

E-waste

- Esports carbon footprint : the esports community that gaming and esports is generally a cleaner and greener option than many other industries in the world today. However, as the industry continues to grow, so does its carbon footprint and it is this which is becoming a big problem. In the United States, the average gamer will spend \$2,200 on energy over five years and will pump out 2,000 pounds of carbon into the atmosphere every year over that period, simply by playing their favourite games and esports titles.

- Gaming Materials the gaming industry was incredibly reliant on plastics for packaging, shipping and storage. Getting the finished game to customers, and protecting it on the way, relied on a flexible solution that could be printed on – and be resistant to drops, scratches and repeated use. Other materials such as Jewel cases, plastic DVD and game cases, plastic discs coated in metallic alloys are really difficult to turn into something else. It is truly damaging the environment.

- Physical to digital Instead of using expensive, difficult to recycle discs or cartridges, games can be downloaded directly to console hard drives, with no shipping costs, waste materials or portable storage problems. Although many video game companies promote green gaming by developing online games instead of old physical game consoles, and even newly developed game consoles try to use environmentally friendly materials, but it is undeniable that with the processing of huge data on the Internet and downloading will still cause environmental pollution. With the evolution of the times, it is not impossible to enter the virtual world in the future. However, it is still important to balance the waste and pollution between physical and virtual world.



Gaming Industry and Climate Change

Introduction

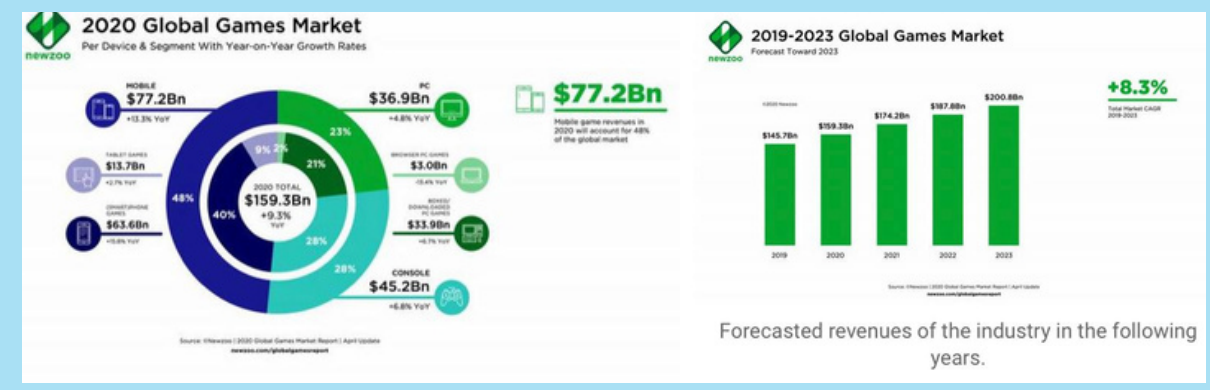
Gaming is one of the biggest and popular industry in the world. Global videogame revenue is expected to surge 20% to \$179.7 billion in 2020, especially with the pandemic, Covid-19. However, gaming consoles consume about 16 billion kilowatt-hours of energy per year. This project is mainly to discuss the impact of the video game industry on the environment. Does the video game industry really have anything to do with climate changes or environment? How can the gamers or gaming companies help to fight the climate changes? Why is it so important for us to pay attention to this topic?

Negative Impact

- Console waste plus energy-hungry cloud gaming equals the worst of both worlds for sustainability.
- With plastic casing, mined-metal circuit boards, guzzled power, and e-waste, gaming has for decades been an industry unfriendly to the environment.
- Even though some new technology aim to move from purchasing boxed games to downloading digital copies is reckoned to produce just a fifth of the CO2 emissions and new consoles, such as the PS5 and Xbox Series X are the most energy-efficient iterations of those machines, there are other new tech will cost more energy such as cloud-based streaming or VR-headsets.
- Esports could have a negative impact too. A number of companies heavily involved in the Esports industry use petroleum-based substances when making their hardware. Esports executives and top-level players can rack up tens of thousands of air miles in a year moving around the globe in airplanes and jets. Moreover, it is estimated to use 34 terawatt-hours of energy each year. That doesn't sound much until you realise that this is the equivalent of 5 million cars on the road.

Positive Impact

- One of the largest and most potential industrial economies in the world. According to newzoo, you can see the forecasted revenues of the gaming industry and the devices growth of 2020 in these two charts.
- The gaming industry is full of potential to innovate and develop new technologies to change the way we live in this world.
- Games designed with educational perspective, flexibility, realistic experience, convenience and bring entertainment to our life.
- United Nations are aware of the problem and founded the project " Playing for the Planet".



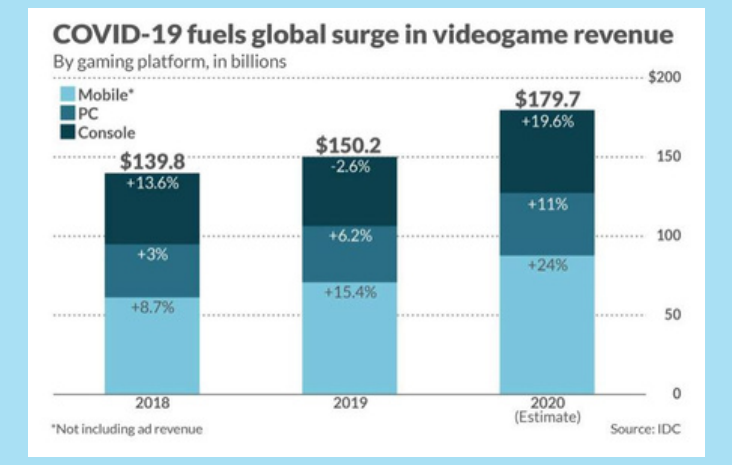
Playing for the Planet

In 2019, the United Nations announced an initiative called "Playing for the Planet," which saw gaming giants like Microsoft, Sony, Ubisoft, and Niantic announce plans to work together to come up with best practices for reducing the environmental impact of the video game industry. Playing for the Planet focuses a lot on consumers—educating them, getting them hyped about environmentalism, helping them modulate device settings, commissioning games about trees. They want to encourage players to protect nature and biodiversity, asking, "What if video games could also help us tackle the biggest environmental challenges of our time?"

Nintendo, one of the biggest game company, is missing from the alliance but the company already operate an Environment Committee at the company's headquarters in Japan, while each of its overseas subsidiaries have their own committees that look into environmental impact in their regions. Microsoft is producing 825,000 carbon-neutral Xbox game consoles as part of a pilot program that represents the first gaming consoles in history to bear that designation. As for Sony, the company has said the PlayStation 5 will be more environmentally friendly. In total, the efforts undertaken by the 21 game companies is estimated to result in a "30 million ton reduction of CO2 emissions by 2030." Additionally, "millions" of trees will be planted, while game companies will enact practices to do better in the areas of "energy management, packaging, and device recycling."

Covid-19

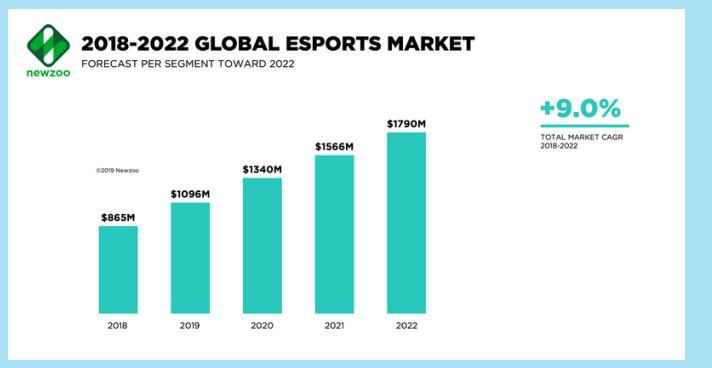
The COVID-19 lockdowns have quickly increased the number of hours spent in front of screens for many people. Millions of people are trying new digital activities to kill time and even to earn their living. We know that the gaming business has increased its spike since the covid-19 pandemic. Given the covid-19 pandemic and lockdown, it is expected that the video games industry will continue its growth in an upward trend. The people are playing video games than ever being locked down at home. The video gaming company's relief funds are helping people in crisis during covid-19. The PC game users has grown back in 2020 and also there is a significant growth on mobile game and Console gaming platform. According to the source from IDC, we can see the growth of the global videogame revenue from the chart.



Esports

One of the main drivers of growth for the computer gaming industry is eSports. eSports is the competitive part of the gaming industry, where players participate in competitions while the game is broadcasted online. Esports tournaments are often held in large arenas, akin to the ones you see in football, where fans can cheer for their favorite team. Esports game revenue was \$6.3 billion in 2018 which represents a 11.1% growth year-on-year. By 2023, the Esports industry is set to reach \$9.5 billion.

- Global Esports revenues is around \$1.3 billion in 2020, a year-on-year growth of +15.7%, up from \$1096 million in 2019.
- In 2020, \$822.4 million in revenues—or three-quarters of the total market—will come from media rights and sponsorship.
- Globally, the total Esports audience will grow to 495.0 million people in 2020, a year-on-year growth of +11.7%.
- Mobile Esports enjoyed a huge spike in the past year, with emerging markets like Southeast Asia, India, and Brazil at the forefront of this growth.



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