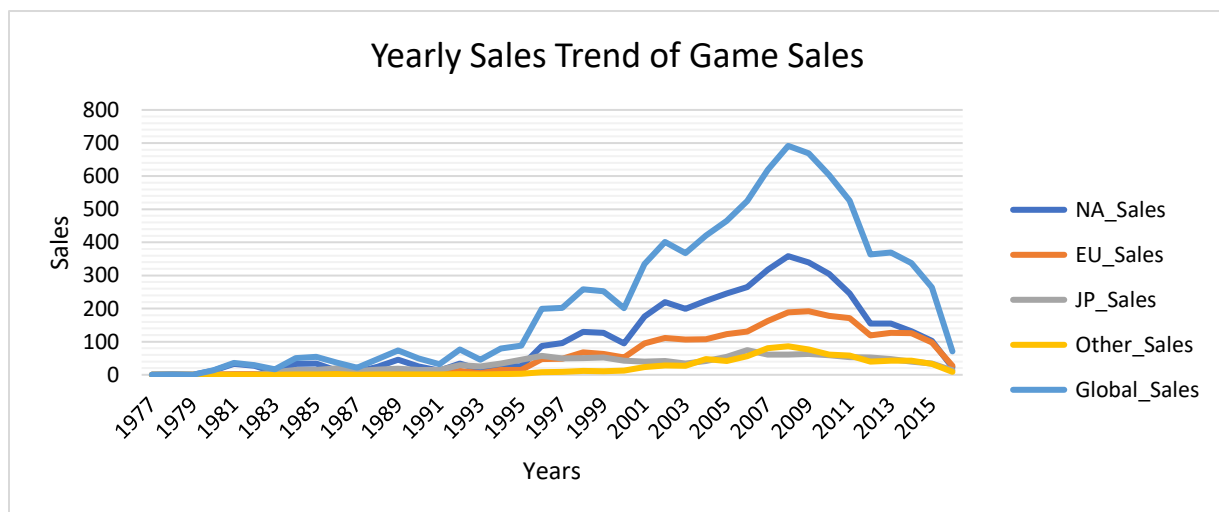


Project Reflections

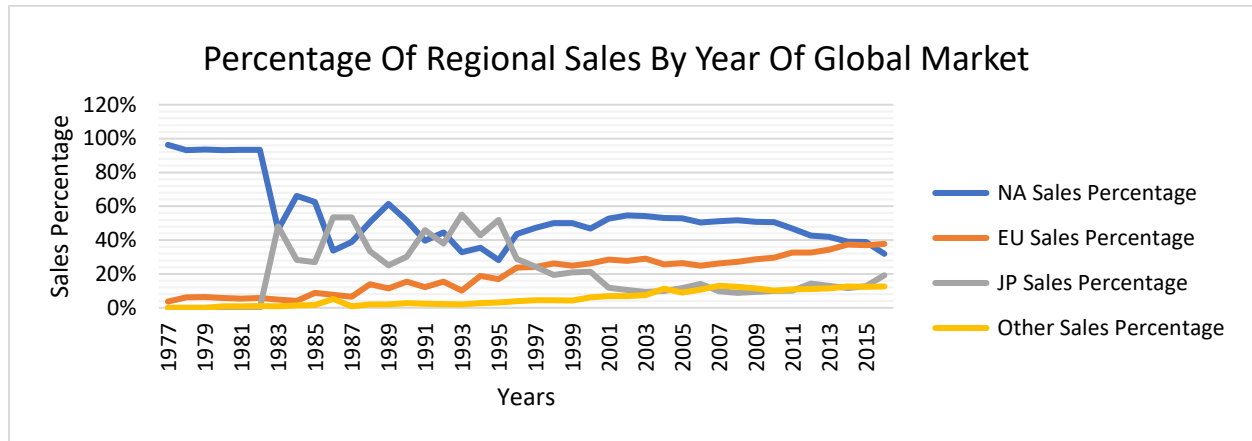
GameCo is in need of a descriptive analysis regarding their video game data set in order to obtain a better understanding of behavior and challenges within the gaming market. It has been tasked to forecast an understanding of how its new games are possible to fare in the future gaming market and provide a recommended set of actions to provide the company the best opportunities with the most profitable markets to reach. The found insights from the data set would be beneficial for presenting to sales, marketing, and advertising executives. These stakeholders could use this knowledge in manners to best promote certain game titles and genres in the most effective ways to the proper consumer with achieving optimal sales, better understand the genre preferences of their consumers based on region of demographics, and the best region providing the most profitable results.

To get a better understanding of the data and begin insight development, the data set was reviewed and cleaned in order to weed out unneeded information or outliers that could have ended up tainting the data set. During this process, research was done to correct as much of the data as possible, such as finding missing years of game releases to help better portray the most accurate sales data based on yearly sales or the removal of information that was not helpful to the data set. To further better understand the data, the sales data set was further examined for any outliers that could have been skewing the data to misrepresent any information. To do this, a box and whisker plot was used to examine the outliers of the various market regions and to see how the mean and median compared to the data set.

The insight research into the data continued with a closer visual look into how the game sales trended over the years from 1977-2016. In order to get a more visual representation of the sales data, the creation of line charts and column charts, represented by example chart below, was used to paint the picture. While GameCo's expectation of the markets were remain the same over time, my expectations for the market were an increase over the years as games became a part of the norm in society across the globe. However, based on the line graph created from the data set, it appears that expectation proved incorrect, and the trends proved to be a downward trend in game sales across the markets.



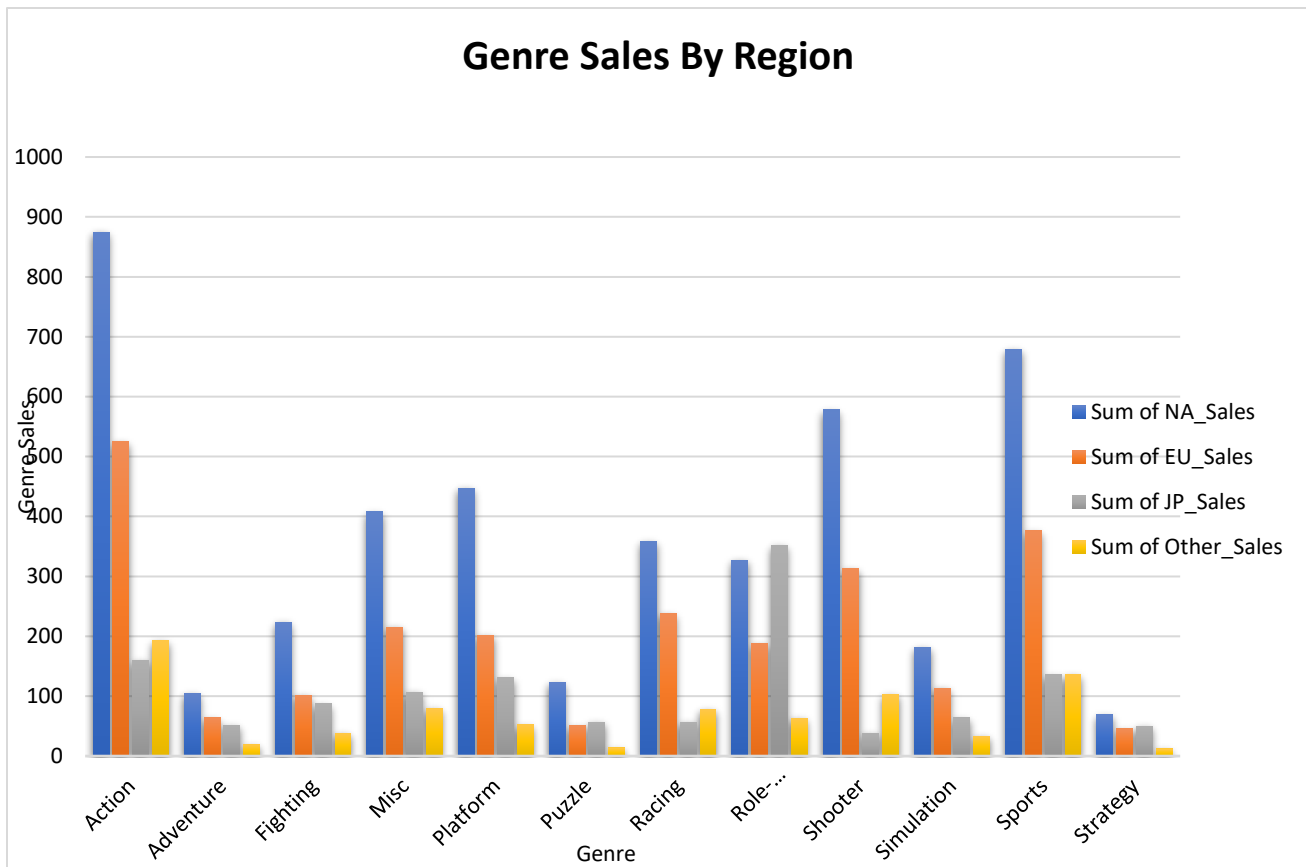
From the realization that the data is trending differently than expected for yearly sales, it was researched to see the proportional percentage of regional sales in each market over the years, shown in the example line graph below. Like the line graph above, it was seen that the North American market had been the largest percentage of the global market sells but has shown a consistent decline in sales and as of 2016 been overtaken by the European market in percentage sells. This could tell us that it is a matter of time until the European market could become the largest holder of the global market percentage of sales.



After understanding the yearly sales trend, it was tasked to investigate genre sales over the various markets from 1977-2016 in order to get an understanding of how genres sell amongst regions. The data table below shows the sales data information obtained.

Genre	NA_Sales	EU_Sales	JP_Sales	Other_Sales
Action	874.85	524.38	159.87	192.72
Adventure	104.25	63.99	51.55	19.14
Fighting	223.33	101.19	87.15	37.85
Misc	407.69	215.19	106.73	79.21
Platform	446.93	201.62	130.65	52.07
Puzzle	123.04	50.7	56.68	13.65
Racing	358.68	237.65	56.62	77.62
Role-Playing	326.79	187.81	351.76	63.06
Shooter	578.25	312.79	38.23	102.93
Simulation	181.95	113.23	63.68	33.45
Sports	679.22	375.75	135.37	136.23
Strategy	68.61	45.27	49.43	12.12
Sales Total	4373.59	2429.57	1287.72	820.05

At our start, we can see that North American sales have made up the major market in the gaming industry with European and Japanese markets bringing up the second and third most market sectors of sales, which matches with the prior two sales trending graphs. But, while the North American market is showing to be the major sales market in many of the genre types, the data does show that it is not the leading market in other genre game types. This information could prove useful for marketing and advertising team to find which game genre to promote to certain regions over others. To better visualize this comparison, the below column graph was created to get a better visual picture of the regional genre sales over the years of 1977-2016.



From this, the question arose, are certain types of games more popular than others? Or, to put simply, which genres showed to be the best sellers in the different regions and globally overall. This led to the below table's creation with green cells being the most popular selling and the red being the least popular selling genres in those regions.

Game Genre	NA_Sales	EU_Sales	JP_Sales	Other_Sales	Global_Sales
Action	874.85	524.38	159.87	192.72	1747.44
Adventure	104.25	63.99	51.55	19.14	236.77
Fighting	223.33	101.19	87.15	37.85	448.28
Misc	407.69	215.19	106.73	79.21	805.26
Platform	446.93	201.62	130.65	52.07	831.11

Puzzle	123.04	50.7	56.68	13.65	243.44
Racing	358.68	237.65	56.62	77.62	730.26
Role-Playing	326.79	187.81	351.76	63.06	925.95
Shooter	578.25	312.79	38.23	102.93	1032.32
Simulation	181.95	113.23	63.68	33.45	390.53
Sports	679.22	375.75	135.37	136.23	1325.21
Strategy	68.61	45.27	49.43	12.12	174.91
Total Genre Sales	4373.59	2429.57	1287.72	820.05	8891.48

The table shows that certain types of games are more popular than others depending on region sold. From the table, the data shows that in the North American, European, Other, and global markets, the most popular selling genres were those of the action, sports, and shooter games as the top three sellers. While in the Japan market, the data shows there to be a slight difference in the list. In the Japan market, we can see that role-playing genre has replaced shooters. In fact, we can see that based on the data, shooters are one of the three lowest performing game genres in the Japan market. This information would be very useful for our sale and marketing departments.

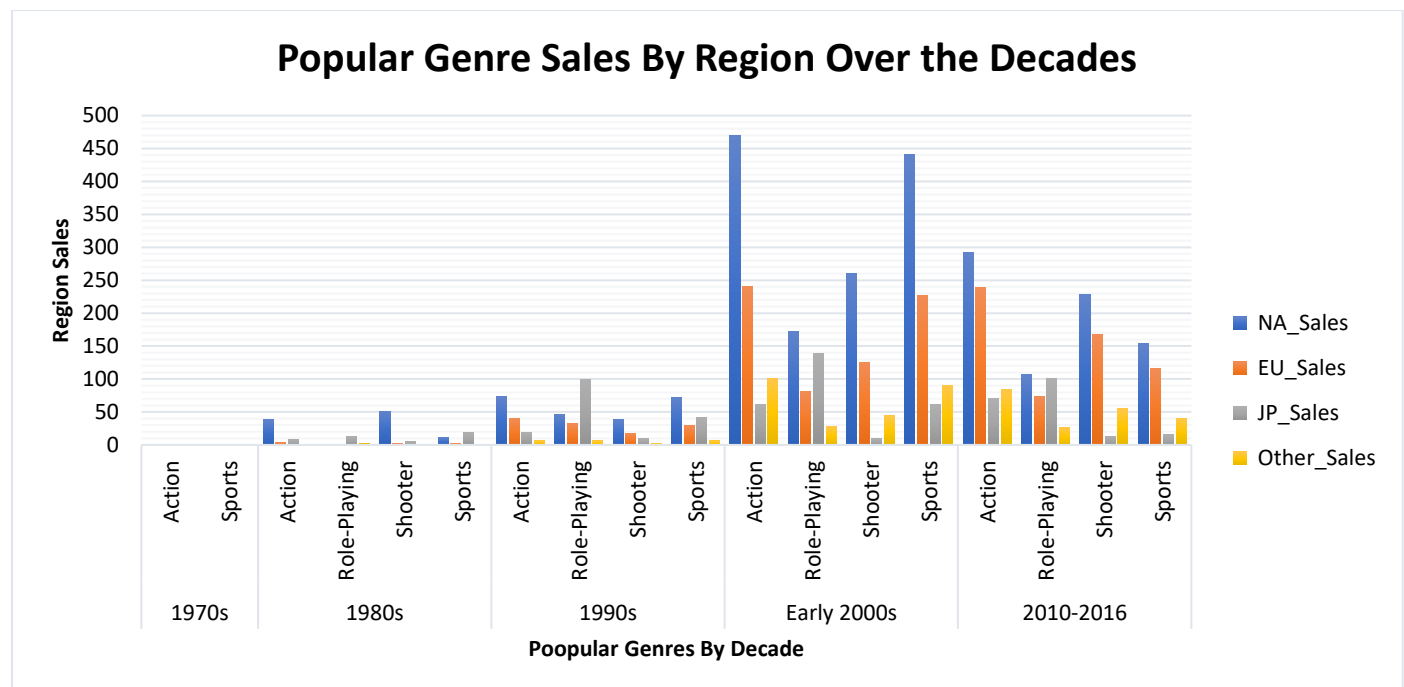
To further investigate these popular genres per region, it was decided to inspect how the popular genres sold over the years by region. In order to do this, it was decided to group the years by decade as shown in the table below.

	NA_Sales	EU_Sales	JP_Sales	Other_Sales
1970s				
Action	0.54	0.04	0	0
Sports	0.14	0.01	0	0
1980s				
Action	38.75	4.34	8.31	0.6
Role-Playing	1.06	0	12.68	1.51
Shooter	50.84	2.83	5.3	0.8
Sports	11.63	2.6	18.2	0.37
1990s				
Action	73.58	40.52	19.6	6.66
Role-Playing	46.68	32.55	99.29	6.43
Shooter	38.76	17.67	10.1	2.41
Sports	71.47	29.73	41.02	6.16
Early 2000s				
Action	470.43	239.79	61.23	101.41
Role-Playing	171.48	81.5	139.34	28.7
Shooter	260.37	124.8	9.29	44.21
Sports	441.45	227.4	60.79	89.61
2010-2016				
Action	291.55	239.69	70.73	84.05

Role-Playing	107.57	73.76	100.45	26.42
Shooter	228.28	167.49	13.54	55.51
Sports	154.53	116.01	15.36	40.09
Grand Total	2459.11	1400.73	685.23	494.94

Based on this table data, we can clearly present that shooters are a profitable genre in all but the JP market where the genre would not be a profitable pursuit. However, Role-playing, while showing to be the most popular in JP market, appears to have gained some interest in NA and other markets to be a possible genre to consider should the interest continue to rise for a later pursuit and possibly overtake sports genre games in the NA, EU, and other markets.

In order to better depict the changes of the genre sales of games over the decades, it was decided to create the below chart to help illustrate these changes within the markets.



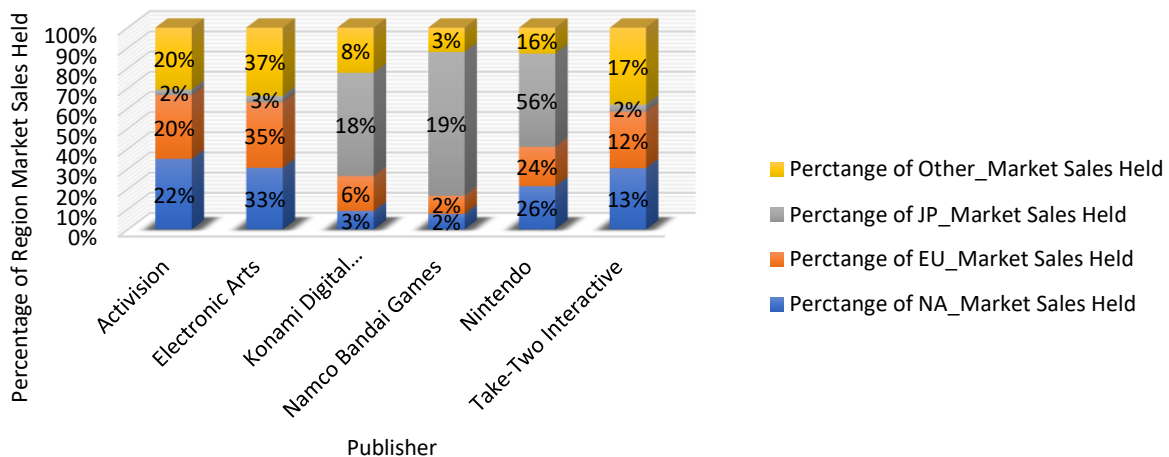
This look into genre finally brought the information search to looking at what other publishers would be GameCo's main competitors in these popular genre markets. This will help GameCo's sales and marketing executives see who the company must overcome and how difficult it could potential be to get penetrate the market for further sales.

To begin investigating into competitors, a data table was created based on the publishers and the various markets by on those publishers who have developed games in the popular genres. While breaking down their market sales, it was decided to use conditional formatting to highlight those publishers with the highest and lowest sales in the specific genre markets. This provided the insight on which competitors had the highest and lowest grossing market sales. Further, it was decided to generate data graphs to depict the percentage of market sales held by each of these competitors based on global standing and per each individual market. In this way the data portrays exactly who holds most of the market strength and by how much. The below data tables are those examples used to demonstrate the prior mentioned

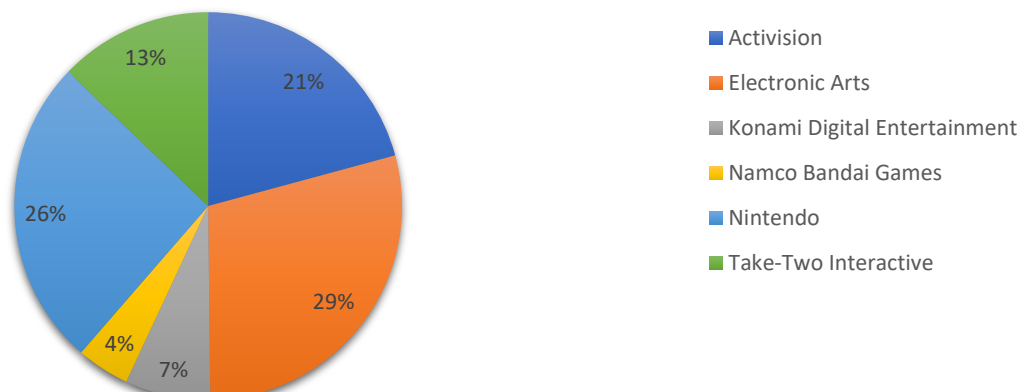
data research. In these tables we can see that Electronics Arts is the highest grossing publisher in all market except the Japan market by holding 33% of the NA market, 35% of the EU, 37% of Other, and 29% of global market sales. However, in the individual Japan market, Nintendo has shown to be the dominant publisher by holding 56% of the market sales in the Japan market and proving to be a major hurdle for GameCo in the market.

	NA_Sales	EU_Sales	JP_Sales	Other_Sales	Global_Sales
Activision	337.12	178.22	6.15	60.73	582
Electronic Arts	499.01	309.66	12.55	113.37	934.54
Konami Digital Entertainment	49.64	54.33	66.39	24.82	194.86
Namco Bandai Games	30.5	21.06	68.23	9.87	127.11
Nintendo	392.83	208.72	202.93	48.49	852.41
Take-Two Interactive	202.71	109.2	5.59	52.24	369.64
Total Sales	1511.81	881.19	361.84	309.52	3060.56

Percentage of Region Market Sales Held By Publishers of Popular Genres



Percentage of Global Sales Held By Competitors



The data tables and charts used were those that I felt the most influential to help me present my findings or to help me explain the thought process that helped me work my way to those graphs used in the final presentation. I also felt that the used tables and graphs best represented my reason for the recommendations presented for GameCo to follow for 2017 and after. The line graphs used best present the market changes over the years and how the EU market has overtaken markets to become the best potential market for optimal sales. Further, I felt that presenting genre popularity in the table format with conditional formatted cell highlighting highest and lowest provides numerical proof. While using the graphs allowed stakeholders to get a quick picture of the data. Finally, I believe the percentage column chart and the pie chart were the best options to clearly show stakeholders how much strength the leading competitors held in each market and globally to express how hard it would be for the company to overtake them and become the leading seller.