**Company Name: Auckland Plumbing and Electrical Services (APES)**

**Date: 18/12/2018**

**Introduction:**

Auckland Plumbing and Electrical Services (APES) is a company that provides plumbing an electrical repair services to homes throughout Auckland. It has 40 plumbers and electricians who are directed with different jobs scheduled by customers through a receptionist daily. It is up to the receptionist’s judgment and initiative to recommend the best APES office branch for a particular job depending on a customer’s situation. Once the servicing has been booked, the customer arranges a meeting time where the service is requested and it is then up to the tradesperson to carry out the following planning and service delivery tasks. After the tradesperson and the customer settle on a time and place, the tradesperson provides a timesheet and an invoice of all materials used to the receptionist. The invoicing clerk handles these documents and creates an invoice for the customer.

The CEO of APES, Tim Elliot, has examined the present system and has come to the realization that:

* Too many customer requests are being turned down
* The job allocation and service personnel system is not working as well as it could be.
* Status and service requests aren’t being monitored carefully enough.
* Inability to accurately count a serviceperson’s work hours.
* Disorganized system for gathering timesheet and materials information used for invoicing.

A computer based system is to be created and implemented for employees to receive job allocation notifications, send job status details digitally through an application. By maximising efficiency, job service requests will start increasing again and sales turnover should also rise. Each staff member will be provided with a tablet containing software that will allow staff to input all invoicing information required for the customer. This project hopes that work hours from tradesmen will be spent more efficiently, monitoring and tracking will also save the company money as well as accelerate the invoicing procedure and prevent more mistakes.

The project has a budget of $250,000 and is anticipated to be implemented in a 6 month time period.

**Project Stakeholders:**

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| --- | --- | --- |
| **Role** | **Name** | **Contact** |
| **Manager(PM)** | Cuba Haywood | Cubahaywood@gmail.com |
| **Business Analyst** | Ash Holdem | Ash.holdem@gmail.com |
| **Quality Assurance** | Alexandre Angrignon | Alex040892@gmail.com |
| **Sponsor** | Auckland Plumbing and Electrical Services (APES) | Teli183@aucklanduni.ac.nz |
| **Client (Owner)** | Tim Elliot | Teli183@aucklanduni.ac.nz |

**Project Description**

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| Background | Auckland Plumbing and Electrical Services (APES) employs 60 plumbers and electricians. Half the staff are employees and the other staff are free-lance sub contractors who are on call in case no other employee is free to help with customer requirements. |
| The Challenge | The CEO of APES, Tim Elliot, has examined the present system and has come to the realization that:   * Too many customer requests are being turned down * The job allocation and service personnel system is not working as well as it could be. * Status and service requests aren’t being monitored carefully enough. * Inability to accurately count a serviceperson’s work hours. * Disorganized system for gathering timesheet and materials information used for invoicing. |
| Desired Impact | * Increase number of service requests booked by a minimum of 25%. * Increase sales turnover by 10%. * Increase sales turnover to $17 million and profits to increase to $5 million by 2020. |
| Links to other  Projects | None. |

**Measurable Organisation Value (MOV)**

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| **Project Goals** | Reduce inefficiency and inaccuracy of work hours spent updating the company spreadsheet manually.  Increase sales whilst diminishing overall company costs. |
| **MOV** | MOV: Develop a computer based system that will automatically notify employees concerning job status and service requests by a minimum of 25% and increase Sales turnover to $17 million and profits to $5 million by the year 2020. |

**Project Objectives & Deliverables**

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| **Objective** | **Deliverables** | **Acceptance Criteria** |
| Create a job status tracking section within the system that will notify employees. | A functional job status update developed within the computer based system. | Automatically maintained and updated spreadsheets.  The ability to see and receive job status notifications. |
| Create a service request system. | Hardware and software that is needed in order to make the service request system functional. | Usability and accessibility has been tried, tested and proven to work as planned. |
| Create a job allocation status update within the system that will notify employees and outside workers. | Software that will gauge the relevance and proficiency of workers for a job. | The right candidates are selected for the appropriate job in the testing realm. |
| Every member of staff is able to learn and use the system as quickly as possible. | Training courses are implemented.  An agreed upon training day per week is organised within the company. | In-company tests are run and the passing grade is over 70%. |

**Project Scope & Exclusions**

The goal for this project is to develop a digital system for APES, which will raise efficiency for time consuming tasks such as invoicing, job allocation, job status tracking and customer requests. The advent of this development will increase profits and sales turnover as well as reduce maintenance costs. The project is anticipated to be completed in a 6 month period and has a budget of $250,000.

**Milestones:**

All deliverables provided below signify different phases of the project. The standard to which each phase is implemented determines the standard of the subsequent phases. It is crucial that APES monitors the deliverables to make sure all objectives are achieved. The procedure to move onto the next phase will only be accepted if each deliverable has been tested and approved.

1. MOV, Goals and objective expressed
2. App design approved
3. Software Documentation accepted
4. Client authorises software design
5. Required Hardware Received
6. Hardware and Software Installation complete
7. Required Software Tools Received.
8. Required Software/Application completed
9. Trial attempt completed
10. Final Version of Software authorised
11. Installation complete
12. Training complete
13. Project completion report signed
14. Project Closed

Hardware

* Tablet with connecting network capabilities
* More RAM for the company server
* Documentation of successful app installations from tradesmen

Software

* A specific application relevant to the project’s goal.
* Any other functional requirements needed to make this application operational.
* Automatic notifications integrated to notify staff and tradesmen

Planning

* Project plan
* Project plan documents
* Detailed account of each phase for the project

Design & Development

* Design software template for the computer based system
* Ensure that it is authorized by the project manager
* Design the mobile app structure
* Ensure that it is authorised by the client

Documentation

* Project plan
* System usability checklist for tradesmen
* App functionality checklist

Training

* A training day per week to teach staff how to use computer-based system
* A document with a checklist that staff must follow
* A guide or manual that teaches staff about the new system

**Project Work Breakdown Structure**

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| --- | --- | --- | --- |
| # | Task | Duration | Dependencies |
| 0.0 | Computer based system project |  |  |
| 1.0 | Project Management   * + 1. Develop Project Plan     2. Update Project Plan     3. Hand-in Project Plan     4. **Milestone**: MOV and objective defined   **Deliverable**: Project Charter   * 1. Track Project   1.2.1 Prepare Status Reports  1.2.2 Present Status Reports  1.3 Carry out day to day Project Management | 2 weeks | 1.1.1  1.2.1 |
| 2.0 | Design  2.1 Gather client requirements  2.2 Prepare Preliminary Design  2.2.1 Develop template design details and  requirements  2.2.2 Prepare Data Flow Diagram  2.2.3 Prepare Logical Data Model  2.2.4 **Milestone**: Draft template completed  **Deliverable**: Data Flow and Logical  Data Model  2.3 Prepare Final Version Design  2.3.1 Prepare Application Model  2.3.2 Prepare Data Dictionary  2.3.3 Milestone: Physical design complete  Deliverable: Tablet Application  Components and document Design      2.4 Document Design  2.4.1 Develop Design Specifications  2.4.2 Review design  2.4.3 Milestone: Software Documentation  Complete  Deliverable: Software Documentation  2.5 Design Approval  2.5.1 Present Design to Client  2.5.2 Milestone: Client signs off on Design | 2 Weeks  2 Weeks | 1.1.1  2.2.1  2.2.2  2.2.3  2.2.4  2.3.1  2.3.2  2.3.3  2.4.1  2.4.3  2.5.1 |
| 3.0 | Procurement  3.1 Procure Hardware  3.1.1 Procure Server  3.1.2 Procure Workstations  3.1.3 **Milestone**: Required Hardware  Delivered and upgraded.  3.2 Procure Software  3.2.1 Procure Database  3.2.2 Procure User Interface Building  Tool  3.2.3 Milestone: Required Software Tools  Procured  3.3 Setup and Install hardware and Software  3.4 **Milestone**: hardware and Software  Installation Complete  **Deliverable**: Required Hardware and  Software | 1 Month | 2.4.2  2.4.2  2.4.2  3.1.2  2.2.4  2.2.4  3.2.1  3.2.3 |
| 4.0 | Development  4.1 Modify Server Functionality  4.2 Develop system User Interface  4.3 Present template to Client  4.4 **Milestone**: Required Software/Application  Completed  Deliverable: Required software/application | 1 Month | 3.4 |
| 5.0 | Acceptance Testing  5.1 Plan Acceptance Testing  5.2 Conduct Acceptance Testing  5.3 Complete Test Report  5.4 **Milestone**: Test Report Completed  Deliverable: Test Report  5.5 Review Test Report  5.6 **Milestone**: Final Version of Software signed  Off  **Deliverable**: Test Report | 1 Month | 4.4  5.5 |
| 6.0 | Installation  6.1 Develop computer based system Installation  Plan  6.2 Install at Locations  6.3 **Milestone**: installation Complete | 2 Weeks | 2.5.2  5.5  6.2 |
| 7.0 | Training  7.1 Develop Training plan  7.2 Organise Training Sessions  7.3 Monitor Performance  7.4 **Milestone**: Training Complete | 1 Month | 1.1  7.1  7.2  7.3 |
| 8.0 | Close Project  8.1 Produce project Completion Report  8.2 gather client sign off of Completion Report  8.3 **Milestone**: Project Completion Report Signed | 1 Week | 6.3 |
| 9.0 | Evaluate Project  9.1 Arrange lessons Learned Workshop  9.2 **Milestone**: Project Closed | 1 Week | 8.3 |

Estimates

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| --- | --- | --- | --- | --- | --- |
| DETAILS | | THREE-POINT COST/TIME ESTIMATE SCENARIOS | | | WEIGHTED AVERAGE |
| ITEM/TASK DESCRIPTION | GATHERED BY | BEST- CASE | MOST LIKELY/REALISTIC | WORST-CASE |  |
| Update Project Plan | PM | 1 month | 1-2 months | 3 months | 2 months |
| Track Project:  Preparing and Planning Status reports | PM | 7 Month | Taken regularly throughout project duration over 7 – 8 months | 10 to 12 months | 9 months |
| Design | A | 2 Weeks | 2-3 Weeks | 7 – 8 weeks | 4 weeks |
| Procurement | PM | 5 weeks | 5-6 weeks | 9-10 weeks | 6 weeks |
| Acceptance Testing | QA | 2 Months | 2-3 Months | 3-4 Months | 2 Months |
| Installation | PM | 3 Months | 3-4 Months | 5 Months | 4 Months |
| Training | PM | 2 Weeks | 2-3 Weeks | 5-6 Weeks | 3.6 Weeks |
| Produce Project Completion Report | PM | 3 Days | 3-5 Days | 2 Weeks | 7 days |
| Tablets | PM | $3,000 | $3,750 | $4,000-$5,000 | $3,583 |
| Work Stations | PM | $3,000 | $3,750 | $4,000-$5,000 | $3,583 |
| User Interface Tool | PM | $3,000 | $3,750 | $4,000-$5,000 | $3,583 |
| Server | PM | $3,000 | $3,750 | $4,000- $5,000 | $3,583 |
| Database | PM | $5,000 | $5,000 - $10,000 | $10,000 - $15,000 | $6,666 |
| Programming Language | D | $5,000 | $5,000 - $10,000 | $10,000 - $15,000 | $6,666 |
| Training | PM | $6,000 | $6,000 - $8,000 | $8,000 - $10,000 | $6,666 |
| Project Manager Salary | BA | $120,000 | $120,000 - $130,000 | $130,000 - $150,000 | $123,333 |
| Business Analyst  Salary | BA | $10,000 | $10,000 - $20,000 | $30,000 - $40,000 | $16,666 |
| Architect Salary | BA | $65,000 | $65,000 - $75,000 | $75,000 - $ 90,000 | $68, 333 |
| Quality Assurer  Salary | BA | $500 | $500 - $1500 | $1500 - $3000 | $833 |
| Developers Salary | BA | $45,000 | $45,000 - $55,000 | $55,000 - $70,000 | $48,333 |
| Budget | BA | $250,000 | $250,000 - $ 350,000 | $350,000 - $400,000 | $283,333 |

# Project Risks

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| **Project Risk** | **Risk Mitigation** | **Risk Response** |
| A problem occurs with the delivery of project resources (e.g. the wrong items are delivered, the quantity of items is less or more than specified, items are not delivered on time) | Ensure that the items are delivered well in advance of the date that they are required. This will allow for time to correct any errors in the delivery and allows for more flexibility in case the client requests something different for the system. | Contact the supplier and request the resources with urgency. Another option is to go with another supplier. |
| The project loses a team member crucial in developing the system. | Put the project team together with the possible loss of a member in mind ensuring a bit of margin so that absences will not be difficult to handle. | If possible, replace the team member, otherwise reassign tasks to an existing team member. |
| Financial issues occur whereby the budgeted money is no longer available (or less money is available). | Spend a considerable amount of time in creating a detailed estimate of breakdown of work and resources. For items where there is a large margin of error, break the component down into sub components. | Suggest partial completion of the project (e.g. online booking system for customers but leave mobile app and tablets until financially viable). |
| Scope Creep – The client increases the projects specifications and desired features overtime. | Ensure that the scope is well defined, clear, and in writing, and that all exclusions and out of scope items are covered so that the stakeholder clearly understands what the project will cover and what will not be done. | Make an additional amended project proposal and statement of work covering any out of scope items, and the cost and timeframe required to be signed by the client. |
| An error or problem with the software or hardware is detected | Make sure project team allows slack for thorough acceptance testing to make sure everything is working properly | Get in touch with hardware and software supplier and hire a technician that can help diagnose and fix the problem |

Pay Back Period

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| --- | --- |
| Labour Costs  Server Costs  Workstations Cost  Database Cost  User Interface Tool Cost  Training Cost  **TOTAL:** | $262,340.00  $6,000.00  $ 4,000.00  $7,000.00  $8,000.00  $7,500.00  **$294,840.00** |

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| Initial Investment  Net Profit Margin  **Payback Period:** | $ 294,840.00  $2,500,000  **0.12 years** |