Cullen College of Engineering
UNIVERSITY OF HOUSTON

Video Games Sales Report

Nikita Anil Yadav (2349683)
Mahajabin Mostafa (2349322)
Muhammad Ali (2432088)
Felipe Flores (1640618)
Nupoor Vijay Kumbhar (2351355)
Ananya Kura (2413184)
Mashiat Nabila (2352332)
Snigdha Pervala (2305483)
Muhammad Asad Rehan (1951934)
Keerthi Priya Veerapalli (2308035)

Content

Introduction

The video game industry has grown into one of the largest and most influential entertainment markets in the world. Understanding sales trends within this industry can lead to more effective business strategies, helping developers and publishers create products that align with shifting consumer preferences. It also allows for a deeper look into how technological advancements have shaped the way games are consumed and valued.

Analyzing these trends benefits both publishers and consumers. For publishers, it offers insight into producing high-demand titles that generate greater revenue, which in turn supports continued development. For consumers, it means access to games that better meet their evolving interests and expectations.

To explore these ideas, this report uses a dataset covering video game releases from 1980 to 2020. The dataset includes key details such as global and regional sales, platforms, genres, and publishers. By analyzing this data, the goal is to uncover meaningful relationships and patterns that offer insight into the industry's development over time

This report offers a comprehensive overview of the dataset, highlighting its structure, key attributes, and limitations. It will examine global video game sales trends from 1980 to 2020, with a particular focus on sales by platform and genre. In addition, the report will analyze regional sales patterns and explore how different genres and publishers have influenced overall performance. Lastly, it will investigate the relationship between global and regional sales to uncover broader market dynamics.

Dataset Overview

The dataset provided a comprehensive overview of video game sales from 1980 to 2020. Each entry included information such as the game's genre, publisher, year published, platform, and regional sales figures, with a particular emphasis on North America, Europe, and Japan.

The original dataset consisted of 16,600 video games. To ensure the dataset was usable, entries with missing or incomplete information were modified. Specifically, missing publication years were replaced with the median year to avoid skewing the data, preserving its overall integrity. A total of 271 missing year entries were updated in this way. Additionally, unknown publishers were labeled as "Unknown," allowing for flexibility in analysis—such as easily excluding these entries when focusing on specific publishers and ensuring cleaner datasets. These adjustments were made to retain as much meaningful information as possible. In addition, “Years” needed to have its format converted. In the data set’s original form it is formatted as a float value, which was changed to an integer for the applications we intended.

The cleaned dataset includes the following attributes: Name, Platform, Year, Genre, Publisher, Year, North American Sales, European Sales, Japanese Sales, and Sales in Other Regions.

Name – The title of the video game (e.g., "Tetris").

Platform – The gaming system or console on which the game was released.

Publisher – The company responsible for publishing the video game.

Year - The year the video game was published.

North American Sales – The number of copies sold in the North American market.

European Sales – The number of copies sold in the European market.

Japan Sales – The number of copies sold in the Japanese market.

Other Sales – The number of copies sold in all other regions not explicitly listed above.

Overall Global Sales

At first glance, two dominant patterns stand out: North America leads in regional sales, and Action is the most popular game genre. While the dataset includes a wide range of platforms and publishers, only a few make a significant impact on global sales. These first impressions are not by chance either.

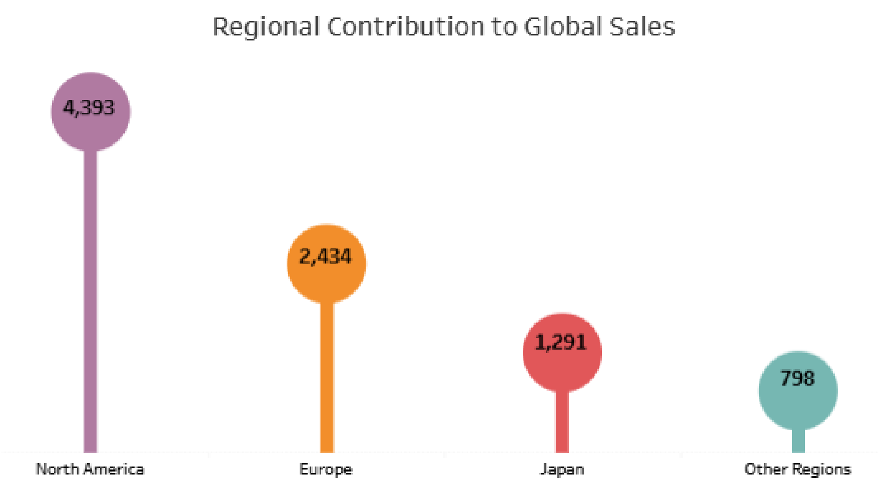

Figure 1: Regional Contribution to Global Sales

When looking at the “Regional Contribution to Global Sales” we can see North America's contribution to global video game sales is significant. North America’s global sales accounts for approximately 49.2% of total global sales. This is especially notable when compared to the next leading region Europe, which has nearly half the sales volume of North America approximating 27.3%. This highlights North America's position as a dominant consumer in the video game market. As well as both North America and Europe controlling roughly 76% of the overall global sales.

Overall Global Sales

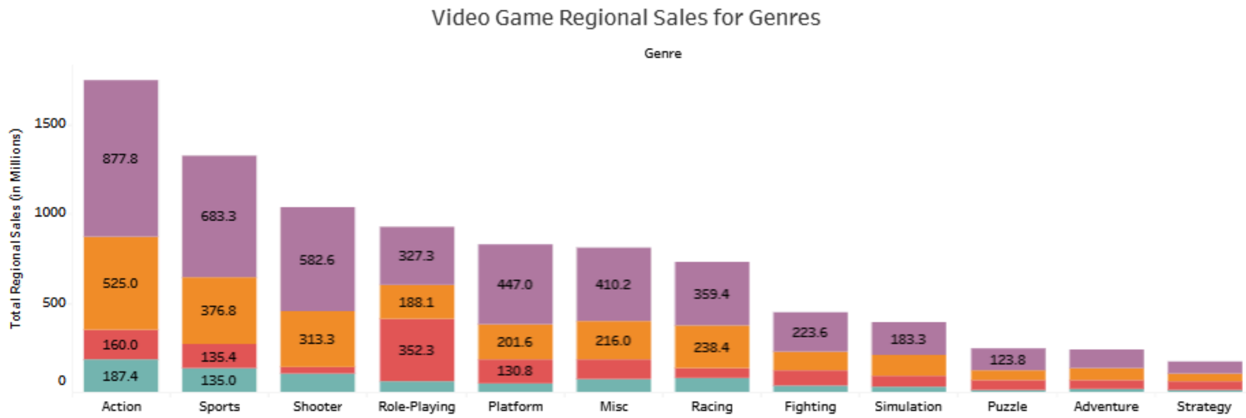

Figure 2: Video Game Regional Sales for Genres

When it comes to genre popularity, we can see in “Video Game Regional Sales for Genres” that Action games lead by a significant margin. They are closely followed by Sports and Shooter games, which also hold a substantial share of the market, highlighting strong competition among these leading genres. A major factor contributing to this trend is the influence of North American and European consumers (represented by purple and orange, respectively), who dominate global sales. As a result, the overall genre popularity is heavily shaped by the preferences of these two regions.

Overall Global Sales

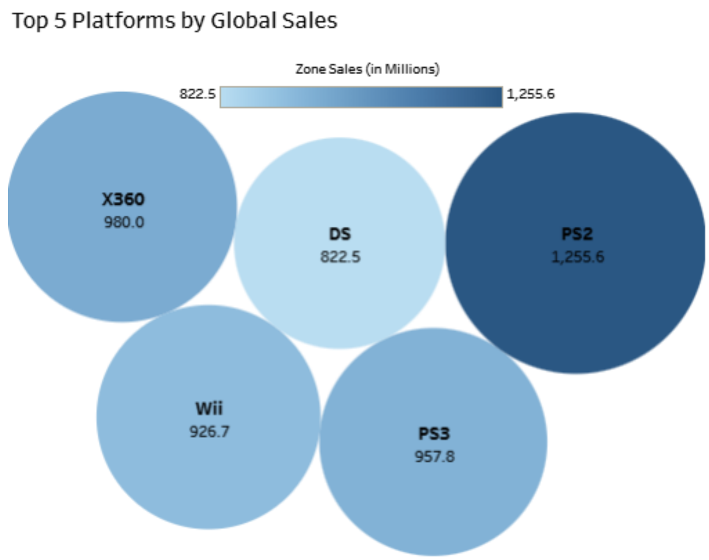

Figure 3: Top 5 Platforms by Global Sales

With platforms, there is a fairly wide distribution of popularity among consumers globally shown in “Top 5 Platforms by Global Sales”. While the PlayStation 2 (PS2) leads in global sales, there are still several other platforms that show comparable performance. The Xbox 360, Nintendo Wii, Nintendo DS (DS), and PlayStation 3 (PS3) each contribute evenly to overall global sales, indicating a well-balanced competition among these top platforms. There is healthy competition in terms of platforms, no one platform is out performing the others in popularity and demand.

Overall Global Sales

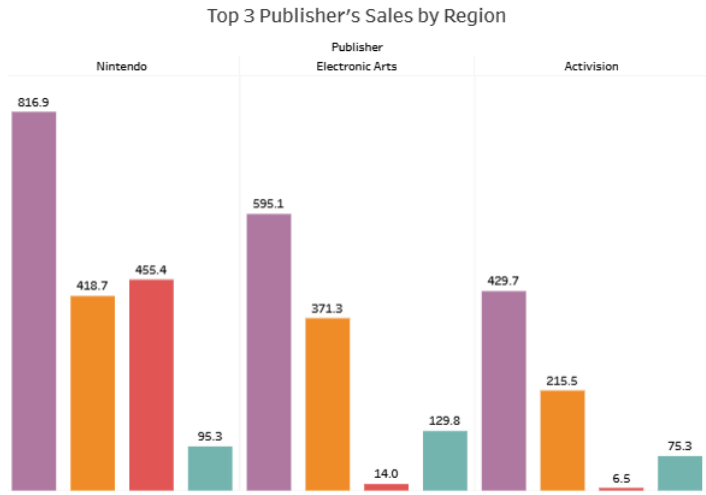

Figure 4: Top 3 Publisher’s Sales by Region

Lastly, we can see key publishers in “Top 3 Publisher’s Sales by Region”, with Nintendo ranking as the top publisher in global sales. Nintendo alone accounts for 37.96% of total global video game sales. The second-highest publisher, Electronic Arts (EA), trails by a margin of over 500 million units sold. Combined, these two companies contribute to more than half of all global sales, with Nintendo representing the majority share of that figure. Some effects that this could have on the market is the number of certain video game genres present. Publishers have a tendency to release one particular style of game. In addition, there are certain publishers that sell better in certain regions due to trust or popularity within that region. For instance, Nintendo sells exceptionally in Japan but other publishers sell poorly within that region. This could be due to loyalty to the company or the publishers ability to cater to their audiences in those regions.

When analyzing Global Sales trends it's important to look at the driving forces within the video game industry. Analyzing consumer desire in regions like North America and Europe, publishers gain an insight in determining the kind of product needed to stay market leaders. As well as looking to current market leaders to determine what the next craze or leading fad may be. Lastly, looking at current or past generation platforms. Trying to give to their strong and loyal communities to revive or retain the life left in certain platforms

Video Games Sales Over the Years

The evolution of video game sales from 1980 to 2020 is vividly illustrated through the two accompanying visualizations, offering unique perspectives on both genre and regional dynamics.

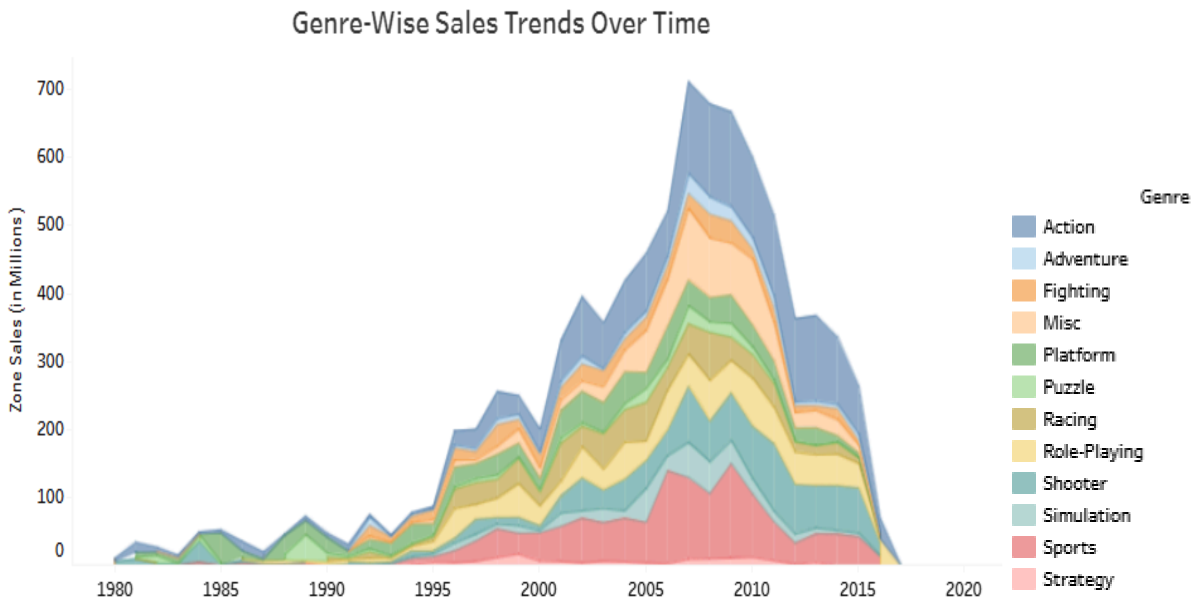

Figure 5: Genre-Wise Sales Trends Over

“Genre-Wise Sales Trends Over Time,” captures the genre distribution and sales growth across four decades. This visualization reveals a relatively flat sales trend in the early years, followed by a steep incline starting in the mid-1990s. A dramatic acceleration is visible from 2000 to 2008, during which total sales peaked—exceeding 650 million units globally. This peak aligns with the rise of iconic consoles like the PlayStation 2, Nintendo Wii, and Xbox 360, marking a pivotal shift in consumer behavior and technological adoption.

Within this chart, Action games (highlighted in the tooltip for 2003) emerge as the leading genre, showing dominance in both early momentum and sustained performance through the industry's golden years. The visual layering indicates growing diversification, with genres such as Shooter, Sports, and Miscellaneous expanding their presence. However, after 2010 the area chart reveals a consistent downturn in sales volume across all genres, underscoring a shift in industry focus—from traditional console games to mobile, freemium, and digital platforms. This decline mirrors broader market changes including shorter product life cycles, evolving user expectations, and the emergence of new gaming ecosystems.

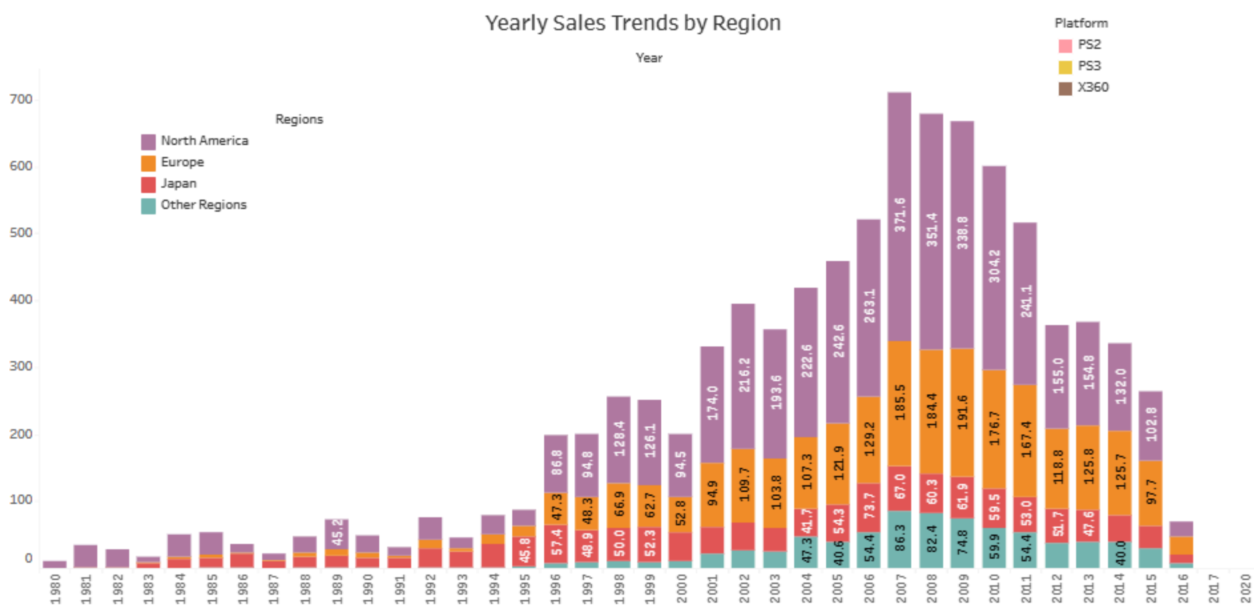

Figure 6: Yearly Sales Trends by Region

When looking at “Yearly Sales Trends by Region,” we can see a visualization that complements this genre-based analysis by illustrating how regional demand shaped global sales. The bars, segmented by North America (purple), Europe (orange), and Japan (red), show that North America was the dominant force behind the 2000s boom—contributing over 350 million units in 2008 alone. Europe follows a similar trajectory, with steady growth and peak contributions between 2007 and 2011. In contrast, Japan’s presence, once significant in the 1980s and 1990s, diminishes after 2005, reflecting a market transition toward handheld and mobile gaming—a trend not as prevalent in Western regions during that time.

Additionally, platform influence is embedded within the color-coded base of each bar (pink for PS2, yellow for PS3, brown for Xbox 360), demonstrating how the seventh-generation consoles directly fueled this surge. These platforms not only drove hardware adoption but also shaped genre success—Action, Shooter, and Sports genres performed exceptionally well on these systems due to their technological capabilities and flagship exclusives.

Taken together, these two visualizations present a coherent narrative: the video game industry experienced its most explosive growth between 2000 and 2010, powered by genre innovation, regional expansion, and hardware excellence. However, the post-2012 decline in genre-wide and regional sales reveals the industry's ongoing transformation. As developers adapt to new consumer platforms and global shifts, these trends serve as both a reflection of past success and a blueprint for future strategies.

Publisher and Platform Relationship

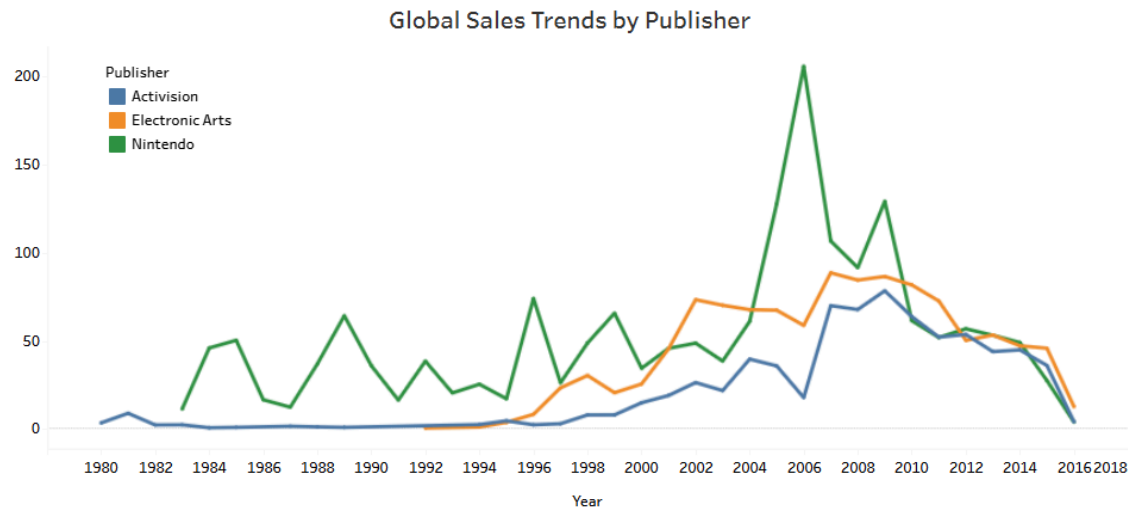

Figure 7: Genre-Wise Sales Trends Over (Showing Top 3 Publishers)

“Global Sales Trends by Publisher” illustrates the global sales performance of three major video game publishers—Activision, Electronic Arts, and Nintendo—spanning the years 1980 to 2016. The horizontal axis represents the year, while the vertical axis shows global sales in millions.

Nintendo, emerges as the dominant publisher in terms of peak performance. Its sales trend reveals several early rises during the late 1980s and 1990s, corresponding with the success of platforms like the NES and SNES. The most significant surge occurred around 2006, aligning with the launch of the Nintendo Wii and Nintendo DS, which brought widespread appeal and exceptional commercial success. Although Nintendo’s sales declined after 2009, it consistently remains one of the top-performing publishers throughout the observed period.

Electronic Arts (EA), maintains a more stable but gradually rising trend starting in the mid-1990s. Its peak occurs between 2005 and 2010, likely driven by its strong portfolio of annualized sports titles, such as *FIFA* and *Madden NFL*, along with popular franchises like *The Sims* and *Need for Speed*. EA shows resilience and consistency during a decade marked by rapid technological shifts in the gaming industry.

Publisher and Platform Relationship

Activision, displays a slower start with minimal sales during the 1980s and early 1990s, but begins rising steadily in the early 2000s. Its sales peaked around 2008–2010, likely fueled by the explosive popularity of the *Call of Duty* series. While Activision's performance slightly declines post-2012, it maintains competitive sales levels, staying on par with EA and Nintendo in the later years.

Overall, this chart highlights the unique growth trajectories of three industry leaders. Nintendo stands out for its sharp peaks, reflecting platform-driven booms. EA excels through consistent franchise-based sales, and Activision demonstrates late but aggressive market growth. The visualization offers a clear view of how each publisher has contributed to and shaped the video game industry across nearly four decades.

Publisher and Platform Relationship

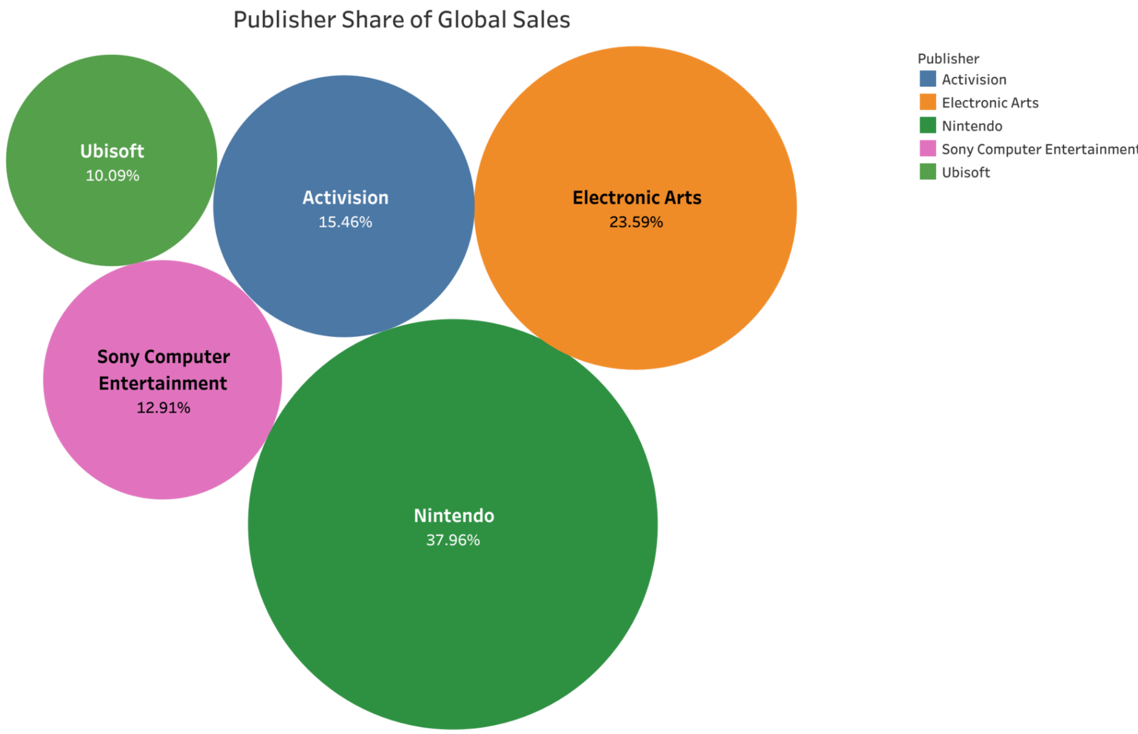

Figure 8: Genre-Wise Sales Trends Over (Showing Top 3 Publishers)

To represent the market share distribution of total global sales among major video game publishers the mark type used was a bubble for publishers with area indicating their share of total global sales. The larger bubbles convey greater market share dominance between other publishers. Nintendo emerges as the clear industry leader commanding a strong 37.96% of total global sales. This could reflect Nintendo's successful strategy of combining strong hardware (like the Wii and DS) with universally popular franchises such as Mario, Pokémon, and Zelda. Their consistent ability to create platform-exclusive titles with mass appeal has allowed them to capture a broader demographic, including casual and family gamers, which few competitors have matched at this scale. Electronic Arts (EA) holds a smaller 23.59% share potentially stemming from its annualized sports franchises (FIFA, Madden NFL) and other extensive action and shooter genre games. But the size gap between EA and Nintendo suggests that having

Publisher and Platform Relationship

diverse software like Nintendo outperforms the reliance on franchised series. In addition, other publishers contribute much smaller fractions individually, indicating a highly concentrated market where a few key players dominate most of the sales. This also implies tough barriers for new entrants and smaller studios to reach comparable volumes.

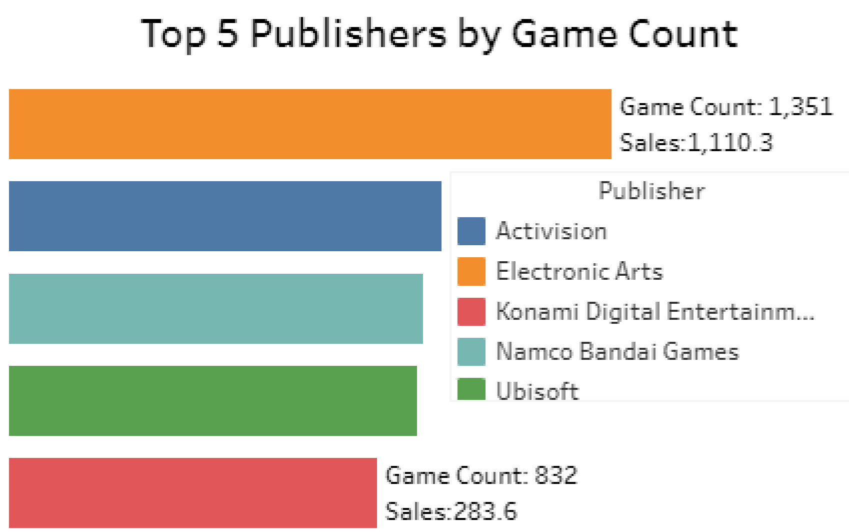

Figure 9: Top 5 Publishers by Game Count

When it comes to understanding the publishers performance globally based on the number of games they published, we used a horizontal bar chart with bar length indicating the total game count and how much sales they contributed to the gaming market in terms of volume.Electronic Arts emerged at the forefront having released 1,351 games, far surpassing the other publishers. This reflects that EA had an aggressive publishing strategy across multiple platforms and genres, leveraging annual sports series like FIFA and Madden, as well as branching into racing, simulation, and action games. EA's model relied on both quantity and brand longevity to maintain a dominant market presence. Activision behind EA had a lower game count since it focused more on blockbuster titles like Call of Duty and Destiny, suggesting a strategy centred on fewer but higher-budget releases. The other publishers—likely including

Publisher and Platform Relationship

names like Konami, Ubisoft, and others—had good but noticeably lower game counts. Their presence was strong in certain game genres or regional markets but a less aggressive global multi-genre expansion compared to EA. Electronic Arts' dominance globally was not just driven by sales but also by the sheer volume of releases they made. In contrast, other publishers appeared to prioritize quality or brand loyalty over quantity, resulting in smaller but often more concentrated games.

Impact of Genre On Sales

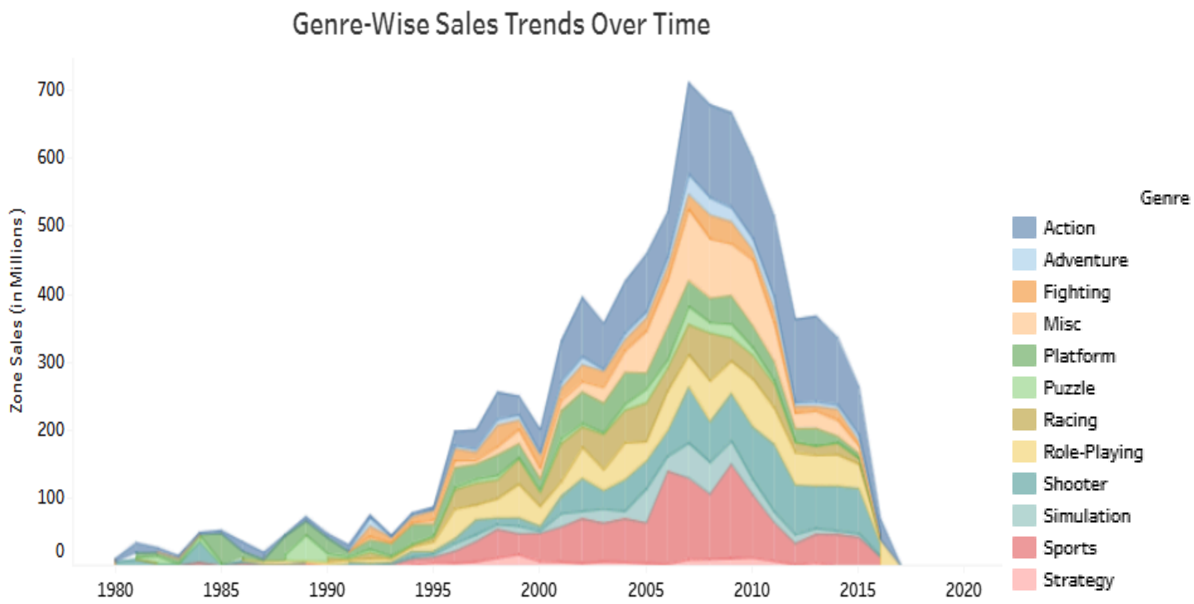

Figure 5: Genre-Wise Sales Trends Over Time

The area chart titled "Genre-Wise Sales Trends Over Time" illustrates how the popularity of different video game genres has evolved from 1980 to 2020. Sales began to noticeably increase in the mid-1990s, with a sharp rise from the early 2000s, peaking around 2008–2010. During this peak, Action games contributed the most to total sales, followed by Shooter and Miscellaneous genres. Platform and Racing games also showed strong performance during the mid-2000s. However, after 2010, there was a clear decline in sales across nearly all genres, especially noticeable in dominant categories like Action and Shooter. This suggests a shift in the industry or consumer interests post-2010. Moreover, the early 2010s saw a significant surge in mobile gaming and the increasing popularity of free-to-play games on various platforms. This shift diverted consumer spending and attention away from traditional console game sales, even within historically dominant genres. Overall, the chart shows that genre plays a significant role in driving trends in video game sales over time, with Action and Shooter genres experiencing the most sustained success during the industry's peak years.

Impact of Genre On Sales

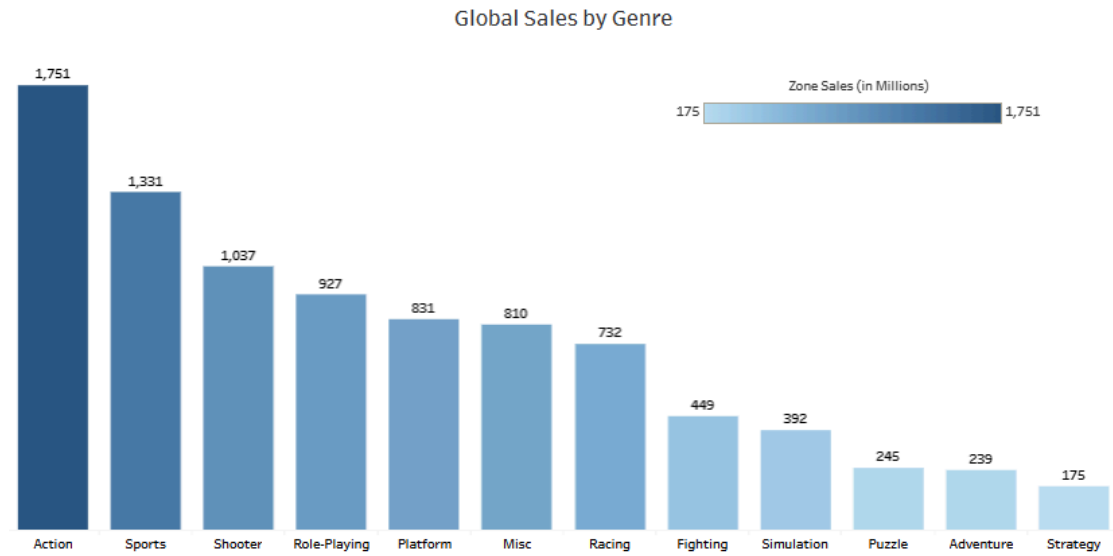

Figure 10: Global Sales by Genre

The bar chart titled *"Global Sales by Genre"* provides a comparative view of cumulative global sales by genre. Action games lead significantly with 1,751 million units sold, reinforcing their dominance shown in the trend chart. Sports and Shooter genres follow with 1,331 million and 1,037 million units respectively, underscoring their popularity and consistent demand. Role-Playing, Platform, and Miscellaneous genres also perform relatively well, though with a notable gap from the top three. On the lower end, genres such as Strategy, Adventure, and Puzzle record substantially fewer sales, each under 250 million units. This distribution illustrates a clear preference among consumers for fast-paced, immersive gameplay experiences over slower, more niche genres, confirming that genre type plays a crucial role in driving global video game sales.

Impact of Genre On Sales

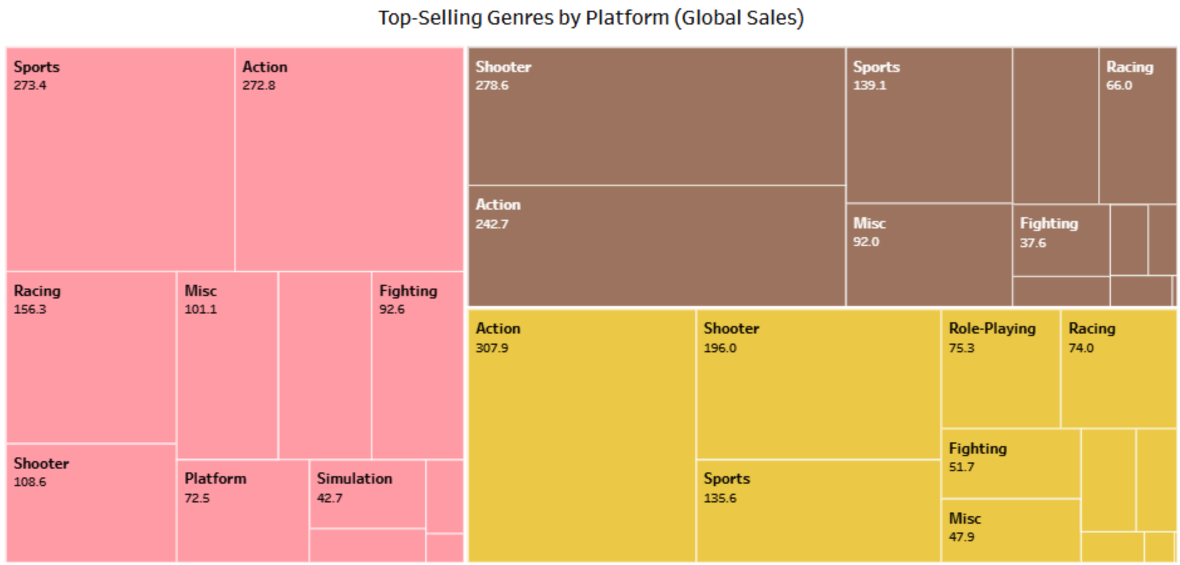

Figure 11: Top-Selling Genres by Platform (Global Sales)

Across different gaming platforms, the impact of genre on sales varies significantly and it is illustrated by a Tree Map above. On the PlayStation 2 (pink), Sports and Action genres led with sales of 273.4 million and 272.8 million units respectively, while Shooter and Miscellaneous genres also contributed. For the Xbox 360 (brown), Shooter games were the top-selling genre at 278.6 million units, followed by Action at 242.7 million, with Sports also showing a notable presence. The PlayStation 3 (yellow) saw Action as the dominant genre with 307.9 million units sold, with Shooter (196.0 million) and Sports also performing well, and Racing games appearing as a significant contributor on this platform. The Playstation 3 was dominant in the Action genre because of Platform Exclusives and Target Audiences. Each console often had a set of exclusive titles that fell within specific genres. These flagship games could significantly boost the overall sales of that genre on the platform. The most immensely popular exclusive games released for only Playstation 3 were Uncharted 2, The Last of Us, God of War 3 and Metal Gear Solid 4. This highlights how platform preference can influence the popularity and sales performance of different video game genres.

Geographic Sales Distribution and Regional Preferences

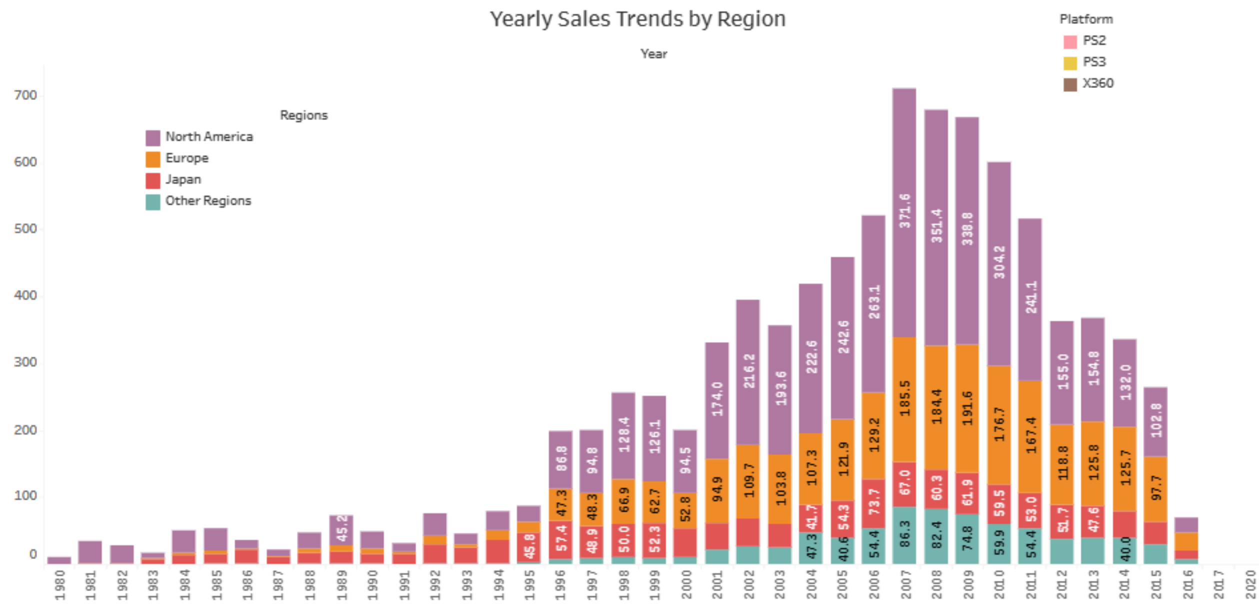

Figure 6: Yearly Sales Trends by Region

When looking at the regional sales trends over time, this stacked bar chart makes it visually easy to see each segment color-coded for a region—North America (purple), Europe (orange), Japan (red), and Other Regions (green). We see a steady rise in overall sales beginning in the early 1990s, followed by a sharp acceleration after 2000, reaching a peak around 2007–2009. The peak sales year was 2008, recording global sales over 700 million units, driven largely by dominant platforms of that generation including the PlayStation 2, Xbox 360, and Nintendo Wii. North America has constantly dominated sales, particularly from 2000 to 2012, contributing the largest share each year. It holds a critical market role in driving and adapting blockbuster game sales. Europe also saw significant growth during the 2000s possibly due to improved broader console availability and growing online gaming communities rising till 191.6 M sales in 2009. Japan's share, although substantial in earlier years, notably declined in relative terms post-2005 reflecting shifting regional preferences and perhaps a stronger transition to handheld and mobile gaming. Other regions (green) remain minimal contributors

Geographic Sales Distribution and Regional Preferences

throughout but show steady growth from 2003 onward. While small in absolute numbers, their presence suggests emerging opportunities in non-traditional markets

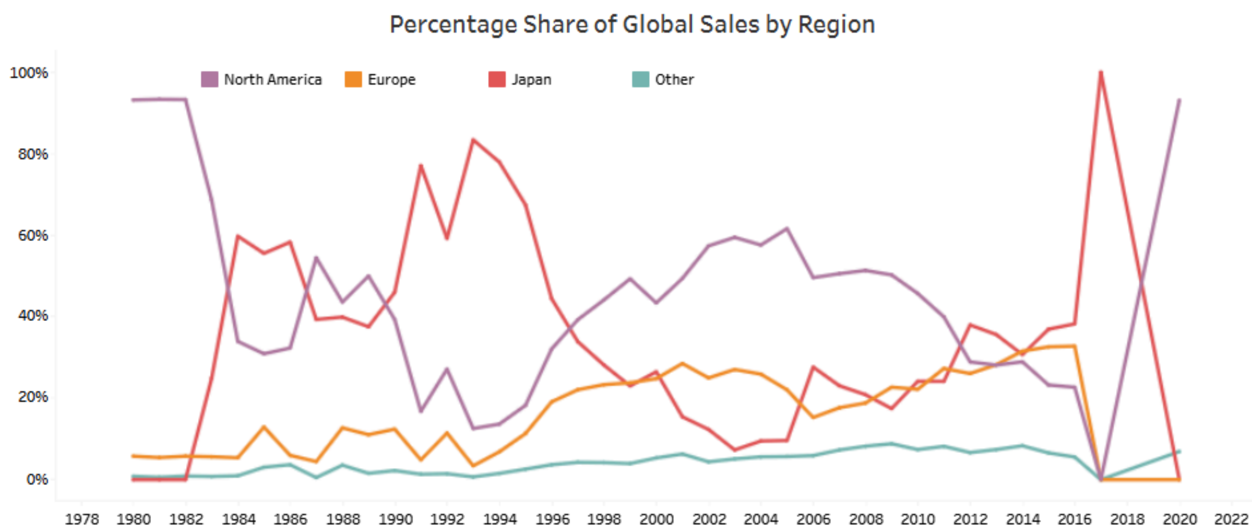

Figure 12: Percentage Share of Global Sales by Region

Another way of seeing the relative market sales shifts over time was analyzing the rise-fall trend of regional influence within the global gaming industry. From the chart, North America initially held near-total dominance in the early 1980s, accounting for almost 100% of global sales as we saw before but, this sharply declined as Japan rose to prominence during the mid-to-late 1980s, peaking above 80% share in the early 1990s—reflecting the success of Japanese-developed consoles and franchises during that period (NES, SNES, and early PlayStation). From the mid-1990s onward, North America began regaining ground, overtaking Japan by the early 2000s and stabilizing at around 40–60% of global sales through the 2000s and early 2010s. This resurgence aligns with the rise of Microsoft's Xbox platform, the success of Western-developed titles, and widespread console adoption in the U.S. and Canada. Europe had a gradual upward trend, from very low in the 1980s to a stable 20–30% share post-2000. Growing game distribution and rising player bases across EU markets could be the reasons.

Geographic Sales Distribution and Regional Preferences

Japan declined post year-1995, going below 20% by the 2010s. This decline showed shifting consumer habits in Japan, with greater interest in handheld and mobile gaming. Other regions, while still contributing a smaller share (mostly below 10%), showed a subtle increase suggesting that emerging markets were slowly gaining traction. The sharp decrease from 2015–2020 likely is due to data sparsity in the dataset causing percentage spikes due to low numbers

Conclusion

The video game industry has experienced several shifts over the past decades. Being shaped by consumer preferences, technological advancements, and regional market dynamics. Regions such as North America and Europe have become a critical region for publishers and developers. While genres such as Action, Sports, and Shooters have garnered the attention of many audiences, especially among the Western audiences.

When looking at publisher trends we have staples like Nintendo and Electronic Arts. We can see that Nintendo's dominance in global sales, driven by its successful platforms and family friendly franchises. Highlighting the power of brand loyalty and platform exclusivity. On the other hand, Electronic Arts leads in game volume, leveraging a strategy built on recurring franchises. These contrasting approaches outline the diversity in how publishers can achieve market success.

In terms of platform preferences, we can see a golden age that closely reflects the golden age of the video game industry. The most popular platforms were prevalent during this time. Despite new platforms being available the sales for them do not come close to comparing. Illustrating the quick shifts that form within the industry. From an abrupt rise to glory to the sudden fall from grace. A new era shifting to free digital games.

Overall, these trends paint a comprehensive picture of an industry in constant evolution. For stakeholders in the gaming space, staying attuned to regional preferences, genre trends, and platform innovation is essential for capturing market share and sustaining long-term success in an increasingly competitive and dynamic landscape.