SOLUTION APPROACH & ASSESSMENT

IAB204 – BUSINESS ANALYSIS

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QUEENSLAND UNIVERSITY OF TECHNOLOGY

DECLARATION

QUEENSLAND UNIVERSITY OF TECHNOLOGY School of Information Systems IAB204 Business Analysis

By submitting this assignment, we are aware of the University rule that a student must not act in a manner which constitutes academic dishonesty as stated and explained in the QUT *Manual of Policies and Procedures*. We confirm that this work represents my individual/our team's effort, we have viewed the final version and does not contain plagiarized material.

Subject : Business Analysis

Subject Code : IAB204

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Statement of work completed: Douglas Brennan

I have been in contact with my tutor and head of the unit regarding team efforts, and I would like to reiterate that the below material excluding the appendix is my own work. After receiving terrible marks for the first assignment, (this was due to Gayan's inability to write reports at an acceptable level for university, and the inaccuracy of facts (the company he composed the report on ceased trading in 2011)) I took it upon myself to write not just the second paper but also write the first one again for we needed to reference it for this assignment. I have added all additions to the appendix of works submitted for this assignment by other team members. Please could you take into consideration the efforts I have made to complete this assignment myself.

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Statement:

Due to the groups last report on Avoca Resources LTD being exceedingly inaccurate, this paper combines the tasks for assignments 1 & 2 together to form a single document about a new business entity, Sunshine State Homes.

Executive Summary

With reference to the provided 'Default Scenario' (Queensland University of Technology, 2018), "Sunshine State Homes (SSH) is an organisation that builds and sells homes in South-East Queensland. Since forming in 1995, the business has built a strong reputation for quality homes at affordable prices. But in a highly competitive market, the last few years has seen SSH experience declining sales. Like most other business domains, the building industry has had to respond to increasing demands for higher visibility and transparency, and quality customer service. There is also an ever-increasing need for high quality information within organisations so that competencies can be improved in all areas, especially around the promotion of products and brands."

To combat the dip in sales the company has suggested a replacement of many of its' current systems and introduction of new processes and technological advancements. This report assesses the requirements given by the company and provides a recommended solution to solve the companies problem.

1 – Introduction

The following document is an in-depth review of a documented business concern which is affecting Sunshine State Homes. The first half of the report assesses the problem through a Needs Assessment, Requirements Elicitation and a Requirements Analysis, these processes were performed to analyse and address the issues and requirements detailed in the 'Default Scenario' document (Queensland University of Technology, 2018).

With reference to these discoveries the latter half of the report identifies potential solutions for the issue through use of a Solution Approach. Assumptions from the provided information were performed to recognise a solution which best suited Sunshine State Homes' dilemma. Following on from this a Solution Assessment was completed to show how the chosen solution fits the companies needs and what steps are necessary to achieve it.

2 – Needs Assessment

The Needs Assessment identifies the key elements for an in-depth analysis of a problem scenario.

2.1 – Problem Statement:

To remain competitive in the housing industry Sunshine State Homes' need to implement a technological solution that addresses the contents detailed in the Requirements Table (Figure 1).

The following table has been compiled from the meeting outcomes listed in the provided 'Default Scenario' paper (Queensland University of Technology, 2018).

Requirement Name	Requirement Detail
Hold Reputation	- SSH has built a solid reputation for building 'quality homes at affordable prices'.
Consumer Data	- 'They want access to information that adds to service quality and helps them to make informed choices.' - 'make accurate and detailed information about their products more widely available to potential customers.' - 'Outside of the sales centres, SSH would like customers to be able to access relevant information via the SSH internet pages (not yet developed). Before making a major purchase, potential customers can use it as a source of information and an opportunity to undertake their own consumer research.' - 'SSH management also have an idea for a system that will perform a search against consumer needs and requirements to locate a house type and location to suit their lifestyle. It would contain images and floor plans of the entire SSH product portfolio. The information would be sourced directly from a central database and updated in real time.'
Promotion	- 'SSH want to maintain and eventually grow their business and recognise the need of making use of the latest technologies to…promote the brand…' - 'In every sales centre, computers not currently in use should display a corporate screensaver that automatically plays advertising material, reinforcing SSH homes and associated brand messages.'
Customer Service	- 'SSH want to maintain and eventually grow their business and recognise the need of making use of the latest technologies to…improve its levels of customer service.' - 'speed up sales systems to make the buying process smoother for customers'
Idea Promotion	- 'promote the idea so that everyone within the organisation provides a service, and that there are 'internal' as well as 'external' customers.'

Networked In-House Data - Database	- 'They envisage that a technology-based solution will make comprehensive information available to all departments within SSH and improve the quality and speed of strategic management decisions.'
	- In-house Document Storage:
	  o Key performance indicators
	  o Strategic management data
	  o Specialist technical information
	  o Customer details
	  o Development details
	  o Legal information
	  o External elevations
	  o Selected rooms
	  o Floor plans
	  o House 'walkaround'
	- 'Information may be input from all levels within SSH, whether out on site by sales negotiators via the sales system using mobile devices, by

	sales departments who may want to enter prices and other relevant information, and from management releasing production dates and targets'
Networked Sales System	- 'SSH would like to make the whole buying process quicker and smoother by providing a networked Sales System, where each sales centre is connected to head office through a system designed to service all customer needs and requirements.'
'Walkaround Facility'	- 'The 'walkaround' facility will allow customers to 'virtually' turn through 360 degrees to view a room from every angle and provide a true representation of each home with the use of real photography.'
Integration	- 'The website should be designed so that it is totally integrated with the internally-facing system'
Website Analytics	- 'The system is required to include a monitoring and analysis component running parallel to the website, so that for each page visit useful marketing information can be recorded and analysed. The system should provide information on: o the country of origin of the enquiry o the most popular area of the website o the least popular area of the website o individual 'sessions' o the duration of a typical 'session' o the number of hits o the number of leads o the number of sales'
Sales Lead Management	- 'The system should also include a component for sales 'lead' management. When a sales lead is identified from the website through some kind of customer interaction, it will go into the lead management system for handling. An important benefit of a lead resulting from the website is that customers essentially pre-qualify the lead themselves by indicating the number of bedrooms they require, the price range of the property they are looking for, the type of property, the area of their choice and when they are looking to move. It helps SSH to respond to the specific needs of the lead by providing focused and targeted information carefully directed to the customer's needs and requirements.'

Figure 1 – Project Requirements Table

2.2 – Stakeholder Analysis

According to (Queensland University of Technology, 2018) a stakeholder is, "… any individual, group or organisation who may affect, be affect by, or believe they may be affected by a decision, activity or outcome." Given the above project requirements table (figure 1) the stakeholders affected by these activities is recognised using the below RACI matrix.

RACI Matrix R – Responsible A – Accountable C – Consult I – Inform	Business Analyst	Customer	Subject Matter Expert	End User	Operational Support & Developers	Project Manager	Regulator	Tester
Hold Reputation	R	I	A	I	C	R	C	I
Development: Consumer Data	R	I	C	I	A	R	C	C
Promotion	C	I	C	I	C	A/R	A	I
Customer Service	C	C	R	I	R	A	C	I
Idea Promotion	C	N/A	I	N/A	A	R	C	C
Development: Networked In-House Data - Database	C	I	C	I	R/A	R	C	C
Development: Networked Sales System	C	I	C	I	R/A	R	C	C
Development: 'Walkaround Facility'	C	I	C	I	R/A	R	C	C
Development: Integration	C	I	C	I	R/A	R	C	C
Development: Website Analytics	C	I	C	I	R/A	R	C	C
Development: Sales Lead Management	C	I	C	I	R/A	R	C	C

Figure 2 - RACI Matrix

2.3 – Root Cause Analysis

The root cause of the problem outlined in section 2.1 is recognised as the outdated in-house systems. The below Root Cause Analysis confirms this;

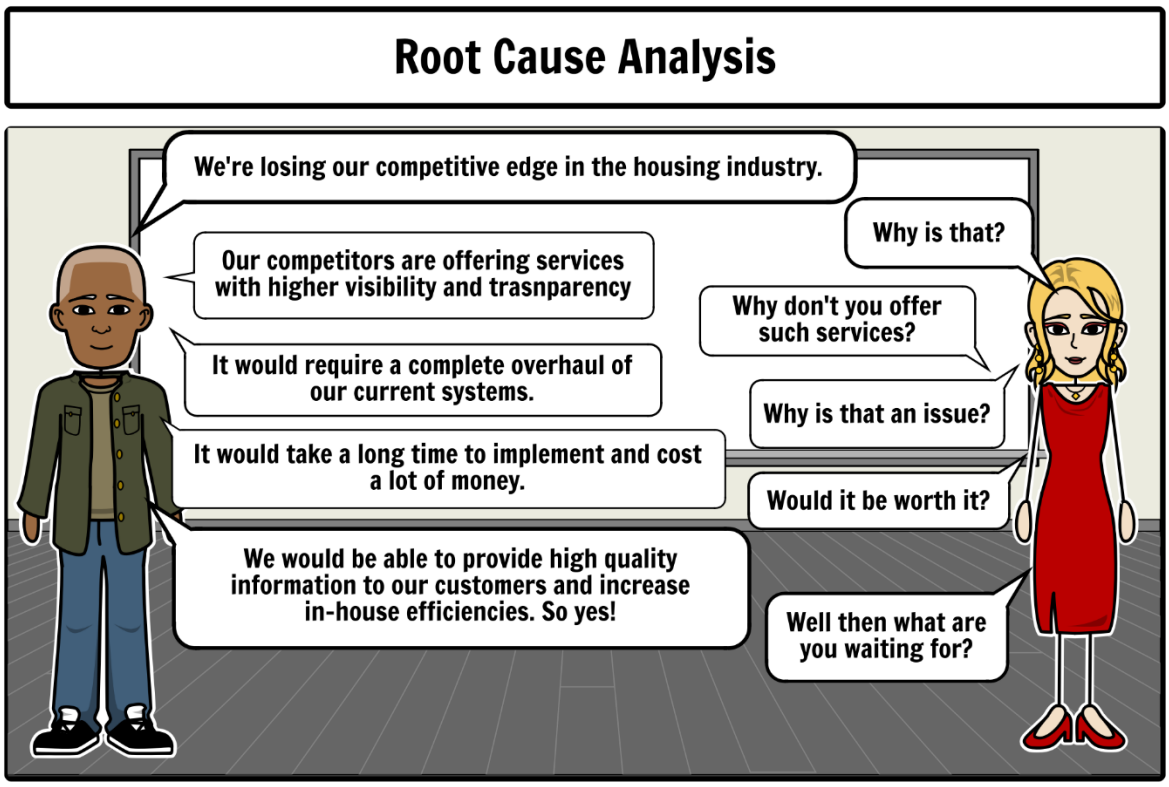

Figure 3 – Root Cause Analysis

2.4 – Capability Gaps Assessment

Problem/Current Limitation	Root Cause(s)	New Capability/Feature	Potential Project Deliverables to Fill Gaps
Competitive edge in housing sector lost	Outdated systems	- Website - Cloud hosted database - Network sales system - 'Walkaround Facility' feature - Integrate current systems - Analytics - Sales lead management system	- Hire a company to build new system - Task IT department to develop systems upgrades

Figure 4 – Capability Gaps Assessment

3 – Requirements Elicitation

Elicitation is used to gain an understanding of the organisational environment from existing stakeholders (Queensland University of Technology , 2018). To best determine how to solve the key problem (section 2.1) existing stakeholders are consulted to gain a greater idea of the problem. The following is an elicitation plan for conducting said consultations;

What Info?	Source	Technique	Sequence
How soon does the project need to be implemented?	Director	Interview	1
What current systems need to be integrated?	Director, IT	Meeting & Audit	3
What new systems need to be developed?	Director, IT	Meeting	4
What are the desired design elements?	Director, IT	Meeting	5
What is the budget for the project?	Director, Procurement, Accounts	Meeting	2

Figure 5 – Elicitation Schedule

4 – Requirements Analysis

This section goes into detail regarding the intended product functionalities/requirements;

4.1 – Requirements Tables (Refined)

The requirements table (Figure 1) detailed in section 2.1 compiled the business need outcomes listed in the given default scenario (Queensland University of Technology, 2018). The following refined versions prepare the requirements for development, categorised by functional and non-functional;

ID	MoSCoW	Category	Departments	Requirement
FR1	Must	Website	All	New website shall provide product information for end-users
FR2	Should	Website	Sales	New website shall be able to conduct a 'consumer needs' assessment based off user inputted 'lifestyle options'
FR3	Must	Server	All	New server shall provide a remotely-accessible virtual network to allow in-house documents to be available to all branches
FR4	Should	Website	Sales / Management	New website shall allow sales and management representatives to remotely input and amend data using their smart-phones
FR5	Should	Website / Program	All	New website shall provide a 'walkaround facility', "The 'walkaround' facility will allow customers to 'virtually' turn through 360 degrees to view a room from every angle and provide a true representation of each home with the use of real photography." (Queensland University of Technology, 2018)
FR6	Must	Website & Server	All	New server and website shall be integrated with all existing systems & records
FR7	Should	Website	All	New website shall provide 'monitoring and analysis' analytics to capture and record marketing information gathered from user/website interaction
FR8	Should	Website	Sales	New website shall provide a 'sales lead management system' that identify sales leads based off user/website interaction. From the interaction the system will assess the lead and provide a sales representative with the information the user has inputted.
FR9	Should	Sales Centre	Sales Centre Depts.	Sales Centre's idle computers shall display corporate screensaver to promote brand awareness

Figure 6 – Functional Requirements

ID	Category	Departments	Requirement
NFR1	Reputation	All	The solution implementation shall be incorporated with reference to the company's values
NFR2	Customer Service	All	The solution shall provide a service of high quality that provides excellent customer service
NFR3	Promotion	All	The solution shall help promote the company through the use of forefront technology

Figure 7 – Non-Functional Requirements

4.2 – Use Case Diagram

The below is a use case diagram showing the functionality of the Consumer Needs Assessment requirement and the Sales Lead Management requirement in effect;

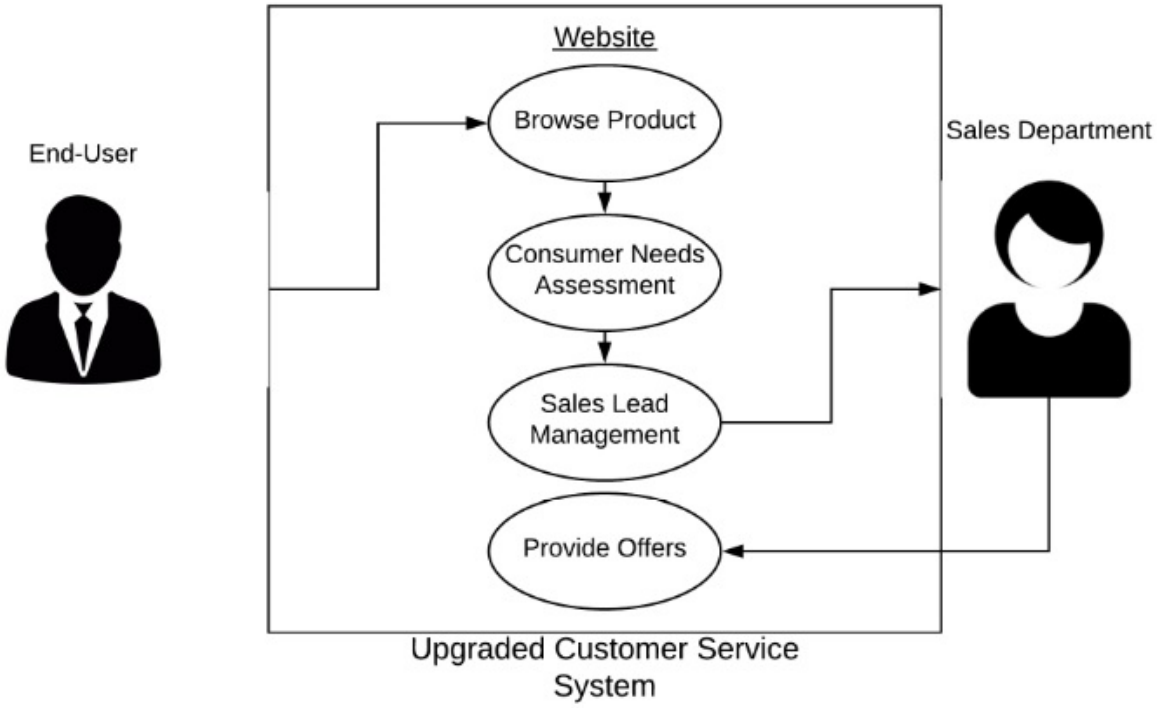

Figure 8 – Use Case Diagram

5 – Solution Identification & Approach

The following section explores in depth recommended solutions pertaining to the requirements detailed in section 4.

5.1 Solution Outlines

#	Identification	Ranking	Overview
1	Complete Package Short Time Frame Outsourced	Optimal	This solution suggestion addresses all requirements/functionalities, aims to deliver a solution over a short time-frame. Optimal if; - Large size budget - Integration is prioritised over potential disruption
2	Complete Package Long Time Frame Outsourced Instalments	Optimal	This solution suggestion addresses all requirements/functionalities, aims to deliver a solution in instalments. Optimal if; - Medium size budget - Disruptions need to be minimal
3	Medium Package Short Time Frame Outsourced	Sub-Optimal	This solution suggestion addresses 'Must Have' and chosen 'Should Have' requirements/functionalities, aims to deliver a solution over a short time-frame. Optimal if; - Medium size budget - Integration is prioritized over potential disruption - Not all requirements are needed
4	Medium Package Long Time Frame Outsourced Instalments	Sub-Optimal	This solution suggestion addresses 'Must Have' and chosen 'Should Have' requirements/functionalities, aims to deliver a solution in instalments. Optimal if; - Small size budget - Disruptions need to be minimal - Not all requirements are needed
5	Basic Package	Not Endorsed	This solution suggestion addresses only the 'Must Have' requirements/functionalities. aims to deliver a solution over a short time-frame. Optimal if; - Small size budget - Only basic requirements are needed

Figure 9 – Solution Outlines

5.2 – Solution Approach

The above solutions are tailored to suit different circumstances that the business might presently be undergoing. This was executed for information pertaining to budget size, timeframe and disruption allowance was not included in the 'Default Scenario' document. Due to this information the following assumptions have been made;

Assumption	Why?
Sunshine State Homes will choose one of the 'complete package' solutions	The provided 'Default Scenario' did not contain information relevant to budget size, therefore it can be assumed that funding is not an issue
Which 'complete package' solution they will choose is unknown	The provided 'Default Scenario' did not state a time-frame for solution instalment, nor did it state what kind of disruption they would allow for with the integration. Due to this lack of information it is assumed that the Sunshine State Homes will choose solution number one.

Figure 10 – Solution Choice Assumptions

6 – Solution Assessment

This section provides finer detail into the proposed solution identified in section 5.

6.1 – Solution Scope & Component Match

The assumption was made in section 5.2 that Sunshine State Home's would choose solution option number 1, a 'complete package' option that provides all requirements over a short time frame. The below table goes into detail into how the solution will provide the assumed desired requirements;

Solution Element	Requirements Fulfilled	Detail
Server – Virtual Network	FR3, FR9	Subscription to a new virtual network will be setup to host storage of in-house documents and staff computer user accounts. Having such a system will result in the following benefits; - Provides document access for staff members with user accounts from remote locations (FR3) - Ability to track user activity (security bonus) - All user accounts provide screen-saver functionality for increased brand awareness (FR9)
Database	FR1, FR2, FR4, FR5, FR6, FR7, FR8,	A new database system built using MySQL will be designed for use with the website and server, the following recognised files from the 'Default Scenario' will be implemented as entity types; - Key performance indicators - Strategic management data - Specialist technical information - Customer details - Development details - Legal information - External elevations - Selected rooms - Floor plans - House 'walkaround'

		- the country of origin of the enquiry - the most popular area of the website - the least popular area of the website - individual 'sessions' - the duration of a typical 'session' - the number of hits - the number of leads - the number of sales'
Website	FR1, FR2, FR4, FR5, FR6, FR7, FR8,	A new website with the following functionalities will be developed; - Provides relevant data for end-users from the database (FR1) - 'Consumer Needs Assessment' (FR2) - Allow users to amend database information remotely (FR4) - 'Walkaround Facility' (FR5) - Integrated with existing data (FR6) - Website analytics (FR7) - 'Sales Lead Management System'

Figure 11 – Solution Scope Table

6.2 – Business Case

To anticipate the success of the solution integration accurately, identification of the benefits, costs and risks of implementing said solution are performed.

There are numerous perceived benefits for implementing the proposed solution, these benefits address the functional and non-functional requirements detailed in section 4.1, they are recognised in the following table;

Benefit	**Benefitted Entities**	**Why?**
Increased Efficiencies (NFR3)	All Departments	**File Control:** The combination of the 'solution elements' (section 6.1) will provide greater in-house document availability and control. This is because each authorised user will be able to add and amend company documents and information from a remote location by either logging into the server, or amending database information through admin website access.
Increased Customer Service (NFR2)	Sales dept, End-user	**New Functions:** The documented desired functions outlined by Sunshine State Homes (section 4.1) will be a functioning part of the developed website, these include; - 'Walkaround Facility' (FR5) - 'Consumer Needs Assessment' (FR2) - Remote data input/amending (FR4) - Website analytics (FR7) - 'Sales Lead Management System' (FR8)

		Data Representation: The combination of the 'solution elements' (section 6.1) allow the website to display database data in real time for end-users. (FR1)
Complete Integration	All Departments	**Integration:** The solution will completely integrate all files and processes into the new system. (FR6)
Brand Promotion (NFR3)	Sales, End-user	**Technological Progress:** The incorporation of the new website functions will be able to be promoted to potential customers, the changes will provide the company with a technical advantage over competitors.

Figure 12 – Solution Benefits

The costs of developing and integrating the proposed solution are broken down into categories, setup costs and maintenance, these costs are detailed below;

#	Item	Amounts	Description
1	Server Hosting	$72.99 per month	Features: - CPU: Intel Xeon E3-1245v5 - 4c/8t - 3.5GHz /3.9GHz - RAM: 32GB DDR4 ECC 2133 MHz - 500 GB of storage space - Control Panel - API - Root access to the server - Anti-DDoS Pro included Source: (OVH, 2018)
2	Database Hosting	$0.185 per hour, $135.05 per month	According to (Mor, 2015), "For comparison purposes, we used a standard m3.large instance in the US East region with two vCPUs. Seeing as prices are usually issued per vCPU, we can simply divide the results in two in order to find the relatable price. An EC2 (m3.large) On-Demand Instance comes out to $0.133 per hour, while the same instance on RDS with MySQL works out to $0.185 per hour." Given that the solution will be built using MySQL the cost has been established as $0.185 per hour.
3	Website Hosting	Domain $34.95 per 2 years, Website Server Hosting $300 per month (estimate)	Domain and website hosting cost estimates by Australian company Design Sense Web. The website will need to process many functions and interact with many users so a 'Premium Dedicated Hosting' option is recommended (Design Sense Web, 2018).
4	Technical Support	$4,294.08 per month	To best provide technical support for new systems a recruitment of a Support Technician is recommended. According to (Pay Scale, 2018), "A Support Technician, Information Technology (IT) earns an average salary of AU$51,779 per year."

Figure 13 - Maintenance/Running Costs

#	Item	Amounts	Description
1	Website Development	1 Developer @ 2 months development estimation time, $12,405.83 (estimate)	The website will require time to develop, the cost is determined by difficulty and time to implement the new functionalities and layout. The breakdown of the time for functionalities is below; - 'Walkaround Facility': Time to compete – 2 weeks - 'Consumer Needs Assessment' – 1 week - Remote data input/amending – 1 week - Website Analytics – 1 week - 'Sales Lead Management System' – 1 week The design and integration of existing information is the other cost portion for website construction, this has been given a time-frame if 2 weeks. Note: Times are calculated for a singular developer Salary Average Source: (Pay Scale, 2018)
2	Database Development	1 Developer @ 2 weeks development estimation time, $3,101.46 (estimate)	The Database will need to be developed and integrated with existing data, the breakdown of the time for this is below; - Database initialisation and setup: 1 week - Integration of existing data: 1 week Note: Times are calculated for a singular developer Salary Average Source: (Pay Scale, 2018)
3	Setup Administration	1 Support Technician @ $143.13 a day (estimate)	The new server will need user accounts to be setup for employees and applications to be installed for each user. This will require a support technician to set up 'x' accounts where 'x' is the number of accounts to setup. Monitoring and records of the companies current data and processes will also be recorded – 2 weeks Note: Times are calculated for a singular technician Salary Average Source: (Pay Scale, 2018)

Figure 14 – Setup Costs

The risks associated with implementing the solution are identified as the following;

- Return of investment: The costs of implementing the solution is high, there is risk if end-users decide not to use the new services provided
- Market Crash: There is risk of a financial crash which would result in a decline in sales in the property sector
- Capital: An assumption was made in section 5 stating that Sunshine State Homes' cashflow is sufficient to for solution implementation, there is great risk if this assumption is wrong

6.3 – Organisational Readiness

An organisational readiness assessment is performed to determine whether the company is ready to make effective use of the solution (Queensland University of Technology, 2018).

Implementation of the suggested solution would give the company the capability to compete with their competition. This is based off the knowledge that their competition is providing technological functionalities that Sunshine State Home are not (Queensland University of Technology, 2018). The benefits to the company and to the specified departments are listed in Figure 12 (section 6.2). For the implementation of the solution to be effectively introduced, communication and training of staff regarding the pending changes is of paramount importance. Therefore, if the solution project is undertaken meetings, training and information pertaining to the changes will be conducted frequently. To record the company's organisational readiness the operational and cultural readiness of the current staff (stakeholders) will be assessed during these meeting and training sessions. This information will help determine the delivery schedule of the final product.

6.4 – Transitional Requirements

If the solution is chosen for deployment, a smooth effective transition from the old system to the new is vital. To ensure that this occurs the following steps are taken;

- Data/Process Migration: To ensure that the necessary data and system/company processes are successfully transitioned, the monitoring and recording of such processes will be performed by a Support Technician during the Setup Administration phase, outlined in Figure 14 (section 6.2). Once they have been recorded the development of the solution elements (figure 11) can begin. After the developmental time period (figure 14), integration of the solutions can be performed. To ensure this is done smoothly and efficiently the current staff and relevant stakeholders will be trained in the system changes before release.
- Existing Commitment Identification: Management will be consulted to determine the best release schedule for the integration of the solution

7 – Conclusion

This report provided an in-depth review of a documented business concern which is affecting Sunshine State Homes. The first half of the report assessed the problem through a Needs Assessment, Requirements Elicitation and a Requirements Analysis, these processes were performed to analyse and address the issues and requirements detailed in the 'Default Scenario' document (Queensland University of Technology, 2018).

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Solution Assessment was completed to show how the chosen solution fit the companies needs and what steps were necessary to achieve it.

8 – Bibliography

Design Sense Web. (2018). *How much does a website cost?* Retrieved from Design Sense Web: http://www.designsenseweb.com.au/website-design/how-much-does-a-website-cost.html

Mor, Y. (2015, Agust 20). *How Much Does It Cost to Run Relational Database (RDS) Options on AWS.* Retrieved from Cloudlyn: https://www.cloudyn.com/blog/how-much-does-it-cost-to-run-relational-database-options-rds-on-aws/

OVH. (2018). *Dedicated Server: DO-32 APAC.* Retrieved from OVH: https://www.ovh.com.au/dedicated-servers/enterprise/1806do01.xml

Pay Scale. (2018). *Bachelor of Science (BS / BSc), Computer Science (CS) Degree Average Salary.* Retrieved from Pay Scale: https://www.payscale.com/research/AU/Degree=Bachelor_of_Science_(BS_%2F_BSc)%2C_Computer_Science_(CS)/Salary

Pay Scale. (2018). *Support Technician, Information Technology (IT) Salary (Australia).* Retrieved from Pay Scale.

Queensland University of Technology . (2018). *IAB204 Business Analysis Week 4: Elicitation.* Retrieved from Blackboard.

Queensland University of Technology. (2018). *IAB204 Business Analysis - Assignment One - Analysis of Business Needs and Requirements - Default Scenario.* Retrieved from Blackboard.

Queensland University of Technology. (2018). *IAB204 Business Analysis Week 11: Solution Evaluation.* Retrieved from Blackboard: https://blackboard.qut.edu.au/bbcswebdav/pid-7368866-dt-content-rid-13335986_1/courses/IAB204_18se1/IAB204Lecture11SolutionEvaluation.pdf

Queensland University of Technology. (2018). *IAB204 Business Analysis Week 2: Needs Assessment.* Retrieved from Blackboard.

9 – Appendix (See Appendix Document)