

# Requirement Analysis and Planning

## Introduction

The primary objective of this project is to digitize metro ticket booking using **ServiceNow** to provide a fast, accessible, and automated framework for ticket generation via **QR codes**. By transitioning from manual counters to a digital platform, the system reduces station congestion and enhances the overall commuter experience.

## Strategic Objectives

- **Enhance Commuter Convenience:** Implement user-friendly digital ticketing options, such as QR codes, to drastically reduce wait times and streamline the intake process.
- **Increase Operational Efficiency:** Adopt **Automated Fare Collection (AFC)** principles to minimize manual interventions, reduce human errors in fare calculation, and lower operational costs.
- **Promote Digital Payment Adoption:** Encourage cashless transactions through the integration of **UPI**, credit/debit cards, and mobile wallets to improve revenue collection efficiency.
- **Facilitate Data-Driven Decision Making:** Utilize transaction data from the **u\_metro\_station\_s\_details** table to gain insights into passenger behavior and peak usage times for route optimization.
- **Support Environmental Sustainability:** Reduce paper waste by transitioning to digital QR tickets, aligning the metro operations with modern eco-friendly practices.

## Requirement Analysis

### Functional Requirements

- **Service Catalog Item:** A centralized "Book a Metro Ticket" item featuring dynamic variables for **Source**, **Destination**, **Passenger Type**, and **Number of Tickets**.
- **Automated Fare Calculation:** Backend logic to compute prices in real-time based on the selected journey parameters.
- **QR Code Integration:** Automated generation of digital tickets rendered via **SP Modal** popups immediately upon submission.

### Technical Stack

- **Platform:** ServiceNow Personal Developer Instance (PDI).
- **Automation:** **Flow Designer** for record orchestration and **Catalog UI Policies** for dynamic form behavior.
- **Database:** Custom table **u\_metro\_station\_s\_details** to store transaction and station master data.
- **Scripting:** Minimal JavaScript (Catalog Client Scripts) for fare population and QR rendering.

### Stakeholder Analysis

- **Passengers (End Users):** The primary requesters who initiate ticket bookings or smart card recharges via the Service Portal.
- **Station Managers:** Oversee local station operations and monitor fulfillment tasks.
- **Metro Operations Team:** Responsible for executing backend tasks and ensuring transit compliance.
- **IT Admins:** Manage the system architecture, maintain data integrity, and configure security via **ACLs**.

## Project Planning & Milestones

The project execution is structured into sequential milestones to ensure a stable deployment:

Milestone	Key Activities
Catalog Form Setup	Define variables and categories in the Service Catalog.
Fare Logic Script	Develop onChange client scripts for real-time price calculation.
QR Code Integration	Implement onSubmit scripts for digital ticket rendering.
Station Mapping	Configure the <b>u_metro_station_s_details</b> table with station master data.
UI Pages	Design the end-user interface for a seamless portal experience.
UAT & Deployment	Conduct User Acceptance Testing and move the solution to production.

## Conclusion

This requirement analysis ensures that the **Metro Ticket Generating System** is built on a robust, scalable framework. By aligning technical capabilities with commuter needs, the project delivers a modern, automated, and sustainable solution for urban transportation.