicate with the sponsor (Nexus Solutions) to receive feedback send progress reports and make changes if requirements change
* Project team members – the consultants, designers, developers, DevOps team members, the testers, the security team, the operationsteam, the IT and system administrators, the project administrators, the software engineers, database developers, programmers and UI/UX designers, Tech Leads.
* User/Senior – The employees at the engineering company.

The project will employ up to 100 people with current estimates:

* 1 project manager
* 13 backend programers
* 13 front end programmers
* 2 database developers
* 10 UI/UX designers
* 10 Testers
* 4 DevOps Engineers
* 3 Cybersecurity specialists
* 12 Software Enginers
* 6 Software designers (UML, User Case Diagrams, Class Diagrams, Entity Relaationship Diagrams, Wirefraames and mockups)
* 5 IT Administrators
* 5 Prroject Administrators
* 1 IT consultant
* 3 Team Leaders (One for development team, one for operations team, one for non technical team)
* Approximately 5-10 in steering committee
* 2 Tech Leads
* <https://www.payscale.com/research/UK/Job=Software_Developer/Salary>
* <https://www.payscale.com/research/UK/Job=Database_Developer/Salary>
* <https://www.glassdoor.co.uk/Salaries/ui-designer-salary-SRCH_KO0,11.htm>
* <https://www.glassdoor.co.uk/Salaries/computer-programmer-salary-SRCH_KO0,19.htm>
* <https://uk.indeed.com/career/back-end-developer/salaries>
* <https://uk.indeed.com/career/front-end-developer/salaries>
* <https://www.glassdoor.co.uk/Salaries/cyber-security-engineer-salary-SRCH_KO0,23.htm>
* <https://www.glassdoor.co.uk/Salaries/software-engineer-salary-SRCH_KO0,17.htm>
* <https://www.glassdoor.co.uk/Salaries/software-designer-salary-SRCH_KO0,17.htm>
* <https://www.glassdoor.co.uk/Salaries/it-administrator-salary-SRCH_KO0,16.htm>
* <https://www.glassdoor.co.uk/Salaries/project-administrator-salary-SRCH_KO0,21.htm>
* <https://www.glassdoor.co.uk/Salaries/tech-lead-salary-SRCH_KO0,9.htm>
* <https://www.payscale.com/research/UK/Job=Information_Technology_(IT)_Consultant/Salary>
* <https://www.glassdoor.co.uk/Salaries/tech-lead-salary-SRCH_KO0,9.htm>
* <https://www.payscale.com/research/UK/Job=Information_Technology_(IT)_Consultant/Salary>
* <https://www.payscale.com/research/UK/Job=Software_Tester/Salary>
* <https://www.glassdoor.co.uk/Salaries/tech-lead-salary-SRCH_KO0,9.htm>
* <https://www.glassdoor.co.uk/Salaries/team-leader-salary-SRCH_KO0,11.htm>
* <https://www.productplan.com/learn/agile-vs-waterfall/>

## Describe the appropriate ways to measure the success of the project and explain why your suggested measures are appropriate over alternative measures.

Make use of requirements, constant checking, go back to client, feedback, if still in bounds of expectations

Mention:

Projetct lifecycle stages eg initiation, planning, execution and handover, each stage, key documents such as network diagrams, Gantt charts, charter, other required documents, stakeholder register, cost estimate document (include documents in appendix)

I have proposed several ways to measure the success of the project at all phases of the project to make sure it is completed on time, within budget, with minimal risk and meets the stakeholders’ client’s and users’ requirements:

* Set up the 11 performance metrics that are Key Performance Indicators:
  + Time Management – Measure the actual timeline of the project against the one month timeline using tools such as Gantt Charts, burndown charts and Kanban charts and use a meteric called schedule variance to compare the actual timeline against the scheduled timeline.
  + Budget – Use a cost estimate and risk management plan for financial risks to come up with with an estimated cost to see if it is within the £700,000 budget then monitor and measure actual costs against the cost estimate and budget to check if the project is still within the budget or if it has gone over budget. The client/stakeholders will be satisfied if the project is completed within the £700,000 budget however if the project is over budget then this will be problematic with the client/stakeholders and the project sponsor.
  + Project output quality and compliance – The HRMS software project must meet the desired quality standards set by Nexus Solutions, The Client (Engineering company) and national and international standards for software development and project management. Software development must meet specific quality standards including:
    - Fast response time
    - Reasonable throughput relevant to size of the engineering company and number of employees using it.
    - Good resource utilisation – Does not use up computer and server system resources unnecessarily (no excessively high CPU, GPU, Memory, Disk Space or network bandwidth usage)
    - Must be scalable in case engineering company expands
    - Very low error rate – software must be thoroughly debugged and tested, with disaster management and backups in place.
    - Low latency
    - Use load testing metrics
    - The project must comply with the relevant UK, international and local laws and regulations of all countries this software will operate in such as:
      * Data Protection Act 2018
      * UK General Data Protection Regulations 2018
      * Computer Misuse Act 1990
      * Network and Informaton Security Regulations 2018
      * Telecommunications Act 2021
      * Electronic Identification and Trust Services for Electronic Transactions Regulations 2016
      * Electronic Identification and Trust Services for Electronic Transactions Regulations 2016
      * <https://www.upguard.com/blog/cybersecurity-laws-regulations-uk>
  + <https://project-management.com/6-ways-of-measuring-project-success/>
  + Profit – As Nexus Solutions is a private third party company incontract with the Engineering company, the project must be profitable for Nexus Solutions where there is a profit margin after including the wages for all team members and the cost of resources. If the project overruns exceeding the one month timeframe or the £700,000 budget is exceeded and is determined to be the fault of the project sponsor (engineering company) for example due to poor cost estimates, unrealistic timeframe or budget or the engineering company keeps adding more features that will takelonger than one month then the project sponsor will be liable to pay the extra costs. If the project is delayed and takes longer than one month or the budget is exceeded and is determined to be the fault of Nexus Solutions for example they made a poor cost estimate, or due to poor management. Then Nexus Solutions will have to cover the costs as this is not a fault of the project sponsor therefore will result in a loss for Nexus Solutions. Profitability is therefore a metric of the project’s financial success
  + Cycle time – We will use tools to monitor the project’s lifecycle as a shorter lifecycle has a better outcome for the clients/stakeholders.
  + Compatibility Development – We can measure success of this project by monitoring how many new skills the team members learnt such as learning new software, programming languages, frameworks and software development methodologies.
  + Customer Satisfaction – Use the Customer Satisfaction Index to measure the project’s customer satisfaction by measuring its ability to meet and exceed the engineering company’s expectations in quality, outcome, delivery and to meet deadlines.
  + Project Value – The engineering company may set its own meterics for success such as making sure that the project remains within the scope and that all requirements are met.
  + Improvement – The ability to for the project teams to improve their efficiency based on analysing other project meterics.
  + Sustainability – Measuring the project’s impact on the environment, society and economy such as monitoring the project’s carbon footprint, pollutant emissions, waste and recycling, number of people employed, energy efficiency and resource consumption and stakeholder satisfaction.
* Identify Key Performance Indicators by reviewing business and project goals and aligning them so they have an idea what success looks like and define how it will be measured. This will help stakeholders understand what success looks like by providing the neccessary frameworks.
* Identify measurable factors such as meeting deadlines, staying within the budget, making a good quality product, achieving desired outcomes and staying within the one month time limit.
* Identify the 11 meterics (and other metrics too) listed above and prioritise them to track the project’s success. This will be based on which metrics are the most significant to the HRMS software project.
* Set up tools to measure project performance metrics – Use tools to gather data and record metrics to create a project performance report. This can include spreadsheets, project management tools such as SmartSheet, Hive, Clickup, Microsoft Excel, Microsoft Project, Questionnaires, Surveys and forms to provide feedback from team members, stakeholders and the client. There is a possibility to use automated software to automatically record some performance metrics, analyse metrics and generate reports. Make constant checks on the project’s performance metrics and progress.
* Communication – Use the Communications Plan to make sure project performance metrics, reports and progress is clearly communicated between team members, project managers and all stakeholders. Communication Plan must allow for the client (engineering company) to provide feedback to Nexus Solutions about the project to allow improvements to be made, what is good and bad about the project and the product being produced (HRMS Software) and ensure client satisfaction. Also include team member feedback for those working on the project to help monitor progress and that the team members are satisfied and to suggest improvements for working on the project. Performance and Progress reports must be sent back to the client to help the client track the progress and send feedback and to ensure that the project is still within bounds of the client’s expectations.
* Initiation Phase:
  + Create the Project Charter to define the HRMS software project’s purpose, goals, objectives, scope and vision.
  + Organise a Kick-off meeting with the team, client, sponsor, steering committee and stakeholders to start the project after creaing the charter, statement of work (SoW) and cost estimates and getting approval for the project.
  + Conduct feasibility study for the HRMS project case
  + Identify Stakeholders
  + Generate busiess case
* Planning Phase:
  + Start project planning using project management tools such as Kanban and Gantt charts for time management and progress tracking, Network diagrams for visually road mapping how theproject’s tasks are interconnected and the workflow between tasks, for successful project execution, the stakeholder register that lists all of the stakeholders.
  + Create the project management plan to identify:
    - Phases
    - Activities
    - Tasks
    - Timeine
    - Schedue/Timetable
    - Work Breakdown Structure (WBS)
    - Gantt Chart
  + Create Financial Plan:
    - Cost estimate
    - Stay within budget of £700,000
    - Plan tomeet costs and make financial allocations for all resources, team members and departments
  + Create Resource Plan:
    - Assemble the project teams and use resource management software to allocate resources, materials and employees to deliver the HRMS project.
  + Create quality plan to define quality targets and meterics.
  + Create Risk Management Plan:
    - Assess, Identify and analyse risks associated with the project
    - Prioritise the risks into Low, Medium and High
    - Control the risks through risk management planning, Risk Monitoring and Risk Management and Mitigation Plans.
    - Assign an Owner.
  + Create an Acceptance Plan to defie the definition of done and delivered.
  + Create a communication plan to plan communications with stakeholders, team members, define communication tools and plans for different types of communication.
  + Create Procurement Plan to find required third-party suppliers, sign agreements for buying or renting resources for the project.
* Execution Phase:
  + Set up team leadership, project managers and leads
  + Define Tasks what needs to be done to execute th project
  + Brief team members on their assigned tasks.
  + Execute Tasks and doftware development process:
    - Design, code, develop, debug, build, test, deploy and release software
  + Communicate with the engineering company (client) to enure project is being executed in a way that meets their requirements.
  + Use the communications plan for using the correct communication channels for communicating with stakeholders about the projects progress and with team members for managing the project,
* Monitoring and Control Phase:
  + Monitor the project’s performance using Key performance Indicators (KPIs), cost, timeline, quality, performance metrics and success metrics using data from project management software and project documents.
  + This tracks andcompares the actual project against its original plan.
  + Compare time (One Month) and cost (£700,000) with original plan and budget:
    - Has the project completed ontime and within budget?
    - Has the project completed early and under budget?
    - Is the project completion overdue and over budget?
  + Use the risk management plan to reduce associated risks.
  + Change management plan if the project doesn’t go to plan and changes are required.
* Closure Phase:
  + Evauate project performance using performance metrics to compare project with original plan, how well was theproject managed and executed, was it completed on time and within budget?
  + Did the project go according to plan, how well was it executed, did any disasters or unexpected risks occour, did anything go wrong/setbacks?
  + Evaluate team performance – Did all team members complete their designated tasks, did any problems occour such as conflict or social loafing that had to be resolved, how motivated and satifsfied were they?
  + Sign off project closure documents and all contracts officially ending the project.
  + Hand project over to client (engineering company)
  + Write a post implementation review that evaluate success, failure, lessons learned and room for improvement.

<https://thedigitalprojectmanager.com/projects/pm-methodology/project-management-life-cycle/>

# Project Approach

## Methodology: Describe the approach and methodology that will be used to execute the project, including any frameworks or methodologies employed (e.g., Agile, Waterfall).

Choose methodology and justify it, pros and cons, comparison

For the project to develop the HRMS system for the engineering company, Agile project management methodology will be chosen.

This is because Agile is iterative and allows for changes to be made if requirements or scope change or if mistakes are made. This can therefore detect and correct design smells, code smells, software antipatterns,bugs and more easily. Agile also allows for quicker development cycles which is important in the short one month deadline for this project. Agile allows for better communication and feedback between the project team,the client, steering committee, sponsor and stakeholders which results in better efficiency, better quality product and better client satisfaction as it takes place during all phases of the project. KanBan Charts will be used for time management along with the use of a Gantt chart. <https://project-management.com/agile-vs-waterfall/>

Advantages of Agile:

* Faster software deployment
* Detect and fix defects, bugs, mistakes, design smells, code smells, antipatterns, security vulnerabilities and other issues quicker
* Client feedback can improve software product and developerskills
* Adapt to changes in requirements and project scope more quickly.
* Lower costs resulting in experimentation and innovation being more affordable and less money wasted on unneseccary resources
* Less time spent on bureaucracy and faster turnaround times (important for one month deadline)
* Immediate client feedback at all project stages and better communication.

<https://activecollab.com/blog/project-management/agile-project-management-advantages-disadvantages>

Disadvantages of Agile:

* Harder to track progress compared to waterfall
* Documentation often gets forgotten about, insufficient time and resources spent on it and gets outdated. This makes it difficult for new team members to start working on the project.
* Client, stakeholders and teams can get distracted creating new features resulting in scope creep, feature creep, gold-plating, technical debt and experience rot.
* Not enough time to perfect the software due to short sprint cycles.
* Risk of project becoming never ending.
* More time and resources required compared to waterfall because of constant interaction between project team members and stakeholders.
* Fragmentation between teams resulting in technical debt, smells and antipatterns.

<https://activecollab.com/blog/project-management/agile-project-management-advantages-disadvantages>

Agile vs Waterfall comparison table:

|  |  |  |
| --- | --- | --- |
|  | Agile | Waterfall |
| Lifecycle | Iterative | Sequential, Linear |
| Speed | Project moves faster due to more flexibility. | Project moves slower due to being sequential particularly during the planning phase. |
| Planning and Structure | Planning and structure are flexible and can change quickly and easily if requirements change. | Difficult to change plans after the planning phase if requirements change due to the rigidity of waterfall as detailed plans arelaid out beforework begins. |
| Delivery | Deliverables are produced at all phases of the project, client can send feedback back to development team. | Deliverables are produced at the end of the project during the closure phase. |
| Contact with Client | Client communicates with and sends feedback to project team at all project phases. Improvements are made based on this. | Client is not involved with project until the closure phase and project handover. |
| Documentation | Informal documentation with less detail | Formal documentation with high details |
| Team Roles | Self organising team where team members can take several roles and less reliance on the project manager. | Team members have fixed pre-determined roles and rely more on the project manager. |
| Internal Communication | Frequent and informal | Less frequent and formal |

<https://project-management.com/agile-vs-waterfall/>

## Project Management Plan: Provide an overview of how the project will be managed. You will also need to discuss roles and responsibilities, quality assurance processes. The report must demonstrate the project manager actions and how you will balance responsibility, authority and accountability within your team.

### Overview

The project will be managed using the Situational management style which is a mix of all the other management styles (Transformational, Autocratic, Democratic, Collaborative, Bureaucratic, Charismatic, Transactional) that varies depending on the situation. For this project a transformational management style will be used by default as it is adaptable and is compatible with the agile project management methodology and software development methodologies, is adaptable to changing project requirements, supports innovation and sets goals for team members. Transformative management is often used in the technology industry due to rapid advancements in technology and constantly having to adapt. Transformative management helps the project manager see the big picture. However autocratic management will have to be temporarily adapted in a time of crisis due to quick decision making and top-down approach however it often fails to inspire and motivate team members long-term.

<https://www.forbes.com/advisor/business/management-styles/>

<https://www.indeed.com/career-advice/career-development/management-styles>

### Roles and Responsibilities

Table of project and team member roles and responsibilities:

|  |  |
| --- | --- |
| Role | Responsibilities |
| Steering Committee | * Oversee the project * Support the project * Determine project’s direction * Define project scope * Decide project’s budget * Decide project’s timeline and completion deadline * Methods used for project * Make major decisions * Conflict resolution * Resolve issues * Allocate and reallocate resources * Approve the project and its budget * Get status updates on project * Collaborate with project manager * <https://www.projectmanager.com/blog/steering-committee-definition> |
| Project Sponsor | * Provide funding for the project * Establish project vision:   + Align project with business goals, objectives and strategy * Define governance guidelines   + Ensure the project has launched and is executed properly. * Set goals and predict project benefits   + Ensure quality and manage risks * Select project manager during initiation phase * Contribute to project charter * Participate in kick off meeting * Make sure project plan is realistic and feasible * Resolve issues * Review actual progress of the project against planned progress * Provide feedback to project manager * Help project manager and team solve issues * Evaluate performance and other metrics during closure. * Make sure signoffs and handoffs are done correctly * Decide if project was a success or failure * Streamline communications * <https://www.projectmanager.com/blog/what-is-a-project-sponsor> |
| Project Manager | * Define project scope * Keep project on schedule * Generate cost estimate and stick to the budget * Risk Management * Time management * Track progress of the project * Communicate with team members, client and stakeholders * Resource management * Troubleshooting   <https://www.coursera.org/articles/what-is-project-manager> |
| Users | Users of the Human Resource Management System (HRMS) at the engineering company |
| Backend Programmers | * Use appropriate programming languages, frameworks, APIs, SDKs and IDEs to develop, code and program the backend of the HRMS. * Backend code must be high quality and maintainable avoiding antipatterns, technical debts and code smells. * Troubleshoot and debug the backend of the HRMS * Write code to manage the databases and servers * Backend softwatredevelopment for database anagement, core functionality and servers * Code using languages such as Python, SQL, C++, Java, C, C#, JavaScript and PHP for backend applications * <https://www.coursera.org/articles/back-end-developer> |
| Frontend Programmers | * Use appropriate programming languages, frameworks, APIs, SDKs and IDEs to develop, code and program the frontend of the HRMS. * Frontend code must be high quality and maintainable avoiding antipatterns, technical debts and code smells. * Troubleshoot and debug the frontend of the HRMS * Write HTML, CSS, PHP and JavaScript code for front-end HRMS webapp webpages. * Use Java, Swift, Kotlin, C++, XAML, XML for frontend mobile and desktop apps * Develop frontend user interfaces for HRMS web app, desktop app and mobile app. * Make sure web, desktop and mobile user interfaces are user friendly and bug free and responsive. * <https://www.coursera.org/articles/front-end-developer> |
| Database Developers | * Design, build and develop the HRMS databases * Create database backups to prevent data loss and disaster proofing * Develop security measures to prevent cyberattacks on the HRMS databases * Maintain the databases * Research database technologies to decide the best for the HRMS. * <https://uk.indeed.com/career-advice/finding-a-job/how-to-become-database-developer> |
| UI/UX Designers | * Build wireframes and mockups of what the software’s interfaces will look like * Analyse customer interaction using journey maps * Design interactive user interface elements * Work closely with frontend programmers to develop a working user interface * Optimese page and GUI layouts * Choose colour schemes and styles * Perform user acceptance testing to improve UI/UX design * <https://www.coursera.org/articles/ui-vs-ux-design> |
| Testers | * Create and perform tests to test the software’s performance, functionality, reliability, security, scalability and user friendliness of the HRMS * Check the HRMS for bugs and report bugs to the developers. * Perform automated tests including unit testing, system testing, regression testing, integration testing and acceptance testing. * Execute automated and manual test cases to detect and report defects, faults, bugs and smells. * Inform the developers of any problems detected and failed tests. * Keep up-to-date with and use the latest testing tools * <https://www.tealhq.com/career-paths/software-tester> |
| DevOps Engineers | * Communicate and collaborate with team members, managers and stakeholders * Perform administrative tasks including managing servers, databases, network, security monitoring and system updates * Use DevOps tools * Use configuration management tools to automate system administration * Build, run and orchestrate software containers * Set up and manage CI/CD pipelines * Provision system architecture * Write code and scripts to automate tedious and repetitive tasks. * Collaborative management * <https://www.atlassian.com/devops/what-is-devops/devops-engineer> |
| Cybersecurity Specialists | * Make sure IT, computer and network systems are updated and not vulnerable to bugs, exploits and security vulnrabilites. * Detect security vulnerabilities, bugs, exploitsin the HRMS system * Make sure the HRMS is compliant with the latest security standards including encryption, data protecton, authentication, secure coding practises and legislation. * Design firewalls to prevent cyberattacks and block malware * Mnitor systems to detect anomalies and threats. * <https://cybersecurityguide.org/careers/security-specialist/> |
| Software Engineers | * Design and maintain HRMS softwre * Evaluate and test HRMS software * Write and test code * Software optimisation for scalability and performance * Communicate with stakeholders, team members, project manager and steering committee * Present software to client and stakeholders * <https://www.coursera.org/articles/software-engineer> |
| Software Designers | * Design the HRMS software * Create UML Use Case, Class and Entity Relatiionship diagrems for the HRMS software * Work with the UI/UX designers tocreate wireframes and mockups of the HRMS software * Work with frontend and backend programmers and software engineers to create HRMS system software with appropriate progeamming languages. * Redesign and upgrade software if needed * Decide on software architecture and create architectural diagrams * Check software for design smells and correct them * Collaborate with the project manager, steering committee, programmers regarding software design and development. * <https://www.indeed.com/career-advice/finding-a-job/how-to-become-software-designer> |
| IT Administrators | * Support, repair, update, upgrade and manage Nexus Solutions IT infrastructure especially relating to the HRMS system project. * Provide technical support to team members and stakeholders * Backup and archive project data and files * Maintain Nexus Solutions firewalls and cybersecurity systems * Troubleshooting technical difficulties with IT infrastructure affecting the team members to complete project work. * Create, manage and delete user accounts for project team members. * <https://www.indeed.com/career-advice/finding-a-job/what-are-it-administrators> |
| Project Administrators | * Administer project and stakeholder meetings and produce meeting documentation * Process project documentation and paperwork including contracts, agreements, progress and performance metrics, purchase orders and invoices, updating project time management documents * Hire third party contractors for specialised tasks * Track project tasks and document project progress * Manage project resources and budget – team members, software, hardware, services, platforms,external contracts and make sure the project remains within the £700,000 budget. * <https://www.indeed.com/career-advice/finding-a-job/what-does-project-administrator-do> |
| Tech Leads | * Recruit, train and hire technical team members including programmers, developers, designers, testers, engineers, specialists, IT administrators. * Troubleshoot technical difficulties, roadblocks and setbacks * Manage project workload on different team members based on their roles, occupations, skillsets and qualifications * Set goals for team members that align with the project, stakeholders and client and record milestones reached in the project * Supervise all technical team members and oversee development and system modifications by the technical team and reduce technical risks * Update development, programming, DevOps, administration, operations and security tools for the project * Perform security audits * <https://fullscale.io/blog/what-does-a-tech-lead-do/> |
| IT Consultant | * Meetings with client (Engineering Company) to gather and analyse software and project requirements * Travel to engineering company’s office or online video conference with engineering company * Provide guidance for implementing the HRMS system to the engineering company * Provide the HRMS system solution to the engineering company after analysing the requirements. * <https://uk.indeed.com/career-advice/finding-a-job/what-is-an-it-consultant> |
| Team Leaders | * Work with the project manager and steering committee and project sponsor and supervise all ,project team members * Oversee all activities within the teams * Set goals for team members to work to * Oraganise tasks, team members and documents * Make strategic decisions for the project teams and members * Communicte with team members, project manager, steering committee and stakeholders * <https://www.indeed.com/career-advice/career-development/responsibilities-of-a-team-leader> |

### Quality Assurance Processes

Quality assurance processes will be in place for this project to ensure high quality deliverables for the client. A testing team will be employed on this project to test all aspects of the HRMS software and system and will provide results and feedback to the developers, project manager, tech lead and team leader and the steering committee and client. Quality assurance will reduce technical and quality risks acssocuated with this project (see risk management plan). Manual testing and automated testing will be used during the quality assurance process.

Manual testing will include:

* Unit testing software by writing test code for each software unit to make sure the actual result matches the expected result.
* Acceptance testing where the testers will user test cases and get users to test the software and fill in forms with feedback, the actual results, any errors encountered and usability issues.

Automated testing will include:

* System testing using automatedtesting software such as Sonarcloud to detect bugs, design and code smells, vulnerabilities and software antipatterns.

The Quality Assurance Process proceeds as follows:

1. Requirements Analysis – Testers will analyse functional and non functional requirements for the project.
2. Use the requirements analysis to plan the tests including the types of tests, testing tools, testing strategy, scope and allocate tests to the testers. Tests will include:
   1. Unit Testing
   2. System Testing
   3. Integration Testing
   4. Performance Testing
   5. Acceptance Testing
   6. Usability Testing
   7. Compatibility Testing
   8. Automated Testing
   9. Manual Testing
   10. Black Box Testing
   11. White Box Testing
   12. Smoke Testing
3. Design the Tests – Create test case scenarios with conditions, data and instructions to follow. The testers will use the results from the test case to compare with the expected results. The testers will set up a staging environment so simulate the production environment for testing.
4. Run the Tests and Report Results and Issues – Perform the tests planned and designed in steps 2 and 3 and report results. Use testing tools to perform automated tests, manually perform acceptance tests and run code for manual unit tests. Document results and report any defects, errors, failed tests or bugs.
5. Re-run the tests after fixes have been made to verify that the fixes have been made and haven’t caused more errors. Then perform regression testing to prove that the fixes have not caused any further problems.
6. Release Testing – create new staging environment adapted to the fixes made by the developers then run smoke tests to checkthe HRMS’s stability before releasing it.

<https://www.projectmanager.com/blog/quality-assurance-and-testing>

<https://testsigma.com/guides/qa-process/>

Different types of testing and quality assurance will be conducted at all stages of the project lifecycle, software development lifecycle and DevOps cycle to minimise the number of defects, improve testing efficiency and ensure a good quality product at the end of theproject. This will also help reduce technical risks associated with this project.

The quality assurance process will comply with ISO 9000 standards for quality management and Capability Maturity Model Integration (CMMI).

<https://www.iso.org/standards/popular/iso-9000-family>

<https://cmmiinstitute.com/cmmi/intro>

### Project Manager Actions and balancing Accountability, responsibility, and authority in the teams

As the project manager, It is my responsibility to manage the project teams and be accountable and responsible for any decisions I make that affect the management of the HRMS system project and the roles of the team members. Also as the project manager, I will have a high level of authority to make such decisions, however the steering committee and project sponsor willhave a higher level of authority than me as they own the project. The team leaders and tech leads also have a high level of authority but to a lesser extent than the project manager. The other team members will have some authority but less than the management, leaders, steering committee and project sponsors as they will be able to communicate and provide feedback to the management and leads. All team members will have accountability for their actions and consequences wether good or bad however the management, leads, steering committee and sponsor willhavethe highest levels of accountability. All team members are committed to specific responsibilities depending on their role (see Roles and Responsibilities section). All team members are responsible to follow Nexus Solution’scode of conduct and any agreements and contracts they are bound by.

The project management will use situational leadership although will be transformational under normal circumstances as it motivtes team members, encourages innovation and is standard for the technology industry (see Overview for details)

To get this balance right as the project manager I must:

* Lead by example by taking responsibility for my own actions, learn from mistakes and be upfront about failures to increase credibility and trust with the team and stakeholders.
* Avoid micromanagement – do not over supervise team members’ work and obsessively tell them what to do and criticise them constantly instead of allowing them to get on with their work. Not micromanaging will encourage the team members to trust me be responsible for their actions.
* Set expectations for team members by clearly defining tasks and project timelines. Before starting the project or any major tasks, brief the team members on their roles, responsibilities and their levels of authority and autonomy.
* Motivate team members by praising them for accomplishing project milestones and recognising their work, resulting in them accepting more responsibility for their work.
* I must give constructive feedback to team members to inform them on how their work can be improved. I must have evidence to support my feedback to team members however I must listen to feedback from team members.

https://100daytoolkit .soton.ac.uk/PDFGoodPracticeResources/authority-accountability-responsibility-what-do-they-mean.pdf

<https://www.indeed.com/career-advice/career-development/micromanagement>

# Project Timeline and Milestones

Put Gantt Chart Here.

I have created a Gantt Chart with the for the project’s timeline for key phasesand tasks and to compare the actual timeline of completed tasks against the planned timeline for completed tasks and for tracking progress and milestones. Red is the planned timeline and green is the actual timeline.

The Gantt Chart can also be viewed here: <https://managing-projects-and-teams-diagrams.onrender.com/static/HRMSProjectGanttChart.pdf>

A screenshot of a graph

Description automatically generated

Gantt Chart continued on next page.

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Description automatically generated with medium confidence

# Resource Allocation

## Human Resources: Specify the roles and responsibilities of team members, as well as any external resources or expertise required.

### Roles and Responsibilities of Team Members and Stakeholders

|  |  |
| --- | --- |
| Role | Responsibilities |
| Steering Committee | * Oversee the project * Support the project * Determine project’s direction * Define project scope * Decide project’s budget * Decide project’s timeline and completion deadline * Methods used for project * Make major decisions * Conflict resolution * Resolve issues * Allocate and reallocate resources * Approve the project and its budget * Get status updates on project * Collaborate with project manager * <https://www.projectmanager.com/blog/steering-committee-definition> |
| Project Sponsor | * Provide funding for the project * Establish project vision:   + Align project with business goals, objectives and strategy * Define governance guidelines   + Ensure the project has launched and is executed properly. * Set goals and predict project benefits   + Ensure quality and manage risks * Select project manager during initiation phase * Contribute to project charter * Participate in kick off meeting * Make sure project plan is realistic and feasible * Resolve issues * Review actual progress of the project against planned progress * Provide feedback to project manager * Help project manager and team solve issues * Evaluate performance and other metrics during closure. * Make sure signoffs and handoffs are done correctly * Decide if project was a success or failure * Streamline communications * <https://www.projectmanager.com/blog/what-is-a-project-sponsor> |
| 1 Project Manager | * Define project scope * Keep project on schedule * Generate cost estimate and stick to the budget * Risk Management * Time management * Track progress of the project * Communicate with team members, client and stakeholders * Resource management * Troubleshooting   <https://www.coursera.org/articles/what-is-project-manager> |
| 200 Users | Users of the Human Resource Management System (HRMS) at the engineering company (Not project team members) |
| 13 Backend Programmers | * Use appropriate programming languages, frameworks, APIs, SDKs and IDEs to develop, code and program the backend of the HRMS. * Backend code must be high quality and maintainable avoiding antipatterns, technical debts and code smells. * Troubleshoot and debug the backend of the HRMS * Write code to manage the databases and servers * Backend softwatredevelopment for database anagement, core functionality and servers * Code using languages such as Python, SQL, C++, Java, C, C#, JavaScript and PHP for backend applications * <https://www.coursera.org/articles/back-end-developer> |
| 13 Frontend Programmers | * Use appropriate programming languages, frameworks, APIs, SDKs and IDEs to develop, code and program the frontend of the HRMS. * Frontend code must be high quality and maintainable avoiding antipatterns, technical debts and code smells. * Troubleshoot and debug the frontend of the HRMS * Write HTML, CSS, PHP and JavaScript code for front-end HRMS webapp webpages. * Use Java, Swift, Kotlin, C++, XAML, XML for frontend mobile and desktop apps * Develop frontend user interfaces for HRMS web app, desktop app and mobile app. * Make sure web, desktop and mobile user interfaces are user friendly and bug free and responsive. * <https://www.coursera.org/articles/front-end-developer> |
| 2 Database Developers | * Design, build and develop the HRMS databases * Create database backups to prevent data loss and disaster proofing * Develop security measures to prevent cyberattacks on the HRMS databases * Maintain the databases * Research database technologies to decide the best for the HRMS. * <https://uk.indeed.com/career-advice/finding-a-job/how-to-become-database-developer> |
| 10 UI/UX Designers | * Build wireframes and mockups of what the software’s interfaces will look like * Analyse customer interaction using journey maps * Design interactive user interface elements * Work closely with frontend programmers to develop a working user interface * Optimese page and GUI layouts * Choose colour schemes and styles * Perform user acceptance testing to improve UI/UX design * <https://www.coursera.org/articles/ui-vs-ux-design> |
| 10 Testers | * Create and perform tests to test the software’s performance, functionality, reliability, security, scalability and user friendliness of the HRMS * Check the HRMS for bugs and report bugs to the developers. * Perform automated tests including unit testing, system testing, regression testing, integration testing and acceptance testing. * Execute automated and manual test cases to detect and report defects, faults, bugs and smells. * Inform the developers of any problems detected and failed tests. * Keep up-to-date with and use the latest testing tools * <https://www.tealhq.com/career-paths/software-tester> |
| 4 DevOps Engineers | * Communicate and collaborate with team members, managers and stakeholders * Perform administrative tasks including managing servers, databases, network, security monitoring and system updates * Use DevOps tools * Use configuration management tools to automate system administration * Build, run and orchestrate software containers * Set up and manage CI/CD pipelines * Provision system architecture * Write code and scripts to automate tedious and repetitive tasks. * Collaborative management * <https://www.atlassian.com/devops/what-is-devops/devops-engineer> |
| 3 Cybersecurity Specialists | * Make sure IT, computer and network systems are updated and not vulnerable to bugs, exploits and security vulnrabilites. * Detect security vulnerabilities, bugs, exploitsin the HRMS system * Make sure the HRMS is compliant with the latest security standards including encryption, data protecton, authentication, secure coding practises and legislation. * Design firewalls to prevent cyberattacks and block malware * Mnitor systems to detect anomalies and threats. * <https://cybersecurityguide.org/careers/security-specialist/> |
| 12 Software Engineers | * Design and maintain HRMS softwre * Evaluate and test HRMS software * Write and test code * Software optimisation for scalability and performance * Communicate with stakeholders, team members, project manager and steering committee * Present software to client and stakeholders * <https://www.coursera.org/articles/software-engineer> |
| 6 Software Designers | * Design the HRMS software * Create UML Use Case, Class and Entity Relatiionship diagrems for the HRMS software * Work with the UI/UX designers tocreate wireframes and mockups of the HRMS software * Work with frontend and backend programmers and software engineers to create HRMS system software with appropriate progeamming languages. * Redesign and upgrade software if needed * Decide on software architecture and create architectural diagrams * Check software for design smells and correct them * Collaborate with the project manager, steering committee, programmers regarding software design and development. * <https://www.indeed.com/career-advice/finding-a-job/how-to-become-software-designer> |
| 5 IT Administrators | * Support, repair, update, upgrade and manage Nexus Solutions IT infrastructure especially relating to the HRMS system project. * Provide technical support to team members and stakeholders * Backup and archive project data and files * Maintain Nexus Solutions firewalls and cybersecurity systems * Troubleshooting technical difficulties with IT infrastructure affecting the team members to complete project work. * Create, manage and delete user accounts for project team members. * <https://www.indeed.com/career-advice/finding-a-job/what-are-it-administrators> |
| 5 Project Administrators | * Administer project and stakeholder meetings and produce meeting documentation * Process project documentation and paperwork including contracts, agreements, progress and performance metrics, purchase orders and invoices, updating project time management documents * Hire third party contractors for specialised tasks * Track project tasks and document project progress * Manage project resources and budget – team members, software, hardware, services, platforms,external contracts and make sure the project remains within the £700,000 budget. * <https://www.indeed.com/career-advice/finding-a-job/what-does-project-administrator-do> |
| 2 Tech Leads | * Recruit, train and hire technical team members including programmers, developers, designers, testers, engineers, specialists, IT administrators. * Troubleshoot technical difficulties, roadblocks and setbacks * Manage project workload on different team members based on their roles, occupations, skillsets and qualifications * Set goals for team members that align with the project, stakeholders and client and record milestones reached in the project * Supervise all technical team members and oversee development and system modifications by the technical team and reduce technical risks * Update development, programming, DevOps, administration, operations and security tools for the project * Perform security audits * <https://fullscale.io/blog/what-does-a-tech-lead-do/> |
| 1 IT Consultant | * Meetings with client (Engineering Company) to gather and analyse software and project requirements * Travel to engineering company’s office or online video conference with engineering company * Provide guidance for implementing the HRMS system to the engineering company * Provide the HRMS system solution to the engineering company after analysing the requirements. * <https://uk.indeed.com/career-advice/finding-a-job/what-is-an-it-consultant> |
| 3 Team Leaders (one for development, one for operations, one non-technical) | * Work with the project manager and steering committee and project sponsor and supervise all ,project team members * Oversee all activities within the teams * Set goals for team members to work to * Oraganise tasks, team members and documents * Make strategic decisions for the project teams and members * Communicte with team members, project manager, steering committee and stakeholders * <https://www.indeed.com/career-advice/career-development/responsibilities-of-a-team-leader> |

### External Resources and Expertise

External Resources will include:

* Cloud computing platforms such as Amazon Web Services (AWS) for any cloud based aspects of the HRMS system.
* Third-party software for design, development, coding, building, testing and deployment of the HRMS system.
  + Adobe XD
  + Draw.io
  + StarUML
  + PyCharm and other JetBrains IDEs
  + Visual Studio
  + Xcode, Android Studio
  + Programming Languages - Python, HTML, CSS, SQL, JavaScript, C++, C, C#, Java, Kotlin, Swift.
  + MySQL, SQLite Studio
  + Docker, Kubernetes, AWS ECS, AWS ECR
  + SonarCloud, SonarQube
  + Postman
  + Webhosting platform e.g. Render.com
  + GitHub, Git, GitLab, AWS CodeCommit
* Third-party project, team and task management software and services.
  + Asana
  + Trello
  + SmartSheet
  + Microsoft Office, Project
  + Jira
* Third-party Communication and Collaboration Platforms.
  + Microsoft Teams for Work and School
  + Zoom
  + Microsoft Outlook
  + WhatsApp Business
  + Slack
* Third-party suppliers for computer hardware and specialist equipment/hardware for the project.

External expertise will include:

* Specialist technical support with third party software, services and cloud computing platform.
* Specialist technical support with third party non-technical and project management software, services and platforms.
* Customer service, technical support, repairs and upgrades to hardware supplied externally from the manufacturer or supplier.
* Installation and setup of specialist equipment.

## Budget: Outline the budget allocation for the project, including costs associated with personnel, materials, equipment, and any other relevant expenses. Use a software estimation technique of your choice with proper justification.

Cost Estimation Template

### Project Cost Estimation

Project Title: Human Resource Management System for Engineering Company

Project Manager: S275931

|  |  |  |  |
| --- | --- | --- | --- |
| **COMBINED TOTAL COST** | | | **£465,250.17** |
| PRODUCT EXPENSES | | | | | |
| ITEM NAME | ITEM DESCRIPTION | | UNITS | £ / UNIT | TOTAL |
| JetBrains IDEs inc. PyCharm | JetBrains IDEs including PyCharm for coding/programming backend and frontend HRMS system software and applications to develop code functionality, desktop and web apps | | 1 (One Year Organisation License for all team members) | £956.40 Per Year | £956.40 |
| Adobe Creative Cloud | Adobe Creative Cloud apps inc. XD, Photoshop, Illustrator, Dreamweaver, Indesign for creating wireframes, mockups, and, webpages and software graphics | | 61 Licenses for team members who need it. | £78.59 Per User Per Month | £3,994.89 |
| Visual Studio Enterprise | Visual Studio Enterprise for Programming, Development and DevOps, core functionality, Windows Desktop Application | | 80 Licenses for 80 technical users (programmers, DevOps, Software Engineers, IT Admins, Testers | £196.24 ($250) Per User Per Month | £15,699.20 ($20,000) |
| Xcode – Apple Developer Program | Xcode – Apple Developer program for iOS, iPad OS and macOS HRMS Application | | 1 license for entire team | £77.71 ($99) Per Year | £77.71 ($99) |
| Android Studio | Android Studio IDE for developing HRMS app for Android devices | |  |  |  |
| GitHub Enterprise | GitHub Enterprise for version control | | 80 Technical Users | £16.40 ($21) Per User Per Month | £1,318.40 ($1,680) |
| SonarCloud | SonarCloud for automated software testing and System Testing | | 1 Monthly License for team | £4,472.7 (€5,250) Per Month | £4,472.79 (€5,250) |
| Postman | Postman for System and API testing | | 48 Users (Testers, Programmers and Software Engineers) | £38.46 ($49) per user per month. | £1,846.08 ($2,352) |
| Docker | Docker containerisation platform and software | | 54 Users | £18.84 ($24) per user per month | £1,017.36 ($1,296) |
| MySQL Enterprise Edition | MySQL database management/development software | | 1 Team | £8,546.09 per year | £8,546.09 |
| StarUML | StarUML for UML software design diagrams | | 55 Users – Programmers, DB Developers, Software Engineers, Software Designers, Tech Leads, IT Administrators | £156.21 ($199) per user | £8,580 |
| Microsoft 365 Business Premium inc. MS Teams | Microsoft 365, Office, Outlook and Teams for office work, communication, email, videoconferencing, collaboration | | 100 | £18.10 per user per month | £1,810 |
| Zoom Business | Zoom for videoconferencing | | 100 | £17.49 per user per month | £1,749 |
| Slack | Slack for project, team and DevOps colaboration | | 100 | £11.70 per user per month | £1,170 |
| WhatsApp Business | WhatsApp Business for communication | | 100 | Contact Sales | Contact Sales |
| SmartSheet | SmartSheet project, team and work management software | | 100 | £19 per user per month | £1,900 |
| Microsoft Project | Microsoft Project software for project management, resource management, task management, time management | | 100 | £45.20 per user per month | £4,520 |
| Trello | Trello Enterprise for task management for project | | 100 | £13.74 ($17.50) per user per month | £1,374 ($1,750) |
| Render.com | Render.com for hosting HRMS web app | | 1 | £351.56 ($450) per month | £351.56 ($450) |
| AWS | Amazon Web Services for cloud components of HRMS System | | 1 | £75,783.58 ($97002.82)  Upfront:  £40,651.94 ($52,034.40)  Monthly: £35,131.64 ($44,968.42) | £75,783.58 ($97002.82) (Upfront + First Month during project) |
| Jira | Atassian Jira Project Management Software | | 100 | £9.80 ($12.48) | £980 |
| PRODUCT EXPENSE TOTAL | | £127,249.01 |

<https://www.jetbrains.com/pycharm/buy/?section=commercial&billing=yearly>

<https://commerce.adobe.com/store/payment?items%5B0%5D%5Bid%5D=F5CC79C275F8FBD6A438185A6CEB3C38&cli=creative&co=GB&lang=en>

<https://visualstudio.microsoft.com/vs/pricing/?tab=enterprise>

<https://developer.apple.com/support/compare-memberships/>

<https://github.com/pricing>

<https://www.sonarsource.com/plans-and-pricing/#sonarcloud>

<https://www.postman.com/pricing/>

<https://www.docker.com/pricing/>

<https://shop.oracle.com/apex/f?p=DSTORE:6::::6:P6_LPI,P6_PROD_HIER_ID:60722111181080530642694,58095029061520477171389>

<https://staruml.io/buy/>

<https://www.microsoft.com/en-gb/microsoft-teams/compare-microsoft-teams-business-options>

<https://zoom.us/pricing>

<https://app.slack.com/plans/T062END8NTB>

<https://business.whatsapp.com/products/platform-pricing?country=United%20Kingdom&currency=Pound%20Sterling%20(GBP)&category=Service>

<https://www.atlassian.com/software/jira/pricing>

<https://www.smartsheet.com/pricing>

<https://www.microsoft.com/en-gb/microsoft-365/planner/microsoft-planner-plans-and-pricing#x40a97406afab4b4e966a50d58c54e81b>

<https://trello.com/en/pricing>

<https://dashboard.render.com/web/srv-cn39m37109ks73eop4mg/plan>

<https://calculator.aws/#/estimate>

<https://calculator.aws/#/>

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LABOUR EXPENSES | | | | |
| TASK NAME | TASK DESCRIPTION | HOURS (8 HRS/DAY) | £ / HOUR | TOTAL |
| IT Consultation | Pre-Project IT consultation with Engineering Company to gather requirements. | 8 (1x8)  1x IT Consultant | IT Consultant = £22.36 x 1 | £178.88 |
| Project Charter | Write project charter defining scope, goals, stakeholders, and financing | 96 (12x8)  1x Project Manager  10x steering committee  1x project sponsor | Project Manager = £26.98 x 1  Steering Committee = N/A  Project Sponsor = £20.35 x 1 | £378.64 |
| Feasibility Study | Assess the feasibility of project in terms of finance, technical, business, time, operational, ethical and legal factors | 88 (11x8)  1x Project Manager  10x Steering Committee | Project Manager = £26.98 x 1  Steering Committee = N/A | £215.84 |
| Define Scope | Define scope – what the project is and is not, project description, deliverables, justification, exclusions, constraints, assumptions | 80 (10x8)  10x Steering Committee | Steering Committee = N/A | N/A |
| Kick-off Meeting | Upon approval of Project Charter, the kickoff meeting led by project manager, sponsor, client, stakeholders will initiate and officially start the project | 96 (12x8)  1x Project Manager  1x Project Sponsor  10x Steering Committee | Project Manager = £26.98 x 1  Steering Committee = N/A  Project Sponsor = £20.35 x 1 | £378.64 |
| Project Management Plan | Create project management plan | 16  1x Project Manager | Project Manager = £26.98 x 1 | £431.68 |
| Financial Plan | Create Financial Plan | 16  1x Project Manager | Project Manager = £26.98 x 1 | £431.68 |
| Resource Plan | Create Resource Plan | 16  1x Project Manager | Project Manager = £26.98 x 1 | £431.68 |
| Quality Plan | Create Quality Plan | 16  1x Project Manager | Project Manager = £26.98 x 1 | £431.68 |
| Risk Assessment | Find and assess risks associated with the project | 16  1x Project Manager | Project Manager = £26.98 x 1 | £431.68 |
| Risk Management Plan | Create Risk Management Plan to mitigate risks associated with the project | 16  1x Project Manager | Project Manager = £26.98 x 1 | £431.68 |
| Create Acceptance Plan | Assign the definitions of done and delivered. | 16  1x Project Manager | Project Manager = £26.98 x 1 | £431.68 |
| Crete Procurement Plan | Find third party suppliers and agree to their terms and conditions | 16  1x Project Manager | Project Manager = £26.98 x 1 | £431.68 |
| Project Vision and Team Leadership | Create vision of project success and set up team leadership. | 56 (7x8)  1x Project Manager  1x Project Sponsor  2x Tech Leads  3x Team Leaders | Project Manager = £26.98 x 1  Project Sponsor = £20.35 x 1  Tech Lead = £41.19 x 2 = £82.39  Team Leader = £16.57 x 3 = £49.72 | £1,435.52 |
| Create Tasks | Define tasks for team members | 48 (6x8)  1x Project Manager  3x Team Leaders  2x Tech Leads | Project Manager = £26.98 x 1  Team Leader = £16.57 x 3 = £49.72  Tech Lead = £41.19 x 2 = £82.39 | £1,272.72 |
| Brief Team Members | Brief team members on their tasks | 48 (6x8)  1x Project Manager  2x Tech Leads  3x Team Leaders | Project Manager = £26.98 x 1  Team Leader = £16.57 x 3 = £49.72  Tech Lead = £41.19 x 2 = £82.39 | £1,272.72 |
| Plan and Design Software | Plan and design software including UML use case, class, ERD and architecture diagrams, create wireframes and mockups of appliction | 448 (28x16)  6x Software Designers  10x UI/UX Designers  12x Software Engineers | Software Designer = £28.41 x 6 = £170.45  UI/UX Designer = £26.52 x 10 = £265.15  Software Engineer = £29.83 x 12 = £357.95 | £12,696.80 |
| Develop, Code and Debug Software | Write backend and frontend code for HRMS software, create databases, crete user interfaces, debug software code, commit to Git repositories for version control and backup | 3,760 (47x80)  13x Backend Programmers  13x Frontend Programmers  12x Software Engineers  2x Database Developers  4x DevOps Engineers  3x Cybersecurity Specialists | Backend Programmer = £28.31 x 13 = £368.03  Frontend Programmer = £24.84 x 13 = £322.94  Software  Engineer = £29.83 x 12 = £357.95  Database Developer = £17.08 x 2 = £34.17  DevOps Engineer = £29.36 x 4 = £117.42  Cybersecurity Specialist = £28.41 x 3 = £85.23 | £102,859.20 |
| Build Software | Use compilers, containerisation platforms, cloud platforms, webhosting, convert code into executable software. | 2,688 (42x64)  4x DevOps Engineers  13x Backend Programmers  13x Frontend Programmers  12x Software Engineers | DevOps Engineer = £29.36 x 4 = £117.42  Backend Programmer = £28.31 x 13 = £368.03  Frontend Programmer = £24.84 x 13 = £322.94  Software Engineer = £29.83 x 12 = £357.95 | £74,645.76 |
| Test Software | Perform automated and manual tests on software for bugs, errors, defects, compliance, quality, performance, functionality, user interface/experience, usability, acceptance, integration, security, reliability, stability, scalability, code and design smells, technical debts, antipatterns and compatibility. | 1,624 (29x56)  10x Testers  3x Cybersecurity specialists  12x Software Engineers  4x DevOps Engineers | Software Tester = £15.29 x 10 = £152.93  Cybersecurity Specialist = £28.41 x 3 = £85.23  Software Engineer = £29.83 x 12 = £357.95  DevOps Engineer = £29.36 x 4 = £117.42 | £39,957.68 |
| Deploy and Release Software | Deploy and release on appropriate platforms, depending components: Docker for containerised components and web, as executable applications for Windows, macOS, Linux, iOS, Android, Render.com for web, AWS for cloud based components and web, set up and use CI/CD pipelines | 128 (16x8)  4x DevOps Engineerts  12x Software Engineers | DevOps Engineer = £29.36 x 4 = £117.42  Software Engineer = £29.83 x 12 = £357.95 | £3,802.96 |
| Receive Client Feedback | Receive feedback from Engineering company, project sponsor, steering committee | 1,792 (16x112)  1x Project Manager  3x Team Leaders  2x Tech Leads  10x Steering Committee | Project Manager = £26.98 x 1  Team Leader = £16.57 x 3 = £49.72  Tech Lead = £41.19 x 2 = £82.39  Steering Committee = N/A | £17,818.08 |
| Quality Assurance and Deliverables | Ensure that software quality is maintained through testing and feedback. | 336 (42x8)  1x Project Manager  10x Testers  2x Tech Leads  3x Team Leaders  12x Software Engineers  4x DevOps Engineers  10x Steering Committee | Project Manager = £26.98 x 1  Software Tester = £15.29 x 10 = £152.93  Team Leader = £16.57 x 3 = £49.72  Tech Lead = £41.19 x 2 = £82.39  Software Engineer = £29.83 x 12 = £357.95  DevOps Engineer = £29.36 x 4 = £117.42  Steering Committee = N/A | £6,299.12 |
| Communicate with Team Members and Stakeholders | Use communications plan to communicate with stakeholders and team members through appropriate channels. | 1,904 (17x112)  1x Project Manager  3x Team Leader  2x Tech Leads  10x Steering Committee  1x Project Sponsor | Project Manager = £26.98 x 1  Team Leader = £16.57 x 3 = £49.72  Tech Lead = £41.19 x 2 = £82.39  Steering Committee = N/A  Project Sponsor = £20.35 x 1 | £20,097.25 |
| IT System Administration | Administration and maintenance of IT systems and infrastructure for project | 880 (5x176)  5x IT Administrators | IT Administrator = £14.68 x 5 = £75.39 | £13,268.64 |
| Risk Management | Use the risk management plan to mitigate risks associated with the project | 128 (4x32)  1x Project Manager  2x Tech Leads  1x Project Sponsor | Project Manager = £26.98 x 1  Tech Lead = £41.19 x 2 = £82.39  Project Sponsor = £20.35 x 1 | £4,151.04 |
| Acceptance Management | Further user acceptance testing and ensure deliverables meet client requirements. | 352 (11x32)  1x Project Manager  10x Steering Committee | Project Manager = £26.98 x 1  Steering Committee = N/A | £863.36 |
| Cost Management | Manage costs to stay within the £700,000 budget, report to sponsor, manager, steering committee if costs exceed budget due to setbacks, unexpected expenses and cost estimate miscalculations | 192 (6x32)  1x Project Manager  5x Project Administrators | Project Manager = £26.98 x 1  Project Administrator = £14.68 x 5 = £73.39 | £3,211.84 |
| Quality Assurance | Quality assurance through monitoring software, project and continued testing, apply software updates/patches to HRMS if needed. | 1,344 (42x32)  1x Project Manager  10x Testers  2x Tech Leads  3x Team Leaders  12x Software Engineers  4x DevOps Engineers  10x Steering Committee | Project Manager = £26.98 x 1  Software Tester = £15.29 x 10 = £152.93  Tech Lead = £41.19 x 2 = £82.39  Team Leader = £16.57 x 3 = £49.72  Software  Engineer = £29.83 x 12 = £357.95  DevOps Engineer = £29.36 x 4 = £117.42  Steering Committee = N/A | £25,196.48 |
| Change Management | Make changes if project does not go according to plan or during a crisis. | 352 (11x32)  10x Steering Committee  1x Project Sponsor | Steering Committee = N/A  Project Sponsor = £20.35 x 1 | £651.20 |
| Repeat Agile Project Cysle | Repeat agile project lifecycle, SDLC, DevOps if needed. | Repeat if needed.  Up to 100 team members. |  |  |
| Project Performance Analysis | Gather and analyse project performance metrics | 136 (17x8)  1x Project Sponsor  5x Project Administrators  1x Project Manager  10x Steering Committee | Project Sponsor = £20.35 x 1  Project Administrator = £14.68 x 5 = £73.39  Project Manager = £26.98 x 1  Steering Committee = N/A | £965.76 |
| Team Analysis | Analyse team performance metrics, team member motivation, accountability, communication and feedback | 88 (11x8)  1x Project Manager  2x Tech Leads  3x Team Leaders  5x Project Administrators | Project Manager = £26.98 x 1  Tech Lead = £41.19 x 2 = £82.39  Team Leader = £16.57 x 3 = £49.72  Project Administrator = £14.68 x 5 = £73.39 | £998.07 |
| Project Closure, documentation, handover and signoff | Paperwork to bring project to an end, close supplier agreements, sign off contracts, had over documentation and officially hand over project to client and close it. | 136 (17x8)  10x Steering Committee  1x Project Sponsor  1x Project Manager  5x Project Administrators | Steering Committee = N/A  Project Sponsor = £20.35 x 1  Project Manager = £26.98 x 1  Project Administrator = £14.68 x 5 = £73.39 | £965.76 |
| Evaluation and Lessons learnt | Formal analysis of project, lessons learned, successes and failures. | 56 (7x8)  1x Project Sponsor  1x Project Manager  5x Project Administrators | Project Sponsor = £20.35 x 1  Project Manager = £26.98 x 1  Project Administrator = £14.68 x 5 = £73.39 | £965.76 |
| LABOUR EXPENSE TOTAL | | £338,001.16 |

~~20 Software developer cost = £38,510 10~~

13 backend programmer £42,800

13 frontend programmer £28700

2 database developer cost = £2104 10

10 UI/UX designer = £7000 3

10 Testers = £4037 3

4 DevOps = £43400 20

3 Cybersecurity = £30000

12 Software engineers = 52500 20

6 Designers = £7500 5

5 IT Administrators = £12,917

5 Project Administrators = £12,917

1 project manager = £4750

2 Tech Leads = £14,333 20

3 Team Leaders = £8750

Steering committee – 5-10 people?

1 IT consultant = £197

£236200 in salaries (rounded)

<https://www.payscale.com/research/UK/Job=Software_Developer/Salary>

<https://www.payscale.com/research/UK/Job=Database_Developer/Salary>

<https://www.glassdoor.co.uk/Salaries/ui-designer-salary-SRCH_KO0,11.htm>

<https://www.glassdoor.co.uk/Salaries/computer-programmer-salary-SRCH_KO0,19.htm>

<https://uk.indeed.com/career/back-end-developer/salaries>

<https://uk.indeed.com/career/front-end-developer/salaries>

<https://www.glassdoor.co.uk/Salaries/cyber-security-engineer-salary-SRCH_KO0,23.htm>

<https://www.glassdoor.co.uk/Salaries/software-engineer-salary-SRCH_KO0,17.htm>

<https://www.glassdoor.co.uk/Salaries/software-designer-salary-SRCH_KO0,17.htm>

<https://www.glassdoor.co.uk/Salaries/it-administrator-salary-SRCH_KO0,16.htm>

<https://www.glassdoor.co.uk/Salaries/project-administrator-salary-SRCH_KO0,21.htm>

<https://www.payscale.com/research/UK/Job=Information_Technology_(IT)_Consultant/Salary>

<https://www.payscale.com/research/UK/Job=Software_Tester/Salary>

<https://www.glassdoor.co.uk/Salaries/tech-lead-salary-SRCH_KO0,9.htm>

<https://www.glassdoor.co.uk/Salaries/team-leader-salary-SRCH_KO0,11.htm>

<https://www.productplan.com/learn/agile-vs-waterfall/>

<https://www.glassdoor.co.uk/Salaries/project-manager-salary-SRCH_KO0,15.htm>

<https://www.glassdoor.co.uk/Salaries/project-sponsor-salary-SRCH_KO0,15.htm>

<https://www.glassdoor.co.uk/Salaries/devops-engineer-salary-SRCH_KO0,15.htm>

## To provide context, briefly explain, why your organisation/team is interested in this project and how the proposed project will align to your organisational objectives

Improve HR Department

My team at Nexus Solutions is interested in this project as we are a UK-based multinational software development company and this project is to develop Human Resources Management System (HRMS) software for a UK-based Engineering company. The HRMS software will improve the Engineering company’s Human Resources (HR) department which is using an outdated human resources system that is facing compliance and quality of service issues. The HRMS project will improve the Engineering company’s human resources department by using the latest technology, automating human resources management tasks.

## Provide the key technical skills that your organisation/team will require to give a reader of your proposal a balanced understanding.

Programming, Project and Team Management, DevOps etc

Key skills for team member employees for this project include:

* Project Management
* Team Management
* Time Management
* Communication
* People Management
* Budget and cost management
* Coding in different programming, scripting, styling and markup languages:
  + Python
  + C++/C/C#
  + Swift
  + Java
  + JavaScript
  + Kotlin
  + HTML
  + CSS
  + XML
  + SQL
  + PHP
  + YAML
  + Dockerfiles
* Using Integrated Development Environments:
  + JetBrains IDEs: PyCharm, CLion, Clion Nova, WebStorm, PHPStorm, Intellij Idea, Aqua, DataGrip.
  + Visual Studio
  + Xcode
  + Android Studio
  + Adobe Dreamweaver
* Database development and management including SQL coding
* UI/UX Design:
  + Designing user interfaces
  + Designing user experiences
  + Graphics design
  + Drawing mockups of software
  + Drawing wireframes of software
  + Using Graphics and UI/UX design software:
    - Adobe XD
    - Adobe Indesign
    - Adobe Illustrator
    - Adobe Photoshop
    - Draw.io
  + Interaction design
* DevOps skills:
  + DevOps management
  + Create, set up, manage and operate CI/CD pipelines
  + Build and run containers with Docker/Kubernetes
  + Use AWS cloud computing tools:
    - EC2
    - Elastic Container Registry
    - Elastic Container Service
    - CodeDeploy
    - CodePiipeline
    - S3 Buckets, Glaciers and Elastic Block Storage
    - CodeCommit
    - Cloud9
    - Identity Access Management
    - Lambda Functions
    - Load Balancers
  + Version control, use and manage Git repositories
* Software design skills:
  + Draw UML diagrams:
    - Use Case Diagrams
    - Class Diagrams
    - Entity Relationship Diagrams
    - Mockups and wireframes
* Software testing skills:
  + Use automated and manual software testing tools to perform tests including:
    - SonarCloud and SonarQube
    - Postman
    - Selenium
    - JetBrains Aqua
  + Create test cases for software testing
  + Analyse test results and write test reports
  + Write code for software testing such as unit testing
  + Find bugs and debug software
* Problem solving
* Software debugging
* Writing reports
* API programming and use
* Development and useof frameworks
* Software engineering
* Software development
* Web development
* Mobile app development
* Desktop app development
* Cross platform development
* Lifelong Learning
* Pay attention to detail
* Creativity
* Research and analysis
* Troubeshooting
* Software architecture knowledge
* Collaboration and teamwork
* Empathy
* Conflict resolution
* IT System administration and maintenance
* Curiosioty
* Computer Science, Data Science, Computing, mathematics and statistics
* Self motivation
* Think out of the box
* Leadership
* Negotiation
* Organisation
* Project management and software development methodologies
* Adaptability
* Technical and business writing

## Identify the expected benefits and dis-benefits, ensuring they are informed by the strategic context (social responsibility context you have explained above).This paragraph is an opportunity to sell the value of your project to decision makers.

Identify benefits of system from a social or community perspective, less stress for HR department, Fewer errors with salaries and less financial stress, fewer disputes strikes etc

From a social and community perspective the HRMS system carries several benefits for the Engineering company, its customers and employees, and for Nexus Solutions.

Engineering Company:

* More efficient Human Resources department.
* Less stress for Human Resources employees as repetitive, tedious and complex tasks are now automated.
* Fewer errors with employees’ payrolls and salaries resulting in reduced financial stress at the engineering company and fewer employee disputes over pay resulting in strikes and legal action.
* Saves time for human resources employees, management and other employees through automation and streamlined management resulting in more productivity.
* A more productive engineering company can focus on creating better quality products for its customers resulting in better customer satisfaction.
* Improve project and team management for the engineering company through tracking employee and team performance metrics.
* Improved recruitment process for new employees and job applicants with a faster recruitment process using automation and make it easier to choose better job applicants resuting in a better workforce.
* Talent management will help with project and team management by choosing the most suitable person for each role based on their level of talent in different areas.
* Better job satisfaction and work motivation for employees as they are assigned to tasks they enjoy the most through talent management.
* Increased productivity through improved automated time management.

Nexus Solutions:

* This project will get people employed at Nexus Solutions and will be peid for their work - Financially reqarding for employees.
* Nexus Solutions will get paid up to £700,000 increasing revenue and profit for the company and financial growth for Nexus Solutions.
* Improve Nexus Solutions’s reputation – More successfully completed software projects means better credibility with other companies making them more likely to choose Nexus Solutions for their future projects.
* If this project is a success, Engineering company is more likely to choose Nexus Solutions again for a future project.
* Improve employee credibility and reputations as this can go on their employment history, Resume and CV. The project manager can provide references for team members/employees when they apply for another job.
* Good team members will likely to be rehired by Nexus Solutions on future projects.

# Project Management Approaches

## Team Structure and roles

People involved (specify management methodology), pros and cons,

The people involved in this project include:

* Steering committee – Board of advisors and senior stakeholders that Determine the direction, scope, budget, timeline of the project and methods used in the project. They also provide governance over the project. <https://www.projectmanager.com/blog/steering-committee-definition>
* Project Sponsor – CEO or representative of engineering company that provides funding and investment for the project, proposes its business case, vision and sets governance guidelines. <https://www.projectmanager.com/blog/what-is-a-project-sponsor>
* Project Manager – Everyday management of the project and its teams, planning, creating and assigning tasks to team members, Time and cost management, managing the scope, budget, finances, risks, quality and resources, communicate with stakeholders, creating plans for the project. <https://www.apm.org.uk/jobs-and-careers/career-path/what-does-a-project-manager-do/>
* Team Leaders – Manage and communicate with the teams, collaborate with the project manager and tech leads, Supervise team members, Set goals for team members, Organise tasks and documents, Decide approaches to tasks. <https://www.indeed.com/career-advice/career-development/responsibilities-of-a-team-leader>
* Tech Leads – Recruit technical team members, manage workload on technical team members, supervise the technical team, Technical troubleshooting, Set goals for technical team, update development tools, perform security audits. <https://fullscale.io/blog/what-does-a-tech-lead-do/>
* Technical teams
  + Performs the technical tasks of the project.
  + DevOps Engineers – System administration, Container orchestration, CI/CD Pipelines, Use DevOps tools, Use AWS Cloud computing tools, Manage configurations, automate administrative tasks, Communicate with development and operations teams, tech leads, team leads, project manager and stakeholders. <https://www.atlassian.com/devops/what-is-devops/devops-engineer>
  + Backend Programmers – Develop, code, build and debug backend software, use version control, integrate with frontend software, communicate and collaborate with backend programmers, testers, software designers, software engineers, database developers, cybersecurity specialists, tech leads, and management. Developserver-side applicattions and databases.
  + Frontend Programmers - Develop, code, build and debug frontend software, use version control, integrate with backend software, communicate and collaborate with backend programmers, testers, software designers, UI/UX designers, software engineers, cybersecurity specialists, tech leads, and management. Develop web apps, interfaces, desktop and mobile apps.
  + Software engineers – Write and test code, Design and develop, opptimise software, evaluate and test software, communicate and collaborate with pogrammers, designers, testers, DevOps engineers, tech leads, stakeholders, management and cybersecurity specialists. <https://www.coursera.org/articles/software-engineer>
  + UI/UX designers – design the user interfaces and user experiences for the HRMS software (web, desktop and mobile apps), create wireframes and mockups of interfaces. Receive feedback from testers and clients about usability. Collaborate with front end programmers, software engineers, software designers, management, testers, stakeholders, tech leads.
  + Software designers – Create UML diagrams including use case, class, ERD and architrcture diagrams, work with UI/UX designers to create wireframes and mockups of user interfaces, work with programmers and software engineers to implement their designs, communicate and collaborate software and devops engineers, stakeholders, IT consultant, tech leads and steering committee to have a clear definition of software requirements.
  + Software Testers – Test software with automated and manual testing for functionality, reliability, usability, acceptance, compatibility, performance and find an report bugs. Communicateand collaborate with programmers, software engineers, Software and UI/UX designers, database developers and DevOps engineers to fix software defects, communicate with management, tech leads and stakeholders.
  + Cybersecurity specialists – Test software to find security vulnerabilities, penetration test and ethically hack software to find vulnerabilities, write cybersecurity code and algorithms for software, advise designers, programmers, software engineers and testers on cybersecurity, manage security software and firewalls, communicate and collaborate with other team members.
  + IT Administrators – Administer and maintain the Nexus Solutions IT systems for the project.
* Non Technical Team:
  + Project Administrators – Process project documentation and paperwork, Hire contractors, Project performance meterics gathering and analysis, Task tracking, Resource management and budgeting. <https://www.indeed.com/career-advice/finding-a-job/what-does-project-administrator-do>

The project will have an agile project lifecycle methodology and a DevOps software development methodology. Agile project management is popular in the technology industry including Nexus Solutions because it works well for software development and its iterative nature means that it is adaptable to changing requirements and scope therefore allows for changes to be made and mistakes to be fixed quickly and easily compared to waterfall methodology. <https://www.projectmanager.com/blog/project-management-methodology>

The software development methology will be DevSecOps that is DevOps that includes cybersecurity as it is important in Human Resources management due to processing sensitive data. DevOps/DevSecOps is an agile development methodology that combines the development, IT operations and cybersecurity teams to work together as one. DevSecOps uses automation tools such as CI/CD pipelines, artificial intelligence and IT automation for time consuming repetitive ad tedious tasks. DevSecOps also improves communication and collaboration between teams. <https://www.atlassian.com/devops> <https://www.atlassian.com/devops/what-is-devops/agile-vs-devops> <https://www.atlassian.com/devops/what-is-devops/agile-vs-devops> <https://www.microsoft.com/en-us/security/business/security-101/what-is-devsecops>

Agile Project Management Advantages:

* Faster software development/deployment – important due to one month deadline
* Easier and faster to adapt to changes and fix mistakes, defects and failed tests.
* Less time wasted on red tape
* Constant feedback from team members, client and stakeholders
* Low costs for experimentation with new features/technologies
* Detect and fix bugs and defects quicker
* Improved team morale.
* Improved developer skills based on feedback.

Agie Project Management Disadvantages:

* Risk of documentation getting sidetracked
* Scope creep and experience rot – unnecessary features added to software increasing costs and wasting time and resources.
* No clear end in sight – risk of delays beyond the one month deadline
* Time consuming for all stakeholders as client must constantly interect with project manager and team members
* Teams can get distracted on frivolous features resuting in technical debt
* Not enough time to design and develop software to an acceptable quality if cycles are too short.
* Greater risk of exceeding the £700,000 budget
* More difficult to measure progress and performance meterics that waterfall.

<https://activecollab.com/blog/project-management/agile-project-management-advantages-disadvantages>

<https://www.atlassian.com/devops>

DevSecOps advantages:

* Better Quality Assurance and Control of software products including threat detection
* Cybersecurity is included unlike DevOps and other methodologies
* Improved early detection of software vulnerabilities
* Faster development and deployment times
* Hand software over to engineering company more quickly
* Increased profits for Nexus Solutions
* Better customer service and satisfaction
* Easier collaboration between teams, team members, management, stakeholders, sponsor and steering committee.

<https://www.veritis.com/blog/pros-and-cons-of-devsecops/>

<https://www.mygreatlearning.com/devops/tutorials/devops-advantages-and-disadvantages>

DevSecOps disadvantages:

* Shortage of DevOps/DevSecOps engineers
* Expensive to set up a DevSecOps environment
* Problems with automation, containerisation, cloud computting and CI/CD pipelines due to inexperience with DevSecOps
* Due to the speed of DevSecOps, some vulnerabilities are missed making the HRMS software vulnerable to cyberattacks, hackers and malware.
* DevSecOps intends to deploy the application as soon as possible therefore vulnerabilities may only be detect after deployment based on client feedback.
* DevSecOps methodology fails if communication breaks down by team members withholding critical information from other team members.

<https://www.veritis.com/blog/pros-and-cons-of-devsecops/>

<https://www.mygreatlearning.com/devops/tutorials/devops-advantages-and-disadvantages>

## Conflict Resolution Strategies

Refer to lecture and online resources

During this project there is a likely risk of conflict between (approximately 100) team members which can result in:

* Reduced team morale and no motivation to work
* Tensions between team members, manahement and stakeholders
* Arguments, altercations, confrontations and disputes in the workplace between team members and management.
* Violations of code of conduct
* Paranoia and distrust in the team
* Strikes, protests and industrial action
* Lack of productivity due to time wasted on arguments instead of getting tasks done
* Delays for project timeline and missing deadlines
* Poor management and decisions
* Resignation of team members
* Legal action and disputes
* Team members getting fired
* Office politics
* Social loafing.
* Harm to project’s, team’s, management’s and Nexus Solutions’s reputation and negative publicity
* Breakdown in essential communications – team members refusing to communicate, sending abusive messages, calls and content to eachother, cyberbullying, blocking and ghosting eahother.
* Bullying, harassment and intimidation of team members.

Conflicts and disputes between team members are caused by:

* Different opinions, perceptions, views and personalities (especially over contentious topics)
* Cultural, background, political and social differences between team members.
* Perceptions of discrimination, unfairness, feeling singled out or marginalised.
* Poor communication skills
* Misunderstanding and misinterpretation
* Biased team members and stakeholders and stereotyping
* Stress at work
* Bullying
* Competition between team members
* Office politics
* Poor leadership and management
* Fear of change
* Different working styles
* Limited resources

<https://changemanagementinsight.com/cause-of-conflict-at-workplace/> <https://online.hbs.edu/blog/post/strategies-for-conflict-resolution-in-the-workplace>

It is therefore important to have conflict resolution strategies in place to avouid and resolve conflict inorder to have a productive and motivated team, maintain Nexus Solutions reputation, deliver a good quality product and have good client satisfactions and avoid negativeconsequences listed above. Different conflict resolution strategies will be used dependent on the conflict.

Cionflict Resolution Strategies:

1. Avoidance – avoiding the cause of conflict when the importance related to the project is low or is unrelated to the project. This is best for conflicts that occour outside of the project or work however avoidance is not recommended for causes of conflict within the project or workplace as not resolving these issues can have a detrimental impact on the team and the project as these issues can escalate unnoticed.
2. Coompetetion – Although usually not suitable for team management and work as it can induce further compition related conflicts, it can be useful in a time of crisis and emergencies. This involves placing a high importance on the projects goals and a low importance on team members and focuses on being assertive and not cooperative. The disadvantages are that it harms trust, creativity, productivity and collaboration.
3. Accommadating – accommodate the conflicting team member or stakeholder’s needs which often immediately deescalates the conflict by removing the cause of conflict and is useful if the person is being angry or hostile. This is useful when the relationship between people is more important than the goals of the project for example conflict resolution between the project management at Nexus Solutions and the engineering company, steering committee and the project sponsor. Poor relations between Nexus Solutions and clients could cause clients to choose a competitor software development company instead of us.
4. Compromising – resolving a conflict by making all conflicting parties forfeit achieving their full goals and is therefore a lose-lose method. Works best when you must maintain good relationships with stakeholders and team members but must not fully abandon project’s goals.
5. Collaborating – a win-win strategy where the relationship between team members and stakeholders and the project’s goals are equally important and conflicting parties collaborate together to find a solution to meet all their needs without sacrificing project goals and the needs of team members and stakeholders. This is usually the most suitable conflict resolution method for work and project related conflicts therefore will be the default resolution strategy.

<https://online.hbs.edu/blog/post/strategies-for-conflict-resolution-in-the-workplace>

As the project manager, I have the following responsibilities to prevent and resolve conflicts:

* Rights – Human and employee rights must be maintained for stakeholders: Equal pay, receive payslips, not be discriminated against, health and safety for a safe workplace, sick pay, request flexible working, protection from unfair dismissal, maternity leave. <https://manaksolicitors.co.uk/services/employment-law/ten-employee-rights-you-should-know/>
* Wellbeing – Ensure and safeguard team members’ physical, mental and emotional wellbeing. Provide counselling, mentoring, first aid, external help and statutory sick pay if needed.
* Duties – I must behave in a legal, moral, ethical and acceptable manner and obey the code of conduct. I must also ensure the team members are behaving in an acceptable manner and not engaging in wrongdoing.
* Fairness – I must ensure all team members are treated fairly.
* Best Practice – I must meet aspirational standards for the project and team members.

<https://online.hbs.edu/blog/post/strategies-for-conflict-resolution-in-the-workplace>

## Risk Management Plan

Refer to lecture and online resources

|  |
| --- |
| **Risk Management Methodology** |
| Define the tools and approaches that will be used to perform risk management activities, such as risk assessment, risk analysis and risk migration. |

|  |
| --- |
| **Risk Register** |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Risk Description | Probability | Impact | Risk Response | Risk Level | Risk Owner | | Project over budget and unexpected costs | Likely | Major:  Engineering company expected to pay extra costs, loss of profit for Nexus Solutions, financial disputes | Prioritise cost estimate and cost management,  Use well trained personel for cost estimates and management, use accureate cost estimation and management software. If cost estimate is likely toexceed budget, negotiate with the project sponsor and steering committee | Very High | Project Manager | | 1 month deadline missed and delays | Likely | Major:  Dissatifaction and disuputes with client, steering committee and project sponsor. Extra costs have to be paid for. | Make time management a priority, employ multiple team members on time consuming tasks and project phases, Make accurate time estimates, negotiate with projectsponsor and steering committee if project is likely to exceed deadline | Very High |  | | Poor time management | Possible | Moderate:  Project delayed, deadlines missed, extra costs | Make time management a priority, employ multiple team members on time consuming tasks and project phases, Make accurate time estimates, negotiate with projectsponsor and steering committee if project is likely to exceed deadline | High |  | | Cyberattack on Nexus Solutions | Possible | Severe:  Data loss, sensitive data exposed, intellectual property stolen, IT systems and infrastructure compromised / damaged, project delayed or cancelled | Install the latest cybersecurity software, antimalware, and firewalls on IT system, make sure software is up to date, encrypt data, disk drives and cloud storage, use strong passwords and 2-factor authentication, biometrics (fingerprint, facial recognition), back up data, advice from cybersecurity specialists | Very High |  | | Cyberattack on HRMS software due to undetected vulnerability | Possible | Severe:  Client’s employees’ data exposed, data loss, malware onclients IT systems, client’s IT systems compromised, Lawsuit against Nexus Solutions, Nexus Solutions’s reputation ruined | Hire cybersecurity specialists to make sure software is coded securely, use testing software to find vulnerabilities and exploits in code and refactor code as needed, encrypt databases and passwords, use secure and trusted third party software, frameworks, SDKs and APIs, Encrypt connections between devices and software, Make sure HRMS has security features (authentication, user roles, secure code, encryption), make sure client’s cybersecurity systes are up to standard, backup features in software, take out liability insurance. | Very High |  | | Damage to IT systems used in project | Possible | Severe:  Data loss, expensive repairs to IT systems, Project delays, Higher insurance premiums, project cancellation. | Back up data, insurance for IT systems, make sure adequate cybersecurity measures are in place, keep IT infrastructure in well protected rooms (locks, CCTV, access cards, alarms, fireproofing, fire suppression, weatherproofing, air-conditioning), keep IT infrastructure and rooms well maintained, building, contents and equipment insurance. | Very High |  | | Emergency (Fire, flood, burglary) at Nexus Solutions | Rare | Severe:  Destruction of Nexus Solutions offices and IT infrastructure, project ccancelled, data loss. | Back up data, cybersecurity software installed, fireproofing, fire suppression, weatherproofing, flood defences, emergency procedures, disaster proofing, keep building and IT infrastructure rooms locked, under CCTV surveillance, install burglar alarms, use other security equipment, access control, hire security guards, health and safety training, take out insurance policies | Medium |  | | Conflict between team members | Almost Certain | Moderate  Low productivity, hostile workplace environment, bullying, harassment, team members resigning, strikes, industrial action, reduced morale | Use conflict resolution plan. | Very High |  | | Conflict within management (Manager, team leaders, tech leads, steering committee, sponsor) | Almost Certain | Major  Poor management, communication breakdown, delays, financial mismanagement | Use conflict resolution plan. | Very High |  | | Conflict between Nexus Solutions and client | Possible | Major  Legal action, project cancellation, refuse to pay for project, lawsuits | Use conflict resolution plan. | High |  | | Conflict between stakeholders | Almost Certain | Major:  Legal action, project delays, project cancellation | Use conflict resolution plan. | Very High |  | | Accident at work resulting in property damage/destruction | Possible | Major:  Damage must be paid for, data loss, delays and extra costs to project, reduced profit margins | Ensure health and safety procedures are followed, health and safety training, install relevant safety equipment, insurance for buildings, content and IT equipment, fireproofing, fire suppression, emergency protocols. | High |  | | Accident at work resulting in minor injury | Likely | Minor:  Sick leave for affected team member, unsafe work environment, distrust, conflict, industrial actioon | Ensure health and safety procedures are followed, health and safety training, install relevant safety equipment, public and employee liability insurance with legal cover, content and IT equipment, fireproofing, fire suppression, emergency protocols.  First-aid training and equipment, hire first aiders, CCTV on premises for legal defence purposes. Report any health and safety issues and fix them as soon as possible | Very High |  | | Accident at work resulting in serious or life-changing injury | Unlikely | Severe:  Legal action / lawsuit from affected team member, compensation must be paid, unsafe work environment, team members going on strike in fear of their safety, industrial action, bad publicity and media attention, serious conflict with stakeholders, delay and cancellation of project, workplace closed for health and safety investigation | Ensure health and safety procedures are followed, health and safety training, install relevant safety equipment, public and employee liability insurance with legal cover, content and IT equipment, fireproofing, fire suppression, emergency protocols.  First-aid training and equipment, hire first aiders, CCTV on premises for legal defence purposes. Report any health and safety issues and fix them as soon as possible | High |  | | Accident at work resulting in death | Rare | Severe:  Legal action / lawsuit from family of affected team member, compensation must be paid, unsafe work environment, team members going on strike in fear of their safety, industrial action, very bad publicity and media attention, serious conflict with stakeholders, delay and cancellation of project, workplace closed for health and safety investigation  Civil and/or criminal lawsuit against Nexus solutions, resignation of team members | Ensure health and safety procedures are followed, health and safety training, install relevant safety equipment, public and employee liability insurance with legal cover, content and IT equipment, fireproofing, fire suppression, emergency protocols. Report any health and safety issues and fix them as soon as possible  First-aid training and equipment, hire first aiders, CCTV on premises for legal defence purposes. | Medium |  | | Team members not working due to illness / sick leave | Almost Certaiin | Minor:  Loss of productivity, Delays, deadlines missed, burden on other team members having to do their work increasing stress levels, | Employ enough team members to cover the work for someone off sick, Negotiate with steering committee and project sponsor if project is delayed due to sickness. | High |  | | Theft of company property | Possible | Moderate:  Financial loss, asset loss, data loss, breach of data protection, security threat, delays, missed deadlines | Back up data, Adaquete security measures in place, locked doors, buildings, rooms for valuable and critical IT equipment, access control to premises, CCTV recording in operation, use burglar alarms, smartwater, smokecloaks, bulletproof glass and other security equipment, hire security guards, building, content and IT equipment insurance, report all incidents to police, background checks for team members | High |  | | Vandalism of company property | Possible | Moderate:  Financial loss, asset loss, data loss, breach of data protection, security threat, delays, missed deadlines | Back up data, Adaquete security measures in place, locked doors, buildings, rooms for valuable and critical IT equipment, access control to premises, CCTV recording in operation, use burglar alarms, smartwater, smokecloaks, bulletproof glass and other security equipment, hire security guards, building, content and IT equipment insurance, report all incidents to police, background checks for team members | High |  | | Data loss | Possible | Severe:  Loss of valuable work on project including code, designs, software, documentation, paperwork, databases. | Back up data, disaster proofing, data encryption with recovery keys, use reliable hardware and software, Git version control, cybersecurity software, keep systems updated, Idenndity and access management | Very High |  | | Lawsuit against Nexus Solutions | Unlikely | Severe:  Company reputation damaged, financial loss, negative publicity, civil and criminal convictions against company, assets seized, extra stress for team members and management, bankruptcy | Insurance with legal cover, Customer, employee and public liability insurance, Hire own (Nexus Solutions) defence legal team (solicitors), make sure agreements, terms of service and licenses are clear, make sure not to violate licenses and terms of service of contractors and third party software, hardware and services, conflict resolution plan. | High |  | | Wrongdoing by team members and stakeholders | Possible | Major:  Loss of morale with team members, distrust, team members being dismissed, damaged reputation, lawsuits and legal action, conflict between team members and stakeholders, poor quality product, loss of productivity | Verbal warning, written waning then disciplinary action of team members engaged in wrongdoing, serious and repeated incidents can result in dismissal, legal action, reported to authorities. Follow conflict resolution plan. | High |  | | Scope Creep | Possible | Moderate:  Time wasted, delays and missed deadlines, project goes overbudget, more stress on pressure on team members to meet deadlines with extra work, wasted resources, greater risk of bugs, defects and maintainability due to overcomplexity |  | High |  | | Poor project management | Possible | Major:  Delays, missed deadlines, resource shorteges and waste, lower team morale, lack of motivation, strikes and industrial action, conflicts, project over budget, poor quality product | Use proper project management techniques, use project management software, gantt charts, kanban charts, work breakdown structures, use transformative project management when possible, conflict resolution plan, use agile methodology, employ project administrators to help with project management and administration, use performance metrics | High |  | | Issues with code, design, bugs and defects after handover to engineering company | Almost Certain | Major:  Poor quality product, conflict with client, unusable product, cybersecurity threats, unreliable product, dissatisfied client, lawsuit by client, delays and missed deadlines due to time wasted fixing the problems. | Use quality assurance and quality control and test software to make sure it is to a high standard, hire software testers, use automated and manual testing | Very High |  | | Public Liability | Unlikely | Severe:  Legal action from members of the public | Public liability insurance | High |  | | Employee Liability | Possible | Severe:  Legal action from team members | Employee liability insurance | Very High |  | | Customer Liability | Possible | Severe:  Legal action from client | Customer liability insurance | Very High |  | | Low productivity from team members | Likely | Moderate  Delays, missed deadlines, conflict, increased costs due to more labour time, low quality product, low morale | Use transformative management, agile and DevSecOps methodologies, collaborative conflict resolution to boost productivity, morale and motivation, investigate why team members have low productivity and resolve any problems causing low productivity, discipline those who are persistently and deliberately not being productive, in a worst case scenario, dismiss and replace them. | High |  | | Client changes to competitor | Possible | Severe:  Project failure as project is no longer needed, loss of earnings due to cancellation, low morale due to disappointed team members, waste of time, money and resources | Price the project competitively to other companies, make sure Nexus Solutions providesthe best qualitysoftware and best value for money and customer service compared to competitors. | Very High |  | | Client cancels project | Unlikely | Severe:  Project failure as project is no longer needed, loss of earnings due to cancellation, low morale due to disappointed team members, waste of time, money and resources | Try to encourage the client to continue funding the project by reminding them of the benefits of the project. | High |  | | Sponsor refuses to pay for project/financial dispute | Unlikely | Severe:  Debt is incurred with Engineering company and its sponsor, Nexus Solutions in debt to third party contractors, creditors and team members, loss of revenue and unable to pay off debts, risk of bankruptcy, legal action, conflict | Financial dispute – use conflict resolution strategies.  Refusal to pay for project – 1. Give project sponsor written warning to pay. 2. Refer debts to debt collection agencies. 3. Take project sponsor / client to court to persue bailiff actions.  Make sponsor / client sign contract that legally binds them to pay for the project. Provide an accurate cost estimate and manage costs properly to reduce the likelihood of this. | High |  | | Team members resigning | Possible | Major:  Fewer team members working on project, more workload on other team members increasing stress and pressure, difficulty recruiting new specialised team members, delays and missed deadlines | Use conflict resolution strategies, make sure team members are paid correctly, ensure health and safety standards are met, use good project management methodologies (agile, DevOps, transformative, collaborative), avoid hostile or toxic work environment. | High |  | | Unauthorised absence by team members | Likely | Moderate  Greater workload on fewer team members increasing stress and pressure for them, conflict, delays, missed deadlines, difficulty recruiting new team members, conflict | Include in contract that unauthorised absences are not allowed except in an emergency, warn and discipline team members for unauthorised absences | High |  | | Dissatisfaction with final product | Possibe | Moderate:  Dissatified client, Dissatified customer, conflict with client and stakeholders, legal action / lawsuit from client demanding a refund, compensation, paying damages or to rework on the project to fix its problems. Sponsor wants their money back. | Use quality assurance and control, make sure software is thoroughly tested, maintain communications with and receive feedback from client, improve software based on test results and feedback, patch software. Provide customer service and technical support to client. | High |  | | Inaccurate estimations | Likely | Moderate:  Project is over budget, project takeslonger than one month deadline | Negotiate with with steering committee, project sponsors, tech leads, team leaders, project administrators and experts for more accurate estimations. Use estimation software for more accurate results. | High |  | | Lack of engagement by team members and stakeholders | Likely | Minor:  Lack of motivation, reduced morale, increased burden, stress and pressure on other workers, delays and missed deadlines, conflict. | Use communications plan to ensure all team members and stakeholders are communicating properly and using the rignt channels. Ensure agile, DevOps, transformative management and collaborative conflict resolution are in place to improve motivation, morale and avoid social loafing. Discipline problem team members deliberaty not enguaging in project. | High |  | | No one wants to use the product | Rare | Severe:  Project is a failure, no profit, financial loss on project, damaged reputation, time, money and resources wasted. | Make sure the project isfeasable (feasibility study), use quality assurance and control to ensure high software project, cost management to keep project within budget. | Medium |  | | Funding for project cut | Possible | Severe:  Project is cancelled, lower quality product, debts incurred by Nexus Solutions, due to being unable to pay contractors, team members, creditors, client/sponsor debt (owes money to Nexus Solutions) depending on circumstances, financial hardship, loss of revenue. | Have accurate project cost estimates, manage costs to keep project within budget, avoid scope creep and overenginnering and wasting resources to avoid extra costs, negotiate with project sponsor and steering committee if unavoidable extra costs causes the project to exceed the budget. | Very High |  | | Shortage of resources | Possible | Major:  Delays to project and missed deadlines, going over budget, additional expenses, conflict, unableto complete parts of the project, | Manage resources, avoid scope creep that wastes resources, negotiate with or change supplier due to resorce shortages, negotiate with steering committee and project sponsor if resource shorteges result in delays | High |  | | Strikes, protests, walkouts, and industrial action by team members | Unlikely | Severe:  Project cancellation, delays, missed deadlines, conflict, legal action, lawsuits, negative publicity on media and social media, damaged reputation, additional costs, disruption to project, team members refuse to work on project, property damage, contracts voided | Use conflict resolution strategies, make sure all team members are paid fairly, ensure health and safety standards are met, use good management techniques such as transformative and agile and avoid bad management techniques such as micromanagement, avoid overworking team members, avoid hostile and toxic work environment, make sure team members are comfortable, take action against wrongdoing, ensure human and worker rights are not violated, make sure project and work environment are ethical | High |  | | Stress Burn out of team members | Possible | Severe:  Serious impact to mental health, emotional wellbeing, physical health resulting in sick leave, resignations and possible lawsuits | Make sure team members health and wellbeing are looked after, conflict resolution strategies, hire tech leads to balance workload on team members, avoid overworking team members, avoid hostile or toxic workplace, health and safety measures. | Very High |  | |

|  |
| --- |
| **Risk Breakdown Structure** |
| Make a risk breakdown structure, which is a hierarchical tree diagram that helps you identify risk categories and the structure of project risks in order of importance. Also available at: <https://managing-projects-and-teams-diagrams.onrender.com/riskbreakdownstructure> |

|  |
| --- |
| **Risk Matrix** |
| Use a risk matrix to analyze the likelihood and the impact to the project of each risk so they can be prioritized.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Risk Matrix | | Severeity | | | | | | Insignificant | Minor | Moderate | Major | Severe | | Likelihood | Almost Certain | Medium | High | Very High | Very High | Very High | | Likely | Medium | High | High | Very High | Very High | | Possible | Low | Medium | High | High | Very High | | Unlikely | Low | Low | Medium | Medium | High | | Rare | Low | Low | Low | Low | Medium | |

|  |
| --- |
| **Risk Response Plan** |
| Make a risk response plan, which is a project management document that explains the risk mitigation strategies that will be employed to manage your project risks.  ?  [Download our free Action Plan Template for Excel](https://www.projectmanager.com/templates/action-plan-template?utm_source=project_manager_com&utm_medium=content+library&utm_campaign=risk-management-plan-word&utm_content=&utm_detail=&utm_term=none) |

|  |
| --- |
| **Roles & Responsibilities** |
| Define the roles and responsibilities of the risk management team members. They are the owners of the risks and need to monitor the project to identify risks if they show up as issues and supervise the risk response actions. |

|  |
| --- |
| **Reporting** |
| Note who is responsible for reporting on identifying the risk and the actions being taken to mitigated, who gets the report and the frequency of that reporting. |

## Identify five (5) risks and quantify their potential likelihood and severity.

Brainstorm risks associated with the project, identify the 5 highest risks

The five highest risks associated with project are:

1. Project over budget and unexpected costs resulting in the Engineering company expected to pay extra costs and loss of profit for Nexus Solutions. This will likely result in financial disputes between stakeholders.
2. 1 month deadline missed and delays resulting in dissatisfaction and disputes with the client, steering committee and project sponsor. Extra costs must be paid for.
3. Issues with code, design, bugs and defects after handover to engineering company resulting in:
   1. Poor quality product
   2. Conflict with client
   3. Unusable product
   4. Cybersecurity threats
   5. Unreliable product
   6. Dissatisfied client
   7. Lawsuit by client
   8. Client/sponsor refusing to pay for project
   9. Client/sponsor demanding a refund
   10. Delays and missed deadlines due to time wasted fixing the problems.
4. Data loss resulting in loss of valuable work on project including code, designs, software, documentation, paperwork and databases.
5. Conflict between team members resulting in:
   1. Low productivity
   2. Hostile workplace environment
   3. Bullying, harassment
   4. Team members resigning
   5. Strikes, protests, walk-outs and industrial action
   6. Reduced morale
   7. Delays

## Indicate how each of the above-mentioned risks will be managed

Details on how to manage the 5 highest risks

The following above-mentioned risks will be managed by:

1. Project over budget and unexpected costs – Prioritise cost estimate and cost management, Use well trained personnel for cost estimates and management, use accurate cost estimation and management software. If cost estimate is likely to exceed budget, negotiate with the project sponsor and steering committee.
2. 1 month deadline missed and delays – Make time management a priority, employ multiple team members on time consuming tasks and project phases, Make accurate time estimates, negotiate with project sponsor and steering committee if project is likely to exceed deadline
3. Issues with code, design, bugs and defects after handover to engineering company – Use quality assurance and quality control and test software to make sure it is to a high standard, hire software testers, use automated and manual testing.
4. Data loss – Back up data, disaster proofing, data encryption with recovery keys, use reliable hardware and software, Git version control, cybersecurity software, keep systems updated, Idenndity and access management.
5. Conflict between team members – Use conflict resolution plan.

# Communication Plan

Lorem Ipsum (paragraph explaining it)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Frequency | Channel/Medium | Audience | Owner |
| Project Kick-off Meeting, Define Scope, Initiation Phase, cost estimate, feasibility study | Start of Project | In Person Meeting, possibly others joining on Zoom or MS Teams, Project Charter | All project and team members, Stakeholders, Clients, Project Manager, Tech Lead, Team Leader | Stakeholders, Nexus Solutions, Engineering company? Project Sponsor |
| Collaboration between project and team members, clients, stakeholders | Daily, Constant | In person, Face-toFace, Zoom, MS Teams, Slack, Email, Phone | Project and Team Members, Project Manager, Tech Lead, Team Leader |  |
| Updates and contact with stakeholders | As needed | In person, Face-toFace, Zoom, MS Teams, Slack, Email, Phone | Project Manager, Tech Lead, Stakeholders | Project Sponsor |
| Project Meetings | Weekly or more frequently | In person or online | Project and team members |  |
| SCRUM Meetings | Weekly | Hybrid – In person or online | Developers, SCRUM Master, Tech Lead, Project Manager, DevSecOps team |  |
| Daily Scrum | Daily | In person or online | Developers, SCRUM Master, Tech Lead, DevSecOps team |  |
| Project Planning | Start of Project / Planning phase | In person or remote, Gantt Chart, resource plan, risk management plan, quality plan, acceptance plan | All project and team members, Project Manager, Tech Lead, Team Leader, stakeholders, clients? |  |
| Project Execution Meeting | Start of execution phase | In person or remote, set up other communication methods, team, task and project management systems | All project and team members, Project Manager, Tech Lead, Team Leader, stakeholders |  |
| Project Monitoring and Control meetings | Start of and during monitoring and controlling phase. | In person or remote | All project and team members, Project Manager, Tech Lead, Team Leader, stakeholders |  |
| Post project review meeting (closure phase), project evaluation | End of project | In person or remote | All project and team members, Project Manager, Tech Lead, Team Leader, stakeholders, clients |  |
| Milestones and deliverables | As required | In person or remote | All project and team members, Project Manager, Tech Lead, Team Leade |  |
| Project Check Ins | Daily | Slack | Project and team members |  |
| Project Handover (documents ending project, due payments, lessons learnt) | End of project | In person, Email and Post | Steering Committee, Project Sponsor, Project Manager, Team Leaders, Tech Leads, Project Administrators |  |

Project Handover (documents ending project, due payments, lessons learnt).

# Conclusion

Cnclude the management process

# References

**There are no sources in the current document.**

# Appendix

## Project Charter

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PROJECT NAME | | | PROJECT MANAGER | PROJECT SPONSOR |
| Human Resource Management System (HRMS) Software | | | S275931 | Engineering Company |
| EMAIL | | PHONE | ORGANIZATIONAL UNIT | |
| s275931@nexussolutions.com | | 12345 678901 | Nexus Solutions | |
| ESTIMATED COSTS | EXPECTED SAVINGS | | EXPECTED START DATE | EXPECTED COMPLETION |
| £700,000 | £0 | | 01/03/2024 | 01/04/2024 |

### PROJECT OVERVIEW

|  |  |
| --- | --- |
| PROBLEM  OR ISSUE | Engineering company has 200 employees at three sites uses an outdated manual Muman Resources Management System facing compliance and quality of service issues. |
| PURPOSE  OF PROJECT | To build a modernised automated Human Resources Management System (HRMS) to replace the outdated manual system with the following automated functions: HR administration, payroll, recruitment, employee data, recruitment and application tracking, time and attendance management, payroll processing, salaries, performance and benefits tracking, training and development and potenitially other features, and tofix the quality of service issues and compliance issues. |
| BUSINESS  CASE | Build an automated HRMS system (see above) to address the engineering company’s efficiency, quality of service and compliance issues in their Human Resources department with their current system. |
| GOALS / METRICS | Produce an HRMS system for an engineering company within one month at a budget of £700,000. Metrics include |
| EXPECTED DELIVERABLES | Produce the HRMS system with in one month at a budget of £700,000  Must be an acceptable quality, meet engineering company’s requirements and meet company and legal compliance.  Must include the functions listed in purpose of the project |

### PROJECT SCOPE

|  |  |  |
| --- | --- | --- |
| WITHIN  SCOPE | Develop a HRMS System within 1 month at a budget of £700,000 for an engineering company with 200 employees at three sites. The functions of the HRMS must include:   * HR administration, * payroll, recruitment, * talent management, * Employee data, recruitment, and application tracking * Time and attendance management * Payroll processing * Salaries, performance, and Benefits tracking * Training and development, and other possible functions. * Web, desktop and mobile application with Graphical User Interface * Backend Application on server or cloud platform * Choose an appropriate project management plan * Choose an appropriate software development methodology * Choose the Programming Languages, IDEs, Frameworks, APIs and DevOps tools to create the software * Choose appropriate project, task and team management tools for this project * Gather Requirements * Choose a cloud computing platform if required * Risk Management Plan * Communications Plan * Dispute Resolution Plan * Quality Management Plan | |
| OUTSIDE  OF SCOPE | * Any unnecessary features that the company doesn’t need to the software that will increase costs, time and resources – Known as Gold Plating * Avoid feature creep, scope creep * Over Engineering * Frivolous High-Risk decisions |

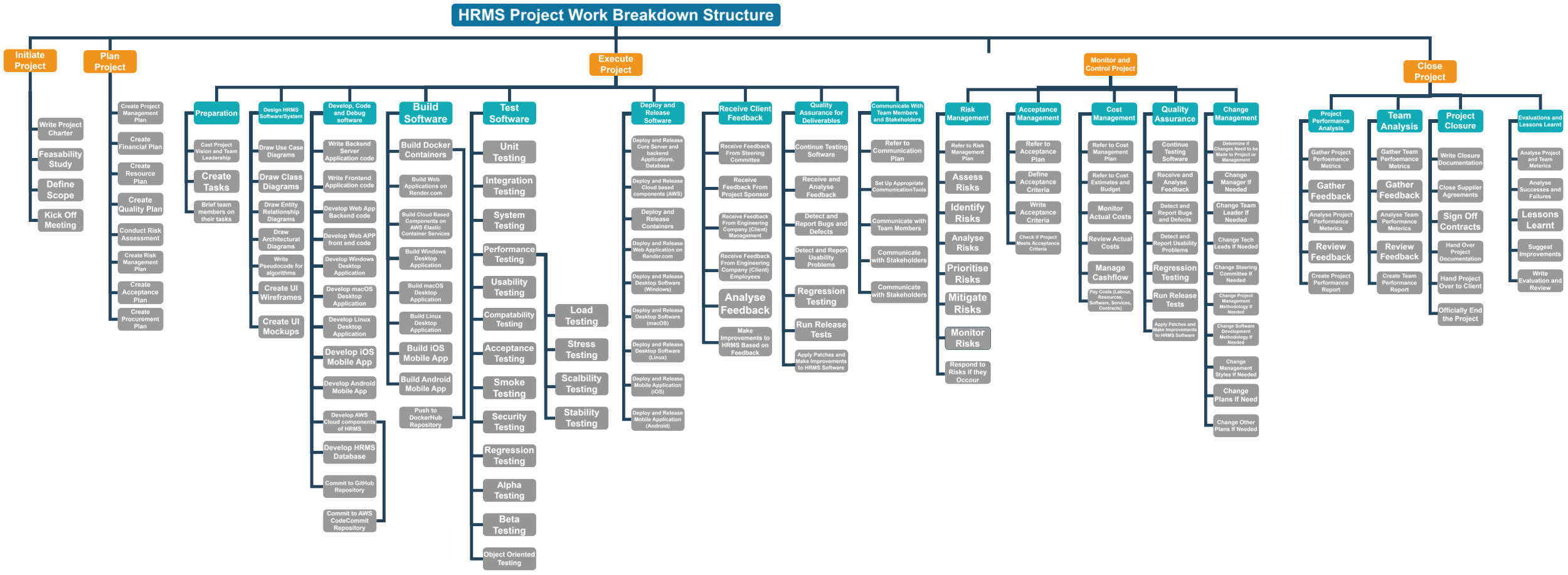
### TENTATIVE SCHEDULE

|  |  |  |
| --- | --- | --- |
| **KEY MILESTONE** | **START** | **FINISH** |
| Form Project Team and Conduct Preliminary Review | 01/03/2024 | 01/03/2024 |
| Finalize Project Plan and Project Charter | 01/03/2024 | 01/01/2024 |
| Conduct Initiation Phase | 01/03/2024 | 04/03/2024 |
| Conduct Planning Phase | 05/03/2024 | 06/03/2024 |
| Conduct Execution Phase | 07/03/2024 | 25/03/2024 |
| Conduct Monitoring and Controlling Phase | 26/03/2024 | 29/03/2024 |
| Conduct Closure Phase | 01/04/2024 | 01/04/2024 |
| Close Out Project and Write Summary Report | 01/04/2024 | 01/04/2024 |

## Work Breakdown Structure

HRMS Project Work Breakdown Structure. Zoom in to view content.

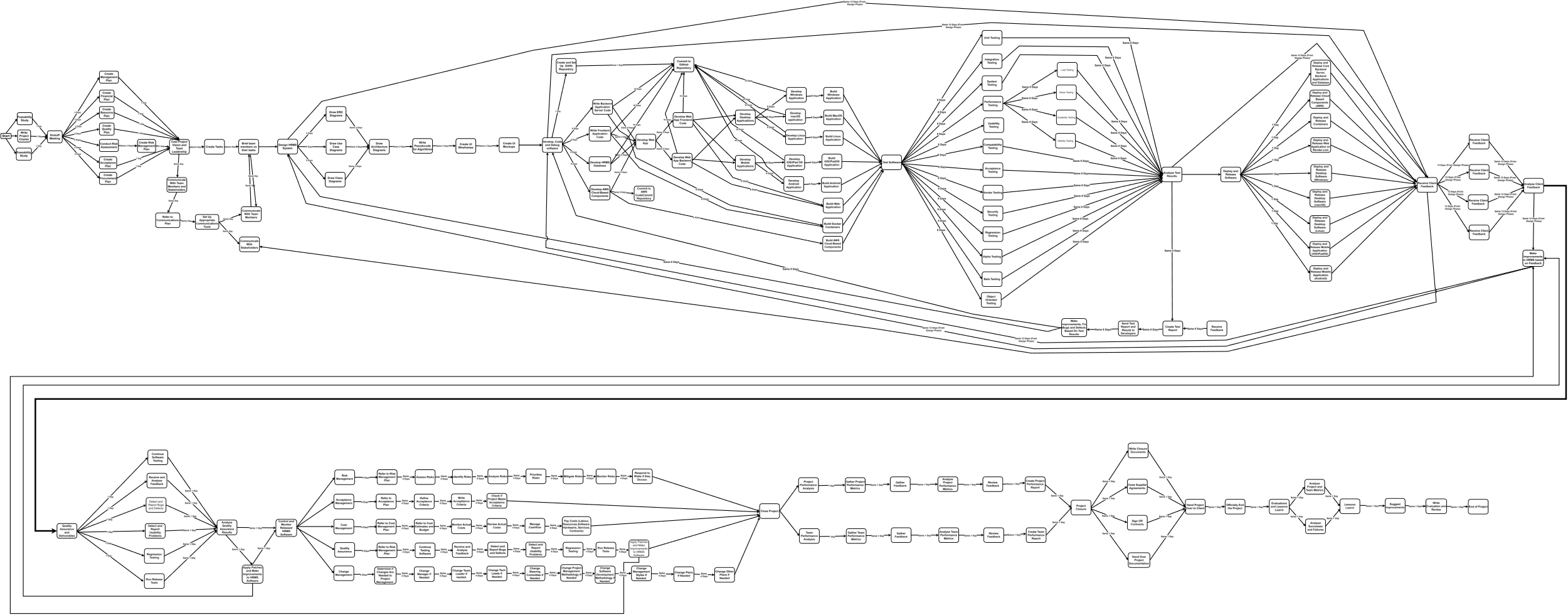
Also available at: <https://managing-projects-and-teams-diagrams.onrender.com/>



## Network Diagram

Network Activity Diagram. Zoom in to view content.

Also available at: <https://managing-projects-and-teams-diagrams.onrender.com/networkactivitydiagram>



## Stakeholder Register

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| PROJECT NAME | HRMS System Software | BEGIN DATE | 01.03.2024 | VERSION NUMBER | 1.0 |
| CLIENT | Engineering Company | END DATE | 01.04.2024 | DATE PREPARED | 28.02.2024 |
| POINT OF CONTACT | Nexus Solutions | DURATION | 1 Month | AUTHOUR | S275931 |
| PROJECT DESCRIPTION | Human Resources Management System software to automate and modernise the Human Resources department at a UK Engineering Company that employs 200 people. Project needs to be completed within 1 month with a maximum budget of £700,000. This project will solve quality of service and compliance issues currently facing the Engineering Company’s HR department. | | | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| STAKEHOLDER REGISTER | | | | | | | |
| OVERVIEW | | | | | CONTACT | | |
| STAKEHOLDER | TITLE/ROLE | COMMUNICATION TYPES | COMMUNICATION VEICHLES | STAKE IN PROJECT | ADDRESS | EMAIL | PHONE |
| S275931 | Project Manager | Electronic, Verbal, Written, Visual | Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person | Project Manager | Nexus Solutions | [S275931@nexussolutions.com](mailto:S275931@nexussolutions.com) | 0845 836298 |
| Engineering Company Representative | Project Sponsor | Electronic, Verbal, Written, Visual | Email, Phone, MS Teams, Zoom, In Person | Sponsor / Client | Engineering Company | [representatives@engineering.co.uk](mailto:representatives@engineering.co.uk) | 0800 453826 |
| Steering Committee Members | Steering Committee | Electronic, Verbal, Written, Visual | Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person | Steering Committee | Engineering Company and Nexus Solutions | [steeringcommittee@engineeringcompany.co.uk](mailto:steeringcommittee@engineeringcompany.co.uk)  [steeringcommittee@nexussolutions.com](mailto:steeringcommittee@nexussolutions.com)  [steeringcommittee@hrmsproject.com](mailto:steeringcommittee@hrmsproject.com) | 0845 836365  0800 453888 |
| Tilda Wheeler | Steering Committee | Electronic, Verbal, Written, Visual | Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person | Steering Committee | Engineering Company | [tildaw@engineering.co.uk](mailto:tildaw@engineering.co.uk) | 0752635321 |
| Whitaker Newton | Steering Committee | Electronic, Verbal, Written, Visual | Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person | Steering Committee | Engineering Company | [whitakern@engineering.co.uk](mailto:whitakern@engineering.co.uk) | 0752278155 |
| Mariah Tate | Steering Committee | Electronic, Verbal, Written, Visual | Email, Phone, MS Teams, Zoom, Slack, WhatsApp Business, in person | Steering Committee | Engineering Company | [mariaht@engineering.co.uk](mailto:mariaht@engineering.co.uk) | 0737060043 |
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