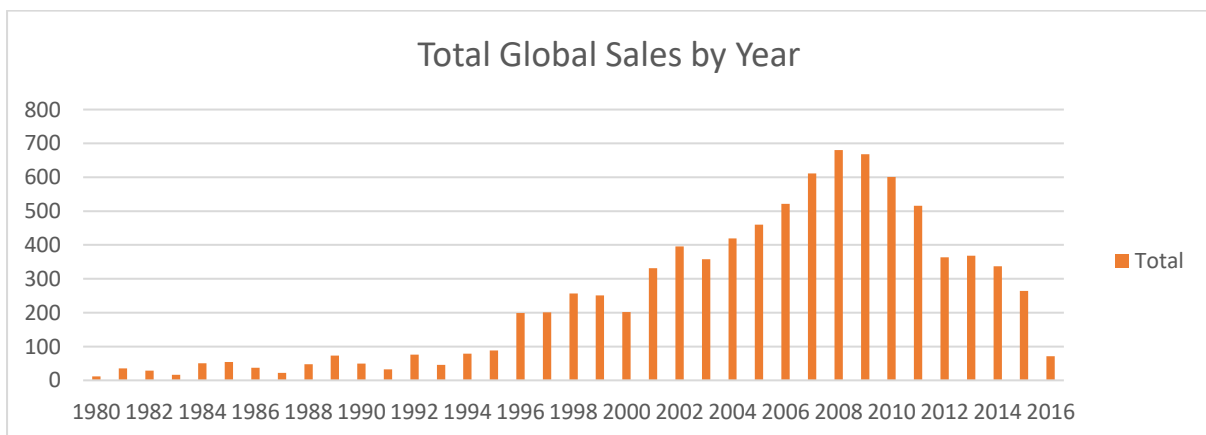## Project Reflections

This analysis, for GameCo, began with a dataset full of game sales figures from the year 1980 up to 2016. The dataset included variables such as name of game, platform, genre, and also sales figures (in millions) for geographical areas namely, North America, EU, Japan, Other, and Global. This allowed for an in depth analysis into sales data taking various combinations of variables in to account. Below is an example of how the dataset looked before cleaning and visualisations were drawn from it. It consisted of 16599 rows of data.
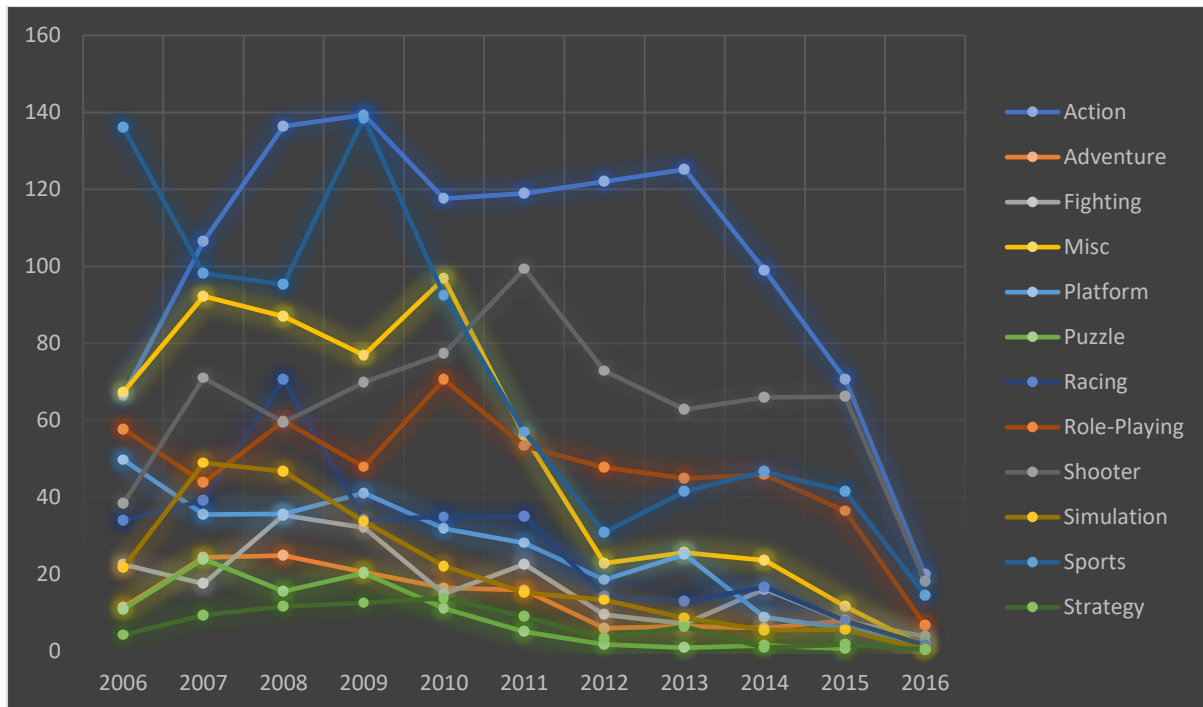
| | A | B | C | D | E | F | G | H | I | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rank | Name | Platform | Year | Genre | Publisher | NA_Sales | EU_Sales | JP_Sales | Other_Sales | Global_Sales | | |
| 1 | Rank | Name | Platform | Year | Genre | Publisher | NA_Sales | EU_Sales | JP_Sales | Other_Sales | Global_Sales | | |
| 2 | 90 | Pac-Man | 2600 | 1982 | Puzzle | Atari | 7.28 | 0.45 | 0 | 0.08 | 7.81 | | |
| 3 | 240 | Pitfall! | 2600 | 1981 | Platform | Activision | 4.21 | 0.24 | 0 | 0.05 | 4.5 | | |
| 4 | 259 | Asteroids | 2600 | 1980 | Shooter | Atari | 4 | 0.26 | 0 | 0.05 | 4.31 | | |
| 5 | 545 | Missile Comr | 2600 | 1980 | Shooter | Atari | 2.56 | 0.17 | 0 | 0.03 | 2.76 | | |
| 6 | 608 | Space Invade | 2600 N/A | | Shooter | Atari | 2.36 | 0.14 | 0 | 0.03 | 2.53 | | |
| 7 | 736 | Frogger | 2600 | 1981 | Action | Parker Bros. | 2.06 | 0.12 | 0 | 0.02 | 2.2 | | |
| 8 | 768 | Demon Attac | 2600 | 1981 | Shooter | Imagic | 1.99 | 0.12 | 0 | 0.02 | 2.13 | | |
| 9 | 866 | E.T.: The Extr | 2600 | 1981 | Action | Atari | 1.84 | 0.11 | 0 | 0.02 | 1.97 | | |
| 10 | 1108 | Ms. Pac-Man | 2600 | 1981 | Puzzle | Atari | 1.54 | 0.1 | 0 | 0.02 | 1.65 | | |
| 11 | 1117 | Dig Dug | 2600 | 1982 | Puzzle | Atari | 1.52 | 0.1 | 0 | 0.02 | 1.64 | | |
| 12 | 1155 | River Raid | 2600 | 1981 | Shooter | Activision | 1.49 | 0.09 | 0 | 0.02 | 1.6 | | |
| 13 | 1165 | Mario Bros. | 2600 | 1982 | Platform | Atari | 1.48 | 0.09 | 0 | 0.02 | 1.59 | | |
| 14 | 1308 | Donkey Kong | 2600 | 1981 | Platform | Coleco | 1.36 | 0.08 | 0 | 0.02 | 1.46 | | |
| 15 | 1431 | Centipede | 2600 | 1981 | Shooter | Atari | 1.26 | 0.08 | 0 | 0.01 | 1.36 | | |
| 16 | 1510 | Pitfall II: Lost | 2600 | 1983 | Platform | Activision | 1.22 | 0.07 | 0 | 0.02 | 1.31 | | |
| 17 | 1515 | Adventure | 2600 N/A | | Adventure | Atari | 1.21 | 0.08 | 0 | 0.01 | 1.3 | | |
| 18 | 1558 | Atlantis | 2600 | 1981 | Shooter | Imagic | 1.18 | 0.08 | 0 | 0.01 | 1.27 | | |
| 19 | 1587 | Combat | 2600 N/A | | Action | Atari | 1.17 | 0.07 | 0 | 0.01 | 1.25 | | |
| 20 | 1707 | Pole Position | 2600 | 1982 | Racing | Atari | 1.1 | 0.07 | 0 | 0.01 | 1.18 | | |
| 21 | 1768 | Kaboom! | 2600 | 1980 | Misc | Activision | 1.07 | 0.07 | 0 | 0.01 | 1.15 | | |
| 22 | 1819 | Moon Patrol | 2600 | 1982 | Shooter | Atari | 1.05 | 0.06 | 0 | 0.01 | 1.12 | | |
| 23 | 1850 | Megamania | 2600 | 1981 | Shooter | Activision | 1.03 | 0.06 | 0 | 0.01 | 1.1 | | |
| 24 | 1853 | Jungle Hunt | 2600 | 1982 | Platform | Atari | 1.03 | 0.06 | 0 | 0.01 | 1.1 | | |
| 25 | 1907 | Joust | 2600 | 1982 | Platform | Atari | 1.01 | 0.06 | 0 | 0.01 | 1.08 | | |
| 26 | 1967 | Cosmic Ark | 2600 | 1981 | Shooter | Imagic | 0.99 | 0.05 | 0 | 0.01 | 1.05 | | |
| 27 | 1971 | Defender | 2600 | 1980 | Misc | Atari | 0.99 | 0.05 | 0 | 0.01 | 1.05 | | |

vgsales | Sheet 2 | Sheet 3 | Sheet 4 | Sheet 5 | Sheet 6 | Sheet 7 | Sheet 8 | Answers E2 | Answers E3

Ready — Accessibility: Investigate — Average: 8300.605254 — Count: 16599 — Sum: 137773446

An insight that was uncovered that will be of interest to the GameCo executives is the fact that the 20 year trend of North American sales being responsible for the greatest proportion of Global Sales has been broken in 2016 and replaced by EU sales.
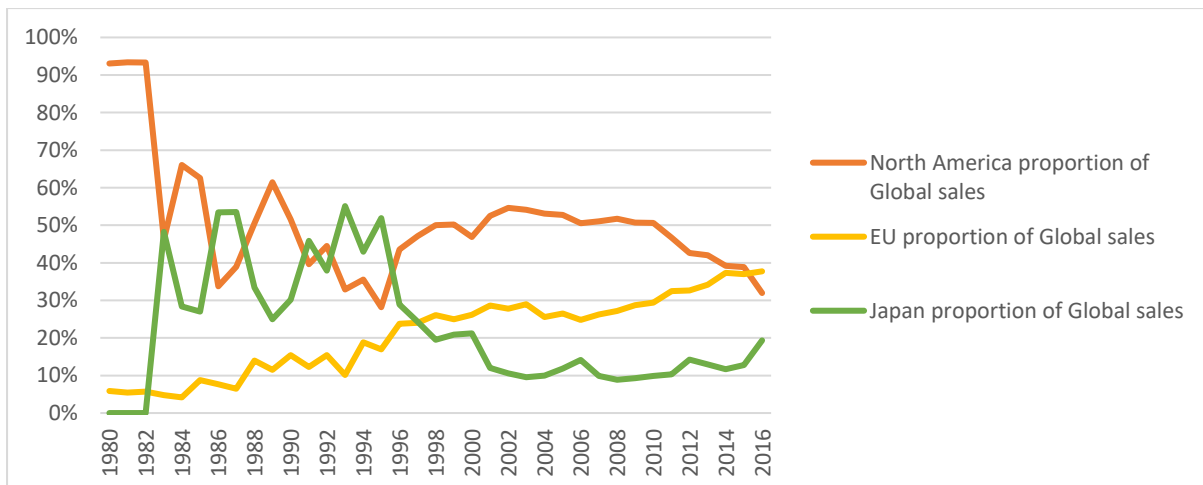
Below is one of the first steps of grouping the data which led to this insight. Whilst exploring the Global Sales by year it was noticeable that Global Sales has decreased steadily since 2008, with 2016 a noticeably low year.

Following this, the sum of Global Sales by genre was looked in to. As you can see below, Action games have been the best sellers globally in recent history. Sports and Shooter games are the next two highest selling genres. Whilst summarising this data, it is again noticeable that although Action games are still the biggest seller, they have decreased in sales along with all other genres rather rapidly in the last couple of years.



As you can see below, a closer look at total proportion of Global Sales by region was taken. This will be of particular interest to the board of executives as they hold the belief that sales have stayed the same over time for the various geographic regions. This expectation is challenged when you look at the visualisation below which shows that the global proportion of EU sales has a gradual upwards trend going right back to when the dataset begins in 1980, and has, in 2016, overtaken the North American market in terms of proportion of Global Sales.

**Step 4**

Above we see how Global Sales have decreased since 2008, that Action games have been the best-selling genre for the last decade and also that in 2016 the EU overtook North America in terms of proportion of Global Sales. In the presentation I have created new visualisations to expand on those above in order to enhance the executives understanding of the data.

Firstly, on Slide 8, I have shown the regional sales by proportion of global sales chart again, but with a line through it representing the end of a period of high volatility and the beginning of a calmer period which has continued up to present day, lasting for 20 years so far. I believe the volatility was ended because of the introduction of 2 market-changing consoles, the Playstation 1 and N64. Beforehand game sales were spread across numerous platforms, but these 2 new consoles became the main players in gaming and as such, rather than seeing proportion of global sales fluctuate between NA and Japan due to less titles and more platforms, the proportion of global sales settled down due to more games being produced and less platforms having a large share of the total sales of games. This ties in with the visualisation on Slide 11, Sales by Platform, that shows the importance for GameCo of producing games for the right platform. The visualisations on Slide 11 show that over the last 5 years, Playstation, Xbox, and portable devices have had the most games bought for them, and in 2016 that Playstation 4 has by far the most game sales, followed by XOne, and 3DS.

To expand on these insights, in Slide 10 I created visualisations looking at the correlations between separate regions and global sales. There are scatter graphs for the three biggest markets, the EU, North America and Japan. The EU and North America have strong positive correlations to Global Sales, and even though the Japanese market is the 3rd largest, it still has a moderate correlation to global sales, showing that the focus should be on these 3 markets, NA and the EU sees high sales of Action, Sports and Shooter games on Playstation 4 and Xone, and then, in Slide 13, I have created some visualisations showing that the focus in Japan should be on creating Role-Playing, then Action games for the 3DS as game sales for portable devices are higher than on Playstation or Xbox. These insights are helpful to the executives as they go in to more detail and market specific data than those created in step 1, thus showing them what to focus on in each market in order to maximise sales in each region.