Intro to Data Analytics

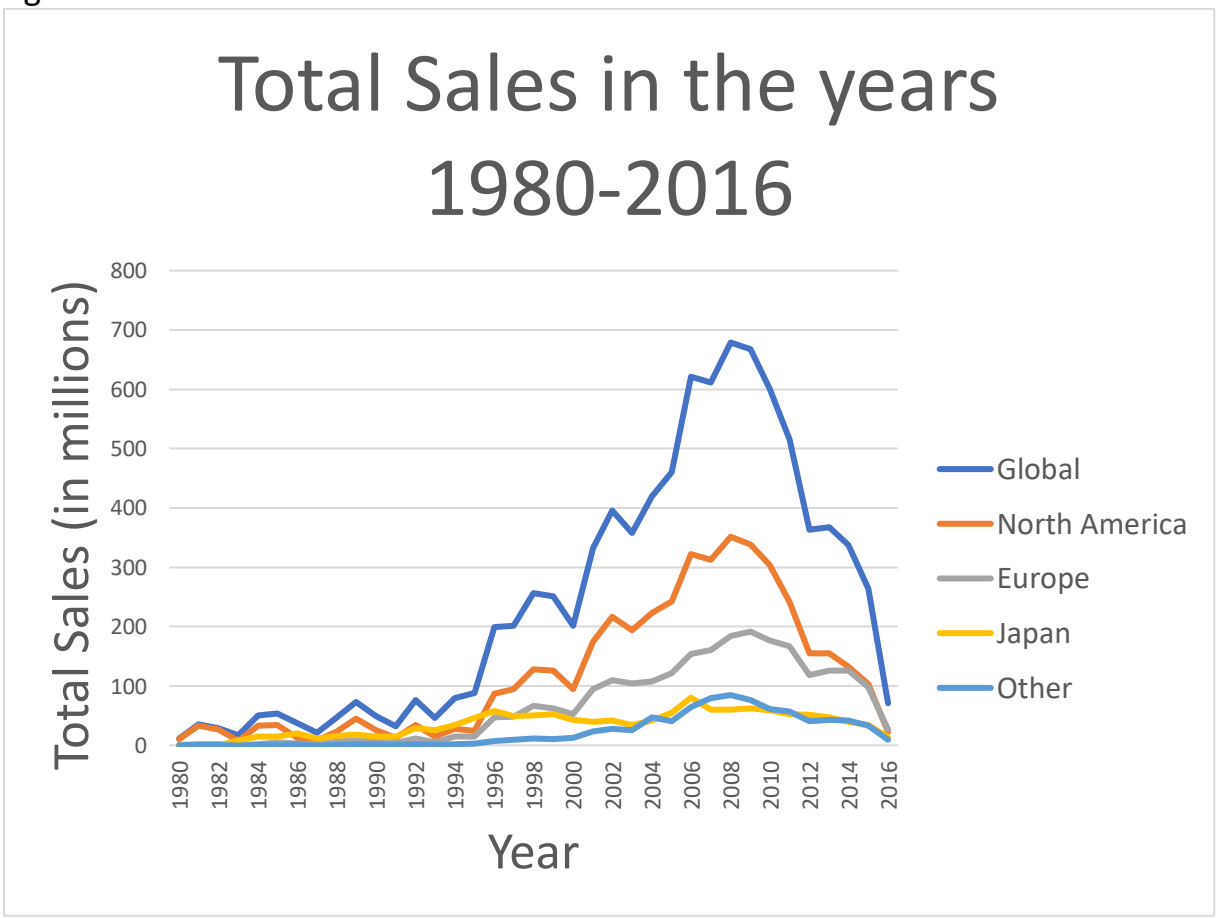
Project reflections

The situation at hand is the following:

“It’s October 2016 and GameCo’s executive board is planning the marketing budget for 2017. They’re assuming that sales for the various geographic regions have stayed the same over time, and they’ve asked you to look into the data to see if this is still true. If it’s not, the marketing budget will need to be redistributed among the regions to maximize return on investment.”

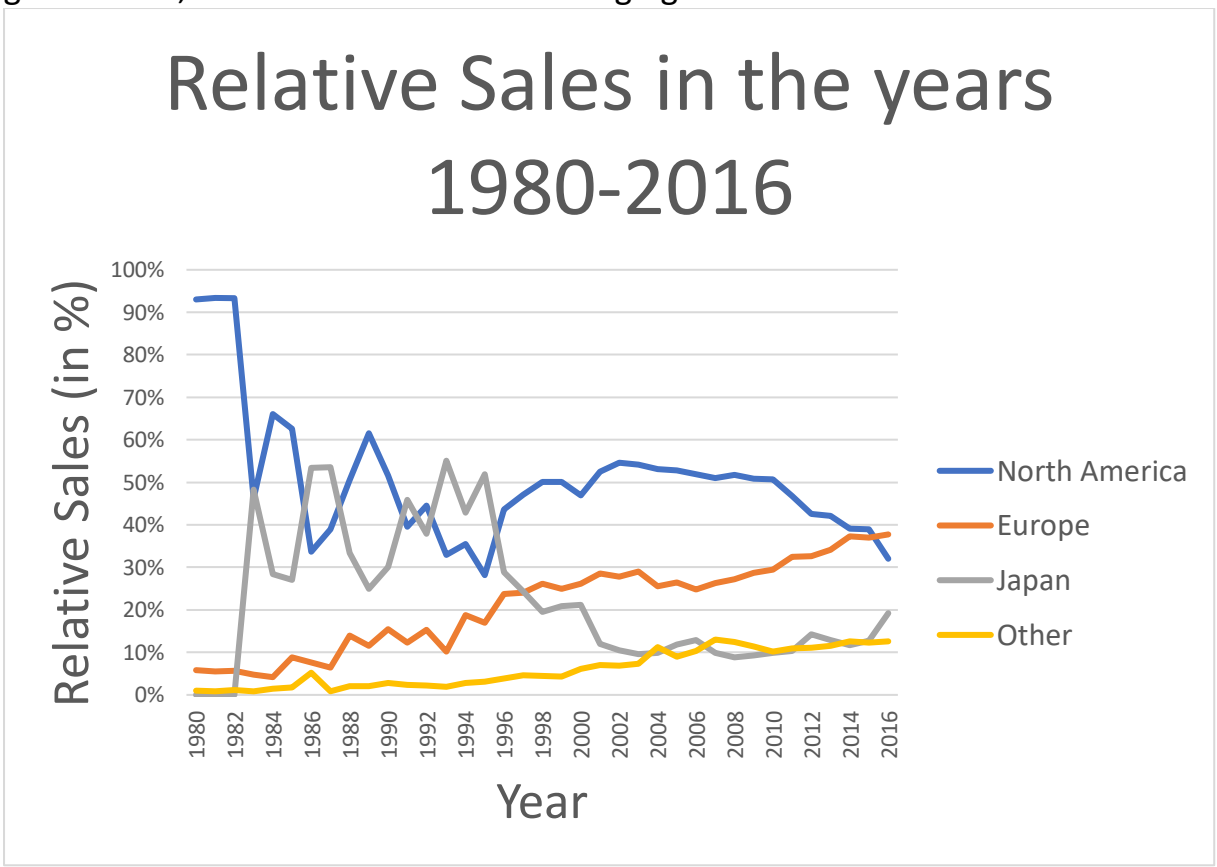
In order to see whether the assumption from GameCo’s executive board is true that sales for the various geographic regions have stayed the same over time, I will need to perform a descriptive analysis of the video game data set and see how sales have developed throughout the geographic regions over time.

One possible way to do so is to look at the total number of total units sold in every given year for each of the analyzed regions, as depicted in the following figure:



This figure shows that there is clearly no constant behavior of the sales curves over the whole time period. What one can further deduce is that there has been a maximum of total sales in the year of 2008 for almost all covered regions. After that time point the sales curves started to decrease and this behavior continues up until the most recently covered year which is 2016. This behavior clearly negates the assumption of the executive board. The reasons for the continuous decline from 2008 onwards could be manifold. For example, maybe the data set only covers stationary sales and online sales are neglected. Or maybe online sales are included but only for physical copies sold. Due to the popularity of the internet and the advancement of technology, more and more games are sold as digital copies in recent years. That is why, for example, the platform developer Sony decided to release a separate purely digital version of their Playstation 5. Of course, they did it later than the investigated time span covered by the data set. But they surely had some data analyzed from the past in order to foresee a certain trend which would make a separate digital only version of a platform profitable in the future.

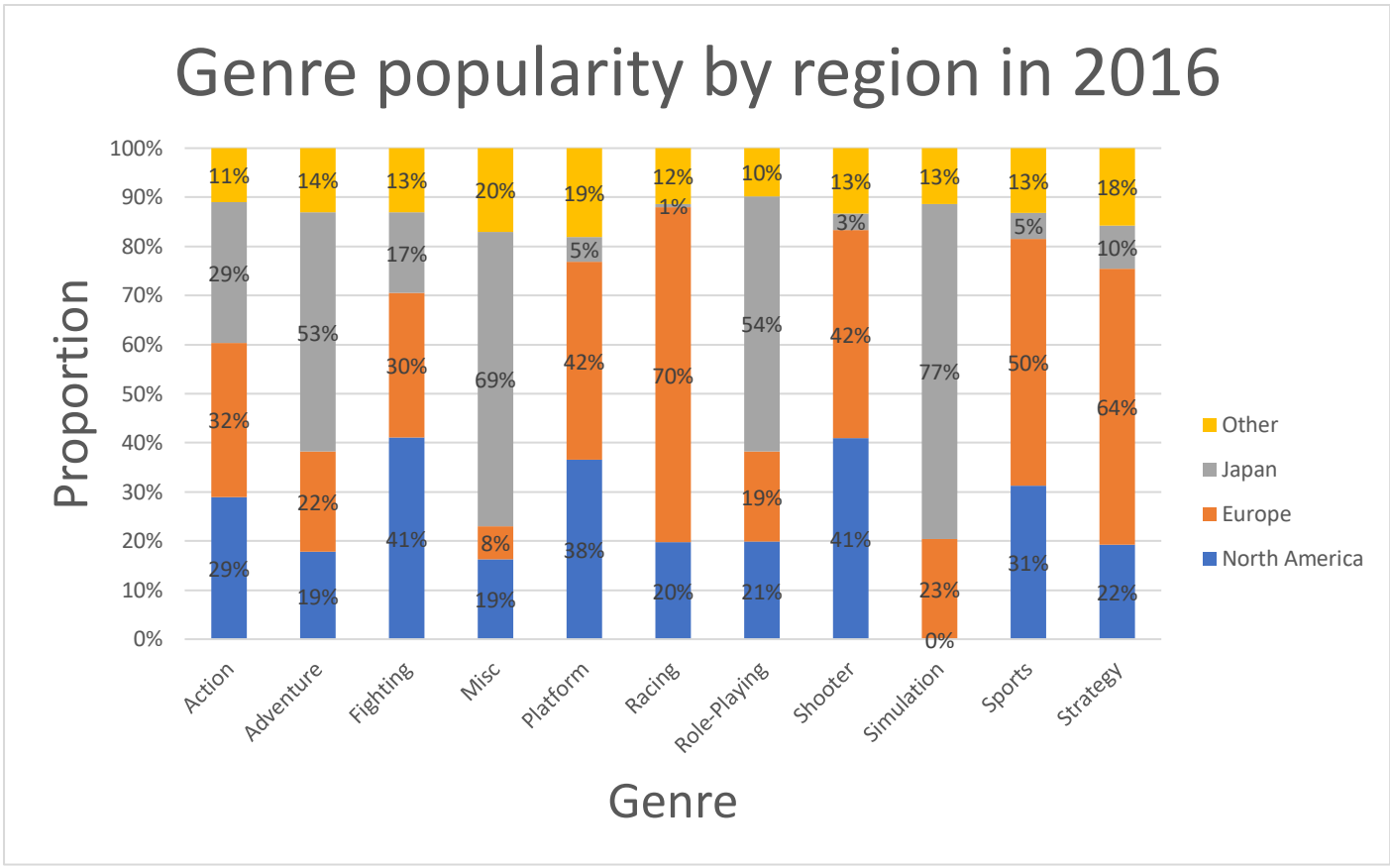
But let us focus on the current situation, where we are in 2016 at GameCo's executive board planning the marketing budget for 2017. A further measure to analyze the data with respect to the geographic regions is to look at the relative number of sales where one compares the geographic sales proportional to the global sales, as illustrated in the following figure:

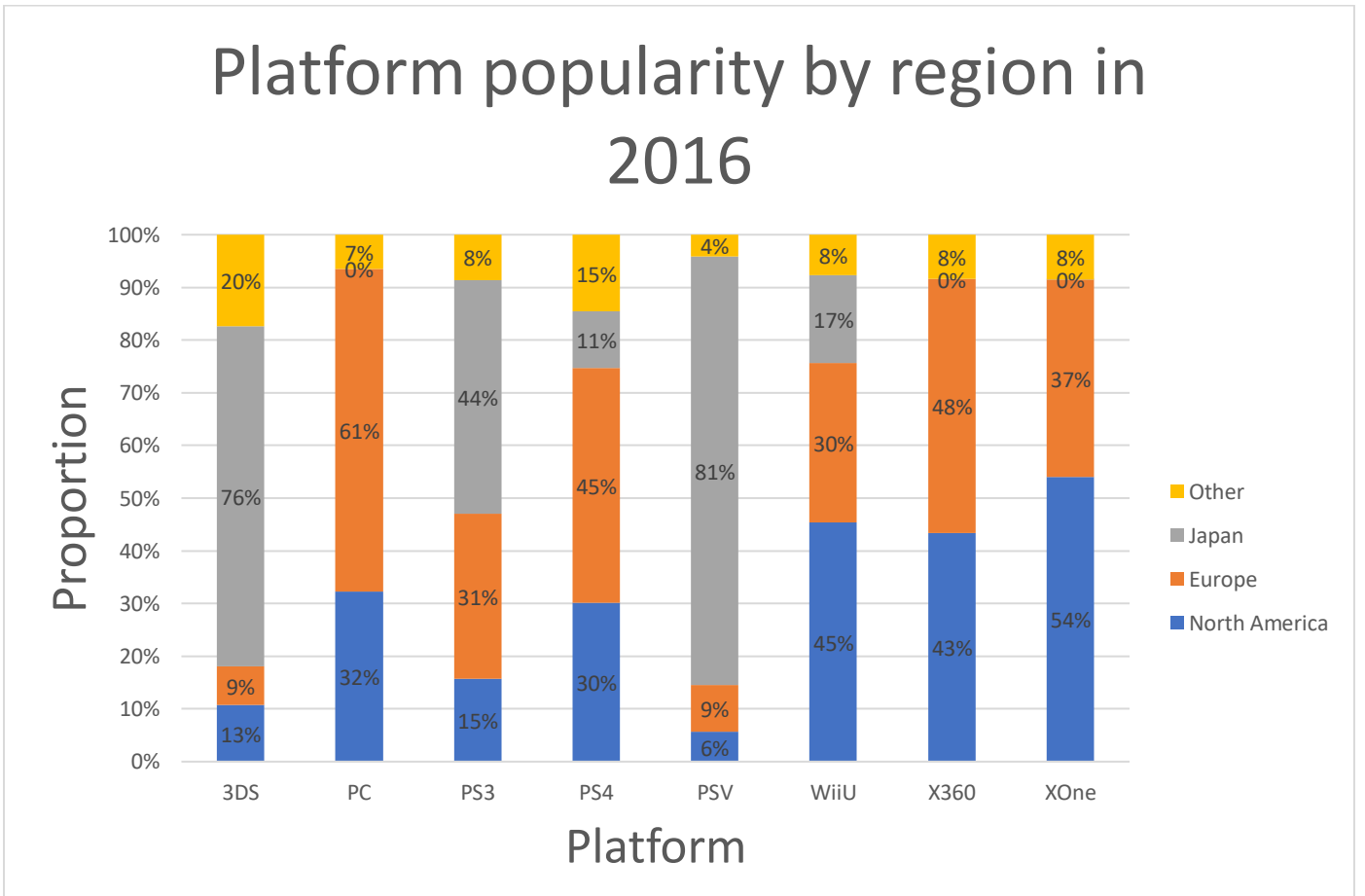


Here, it is a different picture. From the middle of the 1980's to the middle of the 1990's the relative sales in Japan have increased significantly as compared to the other regions. In this time span the sales in Japan surpassed even sales in North America a few times. This is probably due to the release of new platforms and/or popular games which first came out in Japan and later were released in further countries. Hence the delayed reactive and reciprocal behavior of the relative sales curves for North America in comparison to Japan during this period.

For sure, the release time of a new platform and/or popular games plays a crucial role in the sales statistics. Therefore, the success of many sold games depends not only on the population and geographical size. But the availability and the freshness of newly released platforms and/or games play a significant role. This is probably also one of the reasons why the curves have evened out more in the years after 1996. Because, due to globalization, most new platforms were released almost simultaneously throughout the world. When this happens then of course other factors play a larger role, like the size of the region or the popularity of certain platforms or genres in certain regions. To predict a trend for the future I would advise GameCo that the gaming market has saturated to a certain degree when looking at the proportional sales values of their three biggest markets in the years after the turn of the century. Sure, they will fluctuate to a certain degree, but not so much as in the years between the middle of the 1980's and the middle of the 1990's. In that sense, the assumption that sales for the various geographic regions have stayed the same over time was correct when looking at relative sales numbers in recent years up to 2016.

However, as mentioned before, we have seen a steady decline in game sales since 2008. We mentioned already possible reasons for this decline. Further ones are the global financial crisis in 2008 and the spread of mobile phones. Thanks to the technological advancement of cellphones, graphically demanding games can be played with the smartphone. In order to stop the decline of game sales, publishers could thus develop more games on mobile phones. But there are also possible measures which can be employed to reduce or stop the decline. To stop the downward trend, we need to focus on the most popular genres and platforms in each region in comparison to the other regions. Therefore, I have used a pivot table to calculate the relative genre as well as platform popularity by region for the year 2016. For the graphical visualization I have used the 100% stacked column bars, as depicted in the following two figures:


Genre popularity by region in 2016
Proportion
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
11% 29% 32% 29%
14% 53% 22% 19%
13% 17% 30% 41%
20% 69% 8% 19%
19% 5% 42% 38%
12% 1% 70% 20%
10% 54% 19% 21%
13% 3% 42% 41%
13% 77% 23% 0%
13% 5% 50% 31%
18% 10% 64% 22%
Action
Adventure
Fighting
Misc
Platform
Racing
Role-Playing
Shooter
Simulation
Sports
Strategy
Genre
Other
Japan
Europe
North America


Platform popularity by region in 2016
Proportion
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
20% 76% 9% 13%
7% 0% 61% 32%
8% 44% 31% 15%
15% 11% 45% 30%
4% 81% 9% 6%
8% 17% 30% 45%
8% 0% 48% 43%
8% 0% 37% 54%
3DS
PC
PS3
PS4
PSV
WiiU
X360
XOne
Platform
Other
Japan
Europe
North America

As can be nicely observed, the genres Racing (70%) and Strategy (64%) are very popular in Europe compared to the other regions, whereas Racing (1%) and Shooter (3%) are almost negligible in Japan. The most popular genres in Japan compared to the other regions are Simulation (77%), Role-Playing (54%), and Adventure (53%), whereas Simulation is not present in North America at all (0%). The handheld platforms are especially popular in Japan compared to the other countries. In general, only platforms from Nintendo and Sony are successful in game sales in Japan. With this information we can adjust the development and release of new games for the year 2017 according to the findings above.