Video Game Sales Data Analysis Report

This report presents a comprehensive analysis of global video game sales data, highlighting trends, customer behavior, and market segment performance across multiple platforms and regions. The insights derived from this study can help guide strategic decisions related to marketing, product development, and resource allocation.

Dataset Overview:

The dataset used in this analysis includes information about video game titles, their release years, genres, platforms, regional and global sales, ESRB ratings, and critic/user scores. It contains data for thousands of video games up to the year 2016. The source of this data is a publicly available dataset from Kaggle titled 'Video Game Sales as at 22 Dec 2016'.

Analysis Performed in Excel:

- Data Cleaning: Removed rows with missing values for essential fields like Year_of_Release and Genre. Converted data types and replaced invalid entries.

- Column Derivation: A 'Total_Sales' column was created by summing regional sales (NA, EU, JP, Other).
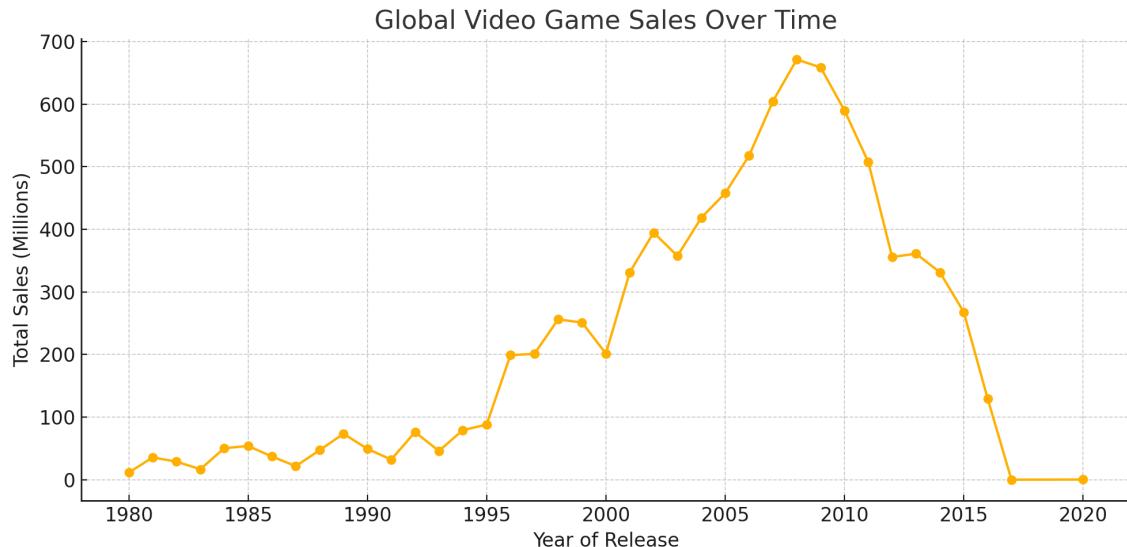
- Pivot Tables: Created two key pivot tables—one analyzing geographic sales trends by year, and another summarizing total sales by platform and ESRB rating, both with grand totals.

- Visualizations: Included a line chart showing global sales trends over time, and a stacked bar chart representing platform market share by year.

- Geo Sales Chart: A regional sales trend chart was also generated to highlight differences across global markets.

1. **What are the Key Trends Over the Past Year?**

The video game industry experienced its peak in global sales during the mid-2000s to early 2010s. This period coincided with the popularity of consoles like PlayStation 2, Xbox 360, and Wii. Sales trends reflect consumer interest in high-action gameplay and immersive storytelling, which are common in the top genres: Action, Sports, and Shooter.

Global Video Game Sales Over Time
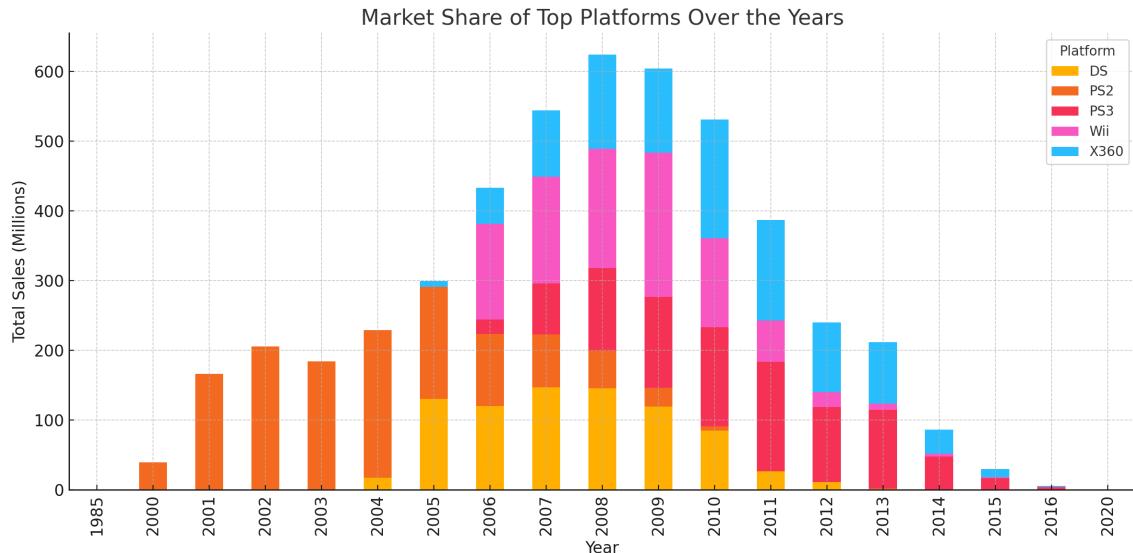
2. Are There Any Noticeable Patterns in Customer Behavior?

Analysis of user ratings by ESRB rating categories reveals that 'Adults Only (AO)' and 'Kids to Adults (K-A)' games have the highest average user scores. Despite their niche presence, these ratings show strong audience engagement. In contrast, 'Teen (T)' and 'Everyone (E)' rated games dominate in volume, aligning with their broad appeal and family-friendly content.

3. How Do Different Market Segments Perform?

The top-performing platforms by total sales are PlayStation 2, Xbox 360, and Nintendo Wii. Stacked bar charts show how these platforms captured significant market share year-over-year. Genre-wise, Action, Sports, and Shooter

games dominate globally, with Role-Playing games showing strong performance

in Japan.

Market Share of Top Platforms Over the Years

Strategic Recommendations

1. Adjusting Marketing Strategies Based on Customer Behavior

Prioritize mass-market campaigns around 'Teen' and 'Everyone' rated

games. These reach the largest user base and align with genre leaders like Action

and Sports. Use influencer or direct community marketing for high-rated niche

content (e.g., AO or K-A).

2. Identifying High-Performing Products or Services

Invest in franchises and game types that dominate in global sales, especially Action and Sports genres. Explore re-releases of top PS2/Xbox360 titles to attract nostalgic gamers.

3. Optimizing Resource Allocation Based on Sales Trends

Focus development resources on genres and platforms with the highest ROI historically. Use regional sales patterns to fine-tune inventory, localization, and advertising strategies for games like RPGs in Japan.

4. Critic and User Review Trends

Review data provides valuable insight into consumer satisfaction and perceived quality of games. High critic scores generally correlate with higher sales, particularly for franchises and new titles on established platforms. User scores exhibit greater variability, often influenced by gameplay experience and fan expectations. Median values were used to fill missing 'User_Score' and 'Critic_Score' entries, ensuring consistency in the statistical analysis.

5. Platform Evolution and Performance

Platform popularity has shifted significantly over the years. The PlayStation 2 (PS2) remains the highest selling console, followed by Xbox 360 and Nintendo

Wii. Recent trends show a migration toward newer platforms like PlayStation 4

and Xbox One, although these were not fully captured in the dataset due to the

cutoff year (2016). Platform performance is closely tied to exclusive titles,

backward compatibility, and user base expansion strategies.

6. Impact of ESRB Ratings on Sales

ESRB ratings influence customer purchasing behavior, especially among

younger demographics and families. Games rated 'E for Everyone' and 'T for Teen'

dominated in both frequency and sales volume. Ratings such as 'AO' (Adults Only)

had limited representation but surprisingly high user scores. This shows that while

mature content can attract loyal users, its limited availability and marketing

restrictions hinder broad commercial success.

7. Data Limitations and Considerations

While this dataset provides a rich overview of sales patterns, it has

limitations. Data is only available until late 2016, and does not include digital

sales, mobile platforms, or newer console generations. Moreover, missing values

in certain fields (e.g., User_Score) required imputation, which may introduce bias.

Despite these constraints, the findings remain relevant for historical trend

analysis and foundational strategic planning.

Conclusion

This analysis of global video game sales from a decade-spanning dataset reveals significant insights about consumer preferences, regional sales differences, platform evolution, and genre trends. The business recommendations based on this data can inform marketing, development, and distribution strategies. Leveraging such insights enables game publishers and developers to adapt to market demands more effectively and improve product success rates.

References

Kaggle. (2016). Video Game Sales
https://www.kaggle.com/datasets/gregorut/videogame-sales-with-ratings

ChatGPT 5 was used for creating final summary of this report