

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

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#### 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.

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## **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.**