# Systems Engineering Management Plan

System Engineering Methods: CS672

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# Executive Summary

# Document History

| Date Modified | Modification Details |
|---|---|
| May 5, 2024 | Creation and outlining of initial release |
| May 12, 2024 | Introduction: Purpose, System Overview & Project Schedule |

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# Introduction

## Purpose

Heartland Escapes is a (fictional) Nebraska based family-owned bookstore that has been in business for a very long time. They have been set in their ways as far as store processes go and are far behind the curve for integrating technology into their business. As a result, the store owners have put many hours into paper-based inventory keeping, product ordering, employee timecard management and accounting. Frankly, the owners would be happy to continue handling all this work manually, but they are finding that with age they want to spend less time in the store. With how much knowledge is required to handle these processes, it will cost them a lot of money to hire additional hands to continue to support their paperwork.

## System Overview

The system we develop for Heartland Escapes will be an administrative webapp. This application will be a single service to handle all their needs. It will support inventory management, employee time management, sales, accounting, and product re-ordering. This application will act as an e-commerce site for general users, and we will use role-based access permissions to support administrative functionality like order tracking, sales reporting, manufacturer information and inventory management. This new system will also support an employee role that allows employees to punch in and out using a custom time management system. This system will also support connections to cash registers for administrative and employee roles that are on the same network for an integrated point of sale system.

## Project Schedule

Here is a list of key milestones we plan to accomplish throughout the course of this project:

1. Project directors & architecture staff introduction to major stakeholders
2. Onboarding of senior development staff
3. Client driven event storming sessions
4. High-level development roadmap
5. Solution Architect proposal for major technologies
6. Project management proposal for story development, bug remediation process, and technical debt management
7. DevOps Architect development and rollout of infrastructure as code
8. Solution Architect development and rollout of shell applications
9. Solution Architect rollout of project software development guidelines
10. Rollout of Development environment & CI/CD Pipeline
11. Rollout of Staging environment & CI/CD Pipeline
12. Onboarding of large-scale development effort (engineers, UI/UX designers, data engineers, scrum masters, acceptance testers, etc.)
13. Major Feature rollouts (preliminary ideas before client driven roadmap)
    a. User roles, authorization & authentication
    b. Inventory system
    c. Point of Sale system
    d. Product re-ordering system
    e. Employee time management
    f. Reporting system
14. Rollout of Production environment & CI/CD Pipeline
15. Deployment of in-store system to production environment, implementation of new system to Heartland Escapes
16. Rollout of e-commerce Development environment & CI/CD pipeline
17. Rollout of e-commerce Staging environment & CI/CD pipeline
18. E-commerce system development
19. E-commerce system production rollout
20. Establishment of maintenance plan with stakeholders
21. System handoff to maintenance team

# System Engineering Processes

## Project Organization

## Decision-Making Process

## Environments

## Configuration Management

## System Engineering Model

## Requirements Engineering – Conceptual Design

### Compilation of Client Needs

## Functional Analysis – Preliminary Design

### Client Driven System Roadmap: Components, Attributes & Relationships

## Design Processes

### Agile Iterative Design and Development

## Development Processes

### Software

### Hardware

### System Integration

### Build Management

## Verification

## Validation

# Specialty Engineering

# System Deployment

## Site Preparation

## System Installation

## System Checkout

## User Training

## Support Engineer Training

# Product Support

## Maintenance

### Feedback Mechanism

### Communication Workflow

## Logistics Support

## Disposal

# Summary

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