Operational Concept Description (OCD)

SnapValet

Team Number 3

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Version History

Date	Author	Version	Changes made	Rationale
09/29/14	AP	1.0	• Original made for CSCI 577a. Tailored from ICSM OCD Template from class website.	• To be a part of Draft Foundations Commitment package
10/13/14	AP	1.1	• Added content to sections 2.2, 2.3, 3.2, 3.3, 3.4	• To complete the document for DFC package and ready for DCR.
10/14/14	AP	1.2	• Included External website module inside the system in the ER-Diagram.	• Rectified a few errors that were found via the Traceability Matrix by QFP/remote team member
10/19/14	AP	1.3	• Removed confusing terminology of External website. Added specifications to Levels of Service	• Feedback given during ARB by evaluators
11/29/14	AP	1.0 (DCP)	• Modified Benefits Chain Diagram to completely match Program Model of the system, converted all diagrams to VPP diagrams, changed System Boundaries and Capability Goals to match MMF on Winbook, modified Artifacts section, modified Element Relationship diagram to include authenticator element to authenticate and communicate with database, updated System Boundary to include Payment API	• Feedback given after evaluation from TA (Nupul)
12/5/14	AP	1.1 (DCP)	• Modified Element Relationship Diagram, Benefits Chain diagram, program model and the system boundary environment diagram	• Based on feedback after evaluation during ARB
12/8/14	AP	1.2 (DCP)	• Modified the Element Relationship diagram and the benefits chain diagram	• Based on feedback and discussion with TA (Nupul)
02/11/15	BV	2.0 (RDCP)	• Changed dates and system boundary diagram for RDCP ARB	• Review of documentation
04/19/15	DD	2.1 (ASBUILT)	• Change description in introduction	• For as built package

Table of Contents

Table of Tables

Table of Figures

1. Introduction

1.1 Purpose of the OCD

This document provides, in detail, the shared visions and goals of the stakeholders of SnapValet. Since this is a new system and does not have an existing workflow or operational concepts, this OCD will be used constantly throughout the project's life cycle. The success critical stakeholders are Mona Arabshahi (founder and project owner), drivers (customers), valet companies and operators (clients) and team # 3 (developers).

1.1 Status of the OCD

The initial OCD (version 1.0) was made based on the template provided on the EPG. The status of the OCD is currently at version 2.1 for the as built package. The template is based on the template provided on the class website.

2.　Shared Vision

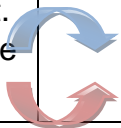## 2.1 Overview of the system

Assumptions
- Customers prefer using mobile payment to a cash transaction.
- People trust mobile payment systems.
- Valet companies prefer mobile payments to cash transactions.
- There isn't already a similar competitive functionality in other existing applications.
- SnapValet indeed speeds up facilitation of valet service.
- A noteworthy amount of customers often do not carry cash for valet.
- Our users would rather prefer using an android phone to other platforms.

Stakeholders	Initiatives	Value Propositions	Beneficiaries
• Developers • SnapValet	• Develop System • Market Campaign -End user: social media • Direct Sales • Networking -Conference/Trade Shows	• To speed up valet process • Improve cashless valet experience for customers • Expand potential customer base for valet. • Better valet account/transaction management. • Increase revenue and profits	• Customers • SnapValet clients -Valet Companies -Restaurants -Hotels • Sponsors / Investors

Cost	Benefit (Metrics)
• Time • Marketing Costs • Maintenance Costs • Team Building • Infrastructure -Web Servers - Third party transaction management	• A faster, more convenient way to valet park. • Increase market share to include non-cash carrying customers. • 3% revenue/ transaction

Table 1: The Program Model of SnapValet

Assumptions:

- Customers and valet companies prefer mobile payments over cash transactions.
- People trust mobile payment systems.
- There isn't already a similar competitive functionality in other existing applications.
- SnapValet indeed speeds up facilitation of valet service.
- A noteworthy amount of customers often do not carry cash for valet.
- Our users would rather prefer using an android phone to other platforms.

Implement cashless payment — Speed up valet process

Increased efficiency and speed

Improved communication between valet and customer and automated valet process — Improve cashless valet experience

Facilitate faster and easier transactions

Global Trojan Solutions (GTS) ----> Develop the System

Better valet account/ transaction managment

Attract more companies and users to use SnapValet

SnapValet Investor ----> Market Campaign, Direct Sales, Networking

Improve overall experience and attract more customers

Valet Companies, Valet, Establishments offering SnapValet, Users ----> Initial Training, Setup process

Get trained and involved in the new process — Expand potential customer base for valet

Better service and more users for SnapValet
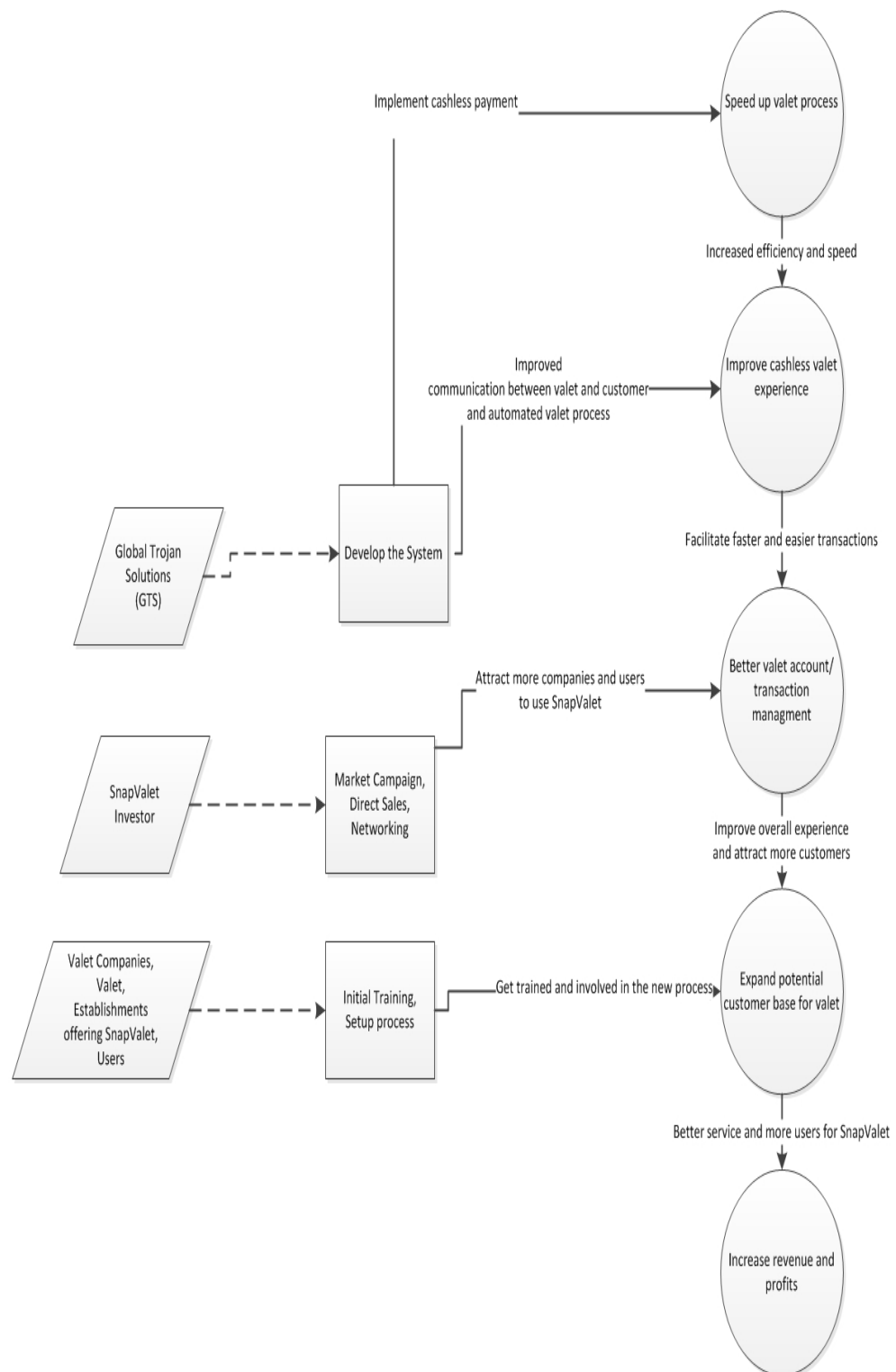
Increase revenue and profits

Figure 1 Benefits chain diagram for SnapValet

2.2 System Capability Description

The system is a mobile-based app that enables customers to pay for valet parking via mobile transactions (i.e. cashless / credit card). The target customers for the system are car owners who presently consist of the user base for the existing valet process. It is known that paying for valet can be a highly inefficient, time and energy consuming hassle. This app will allow customers to request a remote car pick-up and pay via mobile transactions. This will eliminate a few of the bottlenecks of the present system such as waiting for car pick-up, and will be convenient for customers who do not carry cash. The app provides an efficient, cashless way to pay for valet and hence ensures that customers can enjoy their activities instead of being bothered by valet parking. The app also provides a seamless way to keep track of payments and facilitates faster valet process for valet companies and valet runners as well. We believe that this is a compelling reason for both, the general public and valet companies to use the app. We plan to provide this service in Los Angeles, and as far as our market research goes, this app is one of a kind.

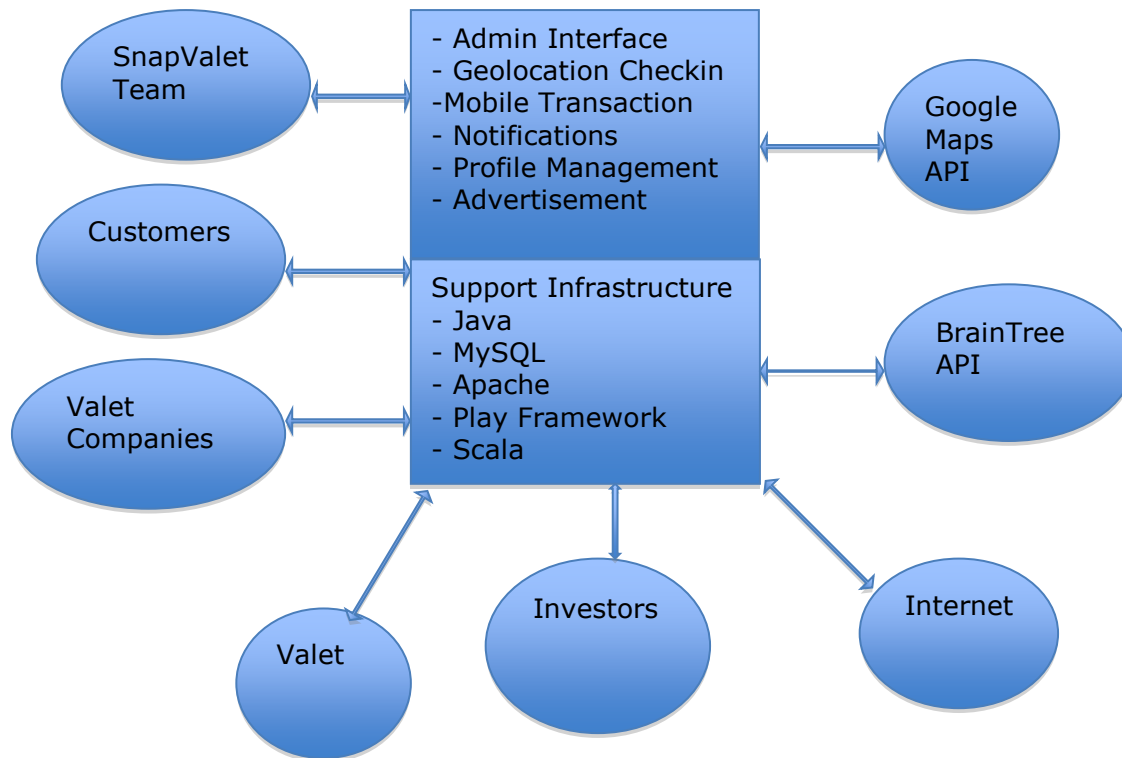## 2.3 System Boundary And Environment

Figure 2 System Boundary And Environment

3.   System Transformation

3.1 Information on Current System

3.1.1 Infrastructure

Since SnapValet is a startup, there is no pre-defined infrastructure that the client is using. The team will design the infrastructure in coordination with the client through the course of the project.

However, the current valet infrastructure involves two facets:

1.   Valet Companies
2.   Venue Managed Valet Operations

The differences are in the management of the valet process and the payment mechanisms. With Valet companies, venues contract with valet companies which dispatch valet operators to venue locations. Under this model, a valet company can manage the valet process of several venues simultaneously. The process is outlined in section 1.4. Under venue managed valet operations, the establishment manages its own valet service. They oversee the hiring, scheduling, training, and payment of valet operators. This practice is more common in venues such as hotels. Usually, payment is automatic under these operations

3.1.2 Artifacts

The idea for this mobile app is a novel one. Hence, there are no existing artifacts that have been provided by the client for use in the system.

3.1.3 Current Business Workflow

Since SnapValet is a startup it technically has no current business workflow. However, SnapValet seeks to automate pieces of a very manual process, valet parking. In this section, we will document the current business workflow of valet parking at a venue with an externally managed valet operation.

Visual Paradigm Standard Edition(University of Southern California)

```
      ( Start )  ──────────▶  Customer
                              Arrives
                                 │
                                 ▼
                         Initiates Valet Process
                                 │
                                 ▼
                         Ticket Stub and Keys
                         exchanged between valet
                            and customer
                          ┌──────┴──────┐
                          ▼             ▼
                  Customer enters    Valet parks car
                      venue
                          └──────┬──────┘
                                 ▼
                         Customer leaves venue
                         and requests valet for
                               pickup
                                 │
                                 ▼
                         Valet matches ticket stub
                              with key
                                 │
                                 ▼
                           Returns Vehicle
                                 │
                                 ▼
                         Payment done by cash ──────────▶ ( )
```
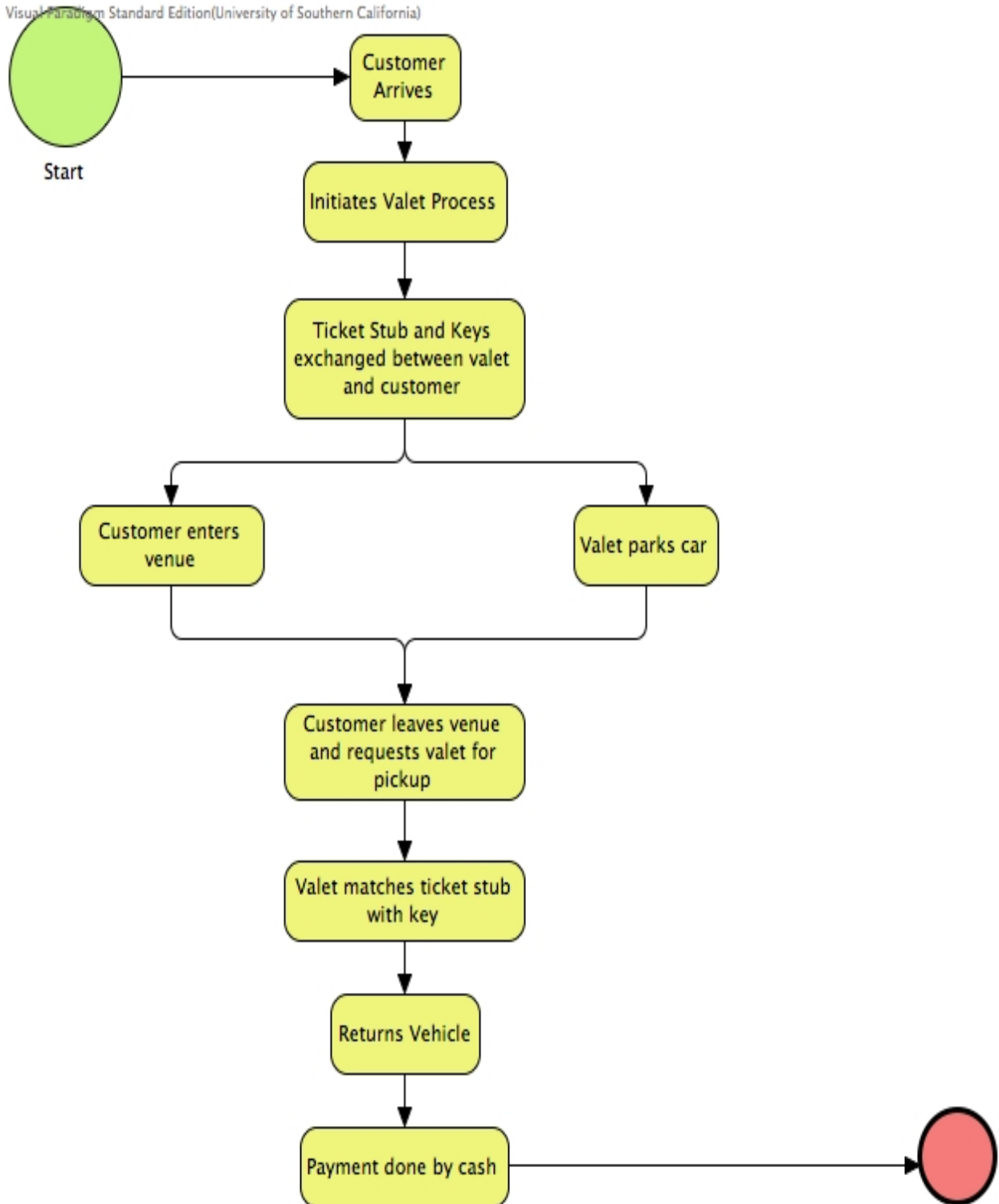
Figure 3 Current Business Workflow

3.2 System Objectives, Constraints and Priorities

3.2.1 Capability Goals

The priority levels have been defined as '**Must Have**' (ones that the system needs to have so that the purpose of the system is met) and '**Should Have**' (ones that are possible, but not essential to the system's purpose). Following are the main capability goals of the system:

Capability Goals	Priority Level
OC-1 **Mobile Transaction**: The system is capable of doing mobile transactions to valet company accounts.	Must Have
OC-2 **Notifications:** The system is capable of sending out notifications to customers who have requested the car and is capable of notifying the valet of new requests by customer.	Must Have
OC-3 **Admin Interfacing**: The system is capable of obtaining employee information for valet staff registration purposes via input from valet companies	Must Have
OC–4 **Geolocation Checkin:** The system is capable of letting customers check-in to a location to request for valet services. It also is capable of allowing valet to check-in to a location to proceed with their services at the checked-in location	Must Have
OC-5 **Advertisement:** The system is capable of sending advertisements and suggestions to customers based on their location history and current location.	Should Have

3.2.2 Level of Service Goals

Table 2: Level of Service Goals

Level of Service Goals	Priority Level	Referred WinWin Agreements
Response Time – Simple The time taken to go from one page of the app to the other will be between 1-3 seconds based on connection speeds. Anything beyond this is not acceptable.	Must Have	WC_3205, WC_3390, WC_3384
Availability: The system must be available with a downtime of up to 10 mins, especially during heavy usage hours (6-9	Should Have	WC_3500

pm on weekdays, 6-10pm on weekends). Need to conduct server test cases to identify the problems that could arise when there are a lot of requests. Can't comment more on this at the moment.		
Security: Should be immune to intrusion attacks as well as other security measures have to be incorporated. There are multiple test cases that are being developed presently that handle rogue customers, etc. Will have to formulate more test cases.	Must Have	WC_3213
Maintainability: The code will be maintainable for developers. Will be modular so that defects can be isolated and additions can be made easily. Maintainability will be handled by a SnapValet Employee.	Must Have	WC_3501
Scalability: The system will be designed to work on multiple servers in the future and is capable of handling around 100 requests at the same time.	Must Have	WC_3499

3.2.3 Organizational Goals

OG-1: Increase speed of valet transactions via cashless payments.

OG-2: Improve customer experience for valet process via remote requests for car pick-ups.

OG-3: Increase customer base for the app.

OG-4: Enable Direct Advertising via geo-location check-in modules and analytics based on data collected.

OG-5: Increase revenue and profits via charging a set percent of total transaction cost.

3.2.4 Constraints

CO-1: Android as an Operating System: The system must be able to run on Android.
CO-2: Limited Monetary Budget: The overall cost of the project should not exceed $10,000. Besides this, the selected NDI/NCS should be free or fall within the budget.

CO-3: Java as a Development Language: Java will be used as the development language.

3.2.5 Relation to Current System

The current system is based on the manual valet parking system. This system is compared to the new, proposed system of SnapValet.

Table 3: Relation to Current System

Capabilities	Current System	New System
Roles and Responsibilities	Valet runners responsible for handling money from customers. Customers have to go to valet parking area and request for car.	Payments done via mobile transactions by customers. Customers request car pick-up remotely.
User Interactions	Valet runners and customers interact with each other for car drop-off, payment and car pick-up. Valet runners interact with higher management and the valet fee is then transferred to the company. Tips are sometimes pooled and sometimes are kept individually by valet runners	Valet runners and customers interact with each other only for car drop-off and car pick-up. Customers directly pay the valet companies and tips are tagged with the name/ID of the valet runner.
Infrastructure	Involves a general hierarchy as proposed by the valet company for the valet side of the process. Involves no infrastructure as such.	Infrastructure includes a server-multiple client setup. Valet company accounts, employees and customers are all connected via the app. Payments and location check-ins handled by APIs.
Stakeholder Essentials and Amenities	Stakeholders include Valet Companies, Customers, Valet staff, and under some circumstances restaurants/hotels that have contracts with valet companies.	Stakeholders include SnapValet team, valet companies, customers and valet staff.
Future Capabilities	N/A	Enabling direct advertising and suggestions.

3.3 Proposed New Operational Concept

This section contains the ER Diagram and Business Workflow Diagram for SnapValet, which is the new operational concept that is proposed in the system.
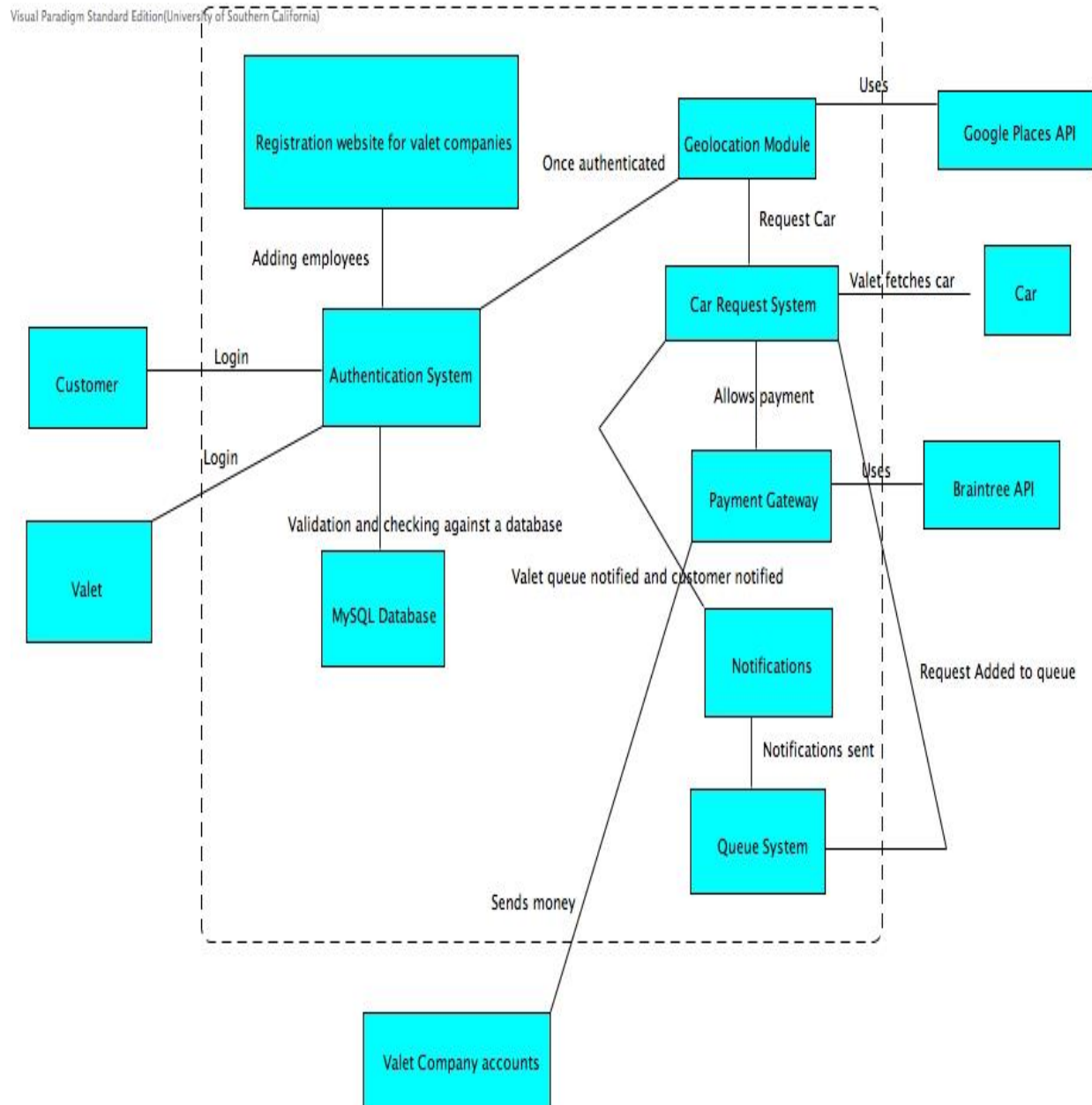
3.3.1 Element Relationship Diagram

Figure 4 Element Relationship Diagram

3.3.2 Business Workflows

Following is the business workflow of SnapValet. The boxes in green denote the notable changes in the workflow from the present system.
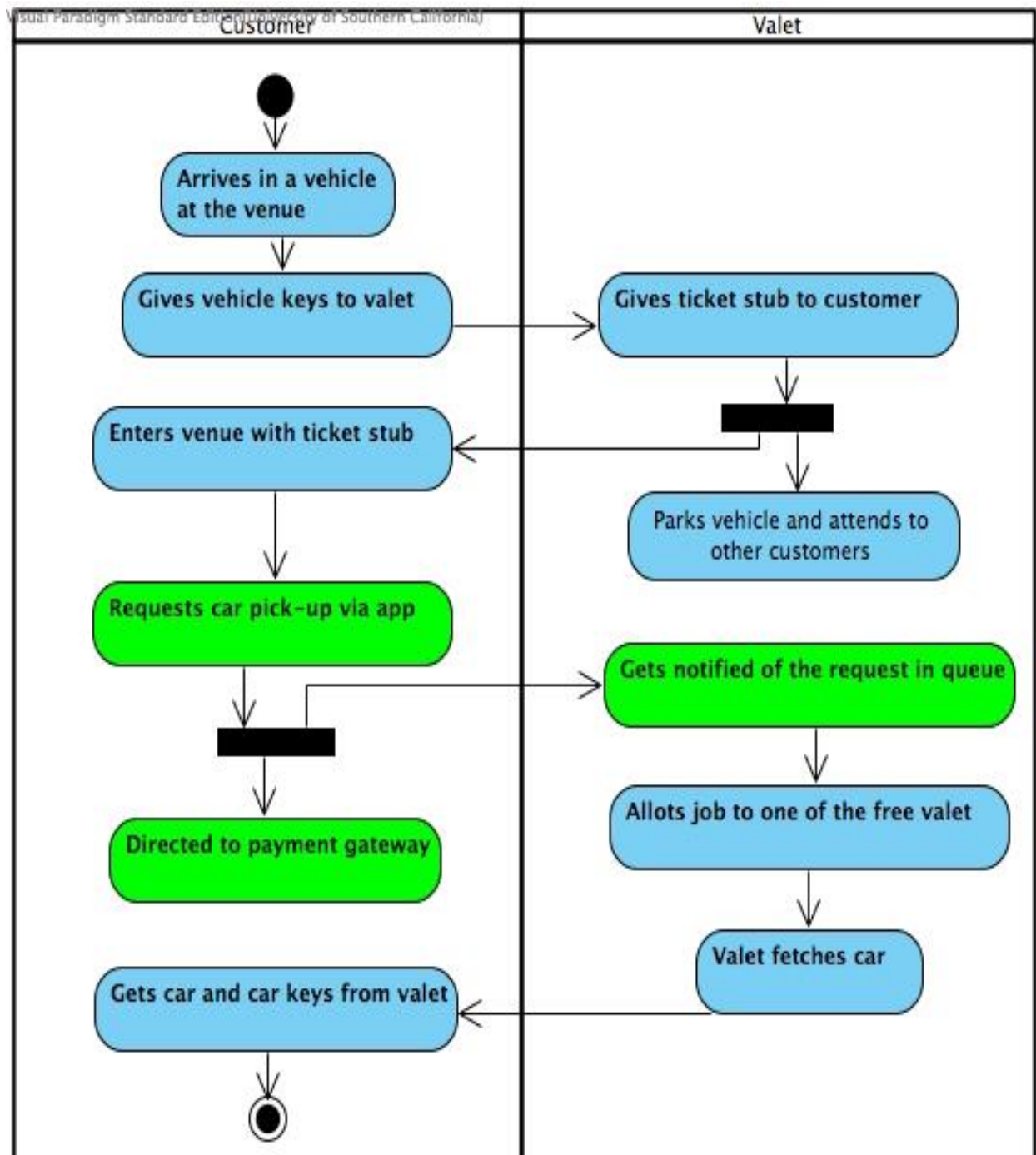
Figure 5 Business Workflows

3.4 Organizational and Operational Implications

3.4.1 Organizational Transformations

The present valet organization
Major operational stakeholders affected by changes due to the new system include:
- Customer
- Valet

Following are some organization changes that need to be made on the part of the Valet Company:
- The need to provide a device per location that gets notification of car-requests, e.g. A tablet, etc.
- The need to maintain a valet for each location controls the tablet and handles requests.
- Employees need to have employee IDs under all circumstances because this is how they are authorized by the system.

3.4.2 Operational Transformations

There will be significant changes in the operational procedures as opposed to the present valet parking system.
They include:
- Customers have to enter ticket numbers in the app instead of walking to the valet and handing over the ticket stub.
- Valets will be notified of requests on a tablet, instead of having a customer walk up to them and request the car.
- Notifications will have to be handled by Valet and they will have to ensure that they are handled appropriately.
- Cash transactions can now be mobile so customers need not pay the valet up front.
- Once the notification has been given to the valet they will have to identify the keys based on the ticket number and fetch the correct car.
- A notification must be sent to the customer stating that their car is now available for pickup and will be reparked if they do not arrive in time.