Project Reflections

Introduction to Data Analytics

INSIGHTS FOR GAMECO EXECUTIVES

GameCo executives currently assume that regional sales have stayed consistent over time. Through my exploratory data analysis, I have identified notable shifts in each regions' sales. These shifts indicate that:

- North America's market share is declining as Europe's is on the rise.
- Japan has also been performing relatively low in recent years but a spike in 2016 indicates a recent successful period where further insights could be discovered and utilised.

Whilst the popularity of video games amongst regions is more complicated to track over time, various observations can be made amongst the top genres from the last 5 years. The most noteworthy include:

- Japan's sudden rise in the proportion of global sales in Role-Playing and Action games
- Europe's more incremental increase in proportion of global sales in the Shooter and Sports genres
- North America's overall decline in proportion of global sales in every genre

PROCESS FOR INSIGHTS – VISUALISATION 1

To generate insights about regional sales, I created a pivot table from the video game sales data. I knew that I first wanted to compare sales between each region, so I created calculated fields for each region that show their percentage of global sales. To acquire each regions' percentage of global sales for a given year, the "Year" field was added to the rows area in the pivot table.

Sales where the year was "2017" or "2020" were filtered out because, for this task, it is safe to assume these data points were errors. Sales where the year showed "N/A" were also filtered out as these records would not be informative to the executives. In a real workplace scenario, my first action would be to seek out the data owner or manager to correct or fill in these records if possible.

So, in my pivot table, I had the proportion of each region's sales for each year between 1980 and 2016. This was used to create the following line graph:
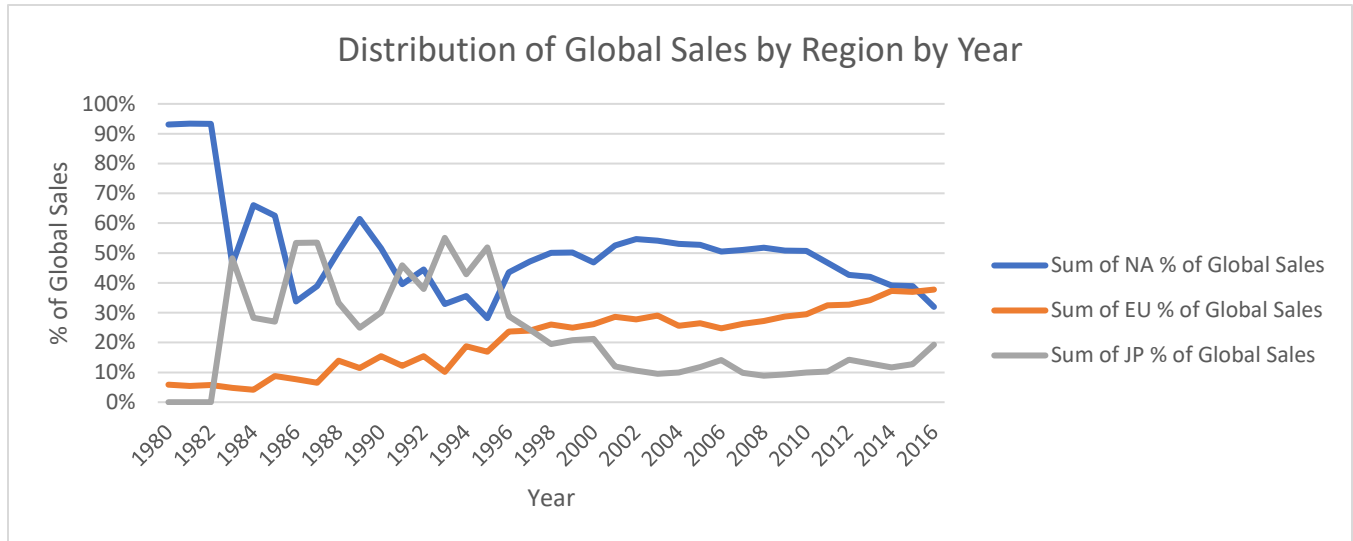
Figure 1 - Visualisation 1

The line graph in figure 1 made it easy to identify trends for each region, at least when focusing past the year 2000. Even though each regions' proportion of global sales becomes less erratic, the graph shows that sales have indeed shifted overtime. For example, Europe's growth and North America's decline is evident, as is the sudden increase in 2016 for Japan.

Whilst this graph is appropriate to show changes overtime, edits are required to increase its readability and remove excess information. A refined version of the line graph is shown on the next page with the changes and reasoning for each change listed:
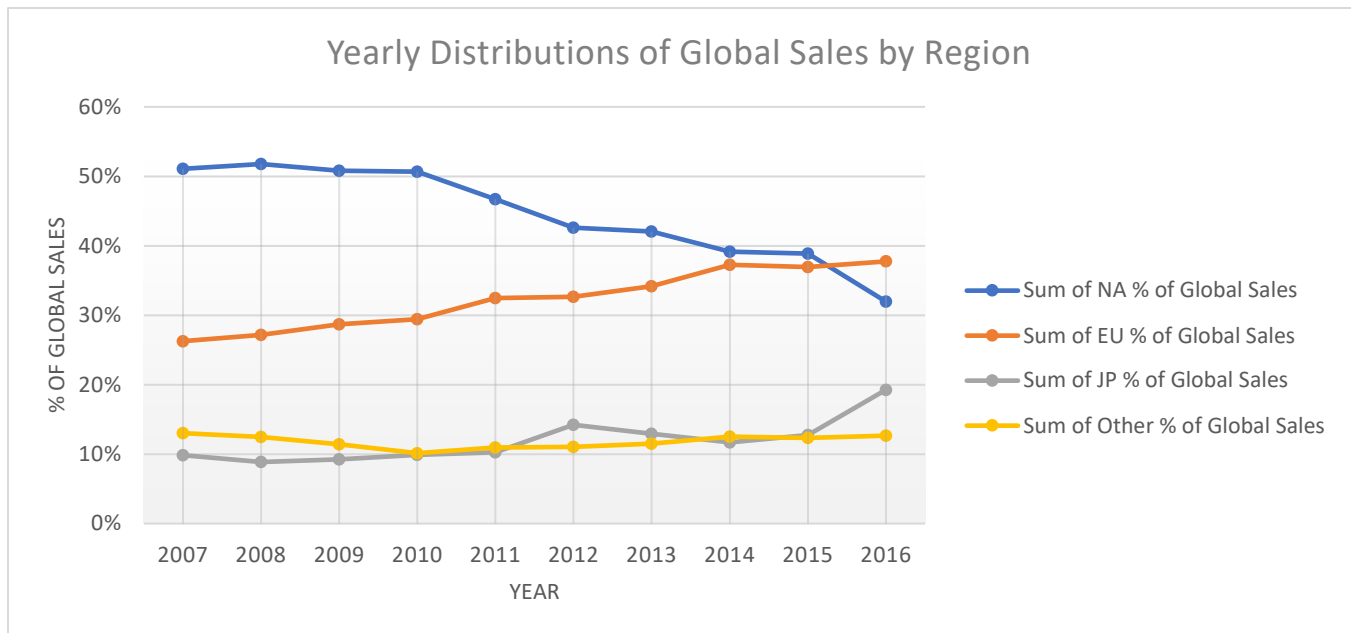
Figure 2 - Refined version of visualisation 1.

- The year range has been reduced to show only from 2007 to 2016. This range is recent enough to ensure only the most important and relevant sales data is focused on whilst being long enough to indicate clear trends ongoing trends.
- A line has been added to show countries outside of the main three regions. This makes the data feel complete, allowing the GameCo executives to understand the market more fully.
- Minor vertical gridlines have been added to increase readability by allowing comparisons to be made easier at a glance.
- Slight shading has been added to the graph area for a cleaner look (however, aesthetic changes will likely be made for the presentation).

However, the insights found from this line graph alone are not enough to make critical recommendations concerning the marketing budget to GameCo's executives. At the very least, consideration should also be given to the sales behaviours of top performing genres across different regions.

PROCESS FOR INSIGHTS – VISUALISATION 2

The above insights will aid GameCo in allocating their marketing budget across different regions. However, the executives would further benefit from insights regarding the type of games performing well in these regions, so their marketing does not go misguided. At the very least, GameCo should consider the sales behaviours of the top performing genres across different their primary regions.

To determine the top performing genres, a new pivot table was made from the cleaned version of the sales data (figure 2). The sum of Global_Sales was analysed by Genre. A year filter was also added and only the 5 most recent years were considered (2012-2016). These years were selected to ensure the data being considered most accurately reflected the current market. The data was sorted in descending order and only the top 4 games were considered for analysis because they were all above 100 million units sold and significantly separated from the next most popular genre. Whilst this is somewhat arbitrary, drawing a line here will help simplify the analysis and concentrate on the most significant genres to the business.

Row Labels	Sum of Global_Sales
Action	436.89
Shooter	286.03
Role-Playing	181.79
Sports	175.28
Misc	85.11
Platform	60.68
Racing	53.75
Fighting	44.51
Simulation	33.61
Adventure	28.3
Strategy	12.97
Puzzle	4.95
Grand Total	1403.87

Figure 3 - Pivot Table (Genre Sales 2012-2016)

To make a visualisation about the sales behaviours of different genres separated by region, a new pivot table was made. The Year field was nested within the Genre field in rows to easily view how each genre performed overtime. To ensure the most important data was focused on, all years except 2012 to 2016 were filtered out, as well as every genre except the top 4 found previously. Variables for the proportion of global sales in each region were added to the table as to focus on proportionality differences and changes. The following 100% Stacked Column chart was made from this pivot table:
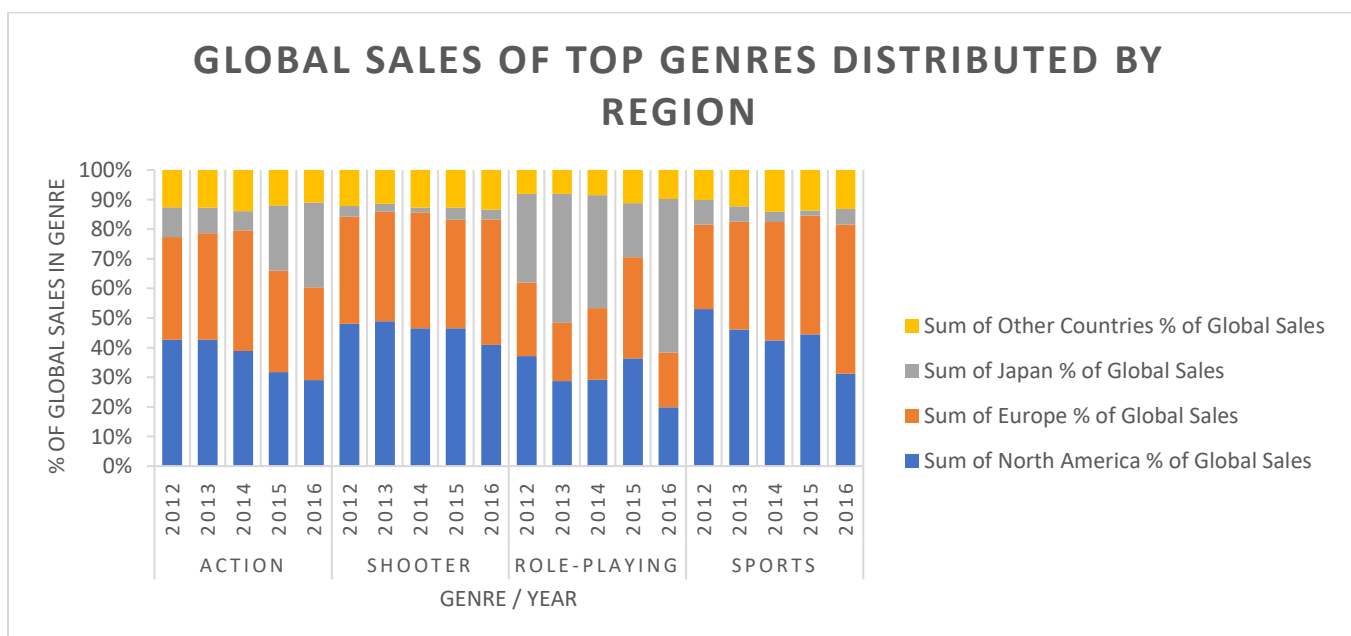

Figure 4 - Visualisation 2

By observing the size of the segments in each column, it was made highly apparent that each region's overall sales trends were linked to specific genres. In North America, each popular genre gradually lost a proportion of global sales each year, hence the overall decline. Europe seems to exhibit growth in the shooter and sports genres whilst not losing much from action and role-playing. Meanwhile, Japan's sudden spike in 2016 seems to be clearly attributed to the fast growth of role-playing and action games.

At present, the visualisation in figure 4 could be difficult for GameCo executives to easily interpret. A refined version of the graph has been made below with changes listed with reasoning.
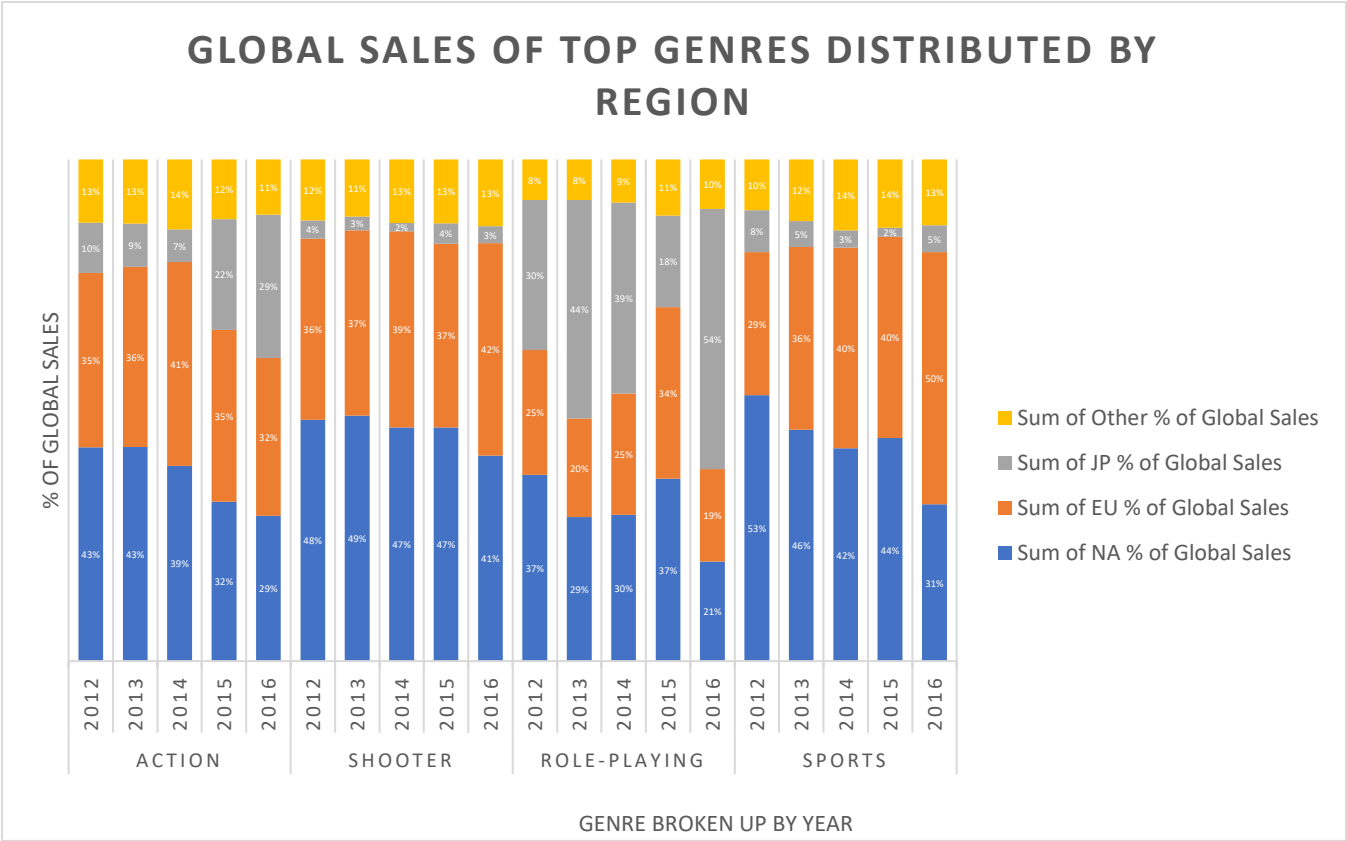

Figure 5 - Refined version of visualisation 2

- Data labels added and vertical axis values removed to assist with readability. GameCo executives should be able to interpret the changes between same colour segments easier.

Note: Due to the numerous variables this graph is attempting to present and compare, I made aesthetic changes within the presentation to increase readability and draw focus to specific insights pertinent to each geographic region. As will be seen in the presentation, when focusing on the downward trends in each genre for North America, only the blue segments are clear whilst the other segments are faded. This idea is repeated for each of the regions on separate slides.