Final Project: Digital Transformation Strategy for a Mid-sized Retail Chain

Instructions: Use this template to draft the project deliverables. You may modify the template to include more information.

Step I: Current system assessment

1. System architecture overview

The retailer's current technology infrastructure is fragmented and heavily reliant on legacy systems:

- **POS System**: Windows CE-based terminals with outdated card reader drivers. Transactions take more than 5 seconds, causing slow checkouts.
- **E-commerce**: Magento 1.9 on a standalone MySQL database. Poor performance metrics include cumulative layout shifts over 0.25 and slow page loads on mobile networks.
- **Data Storage**: On-premise SQL databases per store. Nightly batch updates result in inconsistent and delayed data synchronization with headquarters.
- **Inventory Management**: Manually maintained through Excel spreadsheets. This leads to inefficient restocking and frequent stockouts.

2. Pain-points matrix

Pain point	Impact	Root cause
Checkout delays	Reduced conversion rates	Slow POS processing on Windows CE
Restocking inefficiency	Stockouts and delayed orders	Manual inventory via spreadsheets
Fragmented customer data	Ineffective marketing, poor personalization	Disconnected data sources across e-commerce and stores

3. Key inefficiencies

The architecture's dependence on manual and legacy systems hinders agility and scalability. Key inefficiencies include:

- Manual data entry and batch updates create operational bottlenecks.
- Lack of integration across e-commerce and store systems causes data silos.
- Real-time visibility into inventory is absent, limiting omnichannel capabilities.
- System sluggishness directly affects user experience and sales.

Step II: Stakeholder requirements

1. Stakeholder identification

Stakeholder	Interests
Customers	Fast purchases, unified cart, real-time stock visibility
Store staff	Reliable, fast POS; inventory lookup across channels
Management	Unified customer view; real-time analytics; profitability insights
IT Team	Scalable, secure, API-first infrastructure; GDPR compliance

2. Requirements

Functional requirements:

ID	Requirement	Justification
FR01	Process in-store sales in ≤5s	Addresses checkout delays for customers and staff
FR02	Real-time inventory decrement	Prevents stockouts, supports omnichannel operations
FR03	360° customer profile via API	Enables personalized marketing and supports management analytics
FR04	Support Buy Online Pickup In-Store (BOPIS)	Meets modern customer expectations and expands sales channels

Non-functional requirements:

ID	Requirement	Justification
NFR01	System availability ≥ 99.9%	Ensures reliable operations for all stakeholders
NFR02	Page load time < 2 seconds on 4G	Enhances customer experience and retention on mobile platforms
NFR03	Scalability to 3x holiday traffic	Accommodates future growth and peak demand without degradation in performance

Step III: Alternative solution evaluation

1. Comparative analysis

Compare three proposed solutions based on the evaluation criteria: Functional fit (40%), scalability (20%), total cost of ownership (20%), implementation risk (10%), vendor viability (10%).

Criteria	Weight	Salesforce Commerce Cloud + POS	Shopify Plus + Square POS	Custom Microservices
Functional fit	40%	9 × 0.4 = 3.6	8 × 0.4 = 3.2	9 × 0.4 = 3.6
Scalability	20%	10 × 0.2 = 2.0	7 × 0.2 = 1.4	10 × 0.2 = 2.0
Cost (Year 1)	20%	$150,000 → 6/10 × 0.2 = 1.2	$50,000 → 10/10 × 0.2 = 2.0	$300,000 → 3/10 × 0.2 = 0.6
Implementation risk	10%	Score 15 → 6/10 × 0.1 = 0.6	Score 10 → 9/10 × 0.1 = 0.9	Score 25 → 3/10 × 0.1 = 0.3
Vendor viability	10%	10 × 0.1 = 1.0	9 × 0.1 = 0.9	7 × 0.1 = 0.7
Total score	100%	**8.4**	**8.4**	**7.2**

2. Recommended solution

Shopify Plus + Square POS

This solution is recommended based on its **low cost**, **fastest time to value**, and **balanced functionality** for the retailer's needs. While Salesforce offers superior scalability, the incremental benefit does not outweigh the significantly higher cost and longer deployment time for this phase of growth.

Justification:

- **Meets key stakeholder needs** like fast checkout, real-time inventory, and unified customer views through integrations and apps.
- **Aligns with business goal** to roll out within nine months due to low implementation time and existing ecosystem support.
- **Provides flexibility** for omnichannel commerce and supports growth up to ~100 stores before needing a more robust backend shift.

3. **Trade-offs**

Aspect	Advantage	Trade-off
Cost	Lowest TCO at $50,000 in Year 1	May require re-platforming if scaling past 100 stores
Implementation Speed	Fast deployment (~3 months)	Some custom integrations may be limited
Scalability	Good for short-medium term growth	Less scalable than Salesforce or custom options
Customizability	Strong app ecosystem via Shopify app store	Not as flexible as custom microservices

Step IV: Feasibility and risk analysis

Feasibility Analysis

Technical Feasibility:

The recommended solution—Shopify Plus + Square POS—is cloud-native and designed for rapid integration via REST APIs. It minimizes on-premises infrastructure and aligns well with the IT team's preference for API-first architecture. It is compatible with existing mobile devices and easily connects to marketing, CRM, and inventory platforms.

Economic Feasibility:

Shopify Plus has the lowest Year 1 cost at $50,000, with a positive Net Present Value (NPV) within the first five years. This makes it a financially sound option, especially compared to custom microservices, which only break even after four years. The low upfront investment supports the retailer’s need for quick ROI.

Operational Feasibility:

The platform is designed for ease of use and requires minimal retraining, with most staff able to onboard in under eight weeks. The implementation timeline aligns with the retailer’s nine-month seasonal sales cycle, ensuring system readiness for peak demand periods.

Risk analysis

Risk	Probability	Impact	Risk score	Mitigation
Data migration loss	3	4	12	Two dry runs, checksum validation
Vendor Outage	2	5	10	SLA-backed 99.9% uptime; rollback plan with offline POS mode

1. Mitigation effectiveness

The risk mitigations are **proactive and robust**, supporting the overall implementation timeline:

- **Data migration dry runs** allow early detection of issues and ensure smooth transition without data loss or customer impact.
- **Vendor outage strategies**, such as offline transaction support and SLA enforcement, reduce downtime risk and ensure business continuity.

These controls support the project's success within the **nine-month timeframe**, meeting both technical and operational readiness.

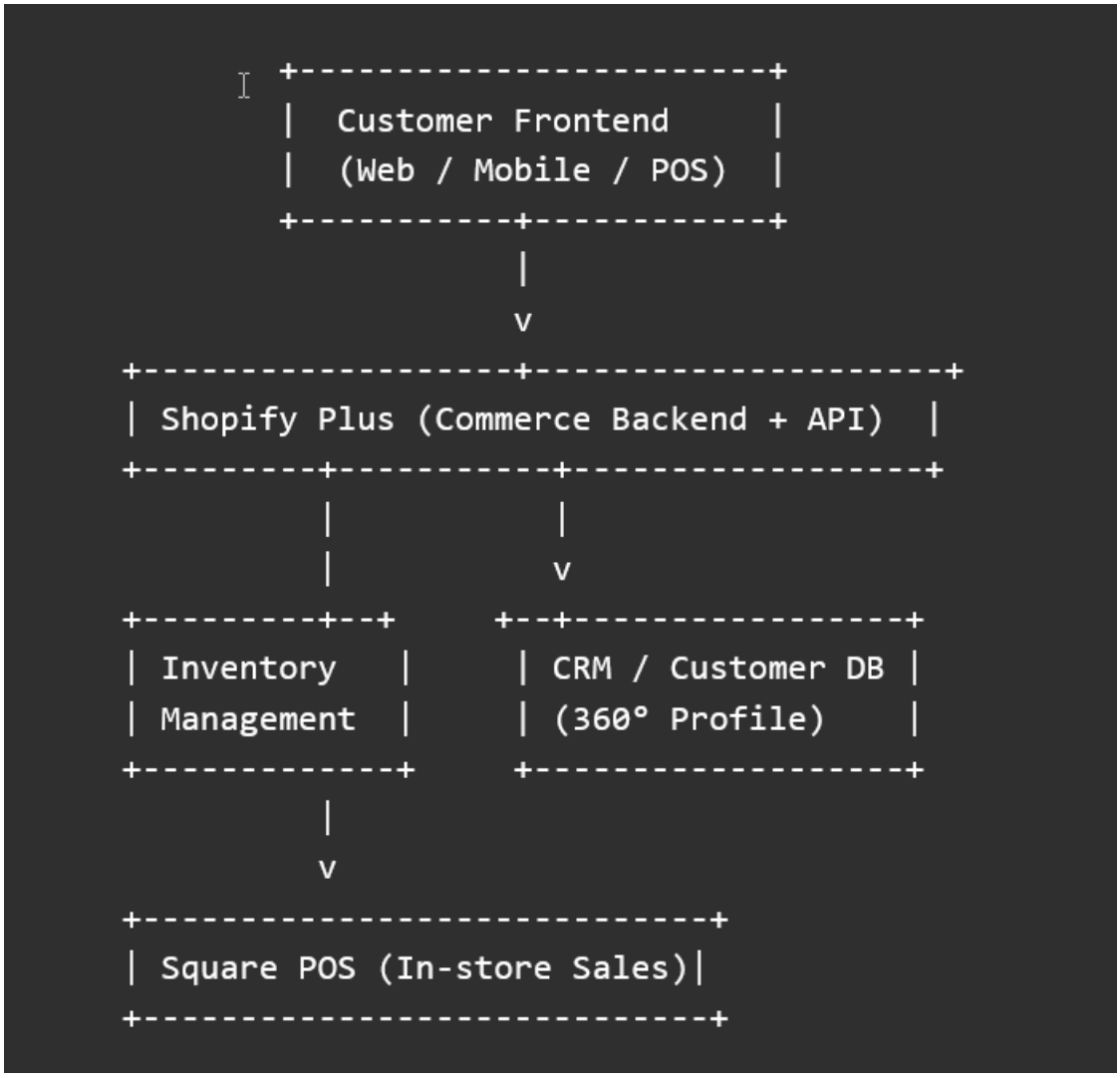
Step V: Visualizations and recommendations

1. Results and visualizations

The Shopify Plus + Square POS solution directly addresses all major pain points:

Pain Point	Resolution
Slow Checkout	Square POS processes transactions in ≤5 seconds, meeting speed expectations
Stockouts / Manual Inventory	Shopify provides real-time inventory updates across channels
Fragmented Customer Data	Unified customer profiles via APIs and integrations into CRM and analytics tools

Visual artefact



2. **Implementation roadmap**
   Key milestones for implementation within nine months

Milestone	Timeline	Description
Project Kickoff	Month 1	Finalize vendors, assign teams, and set up environments
Data Cleansing & Migration Prep	Month 1 – 2	Audit existing data, prepare mapping for products and customers
POS Hardware Upgrade	Month 2 – 3	Replace outdated CE terminals with Square-compatible devices
Shopify Customization	Month 2 – 4	Configure themes, product taxonomy, and install key integrations
Inventory System Sync	Month 4 – 5	Enable real-time inventory updates and test across stores
Customer Data Integration	Month 5 – 6	Sync customer data into CRM; test 360° profile visibility
Training & UAT	Month 7	Train staff on POS and admin interfaces; perform user acceptance testing
Soft Launch / Pilot Store	Month 8	Launch in pilot stores to test performance and gather feedback
Full Rollout	Month 9	Expand deployment chain-wide in time for seasonal sales