



Designing the future ELECTRIC CARS TO CAR DESIGNERS

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From the earliest days of vehicle design, the goal was to make cars look good while keeping the engine and its peripherals from extensively heating up. Since modern combustion engine cars are based around the engine itself, cars need to have enough space to let air in which will be cooling the engine.

Traditional vehicle design tends to have large front grilles which allow increased airflow and designers need to make sure that enough air is getting to the engine whilst keeping the front of the car presentable. Car manufacturers from the dawn of time have tried the sneakiest ways to slip in air ducts on the bumpers or the fenders, where the ducts add character. Other times the choice of duct placement is rather questionable but sometimes, manufacturers do not have a choice but to meet mechanical needs.

The EV market is undoubtedly one of the largest growing sectors within road transport, and electric kinetic technology has been rapidly developing as time goes by. Designers, when it comes to designing electric cars, have expanded their drawing board as there are fewer restrictions and biases to focus on while designing. As the cars do not need to be based on the position of the engine like traditional cars, electric car shells have more room for curves and design.

Electric cars such as Tesla or the Mercedes Benz EQS tend to have a traditional body design but what is different is the engine architecture. These

cars do not have an engine in the front of the car but rather a 'skateboard' setup where the engines are present on either side of the car, where the engines most commonly come in pairs.

You might ask, "That's cool, but what does the shape of a car have to do with being electric?" Since electric cars do not have a traditional combustion engine, there are fewer areas that need to be shaped to accommodate an engine at the front of the car and transmission at the bottom. Designers have more room to make cars more aerodynamically sound, by slanting the front or maybe just leaving



the area completely and increasing storage by adding a front trunk or more popularly known as a 'Frunk'.

For many designers, skipping the middle space where a transmission set sits is also used to their advantage. Since there is no regular transmission, the middle hump is flat, introducing more space for legroom inside the car as well as since electric cars can have a sealed bottom, aerodynamics play a large role to make the cars faster.

Although electric cars do not have an engine, it does need to store huge batteries, mostly lithium-ion, which adds a lot of weight to the car. Battery



packs are usually small in size and can be distributed through the whole car, thus contributing to better weight distribution and ultimately, efficiency.

Many points have been made regarding the cooling of engines and how it affects the overall design and stance of the car. When it comes to electric cars, they demand different cooling compared to the norm. Many car manufacturers have a blocked front grille which a lot of people are against because it smoothen out the cars too much, leaving small ducts where the air is redirected to the electric drivetrain present on the sides of the car. Electric power trains need cooling, but they do not generate as much heat as an engine, so designers aren't obliged to draw large front grilles.

At the end of the day, cars are not shaped differently just because it has a different powertrain. There is a lot of marketing and public opinions behind how a car is shaped or will be shaped in the near future. If it does not appeal to the general public, even four-figure power numbers won't bite.

Thus, electric cars might be a car designer's blank canvas. Drag coefficients could be low, but manufacturers do not always need to prove a point by rolling out the most bleeding-edge designs but include new technology to an existing platform. The market is new and still maturing, but for now, it's more about the tech for manufacturers.

How tech giants took advantage of the pandemic

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While travel restrictions, social distancing and imposed lockdowns put many companies and startups out of business, they served to increase our dependence on technology. From online meetings and classes to entertainment, the pandemic turned tech giants like Facebook, Apple, Google, Microsoft and Amazon into indispensable parts of the new normal.

In a dramatic reversal of fortune for the big tech companies, Amazon and Facebook capitalised on being seen as essential for people in lockdown, while Google and Apple built tools that enabled state health departments to provide critical public services like contact tracing for Covid-19 infections. Be it through shifting focuses, introducing new products or refining recruitment strategies, here's how the five big tech companies took advantage of the pandemic.

AMAZON

According to Forbes, Amazon's revenues were expected to grow by 27% to US\$488 billion by 2021. True to those predictions, consumers being trapped indoors only spelt opportunities for the e-commerce giant. Besides seeing a staggering rise in Amazon deliveries, the tech giant also profited from the increased viewership on its streaming platform throughout the pandemic.

While services like Amazon's were naturally expected to thrive with travel restrictions and lockdowns, another

hosted by Amazon's cloud services division AWS, the tech giant only stood to gain from Zoom's success.

GOOGLE

Alphabet, Google's parent company, has proven more than resilient during the pandemic, reaching a market value close to US\$2 trillion.

Raking in most of its earnings from Google's advertising and YouTube, sales and profits for Alphabet reached record highs throughout the pandemic. Following the closure of most nurseries, schools and educational institutions, Google's services like Google Classroom and YouTube Kids saw an unprecedented rise in users.

Besides more revenue from paid advertisements targeting home-bound shoppers, Google Workspace services like Meet, Docs, Sheets and more became indispensable parts of working from home. Paired with their innovation in terms of contact tracing technology, Google Pixel phones and more, the pandemic presented many wins for the tech giant.

digital subscriptions for Apple TV and iTunes also helped the big tech company flourish this year.

Reporting a revenue of US\$365.8 billion in 2021, Apple also witnessed a boost in their sales with the release of the low-cost iPhone SE which put the company in a better position, despite the financial pitfalls of the Covid-19 crisis.

FACEBOOK

From connectivity to entertainment and news, throughout the pandemic, Facebook has kept us tethered to friends, family, workgroups and more. Reaching 2.89 billion users across Facebook, Instagram and Whatsapp, the tech giant also saw considerable profits from its targeted online advertising as well as moderate non-advertising revenue from sales of the Oculus Quest VR headset.

Another key aspect of Facebook's rise in the pandemic came from an auction-like system to increase advertisement charges alongside increased demand, with their average price per ad growing by 47% in the second quarter of 2021.

MICROSOFT

Even in the pandemic, Microsoft remained one of the most valuable companies in the world, worth nearly US\$1.3 trillion.

The tech giants' deep pockets enabled them to withstand the financial downturns of the pandemic, while also allowing the company to benefit from increased demand for Microsoft hardware, software and cloud systems for remote and hybrid work. Besides, the tech giant also benefited from the uptick in the gaming and entertainment industry with its Xbox series X consoles and game streaming services.

While each of the big tech companies followed their own unique strategies to take advantage of the pandemic, all of them shared some common perks, namely- deeper pockets, better recruitment capacity and swiftly adapting to the new normal. Where traditional companies declared bankruptcy and laid-off workers in hordes, companies like Amazon lead hiring sprees for nearly 175,000 new warehouse jobs.

Therefore, while the economic contraction killed off more and more businesses, more spaces were opened up for the big tech companies to occupy, with the largest firms being some of the only companies in the position to do any hiring in the pandemic. Snapping up the best talent, taking over competitors and positioning their own services as essential parts of life in the pandemic were the factors that not only kept big tech companies afloat but helped them thrive overall.



ILLUSTRATION: ZARIF FAIAZ

example of company success in the pandemic comes from Zoom. From rising through the share market ranks to becoming a verb in our day-to-day lives, video chatting services by Zoom also played a part behind Amazon's flourishing. With a chunk of Zoom

APPLE

Besides having deeper pockets than most companies heading into the pandemic, Apple continued to thrive with sales of Macs, iPads and iPhones. While the shift to remote work and school only drove up demands for new Apple devices,