1. INTRODUCTION

1.1 Project Overview

The **Laptop Request Catalog Item** project in ServiceNow involves creating a user-friendly and automated form that allows employees to request laptops through the organization's ServiceNow platform. This item streamlines the hardware request process, ensuring faster approvals, accurate tracking, and better inventory management.

1.2 Purpose

The primary goal of this project is to simplify and digitalize the laptop requisition process. By implementing this catalog item, the organization can improve service delivery, reduce manual intervention, and ensure a transparent, traceable workflow for IT hardware provisioning.

---

2. IDEATION PHASE

2.1 Problem Statement

Employees face delays and inefficiencies when requesting laptops through manual or email-based systems. A lack of standardized processes leads to confusion, approval delays, and inventory mismanagement. There is a need for a centralized and automated solution to manage laptop requests effectively.

2.2 Empathy Map Canvas

Section	Description
Think & Feel	Captures the user's internal thoughts, worries, aspirations, and priorities.
Hear	Reflects what the user hears from friends, colleagues, influencers, or media.
See	Describes the user's environment, what they observe, and what competitors offer.
Say & Do	Outlines the user's behavior, public attitude, and how they interact with others.
Pain	Identifies fears, frustrations, and obstacles the user faces.
Gain	Highlights the user's goals, needs, and what success looks like to them.

Export to Sheets

2.3 Brainstorming This section is for capturing the brainstorming process and initial ideas for the project.

---

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

This visualizes the end-to-end experience of an employee requesting a laptop:

- **Awareness:** The employee realizes the need for a laptop.
- **Access:** They log into the ServiceNow portal and navigate to the Hardware Catalog.
- **Interaction:** They fill out the dynamic Laptop Request form (selecting model, RAM, processor, and accessories).
- **Approval:** The request is routed to the manager for approval.
- **Fulfillment:** Upon approval, a task is assigned to the Hardware team.
- **Closure:** The laptop is delivered, and the request is marked complete.

Pain Points Addressed: Manual delays, lack of clarity, and inconsistent data entry.

3.2 Solution Requirements

Functional Requirements

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	- Registration through Form - Registration via Gmail - Registration via LinkedIn
FR-2	User Confirmation	- Confirmation via Email - Confirmation via OTP

Export to Sheets

Non-functional Requirements

NFR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The system should have an intuitive and user-friendly interface.
NFR-2	**Security**	Implement secure login, data encryption, and access controls.

NFR No.	Non-Functional Requirement	Description
NFR-3	**Reliability**	The application should operate without failures or data loss.
NFR-4	**Performance**	The system should process requests and responses within 2 seconds.
NFR-5	**Availability**	The application should be accessible 99.9% of the time.
NFR-6	**Scalability**	The solution should support increasing users and request volumes efficiently.

Export to Sheets

3.3 Data Flow Diagram

A Level 1 DFD for this project would include:

- **External Entities:** Employee (requestor), Manager, Hardware Team.
- **Processes:**
    1. Submit Laptop Request
    2. Approve Request
    3. Fulfill Request
- **Data Stores:** Request Table, User Table, Approval Logs
- **Data Flows:** Request details, approval status, task assignment, fulfillment status

This diagram shows how data moves from the user to the system and back, ensuring transparency and traceability.

User Stories Related to Data Flow (DFD Perspective)

User Type	Functional Requirement (Epic)	User Story / Task	Acceptance Criteria	Priority	Release
Customer (Mobile User)	Laptop Request Submission	As a user, I can submit a laptop request with all required configuration details.	The laptop request is captured and forwarded for manager approval.	High	Sprint-1

User Type	Functional Requirement (Epic)	User Story / Task	Acceptance Criteria	Priority	Release
Customer (Mobile User)	Status Tracking	As a user, I can track the current status of my laptop request.	Status updates are visible in my laptop request dashboard.	Medium	Sprint-2
Customer (Web User)	Laptop Request Form Access	As a web user, I can access the same dynamic laptop request form as mobile users.	The laptop form loads with conditional fields.	Medium	Sprint-2
Customer Care Executive	Request Validation	As a CCE, I can verify laptop request details before fulfillment.	The validated request moves to the hardware dispatch team.	High	Sprint-2
Administrator	Audit Logging	As an admin, I can view audit logs of request creation and fulfillment flows.	All user actions are logged with timestamps for audit reference.	High	Sprint-2
System Administrator	Configuration	As an admin, I can configure workflows for approval and fulfillment logic.	Changes reflect in form behavior and task routing across modules.	High	Sprint-3

Export to Sheets

3.4 Technology Stack

Table-1: Components & Technologies

S.No	Component	Description	Technology
1	**User Interface**	Web-based interface where users request laptops and view status.	HTML, CSS, JavaScript, ServiceNow Catalog UI, GlideForm APIs
2	**Application Logic-1**	Dynamic form logic, field visibility, validations.	ServiceNow Client Scripts, UI Policies

S.No	Component	Description	Technology
3	**Application Logic-2**	Workflow automation and approvals.	ServiceNow Flow Designer, Approval Rules, Script Actions
4	**Application Logic-3**	Request routing and task assignment.	ServiceNow Business Rules, Catalog Task Workflows
5	**Database**	Stores request data, user profiles, tasks.	ServiceNow Tables (sc_req_item, sc_task, sys_user)
6	**Cloud Database**	Native cloud data storage provided by the platform.	ServiceNow (built on a MySQL backend)
7	**File Storage**	Attachments like ID proof or approval docs.	ServiceNow Attachments API, Encrypted file storage
8	**External API-1**	Email notifications integration.	SMTP / Outlook API
9	**External API-2**	Optional future integration (e.g., asset validation via vendor APIs).	REST APIs / MID Server scripts
10	**Machine Learning Model**	Optional future enhancement (e.g., predictive asset assignment).	Not currently used, possible integration via AI Search.
11	**Infrastructure (Server/Cloud)**	Cloud-based deployment of the ServiceNow platform.	Hosted on ServiceNow Cloud (SaaS); no local setup needed.

Export to Sheets

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology / Notes
1	**Open-Source Frameworks**	Scripted APIs and web standards used in UI logic.	ECMAScript, Bootstrap (within ServiceNow components)
2	**Security Implementations**	Role-based access, data encryption, audit logging.	ACLs, SHA-256 Hashing, RBAC, ServiceNow Security Policies
3	**Scalable Architecture**	Modular service catalog structure, reusable workflows.	3-tier architecture using ServiceNow platform layers.

S.No	Characteristics	Description	Technology / Notes
4	**Availability**	The platform is maintained on enterprise-grade infrastructure.	99.9% uptime via ServiceNow SaaS with clustering and failover.
5	**Performance**	Caching used in workflows, indexed database queries, asynchronous tasks.	GlideRecord optimizations, ServiceNow Performance Analytics

Export to Sheets

---

4. PROJECT DESIGN

4.1 Problem-Solution Fit

Section	Insight
Customer Segment (CS)	Defines your target users—for example, employees needing laptops for work.
Customer Constraints (CC)	Barriers like lack of time, unfamiliar forms, or manual delays.
Available Solutions (AS)	Existing manual request methods or contacting IT directly.
Jobs-to-be-Done / Problems (J&P)	The core need: quickly and efficiently request a laptop for work.
Root Cause (RC)	Manual process, unclear requirements, lack of self-service tools.
Customer Behavior (BE)	Users ask peers or IT manually; unaware of digital request options.
Triggers (TR)	New hire onboarding, system upgrades, or broken devices.
Your Solution (SL)	A dynamic ServiceNow catalog item with automated workflows and form validation.
Channels (CH)	ServiceNow portal, internal emails, onboarding documentation.
Emotions: Before / After (EM)	**Before:** Frustrated, delayed. **After:** Confident, satisfied, empowered.

Export to Sheets

4.2 Proposed Solution

S.No.	Parameter	Description
1	**Problem Statement**	Employees currently face delays and inconsistencies due to the manual laptop request process, lacking dynamic guidance, validation, and tracking.
2	**Idea / Solution Description**	Design and deploy a dynamic ServiceNow Catalog Item for Laptop Requests with conditional fields, validation rules, workflow automation, and an audit trail.
3	**Novelty / Uniqueness**	Integrates dynamic form logic, real-time validation, reset functionality, approval workflows, and task automation—all within a single self-service portal.
4	**Social Impact / Customer Satisfaction**	Reduces manual workload, minimizes errors, and improves turnaround time, leading to higher employee satisfaction and streamlined IT operations.
5	**Business Model (Revenue Model)**	As an internal organizational tool, the model supports operational efficiency. Optionally, the solution can be packaged as a module for enterprise clients.
6	**Scalability of the Solution**	The catalog item can be extended to include other hardware or software requests, additional workflows, and integrations with asset management systems.

Export to Sheets

4.3 Solution Architecture

Aspect	Description
Objective	Bridge the gap between business needs (e.g., laptop requests) and technical implementation using ServiceNow.
Key Goals	Identify the best-fit tech solution, define system behavior, outline development phases, and provide implementation specs.
Core Components	- User Interface: ServiceNow Catalog Item - Business Logic: Client Scripts, UI Policies, Flow Designer - Data Layer: ServiceNow Tables (sc_req_item, sc_task) - Integration: Email Notifications, Approval Workflows - Governance: Audit Logs, Update Sets

Aspect	Description
Stakeholders	Employees, Managers, IT Fulfillment Team, Admins
Development Phases	1. Requirement Gathering 2. Catalog Item Design 3. Workflow Automation 4. Testing 5. Deployment 6. Feedback & Optimization
Delivery Specs	Defined via update sets, version control, and role-based access policies.

Export to Sheets

---

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Element	Description
Project Scope	Develop a ServiceNow Catalog Item for laptop requests with dynamic fields, approval workflows, and audit tracking.
Project Goals	- Streamline the laptop request process - Improve user experience - Ensure governance and traceability
Stakeholders	Employees, Managers, IT Fulfillment Team, ServiceNow Admins
Project Phases	1. Requirement Gathering 2. Design & Prototyping 3. Development 4. Testing 5. Deployment 6. Feedback & Optimization
Deliverables	- Dynamic Catalog Item - Approval Workflow - Task Assignment Logic - Audit Logs - User Documentation
Tools & Technologies	ServiceNow, Flow Designer, Client Scripts, UI Policies, Update Sets
Team Roles	- **Developer:** Form logic, scripting - **Admin:** Workflow & access control - **QA:** Testing & validation - **Project Lead:** Coordination & reporting
Timeline	Estimated 4–6 weeks (adjustable based on sprint planning and feedback loops)

Export to Sheets

---

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Test Type	Purpose
Load Testing	Assess system behavior under normal and peak user loads.
Stress Testing	Determine system limits by pushing beyond expected load.
Spike Testing	Evaluate how the system handles sudden surges in traffic.
Soak Testing	Check for memory leaks or degradation over extended usage periods.

Export to Sheets

Performance Metrics

Metric	Description
Response Time	Time taken to load the catalog form or submit a request.
Throughput	Number of requests processed per second/minute.
Error Rate	Percentage of failed requests under load.
Resource Usage	CPU, memory, and database utilization during test cycles.

Export to Sheets

Tools & Environment

Component	Details
Test Tool	JMeter or LoadRunner (for simulating user load)
Monitoring Tools	ServiceNow Performance Analytics, built-in logs
Test Environment	Pre-production ServiceNow instance with a production-like configuration.
Test Data	Simulated user accounts, request payloads, and approval workflows.

Export to Sheets

---

7. RESULTS

7.1 Output Screenshots

This section is intentionally left blank for you to add my own screenshots.

8. ADVANTAGES & DISADVANTAGES

Advantages

- **Simplified Request Process:** A catalog item for a laptop streamlines the request process, making it easy for users to request a laptop without needing to specify all the details manually.
- **Standardization:** It ensures a consistent approach to laptop requests, making them easier to manage and fulfill.
- **Centralized Management:** Catalog items are typically managed within a service catalog, which provides a centralized platform for managing requests, approvals, and fulfillment.
- **Improved User Experience:** A well-designed catalog item provides a user-friendly interface for requesting laptops, increasing user satisfaction.
- **Cost Reduction:** By standardizing the process and potentially offering pre-configured options, catalog items can help reduce costs associated with laptop procurement.

Disadvantages

- **Limited Customization:** Catalog items may not accommodate every specific need or configuration that a user might require.
- **Potential for Over- or Under-Specification:** Users might select a laptop that doesn't perfectly match their needs, leading to either over-specified hardware or inadequate performance.
- **Dependency on Workflow:** The fulfillment of a catalog item relies on the defined workflow, which may not always be flexible enough to handle unique situations.
- **Requires Maintenance:** Catalog items need to be maintained and updated to reflect changes in laptop models, specifications, or pricing.

---

9. CONCLUSION

The proposed solution transforms a traditionally manual and error-prone process into an intelligent, user-friendly workflow using ServiceNow. By combining dynamic forms, automated approvals, role-based access, and backend tracking, it not only streamlines laptop provisioning but also improves stakeholder satisfaction. The project demonstrates how thoughtful digital transformation can enhance internal IT services while aligning with governance and usability goals.

10. FUTURE SCOPE

- **Multi-Device Support:** Extend the catalog to include mobile phones, monitors, or accessories.
- **Asset Inventory Integration:** Automatically check availability and assign pre-registered asset tags.
- **Analytics Dashboard:** Generate real-time reports on request trends and SLA metrics.
- **AI Recommendations:** Suggest devices based on user role or department history.
- **Multi-language Support:** Enhance accessibility for a diverse global workforce.
- **Self-Help Chatbot:** Guide users through the request process via a conversational assistant.

---

11. APPENDIX

GitHub: https://github.com/REVATHI982005/Laptop-Request-Catalog-Item.git

Project Demonstration Link: