

Gaming Industry Trends: From Release to Revenue-(1980-2024)

1. Project Objective

This project focuses on analyzing a dataset of video games across multiple consoles, genres, and publishers. The dataset includes critical attributes such as:

- **Game details:** title, console, genre, publisher, developer
- **Performance metrics:** critic scores, total sales, regional sales (NA, JP, PAL, Other)
- **Timeline data:** release date, last update

Overview

- **Identify Top Performers**
 - **Regional Market Analysis**
 - **Critic Score vs Commercial Success**
 - **Genre & Console Trends**
 - **Time-Based Insights**
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2. Data Sources

- **Source Description and Timeline:** Maven Analytics and 1980-2024
 - **Domain:** Gaming / Commerce/ Retail / Sales Analytics etc
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3. Problem Statement

- The video game industry is a multi-billion-dollar global market, yet predicting the success of individual titles remains a significant challenge. While some games achieve massive commercial success, others underperform despite strong critical reception or belonging to popular franchises.
- **Regional Variability:** Sales performance differs sharply across North America, Japan, Europe (PAL), and other regions, reflecting diverse cultural preferences.

- **Console Generations:** Titles released across multiple platforms (PS3, PS4, Xbox 360, Xbox One, Nintendo Switch, etc.) show inconsistent performance, making cross-console comparisons difficult.
 - **Genre Popularity:** Shooter, Sports, RPG, and Action-Adventure titles perform differently depending on region and console, but the drivers of these differences are unclear.
 - **Critic Score vs Sales:** High critic ratings do not always translate into strong sales, while some lower-rated games achieve commercial success due to brand recognition or marketing.
 - **Temporal Trends:** Shifts in consumer demand over time, influenced by console cycles and franchise evolution, are not well understood.
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4. Attribute (Column /Features) Details:

Title	Value	Description
Console	PS4, X360, NS	Console the game was released on
Genre	Action, Shooter, Sports	Category of the game based on gameplay style
Publisher	Rockstar Games, Ubisoft	Company responsible for publishing the game
Developer	Rockstar North, EA Canada	Studio that developed the game
Critic score	9.7	Average critic rating (numeric, typically out of 10)
Total sales	19.39	Total worldwide sales (in millions of units)
Other sales	3.02	Sales in other regions (millions)
Release date	11/18/2014	Official release date of the game
Last update	1/3/2023	Last recorded update in the dataset

5. Tools & Technologies

Data Collection & Storage

- Microsoft Excel – for initial dataset storage, cleaning, and organization.

- **Power Query** – for data transformation, handling duplicates, missing values, and formatting.

Data Analysis & Processing

- **Python (Pandas, NumPy)** – for advanced data manipulation, statistical analysis, and preprocessing.
- **SciPy / Stats Models** – for correlation analysis, hypothesis testing, and statistical modeling.

Data Visualization

- **Power BI** – for interactive dashboards, data modelling, and DAX-based calculations.
- **Matplotlib, Seaborn, Plotly** – for detailed charts, graphs, and trend visualizations.

Business Intelligence & Reporting

- **DAX (Data Analysis Expressions)** – for creating calculated measures and KPIs in Power BI.
- **Microsoft Word / Google Docs** – for documentation and report writing.
- **Microsoft PowerPoint / Canva** – for presenting insights visually to stakeholders.

Collaboration & Version Control (Optional)

- **Git / GitHub** – for tracking changes, maintaining code, and collaborative work.

6. Data Pre-Processing (Excel / Power Query)

Tasks Performed:

- Import the raw dataset into Excel and connect it to Power Query for transformation.
- Remove duplicate records based on game title and console to avoid double-counting.
- Handle missing values in columns such as critic scores, sales, or release dates by either imputing, dropping, or marking them as “Unknown.”

- Standardize data types:
 - ❖ Text for attributes like title, console, genre, publisher, developer
 - ❖ Numeric for critic scores and sales figures
 - ❖ Date format for release date and last update
 - Standardize text fields by trimming spaces, fixing casing (e.g., “PS4” vs “ps4”), and unifying publisher/developer names.
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7. Data Modelling and DAX (Power BI)

- Single Table Model: Dataset is already denormalized, start with a flat model.
 - Calculated Columns & DAX Measures: Implemented DAX formulas for key metrics, such as Total Count , Sales by Year ,Top sales, calculated count rows
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8. Analysis and Visualizations (Power BI)

Dashboard Features:

The dashboard enables exploration of Video Gaming Sales data to uncover patterns, disparities, and opportunities for improvement. Core analytical objectives include

Genre Performance: Action and RPG genres consistently lead in global sales, with notable spikes during holiday seasons.

Platform Trends: Nintendo Switch dominates handheld sales, while PlayStation leads in console exclusives.

Regional Insights:

- **North America:** Strong preference for sports and shooter games.
- **Europe:** RPGs and simulation games show higher engagement.

Asia: Mobile gaming and MMOs outperform console titles.

Visualization Component

- Bar Charts
- Pie Charts
- Line Charts
- Tables with Slicers
- KPI Cards



9. Insights & Conclusions

- Top-Selling Titles & Franchises
- Regional Market Differences
- Critic Score vs Sales
- Console & Generation Trends
- Temporal Trends

10. Conclusions

- The integration of Excel and Power BI proved effective for end-to-end data analysis, from raw data to Video Gaming **Sales analytical**

- The video game market is increasingly fragmented by region, genre, and platform, requiring nuanced strategies.
- Data-driven decisions—grounded in genre trends, platform shifts, and regional behaviors—are essential for competitive advantage.
- Ongoing analysis and visualization will be critical for adapting to rapid changes in consumer behavior and technology.