

Visualisation Critique, The Rise of Gaming Revenue

The gaming industry, which started in the 1970s as a niche market, is currently the biggest earning media sector and consistently hits record sales. Its growth mirrors the growth of technology itself, shaping it and shaped by it, therefore it's a prime example of how abstract numbers and subjective stories interact with each other, and how a visualisation can elegantly capture this interaction.

This article discusses some key concepts of data visualisation by critiquing Visual Capitalist's chart that illustrates the rise of gaming revenue. References of discussed design principles are cited for more in-depth details of said principles.

Before diving in, it's important to define the basis of this critique; a visualisation can be assessed from many angles depending on its purpose and expected audience, as discussed in the topic of [visualisation rules](#). Since this chart is intended to illustrate data and highlight insights to a general audience, it will be deconstructed to its basic elements, and the critique will be based on three attributes: aesthetics, utility, and cognitive load.

Aesthetics, indeed, is a subjective element, therefore its assessment is both subjective and based on rules of thumb/general consensus. Utility in this chart's context implies the clarity and ease by which this chart conveys insights and communicates ideas, and the potential of this chart to be shared and discussed on the internet and social media. Cognitive load refers to the strain on viewers' working memory; the amount of relevant information that has to be processed and held concurrently to build a block of knowledge or reach an insight. An efficient visualisation maximises insights and conclusions and minimises cognitive load.

After the lengthy but necessary introduction, now we can start the actual critique.

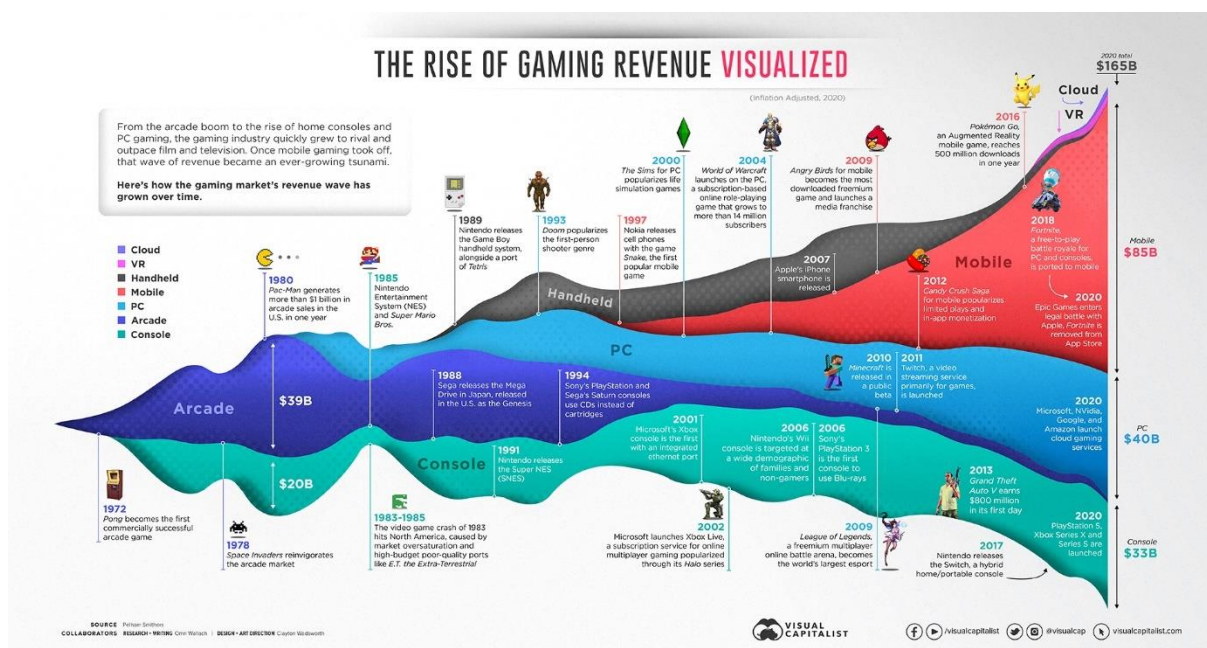


Figure 1. [Original Chart](#)

One of the most critical elements in charts that are dedicated to general audiences, who aren't necessarily familiar with the topic, is guiding them towards first glance conclusions, which means enabling the audience to form a rough idea regarding the main message of the chart as quickly as possible. Looking at our chart, the first element one would see after the title is shown in figure 2, while other elements are neglected, for now.



Figure 2. First glance perception of the chart

In less than a second, we can notice the slow and fluctuating growth of the gaming industry in the beginning and the drastic increase afterwards.

The importance of glance insights, beyond the insights themselves, is that they capture the attention of the viewer and spark curiosity to explore the rest of the chart. This, in turn, leads to looking at the chart in a more comprehensive manner and noticing more details, such as the colours used, as shown in figure 3.

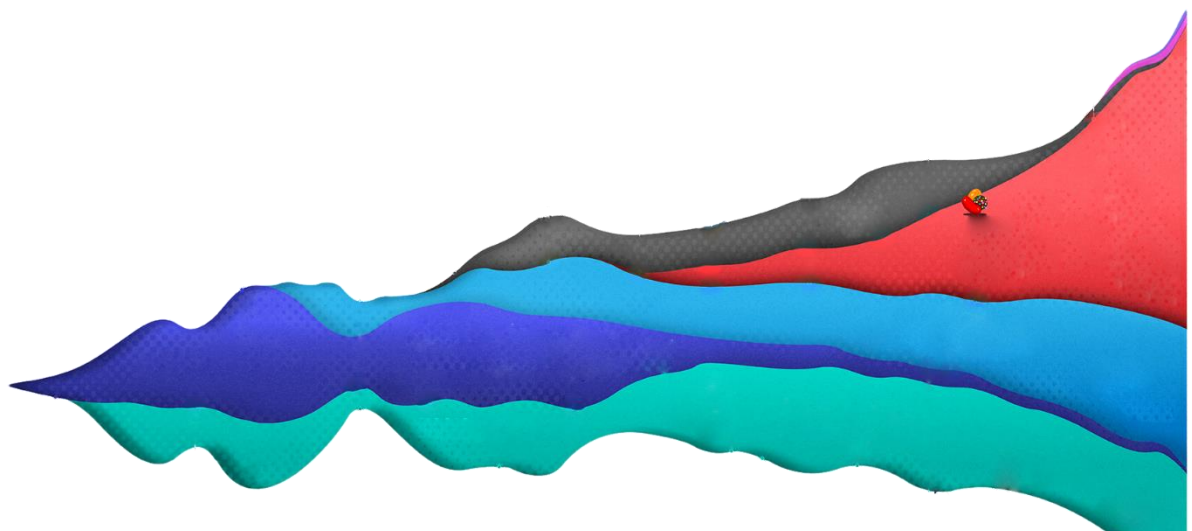


Figure 3. After sparking an interest, more details are recognised.

What is the type of this chart, and why?

The data we have can be represented by a line chart, which shows the change in revenue over time, but it will fail to highlight the difference between the different categories (Mobile, PC, etc.) without [increasing the cognitive load](#). To overcome this, area charts can be used.

[Area charts](#) facilitate the recognition of the differences and trends within categories and enable designers to condense more insights in a compact chart.

The overlapping of segments can harm the readability and clarity of the chart; therefore, a stacked area chart can be implemented to create a more aesthetic and clearer chart, which in turn facilitates viewing the chart on different devices without needing to scroll and find relevant info, reducing cognitive load and making it easier to reach general audiences.

Giving more attention to the chart invites us to check its labels, numbers, and other details.

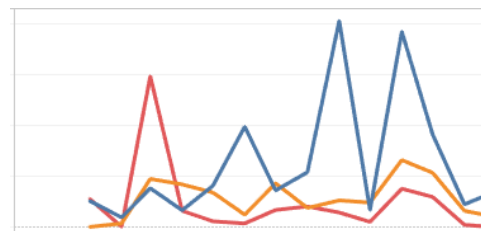


Figure 4. Line charts aren't effective when there are many categories.

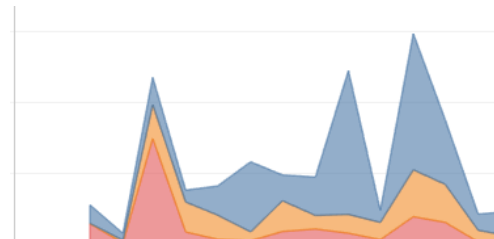


Figure 5. Stacked Area Chart can be easier to read than a line chart.

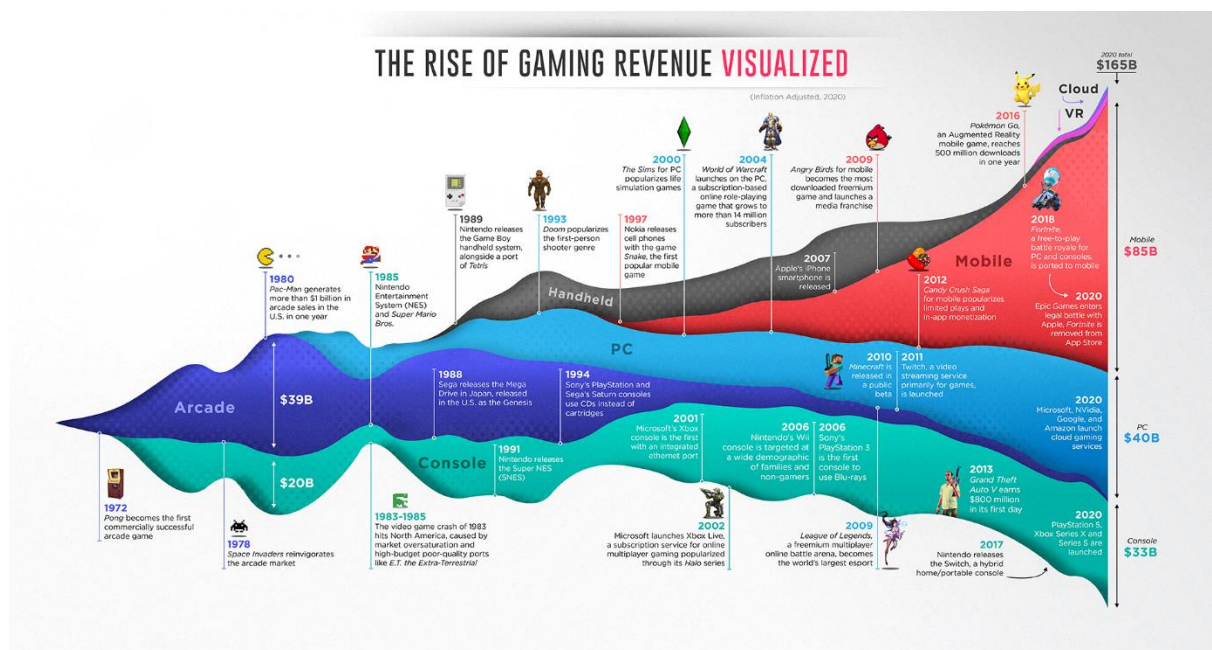


Figure 6. Almost complete version of the chart

Colour-wise, there are less than seven colours on the chart, which is appropriate according to this compelling [article](#) by Lisa Muth, this helps viewers navigate it without being overwhelmed by the different colours. The background is a linear grey gradient from left to right, which fits the time-series data type. The colours of groups are contrasting and aesthetically pleasing, the designers have added dotted texture to the colours to add more depth and avoid a bland outlook.

To check if colour blindness was accounted for, the chart has been tested using an online [colour-blindness simulator](#). The categories are still recognisable for viewers with [Anomalous Trichromacy](#) and Dichromatic View but it's more challenging for viewers with Monochromatic view. However, designers have applied darker shades at the edges of categories, which facilitates identifying the different groups for viewers with this rare condition.



Figure 7. Dotted texture and darker shades at the edges

Labels are another critical element. The positioning of categories' labels is very intuitive; from right to left, one will most likely spot the red category first and see that it represents the mobile games sector, then look up or down to see the labels of Handheld and PC respectively, and the same logic applies when looking from left to right, the Arcade then the Console. This has made the colour legend redundant.

The labelling of axes is unconventional, instead of having a conventional X-axis representing years, notable milestones are used as labels on the area chart along with a brief description of each milestone. The Y-axis shows each category's final market share and the industry's overall revenue.

Although risky, breaking the rigidity of conventional charts is enabling the audience to interact with this visualisation more intuitively by integrating labels and years to highlight relevant and noteworthy milestones. This reflects a profound understanding of what the audience wants; not numbers and shapes but rather context and stories with which the user unconsciously interacts. This was also reflected in the designers' choice of icons on top of labels, which induces nostalgic feelings among older gamers and establishes an aesthetic theme that reflects the topic of the visualisation.

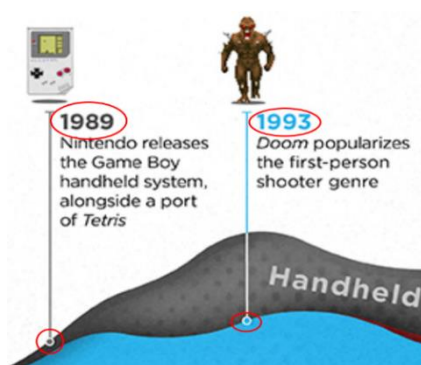


Figure 9. Implementation of Connectedness and Similarity.

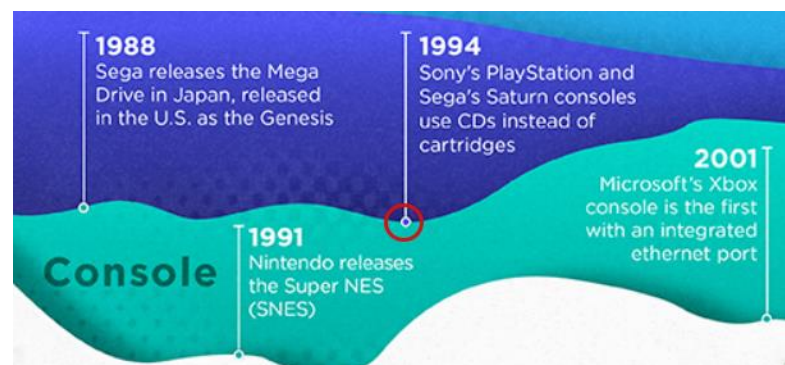


Figure 8. White labels inside categories, and inconsistent circle colouring. (1994 milestone belongs to the Console)

Due to the excessive labelling of milestones on the chart, it has become challenging to recognise which milestone belongs to which group. The designers tried to mitigate ambiguous labelling by utilising [gestalt principles of connectedness](#) and [similarity](#); connecting the label and its category by a line and a circle, and colouring the circles and years' labels as the colours of their respective categories. Nevertheless, the issue of ambiguous labelling persisted, either because the labels are inside the categories, therefore can't be colourised, or due to inconsistent colouring of circles.

Finally, the source of data is [Pelham Smithers](#), an independent research provider. It has been referenced by articles in [FT](#) and [Bloomberg](#), but there are no publicly available details regarding the

raw data, which leaves us with many unanswered questions and doubts, for example, since the chart is covering the revenue for almost fifty years, it's not clear whether inflation was accounted for, because otherwise, that would mislead the viewer into overestimating the growth of the industry. Moreover, the chosen milestones represented here are very US-centric, ignoring significant milestones in the Asian market, which is responsible for almost 30% of the total industry's revenue.

The chart publishers have done an incredible job in communicating the data, but there is still room for improvement, such as dropping the text box and colour legend at the top left corner, which are made completely redundant by the properly labelled categories. Moreover, reducing the number of labelled milestones can improve the overall readability, and providing more details about the data source improves the quality of the visualisation.