Software Requirements Specification Document

Holiday Travel Vehicles
Sales Information System

1 - Introduction

This specification document is for a Sales Information System that will assist the staff at Holiday Travel Vehicles with day to day tasks regarding the sales process, customer support and managerial functions.

This document aims to outline and specify the requirements and quality attributes of the Sales Information System, through the identification of primary user tasks and utilisation of the Tasks and Support method.

2 - Project Overview

The CEO of Holiday Travel Vehicles has identified a priority to re-design their current system and processes behind the sales of new recreational vehicles and travel trailers. The current system is a mix of paper and digital which creates many pain points for employees and ultimately leads to less productivity and sales. The CEO has hired Swinsoft Consulting to carry out analysis and develop the specifications for a new automated Sales Information System that improves the current processes of HTV.

2.1 - Domain Vocabulary

- HTV; Holiday Travel Vehicles
- Trade-in; a vehicle owned by the customer, sold to the dealership at the time of new vehicle sale.
- Customer; anyone who walks into a HTV store and is interested in purchasing a vehicle.
- Sales Person; people who work at HTV and help customers purchase vehicles.
- Accountant; HTV employees who go through all the payments.
- Vehicle; any powered (car, RV) or unpowered (trailer, caravan) vehicle sold by HTV.
- Test-drive; supervised temporary permission of vehicle control given to a customer.
- Services; any service to a vehicle which may be done through HTV to a customer.
- Vehicles Status; The relationship the vehicle has with the company, bought, sold etc.
- Vehicle Specifications: Details pertaining to the individual vehicle, make model etc.

2.2 - Goals

The goals of this project is to create a solution that:
- Alleviates the pain points of current system,
- Remove redundancies from the current system related to electronic and paper copies,
- Ties together all the key elements of sales, options and trade-ins.

2.3 - Assumptions

- The Swinsoft UI/UX design guidelines document outlines suitable metrics for user testing and generic design level requirements
- HTV has supplied a design guideline that includes a colour palette and fonts
- HTV only has one dealership, in one location (Hawthorn)
- HTV sells on average 2 vehicles per day
- Customers can test drive vehicles, as one would expect from a dealership
- Staff are expected to have at a minimum Level 2 Computer Skills/Proficiency [Basic Computing]
- HTV have three types of staff
  - Management
  - Salespeople
  - Accounting/Finance

2.4 - Scope

The CEO of HTV wants a system that removes the redundancies of the current electronic and paper based system. The system must be able to allow salespeople to create invoices after a car has been sold and create or update a customer record. The customer can also select options to add to the vehicle and trade in their car both only occur when purchasing a car. The system must be able to allow multiple concurrent users who can add, update, and delete records (cars and customers). Sales reports can be made from the available data that provides analytics of sales activity at HTV. Invoices can also be paid by customers through the system.

3 - Problem Domain

3.1 - Pain Points

- Record keeping
  - Records are kept in both paper and electronic form
  - Duplicated records do arise
  - Users find it cumbersome and difficult to manage
- System access
  - Multiple users cannot access records concurrently
  - This is a bottleneck in the sales process
- Data analytics and tracking
  - No effective provisions for management to track data on trade-ins and options

3.2 - Domain Entities

- Customer
- Vehicle
- Invoice
- Service
- Test Drive
- Sales Person

3.3 - Actors

- Salesperson
- Accountant
- Customer
- Manager

3.4 - Tasks

1. Presale discussion
2. Book a test drive
3. Sell vehicle
4. Sales report
5. Process payment
6. Stocktake
7. Updating customer information
8. Book a service
9. Give feedback

4 - Functional Requirements and Task Descriptions

Task 1: Presale Discussion

Task: Presale Discussion	
Purpose:	Understand customer needs, inform the customer, convince them to buy
Trigger/Precondition	A customer enters the store and awaits service
Frequency	15 customers per day (average)
Critical:	A large influx of customers (5+)
Work Area:	Showroom
Subtasks:	**Example Solution:**
1. Obtain information from the customer as to what they are looking for	The system provides an easy method for to record customers needs
2. Provide vehicle and model information to the customer, based on their needs	System displays suitable models. Based on customer interests
3. Encourage customer to purchase	The system notifies of any relevant sales promotions
Variants:	

Task 2: Book a Test Drive

Task: Book a Test Drive	
Purpose:	Find availability, verify license/cust details, schedule in time
Trigger/Precondition	The customer expressed interest in test driving or has previously booked
Frequency	Average 3/day
Critical:	International license
Workarea:	Employee's desk
Subtasks:	**Example Solution:**
1. Find available vehicles Problem: Vehicle choice is currently booked out	The system displays available vehicles, and allows an option to be selected If no suitable availability, the customer can book in a time in the future
2. Record customer details, check their license Problem: Unlicensed or invalid	System validates customer's license. License will be kept for security/license purposes. If unlicensed, staff member will drive.
3. Confirm booking	Reservation will be made
4. Give key	Key will be given to staff member, who will accompany the customer to the car before allowing them to drive
Variants	
1a. A customer has already booked in advance	Booking details confirmed by the system

Task 3: Sell Vehicle

Task: Sell Vehicle	
Purpose:	Inventory information, record sales and customer details, negotiate price, invoice
Trigger/Precondition	A customer would like to purchase a vehicle
Frequency	Average 2/day - Peak 5
Critical:	Customer wants to purchase multiple vehicles
Workarea:	Showroom/employee desk
Subtasks:	Example Solution:
1. Inform customer of available vehicles in inventory Problem: Car is not available	System displays a list of available vehicles for the particular model customer is interested in System will predict availability date and inform customer.
2. Discuss options with customer	System displays list of dealer installed options, allows selection of none or many
3. Discuss trade in details	System will use an algorithm and search other online databases to provide a suggested purchase price for trade-in, based on entered details
4. Agree on price	Based on data that has been acquired, the system will display relevant information to the salesperson to help with negotiations
5. Get Customer Details	Standard data entry
6. Create invoice	Automatically populates the invoice with the information that the salesperson has been acquiring. Provision for electronic signature from customer. Relevant records updated/added to database.
7. Provide invoice to customer	On confirmation of signature, hard copy

	invoice is printed for customer reference only.
Variants	
1a. Customer wants a vehicle (eg colour) not currently in inventory	System advises expected lead time on desired vehicle
5a. Customer is an existing customer	This part may be skipped, otherwise system will inform that the customer already exists when it detects a match

Task 4: Generate Sales Report

Task: Generate Sales Reports	
Purpose:	Provide means to management for analysing and tracking data
Trigger/Precondition:	Automatically scheduled or requested by management
Frequency	Weekly, Monthly or as required
Critical:	
Workarea:	Manager's office
Subtasks:	**Example Solution:**
1. Manually request report Problem: Unauthorised access.	Management selects what type of report they want to generate, and particular parameters. Authorised login required
2. Generate reports	System queries database to provide statistics and data on sales, options and trade ins. Special algorithms will be used to predict future trends
3. Save report Problem: Allocated space exceeded	Report is automatically saved by the system for future reference, and can be seen by other authorised staff If space is full, system will auto-archive

	reports older than 12 months.
Variants	
1a. Automatic request due to scheduled time	Predefined default parameters will be used for the report.

Task 5: Process Payment

Task: Process Payment	
Purpose:	Verify payments and provide tax invoice
Trigger/Precondition:	Customer provides method of payment
Frequency	Average 2/day
Critical:	Cash Payment
Subtasks:	Example Solution:
1.Process payment details Problem: Customer wants to pay via cash or cheque	Customer must fill out payment details, which will be securely stored by system and sent to 3rd party payment processor. Cash and cheque are not accepted due to increased fraud risk and uncommon usage
2.Verify payment	Confirmation will be received from 3rd party financial institution that legitimate payment has been made
3.Print tax invoice Problem: Incorrect charge	Tax invoice will be printed for customer, which will display any outstand balance and due date. System will automatically update database to keep record of transaction/payment If an incorrect charge has been observed, customer refund will be processed.
Variants	

Task 6: Stocktake

Task: Stocktake	
Purpose:	Update the current status of the company's asset.
Trigger/Precondition:	Financial Year is nearly complete
Frequency	Average 1 per year
Critical:	
Workarea:	Showroom, employee desk
Subtasks:	Example Solution:
1. Identify the previous years records	Query the system for the current inventory levels
2. Verify the current inventory Details	Manually check the current levels on Cars, Office Items etc.
3. Compare Verification with System information Problem: Inventory is not correct.	Compare the system records with Step 2 information. Inconsistencies are recorded so they can be used for Tax purposes.
4. Rectify Inventory Details.	Use System to update information on inventory.
Varitants	

Task 7: Updating a Customers Information

Task: Process Payment	
Purpose:	Ensure customer details are accurate
Trigger/Precondition:	The customer needs to update their information.
Frequency	Average 1 once per/year.
Critical:	Customer no longer lives in Australia
Workarea:	Employee desk
Subtasks:	Example Solution:
1. The Customer information changes	Call/informs a staff member that their current information is incorrect.
2. Customer informs Staff	The Customer informs the the staff of the change in information details.
3. Staff Member Updates information	The staff member accesses the system and enter the correct details for the customer
Variants	

# Task 8: Book a service

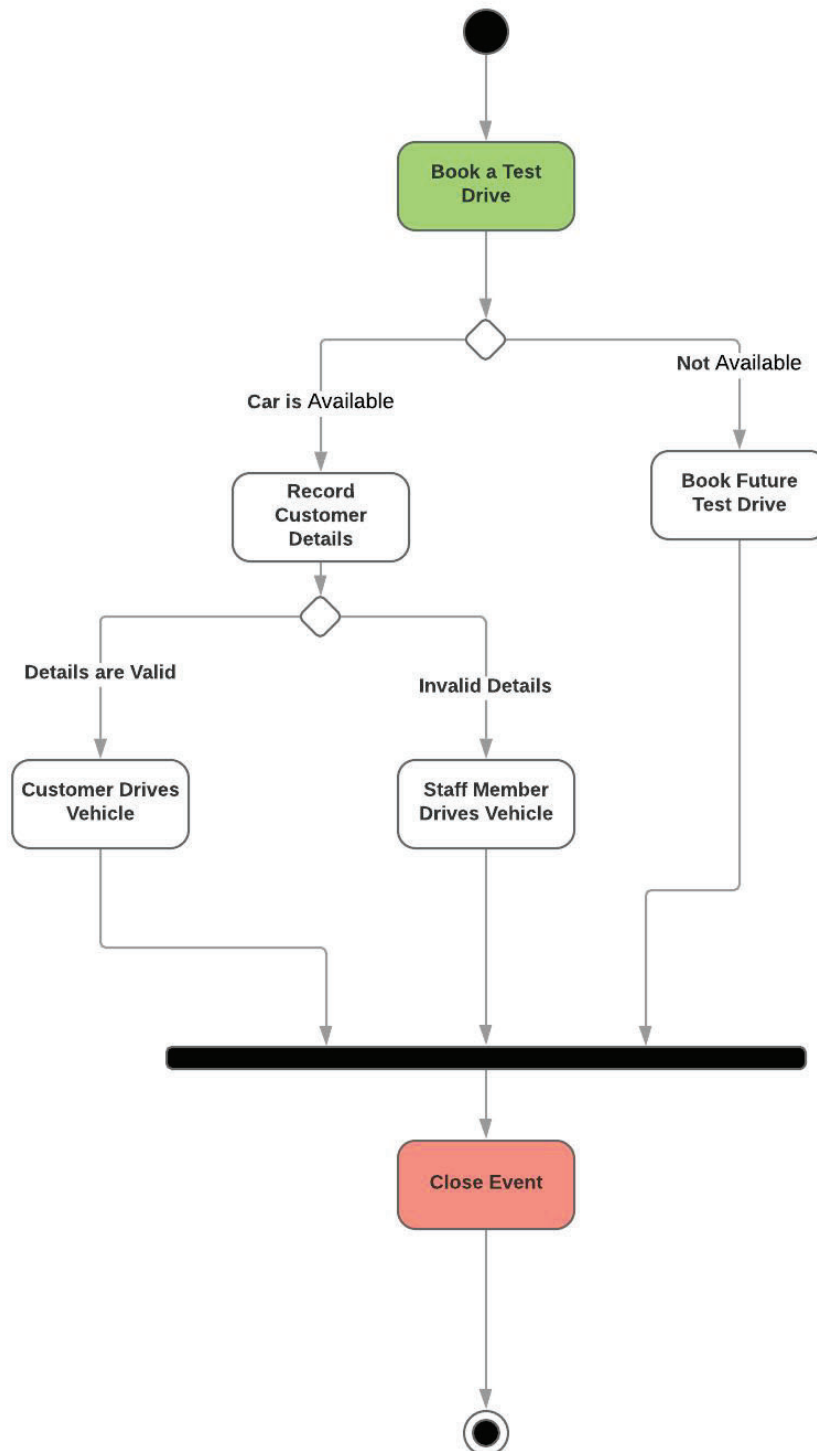| Task:	
Purpose:	Service cars and increase life of the car.
Trigger/Precondition:	Time Deadline or KMs travelled.
Frequency	Average 1 once per/ 3 years
Critical:	Customer wants to book in multiple vehicles at once
Workarea:	Employee desk
Subtasks:	Example Solution:
1. Schedule suitable time	System displays availability
2. Confirm booking	Availability is selected and booked in
3. Acquire vehicle for servicing	Customer will drop off vehicle, system will store details
4. Relinquish vehicle	Customer picks up vehicle, system will record accordingly
Variants	

Task 9: Feedback

| Task: Give feedback	
Purpose:	Obtain feedback from customers on sales process
Trigger/Precondition:	Sale must have occured
Frequency	With each sale
Critical:	
Subtasks:	Example Solution:
1. Encourage feedback	On successful invoicing, system emails customer asking for feedback on sales process
2. Access feedback form	Customer may access feedback form through email link/website
3. Fill out feedback form	-
4. Submit feedback	Feedback submitted through online web -portal
Variants	

5 - Workflow
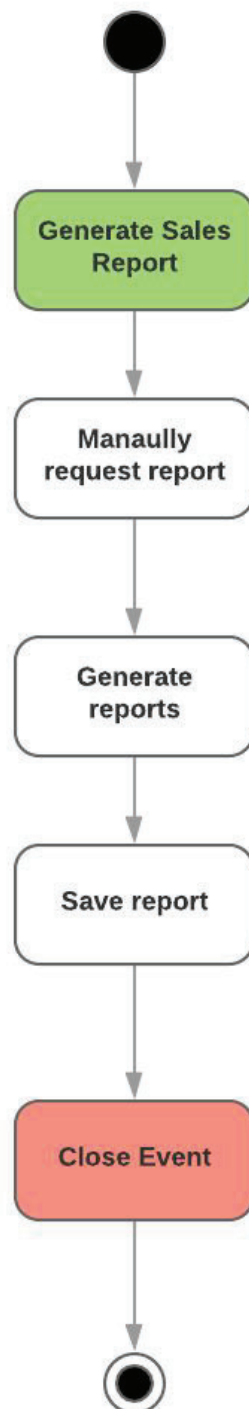
Task 1 - Presale Discussion
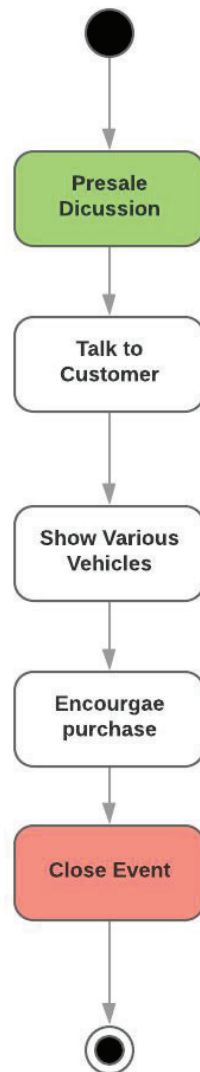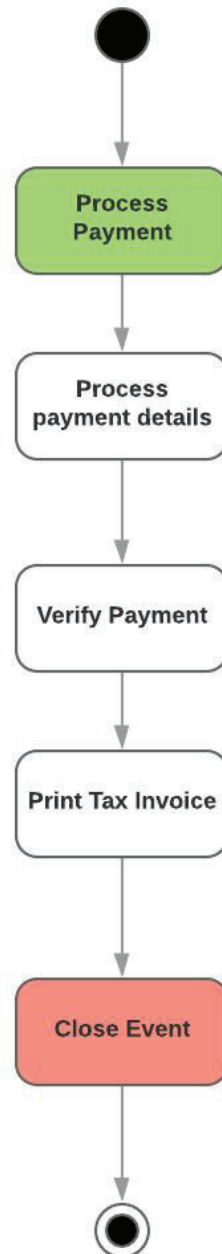
Task 2 - Book a Test Drive
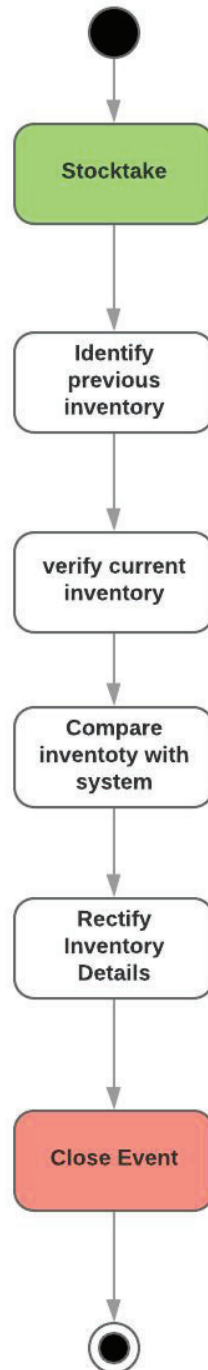
Task 3 - Sell a Vehicle
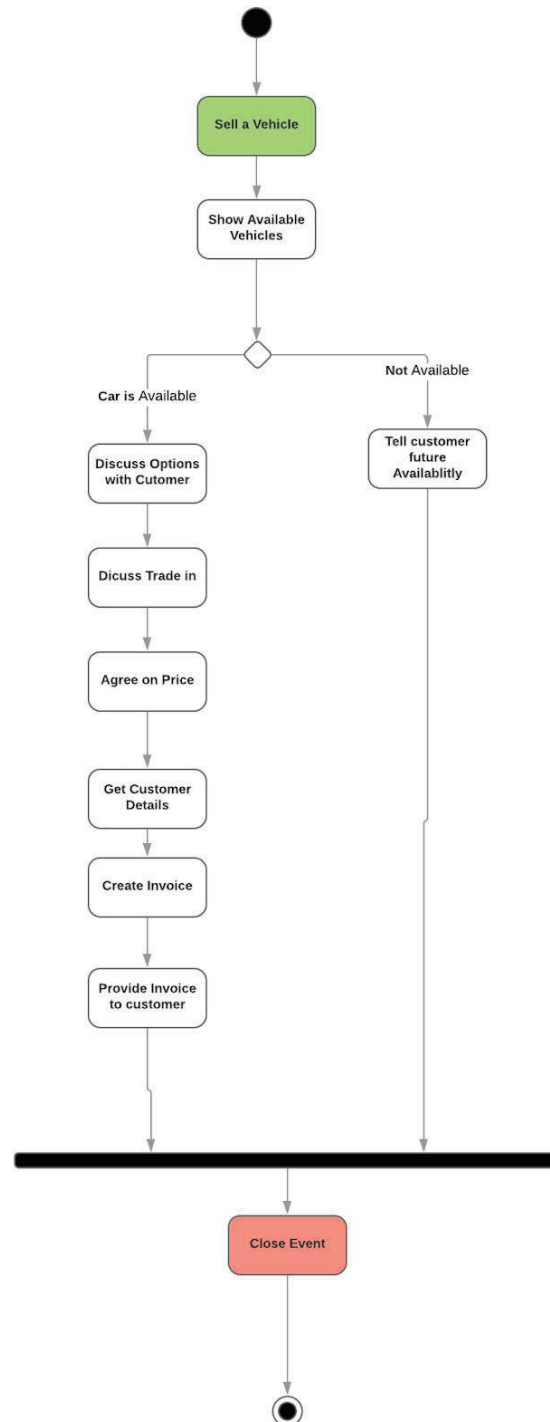
Task 4 - Generate Sales Report

Task 5 - Process Payment

Task 6 - Stocktake

Task 7 - Update Customer Information

Task 8 - Service Engine

Service

Car is bought in

Mechanic
Services and
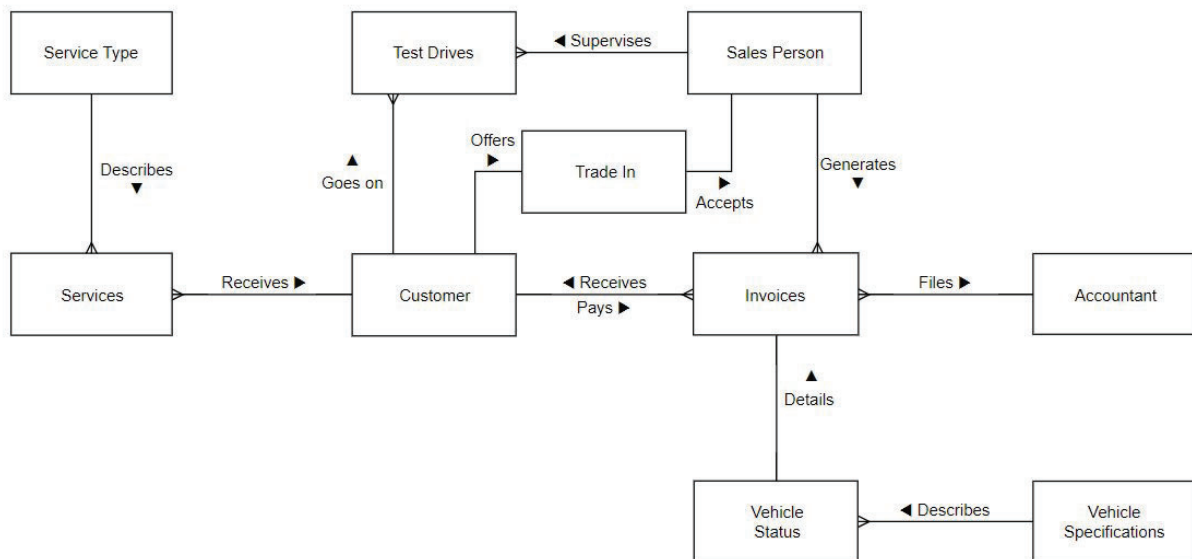Fixes car

Customer picks
up car

Close Event
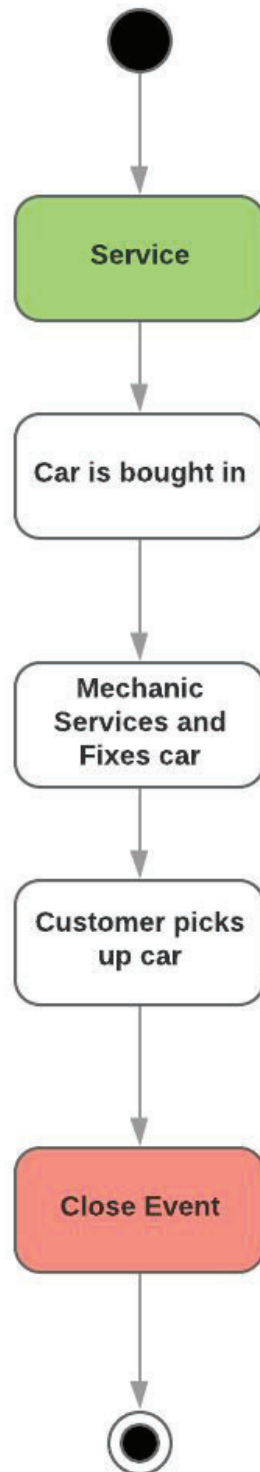
Task 9 - Feedback
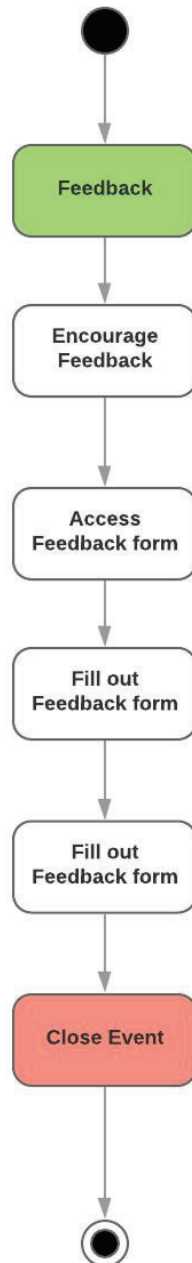
6 - Data Model

Domain Model

Domain Model of the System

Entity Descriptions

- Customer: The customer is someone who will potentially purchase a vehicle from HTV, they can book test drives, buy vehicles, trade vehicles and get services for vehicles they currently own purchased from HTV.
- Sales Person: An employee at HTV who primarily helps customers purchases vehicles. They can organize and supervise test drives, as well as accept trade-ins for the invoices which they generate.
- Accountant: An account manages financial records and files invoices.
- Trade In: A trade in is a vehicle which a customer offers to HTV in order to get reduced payment when making a purchase from HTV.
- Invoice: Contain the details of a vehicle and customer and is created by a generated by a salesperson and later filed by an Accountant.
- Service Type: describes the individual services which describe the overall service a car will receive e.g. Top up fluids, check key components etc.
- Service: The bundle of Service types which a customer receives when they get their HTV vehicle serviced.
- Vehicle Specifications: Information regarding the individual details for a vehicle. Things like model, engine type, etc.

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- Vehicle Status: The status of a vehicle and its relation to HTV, is the vehicle already purchased by a customer, unsold, etc.
- Test Drives: The test drives for a vehicle which a customer needs to book with a Sales Person. The customer performs a test drive which is supervised by a salesperson on a previously specified date.

7 - Quality Attributes of System

Security

Dealing with customer information and payment/financial information makes security a top priority for the system. The software must be designed and developed in a way that prevents unauthorized access and fraudulent activity.

To meet this quality attribute the system must:
- Only give access to those authorized to use the system.
- Restrict access of the system to only what is relevant to each users' role (e.g. sales people can only access their own customer's information and invoices)
- Correctly store client information, invoices, etc, in compliance with Australian Law.

Usability

Staff members are reporting that their current system is difficult to use and manage - this is translating into customer dissatisfaction and loss of revenue. A system that is user friendly is paramount to promoting a positive and satisfactory experience for all users of the system. Introducing a system that is easy to use will improve company-wide uptake and trust of the system.

To meet this quality attribute the system must be developed within the guidelines specified in the Swinsoft UI/UX design guidelines document.

Reliability

One of the identified pain points is that the current sales process has a bottleneck wherein accessing the system can only be performed by one user at a time. Having a system that is unreliable creates a frustrating and negative experience for both staff (users) and customers. This may translate to a reduction in performance from staff members, as well as customers walking away - ultimately leading to a loss in revenue. To ensure a positive experience it is

imperative that users know they have a system which is available when they need it and that the information is always correct which makes this quality attribute important to the Sales Information System.

To meet this quality requirement the system must:
- Be available 99% of the time during business open hours (these times may vary due to extended hours sales, seasonal shopping, ect).
- Reduce the down time of this system to 10 minutes during business open hours (if the system is absolutely required to go down or in case of an unforeseen circumstance).
- Deliver the correct information when fetching 100% of the time.

Performance

Having a system that responds quickly to users' requests is very important, especially in an environment with customers. If customers are left waiting too long they become agitated which could lead to bad reviews or even loss of sales.

To meet this quality requirement the system must:
- Have a response time < 1 seconds for fetching individual records (e.g. customers, inventory) and a response time of < 20 when fetching a large amount of records,
- Can create a new record in under 2 seconds,
- Frontend screens rendering to users < 200ms.

Portability

Allowing the system to be accessed across multiple platforms will help allow the users to be bound by their machine and can allow for mobile access for salespeople to use the system on the go. This can then lead to increase profits and sales by giving salespeople a greater reach to customers.

To meet this quality requirement the system must:
- Be able to be used on mobile platforms (android + iOS).
- Be able to be used on desktop and laptop machine.

8 - Other Requirements

In addition to supporting all the tasks outlined in section 4, the system shall meet the following requirements:

Product level requirements

These requirements specify that the product shall be able to:

- Store and manage data that is input by users
    - Data entry shall have relevant validation performed
    - Data validation shall comply with SwinSoft internal data validation standards
- Display relevant information/data, when requested by users
- Generate and display relevant reports
- Print receipts, invoices

Design level requirements

The Swinsoft UI/UX design guidelines document outlines some design level requirements for generic design decisions such as font sizing, color contrasts, etc.

Other design level requirements include that the product shall:
- Analyze data using special algorithms
- show the Terms of Trade, Terms of Use, and Privacy Policy, and allow each to be downloaded,
- show HTV logo on each screen,
- follow the design guidelines of the HTV (e.g. fonts, colour pallette),
- show pictures of each car when viewing car record

9 - Validation of Requirements

To ensure that the requirements in this document are accurate the Swinsoft team showed the Product and Design-level requirements to the CEO of HTV to get approval. For each task description, some actors of the task (employees) and the businesses process owner (e.g. managers) were interviewed to validate that the task was correct and complete.

CRUD Check

Task / Entity	Customer	Vehicle	Service	Test Drive	Invoice	Sales Person
Presale discussion		R				R
Book a test drive	C, R	R		C, U		R
Sell vehicle	C, R	C, R, D			C	R, U
Sales report				R	R	
Process payment					R, U	C
Stocktake		R, U				
Updating a Customers Information	U, D					
Book service	R	R, U	C, R, U			
Feedback	C					C, R

10 - Possible Solutions

Staff oriented application based system:

This is a traditional approach to an Information Sales System. Interaction with the system is done by the staff members, and customers have minimal to no direct interaction. This is the kind of system you would find in most dealerships, and both staff and customers should feel some level of familiarity with it. Data entry is all done electronically, using a custom software solution specific to HTV's needs. Data is stored in an internal database and there are no paper based forms or record keeping.

Customers who enter the dealership are approached and greeted by a salesperson, they would usually be shown around the showroom before sitting down at a desk to have an in depth discussion.

The salesperson will have a desktop computer and a mobile device (tablet) that they can use to logon and access the Information Sales System. From here they will be able to engage in the pre-sales process, and the system will be able to assist them. The salesperson can enter keywords to query the database for information regarding vehicles, inventory and options, in order to answer any questions the customer might have. When a customer has decided they wish to buy a vehicle, the sales process can begin. From here, the salesperson will be displayed a screen that helps streamline the process. The salesperson can select from a list of available inventory, and a list of selectable relevant options will be populated. If a customer wishes to trade in a vehicle, the vehicle details can be entered and the system will search online databases and use an algorithm to value the vehicle. Customer details will also be entered, and at the end of the process an invoice will be automatically generated - whilst the software performs the relevant functions to update the system database.

Managerial staff will be able to generate statistical and analytical reports upon request, automatically at predetermined intervals (e.g. weekly, monthly). The reports will be customizable to the needs of management, but in general provide statistics on sales data (including options and trade-ins) as well as predict trends and future demands.

Customer oriented, Self-service system

This is a non-traditional approach to a Information Sales System that you would find at a dealership, but is an approach that is becoming increasingly common in other industries as automation and self service become prevalent. The concept behind this approach is that the customer is provided with the means to be able to assist themselves with most aspects. An approach such as this encourages information to be freely available to the customer, without requiring the intervention of staff and especially so for trivial tasks.

Essentially, with this system, customers will be able to walk into the store and access information about the entire sales process from vehicle models, options, bookings, available inventory and even look up pricing for their own vehicles that they might wish to trade in. This would be done on large touch screen displays thoughtfully located throughout the showroom floor. Some customers will find this approach preferable over a potentially daunting and pressured experience dealing directly with a salesperson, however, if a customer wishes to be served by an actual staff member instead, or have questions they would like answered, they can of course request service instead.

The benefit to an approach like this depends on the business decisions the company wishes to make but essentially the idea is that resources are being freed. This could translate to reduced overheads, or the ability to allow staff members to move into more specialised roles. It can also mean that more customers have their needs tended to at once, which makes dealing with large influxes at peak times a lot easier.

The main drawback to a system like this is initial hardware cost. Performance is paramount, as a slow and unresponsive system results in a negative experience for the customer. Large touch screen displays are expensive, and the system will still require desktops for staff and managers.

Cloud-based Web Application

An alternative solution is moving the entire system to a cloud service. A good example would be AWS Web services or Microsoft Azure. AWS or Microsoft's cloud services provide all the required computing power you would need to maintain the system while only being charged for what the company would use. Also as performance is a key quality attribute, the system can be scaled easily to manage loads and increase performance and response times. The initial cost would be greatly reduced as there is no need to buy costly servers. The entire system could be provided using the Software as a Service (SaaS) mode.

For Holiday Travel Vehicles this would mean they would only pay for the software used in the dealership and would not have to worry about maintenance costs of Hardware or updating programs. Also cloud providers provide great availability for servers which would help the system reach its reliability quality attribute.

Moving the system to a hosting service would give us the ability to also change the business model of Holiday Travel Vehicle to be able to provide better online support for sales. The company would be able to provide a sales website that would lead to a larger audience and increased sales.

After implementing the new system on the cloud they could provide an app for booking the loan of their Holiday vehicles and wouldn't require any customer service besides giving the keys to the customers or possibly providing a passcode.

As the app is web based it gives customers a self service portal without actually coming to the yard and talking to a sales person. It wouldn't remove the tradition of having sales people as customers can still come in and buy a car through a sales person who has access to the web app and can aid customers. This also allows salespeople to be more mobile in the workplace and they are not restricted by a physical machine (they can access using mobiles, desktops, etc).