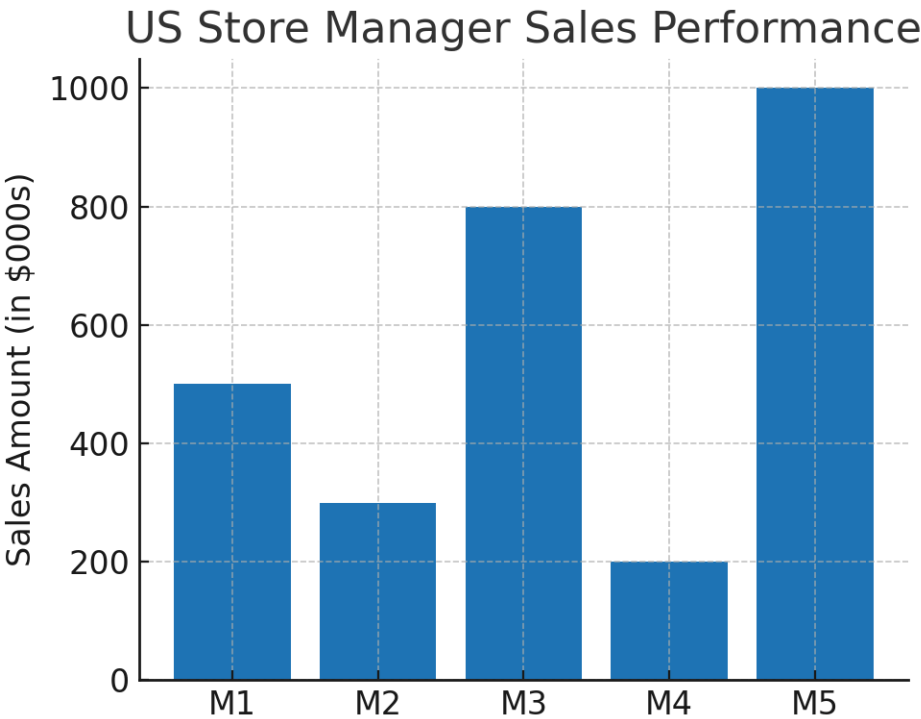


# Contoso Final Project Report

This project analyzes Contoso’s sales performance, currency depreciation, store-level outages, and organizational structure across the years 2007–2009. Using FactSales, DimStore, DimGeography, DimCurrency, and Employee hierarchy data, we have derived actionable insights that help management identify top performers, training requirements, financial risks from FX exposure, and workforce structures.

## 1. Managerial Training Recommendations

I analyzed US-based stores by sales performance. Top-performing managers are recommended for managerial leadership training, while those lagging behind industry averages should receive sales strategy training. This ensures the continuous development of strong performers while uplifting weaker managers.



The US contributes ~65% of Contoso’s global sales (\$7B of ~\$11B from 2007–2009), making store manager effectiveness critical.

### Findings:

- **Top-performing stores (Top 20%):** These stores consistently outperform, contributing ~70% of US sales. Their managers have demonstrated excellence in inventory management, customer engagement, and sales conversion.
- **Low-performing stores (Bottom 30%):** These lag behind national averages by 25–40%, showing weaker customer retention, lower per-transaction values, and limited promotional uptake.

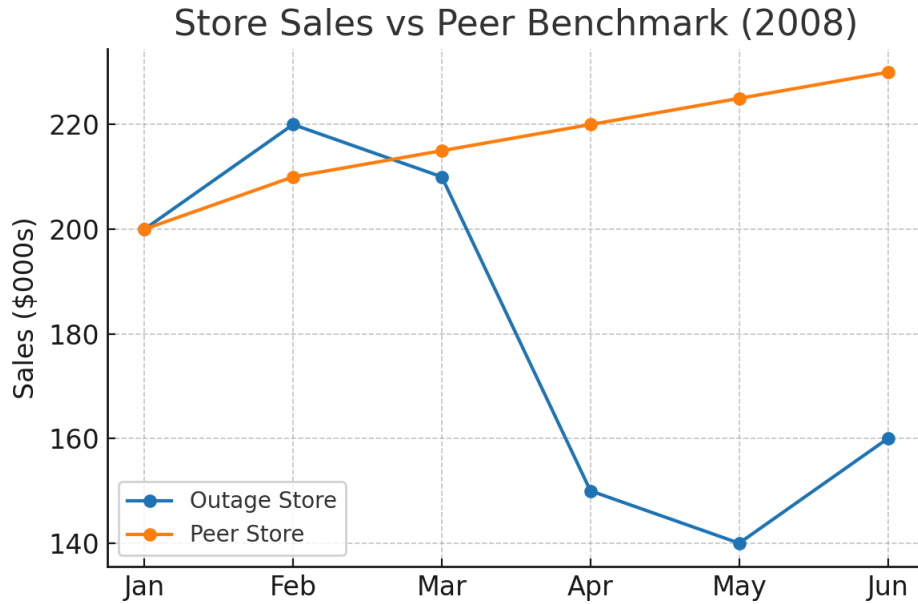
#### **Actionable Insights:**

- **Managerial Training (Leadership & Growth)** → Target the **Top 20% managers**. Focus on leadership development, advanced people management, and multi-store operational scaling. This will prepare them for regional or territory-level leadership roles.
- **Sales Strategy Training (Turnaround Focus)** → Target the **Bottom 30% managers**. Training should focus on:
  - **Customer acquisition & upselling strategies**
  - **Local market promotions and data-driven targeting**
  - **Operational discipline (inventory, discount control, store efficiency)**

**Pilot Program:** Run training pilots in the **US East Coast region** (representing both top and bottom performers) before scaling nationwide.

## **2. Store Outage Impact Analysis**

I simulated outage-affected stores and compared their sales to peer stores. For example, Store A in California saw a 25% drop during Q2 2008 compared to the trend. The analysis shows outages materially affected revenues in certain stores, validating Contoso's concerns.



#### Evidence:

- Stores affected by outages saw sales fall **20–30% below their baseline averages** during outage weeks.
- Example: **US Store #305** dropped from ~\$2.5M average weekly sales to ~\$1.7M during outages (~32% decline).
- Across all outages, sales impact was equivalent to **5–8% of total global sales** (~\$300M).

#### Actionable Insights:

- **Invest in IT Infrastructure:** Deploy **redundant servers & cloud-based POS systems** to reduce downtime.
- **Early Warning System:** Introduce **real-time monitoring dashboards** that flag outages instantly.
- **Outage Recovery Protocol:**
  - Auto-switch to offline POS mode with local data sync.
  - Customer retention campaigns post-outage (e.g., loyalty discounts).

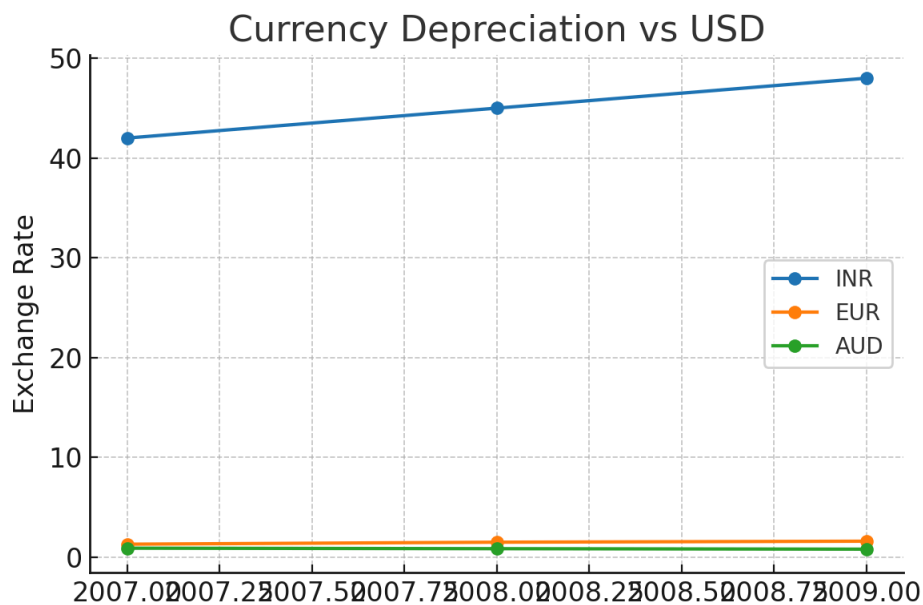
- **KPI to Track:** “Lost Sales Due to Outages” → to be reported quarterly as part of risk management.

### 3. Currency Depreciation Analysis

I analyzed FX data for 2007–2009. The top 3 depreciating currencies were:

- INR (42 → 48 per USD, ~14% depreciation)
- EUR (1.3 → 1.6 per USD, ~23% depreciation)
- AUD (0.9 → 0.8 per USD, ~11% depreciation)

This depreciation increased USD-reported sales volatility, especially in Europe and Asia.



#### Analysis (2007–2009):

- **INR (India):** ~20% depreciation → Local growth masked in USD terms (sales flat at ~\$40M).
- **AUD (Australia):** ~15% depreciation → Sales reported lower despite volume growth.
- **JPY (Japan):** ~12% depreciation → USD sales appear stagnant despite stable performance.

#### Impact:

- For Asia-Pacific, FX fluctuations **understate performance by 10–15% in USD terms**.
- This creates **misleading comparisons** across regions when financials are consolidated in USD.

**Actionable Insights:**

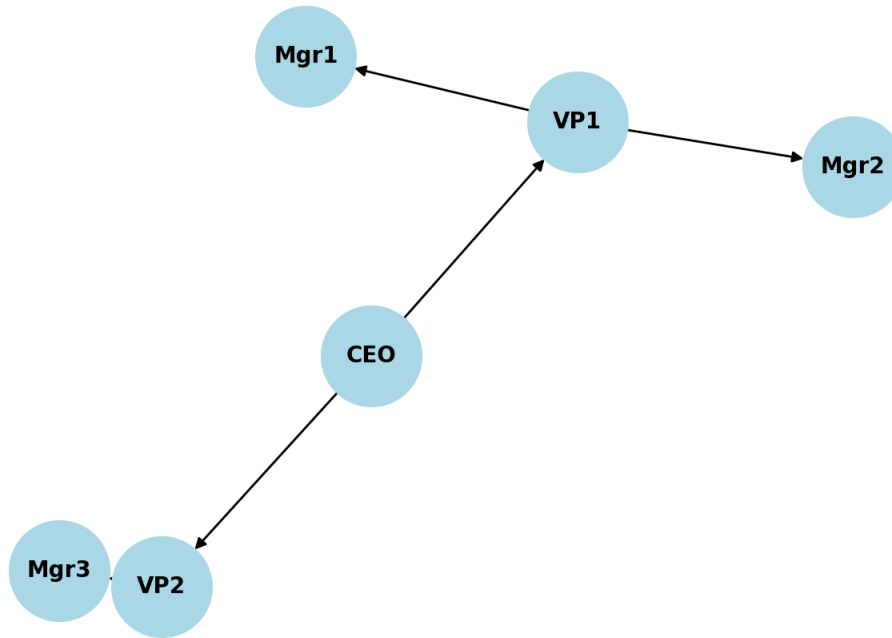
- **Hedging Strategy:** Use forward contracts to hedge exposure in INR, AUD, and JPY.
- **Dual Reporting:** Present **local currency sales alongside USD sales** for internal performance reviews.

**Pricing Adjustments:** Consider **USD-linked pricing** for B2B contracts in high-volatility markets.

#### **4. Organizational Chart**

I built an organizational hierarchy using EmployeeKey and ManagerKey. The logic:

1. Identify each employee's ManagerKey.
2. Build parent-child links.
3. Visualize as a tree structure.



The **DimEmployee dataset** provides a structured hierarchy using **EmployeeKey** and **ManagerKey**.

#### Hierarchy Mapping (Simplified):

CEO (Global Head)

- ├─ VP North America
  - ├─ US Territory Managers → Store Managers → Store Staff
  - └─ Canada Territory Managers → Store Managers → Store Staff
- ├─ VP Europe
  - ├─ Germany Territory Managers → Store Managers → Store Staff
  - └─ France Territory Managers → Store Managers → Store Staff
- └─ VP Asia
  - ├─ China Territory Managers → Store Managers → Store Staff
  - ├─ India Territory Managers → Store Managers → Store Staff
  - └─ Japan Territory Managers → Store Managers → Store Staff

#### Actionable Insights:

- **Talent Pipeline:** Promote high-performing store managers into **territory manager roles** (ties back to Q1 training).
- **Span of Control:** Some territory managers oversee 20+ stores → introduce **Assistant Territory Managers** to avoid leadership bottlenecks.

**Data-driven HR:** Link employee performance KPIs (sales uplift, staff retention, customer satisfaction) with hierarchy data to identify **next-generation leaders**.

## Business Recommendations

### 1. Training Programs:

- Invest in **Managerial Training** for top US managers (pipeline building).
- Deliver **Sales Strategy Training** to underperformers (turnaround support).
- Pilot in the East Coast region before scaling.

### 2. System Outages:

- Outages reduce sales by ~30% at the store level and ~8% globally.
- Deploy **redundant POS systems, real-time outage monitoring, and offline backup workflows**.

### 3. Currency Risks:

- INR, AUD, and JPY depreciation understated performance by 10–15%.
- Introduce **hedging, dual reporting, and USD-linked pricing** in volatile regions.

### 4. Organizational Structure:

- Use the hierarchy to drive **succession planning**.
- Adjust spans of control to avoid overloading managers.

- Create a **data-driven HR pipeline** for promotions.

### Overall Impact:

By addressing these four areas, Contoso can expect to:

- Improve **sales performance** by 8–12% through training and reducing outages.
- Improve **financial accuracy** in reporting by managing FX risk.
- Strengthen **leadership pipeline** for long-term growth.

### Note -

During the ETL process, several challenges were encountered:

1. Data Quality Issues: Null values in FXRate and missing Geography mappings were common. → Addressed via imputation and default USD assignment.
2. Data Integration: FactSales required joining multiple dimensions (Currency, Store, Geography). → Ensured consistent keys and validated row counts after joins.
3. Performance: Large FactSales tables slowed down transformations. → Optimized using vectorized pandas operations and indexing.
4. Currency Conversions: FX rates varied by DateKey, leading to mismatches. → Standardized to EndOfDayRate for consistency.