

Nintendo Switch Sales — Mock Case Study

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Section 0 — Case Study Context

Case Study: Nintendo Switch Sales Performance Analysis

Background: Nintendo wants to evaluate the overall performance of the Nintendo Switch console since its launch in 2017. As one of the company's most successful products, leadership wants to understand how the Switch has performed across its lifecycle to identify indicators of success and areas of weakness. The executive team is interested in a clear, data-driven retrospective that highlights sales performance trends, peak periods, regional contributions, and long-term sustainability. These insights will help Nintendo assess the effectiveness of its sales and marketing strategies over the past years and benchmark future product expectations.

Prepare a sales performance report in Tableau dashboard that will:

- Summarize overall sales performance of the Nintendo Switch from launch through the most recent quarter.
- Highlight peak sales periods (by quarter and year) to evaluate repeat seasonal strength.
- Analyze lifetime sales milestones and cumulative growth to show scale of adoption.
- Break down regional performance to identify strongest and weakest markets.
- Measure growth sustainability by examining quarter-over-quarter (QoQ) and year-over-year (YoY) trends.

Key Questions to Answer:

1. What was the overall sales trajectory of the Nintendo Switch from launch to the most recent quarter?
 2. Which quarters or years represented peak sales, and how consistent were those peaks?
 3. How much did the Switch sell in total (lifetime sales), and what milestones were achieved?
 4. How balanced was performance across regions (Americas, Europe, Japan, Other)?
 5. Did the Switch maintain growth beyond launch years, or did sales slow sharply after initial hype?
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Section I — Executive Summary

Answers to the key questions using the final dashboard as reference

- 1) **Overall sales trajectory (2017 → latest quarter)**
Cumulative sales rose rapidly from launch through **2020**, with clear step-ups during holiday seasons. From **2021–2023** growth normalized (late-cycle), but the console continued to add units each quarter. In **2024**, YoY improved vs. 2023 (per the *Yearly Sales Growth Rate* KPI table), indicating a modest rebound. The cumulative curve remains upward-sloping throughout the period.
 - 2) **Peak periods (quarters and years)**
Holiday **Q4** quarters consistently outperform. The *Best Performing Quarters* view highlights **2020 Q4** as the top quarter, with other strong showings in prior/post holiday quarters (e.g., **2019 Q4**, **2021 Q4**). At the yearly level, **2020** is the peak year in the *Peak Performance Years* chart.
 - 3) **Lifetime sales & milestones**
The dashboard's *Cumulative Sales (M)* KPI shows a lifetime total of **150.87M** units. The *Cumulative Sales by Year & Quarter* line indicates milestone crossings at **50M**, **100M**, and **150M** (annotated on the chart). The latest quarter added ~**2.74M** units (as displayed alongside the cumulative KPI), pushing the total to the current 150.87M.
 - 4) **Regional balance (Americas, Europe, Japan, Other)**
The *Regional Sales by Region (TOTAL SALES)* chart shows contributions of **Americas 38.32%**, **Europe 26.99%**, **Japan 24.41%**, **Other 10.26%**. The Americas are the top region by sales, as summarized in the KPI tile.
 - 5) **Sustainability beyond launch years**
Momentum was strongest through 2020. From **2021–2023** the console transitioned into a mature phase with slower quarters; however, sales remained positive and continued to accumulate. **2024** shows YoY recovery against 2023 in the KPI table, consistent with late-cycle stabilization rather than sharp decline.
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Section II — Tableau Analysis

KPI Formulas (exact Tableau expressions) and Interpretations

All table calculations are computed along **Table (across)** with a chronological Quarter Date.

1. Last Quarter Sales (M)

- **Description:** Total sales (M) in the most recent quarter.
- **Tableau Expression:** SUM([Sales M])

- **Interpretation:** Snapshot of current momentum. Filter the view to the **latest quarter**.

2. Quarter-over-Quarter (QoQ) % Growth

- **Description:** Percentage change vs. the previous quarter.
- **Formula (math):** $(\text{This Q} - \text{Previous Q}) / \text{Previous Q}$
- **Tableau Expression:**

$(\text{SUM}([\text{Sales M}]) - \text{LOOKUP}(\text{SUM}([\text{Sales M}]), -1)) / \text{LOOKUP}(\text{SUM}([\text{Sales M}]), -1)$

- **Interpretation:** Positive = accelerating momentum; negative = slowdown. Computed along **Table (across)**.

3. Year-over-Year (YoY) % Growth

- **Description:** Percentage change vs. the same quarter last year.
- **Formula (math):** $(\text{This Q} - \text{Same Q Last Year}) / \text{Same Q Last Year}$
- **Tableau Expression:**

$(\text{SUM}([\text{Sales M}]) - \text{LOOKUP}(\text{SUM}([\text{Sales M}]), -4)) / \text{LOOKUP}(\text{SUM}([\text{Sales M}]), -4)$

- **Interpretation:** Neutralizes seasonality; highlights long-term sustainability.

4. Rolling 4-Quarter Sales (M)

- **Description:** Sum of sales over the last 4 quarters (run-rate).
- **Tableau Expression:**

$\text{WINDOW_SUM}(\text{SUM}([\text{Sales M}]), -3, 0)$

- **Interpretation:** Smooths seasonal spikes; measures annualized demand trajectory.

5. Lifetime Sales (Cumulative)

- **Description:** Total cumulative sales since launch.
- **Tableau Expression:**

$\text{RUNNING_SUM}(\text{SUM}([\text{Sales M}]))$

- **Interpretation:** The latest point on the line equals **lifetime sales**. Best indicator of scale and market penetration.
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Dashboard Views & Questions

- **Cumulative Sales Over Time:** Answers lifetime scale and trajectory; endpoint = lifetime total (150.87M).
 - **Global Quarterly Sales Trend Chart:** Shows quarterly contributions by region; explains step-ups leading to cumulative milestones.
 - **Peak Performance Years:** Identifies **2020** as the strongest year.
 - **Best Performing Quarters:** Shows recurring **Q4** strength with **2020 Q4** as the top quarter.
 - **Regional Sales by Region (TOTAL SALES) & Region YoY:** Quantifies regional balance and year-over-year changes by region.
 - **Yearly Sales Growth Rate — KPI:** Summarizes YoY by year (positive through 2019–2020, softer 2021–2023, rebound in 2024).
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Guardrails & Common Pitfalls

- Use a true Quarter Date and ensure **chronological** sorting.
- Confirm table calcs are set to **Table (across)** (or Quarter path in the view).
- Remember: filters redefine the computation window for LOOKUP () and WINDOW_SUM ().
- Keep in consideration calendar vs. fiscal definitions consistent across all views (in this case I decided to use calendar view as it was easier for me to come with insights).

Section III — Learnings - Analytics & Business Skills

- **KPI design & validation:** Framed the analysis around *Cumulative Sales (M)* with supporting momentum metrics (QoQ, YoY, Rolling 4Q). Verified formulas against Tableau's table-calc behavior and ensured chronological addressing.
- **Seasonality & lifecycle analysis:** Interpreted Q4 holiday effects, pandemic-era anomalies, and late-cycle normalization through a combination of quarterly bars, YoY, and rolling run-rate.
- **Executive communication:** Converted findings into concise answers to the five business questions and ordered the dashboard to tell a top-down story (KPI tiles → yearly/quarterly → cumulative).

Tableau Skills

- **Table calculations mastery:** Implemented and debugged `RUNNING_SUM`, `LOOKUP`, and `WINDOW_SUM` with **Table (across)** addressing; confirmed compute-using and sort order to avoid misalignment.
- **Calculation auditing:** Matched expressions exactly to the workbook fields (e.g., [Sales M]) and validated outputs against the *Yearly Sales Growth Rate* table and the cumulative line endpoint.
- **Milestone and readability design:** Added milestone annotations (50M/100M/150M) on the cumulative line and configured labels/tooltips for year/quarter comparisons.
- **Dashboard composition:** Balanced multiple views (KPI, yearly peaks, best quarters, regional totals, cumulative line) with filters and legends while preserving a coherent reading order.

Excel Data Cleaning

- **Source consolidation & schema alignment:** Combined multiple raw sheets/exports; standardized column names, units (millions), and region labels (Americas/Europe/Japan/Other).
- **Date normalization:** Converted disparate date formats to a canonical **Quarter End Date**; generated helper fields for Year, Quarter, and Year-Quarter keys used by Tableau.
- **Type fixing & null handling:** Coerced numeric types, surfaced and treated null/zero edge cases to prevent divide-by-zero in QoQ/YoY.

- **De-duplication & integrity checks:** Removed duplicate records, reconciled overlapping entries, and ran tie-outs vs. official totals where available.
- **Reshaping for analysis:** Built clean wide→long transformations for region splits; created pivot tables to validate quarterly sums and match Tableau aggregates.
- **Documentation & versioning:** Kept a change log (columns added/renamed, filters applied) so the workbook is reproducible.

What I'd Like to Improve Next

- Parameterize a **Date Range** and **Granularity** toggle (Quarter/Year) for flexible views.
- Add a compact **methodology** note on the dashboard describing data cleaning steps and calc logic for reviewers.
- Use the Fiscal year as the calendar view for the table.
- Add more flare to the dashboard and colors that can resemble Nintendo.