

Formula 1 Insights: Measuring the Impact of Driver Skill vs. Car Performance

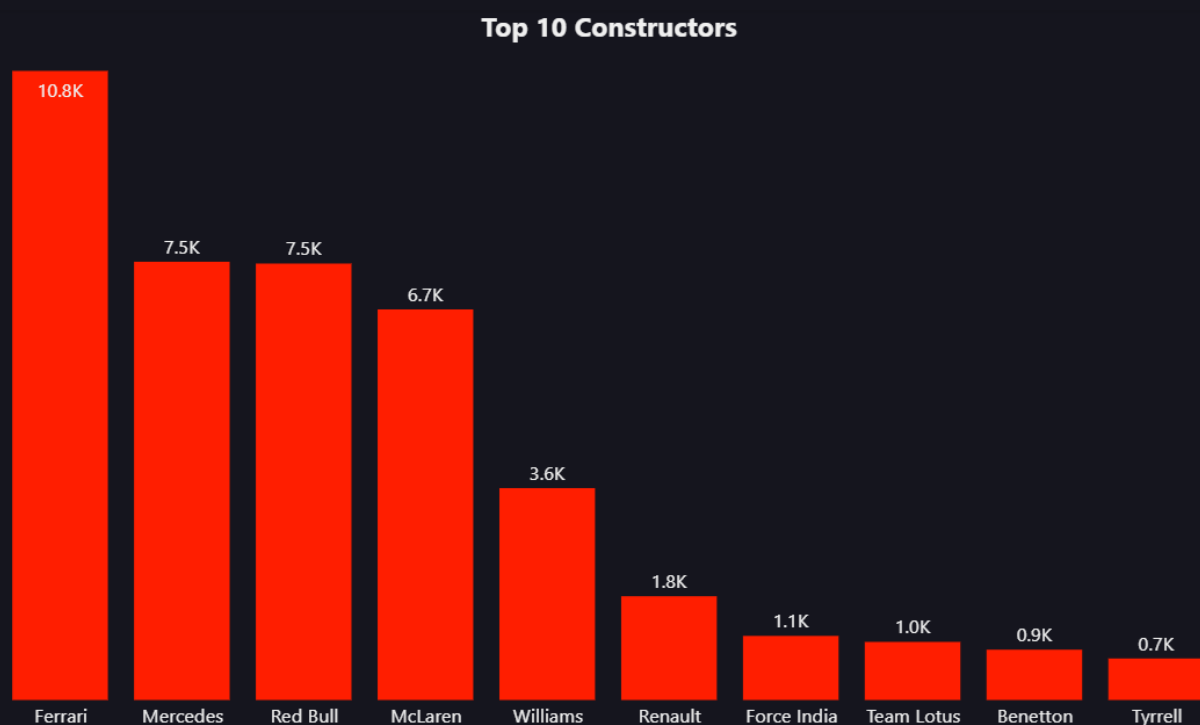
A data-driven investigation using Python, SQL, and Power BI to analyse race results, team contributions, and teammate performance gaps.

This project explores one of the most debated questions in Formula 1:
Is it the driver's talent or the car's performance that leads a team to victory?

Using historical F1 data, I analysed team standings, driver contributions, and point disparities between teammates all within the same machinery to uncover whether success is driven more by human skill or engineering excellence.

To understand whether team success is driven more by the car or the driver, we begin by examining performance at both levels:

First, we'll look at the top constructors to understand which teams have dominated over the years,
then we'll analyse the top-performing drivers,
and finally, compare teammates within the same car to reveal the impact of driver skill.

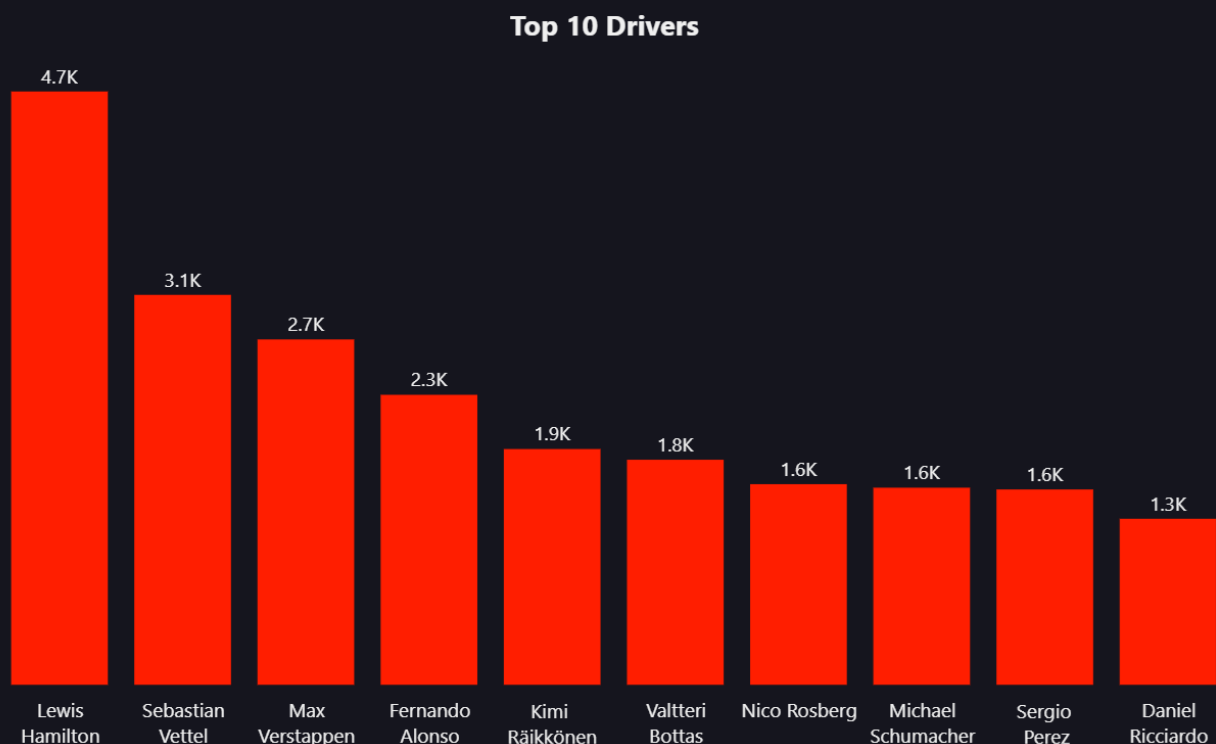


This chart shows the top 10 constructors in Formula 1 based on total points scored of all times.

- Ferrari leads the list, highlighting their consistency and longevity in the sport, even without recent championships.
- Mercedes comes in second, reflecting their dominant performance in the hybrid era (2014–2020)
- Red Bull and McLaren both appear prominently — Red Bull showing sharp growth since 2021, while McLaren demonstrates a return to competitiveness in recent years.

These team-level results highlight the importance of engineering, development, and strategic execution — but next, we'll look at driver-level performance to understand how much individual talent contributes.

After analysing team dominance, we now shift focus to the drivers themselves. This next chart highlights which drivers consistently performed at the highest level, regardless of team.



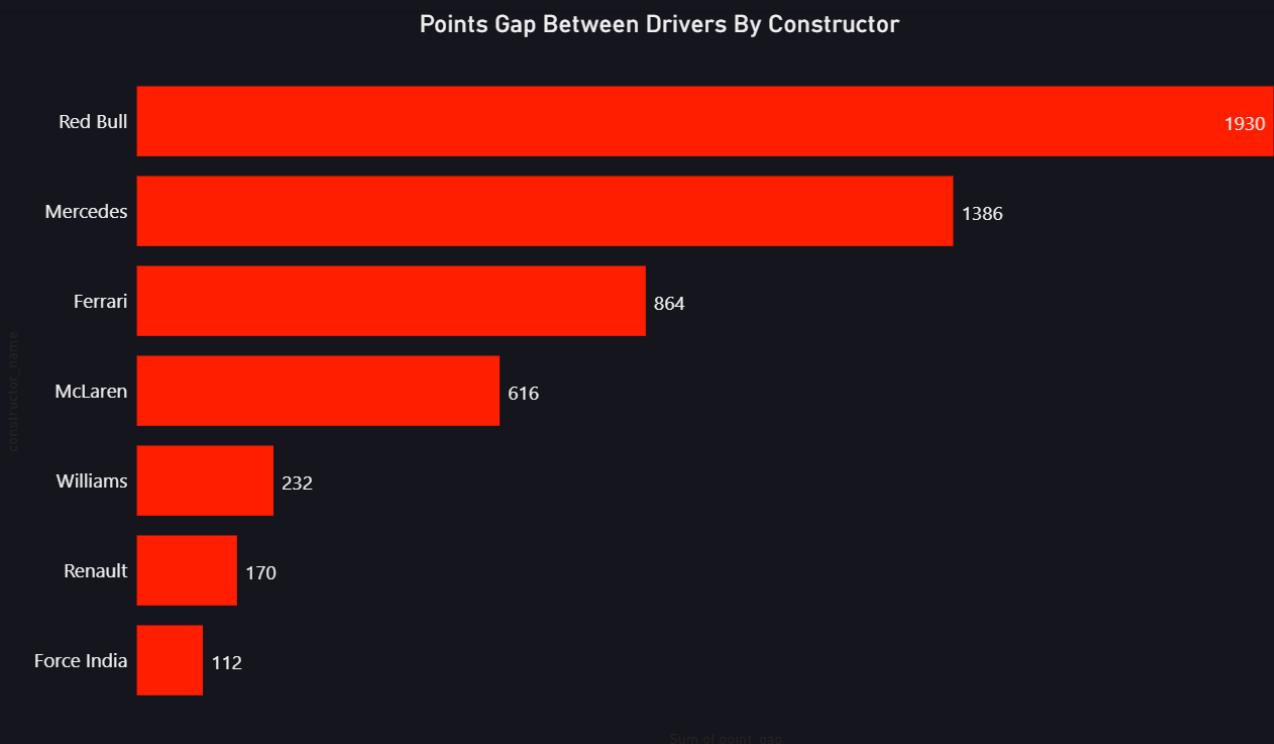
This chart highlights the top 10 drivers scoring the most points.

- **Lewis Hamilton** leads by a significantly, reflecting his dominance during Mercedes' golden era.
- **Max Verstappen**, despite a slower start, shows a sharp rise in recent seasons, overtaking long-established veterans.

- Other consistent performers include **Sebastian Vettel**, **Valtteri Bottas**, and **Fernando Alonso**, each showing the impact of strong performance across multiple teams.

To better understand the influence of driver talent within equal machinery, we examine the total points gap between teammates across constructors from when the hybrid era started (2014 – 2024) when all drivers in each team raced with the same car.

The larger the gap, the greater the dominance of one driver over the other revealing where individual performance had the biggest impact.



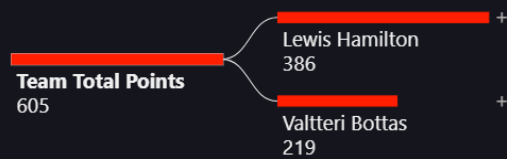
This chart displays the total points difference between teammates for each constructor, highlighting how often one driver significantly outperformed the other in identical cars.

- Red Bull has the largest teammate gap over 1900 points, largely driven by Max Verstappen's dominance across several seasons.
- Mercedes also shows a large gap, mostly reflecting Lewis Hamilton's consistent lead over his teammates.
- Ferrari and McLaren show noticeable gaps as well, though not as extreme suggesting a somewhat more balanced driver lineup or changes in pairings.

These disparities suggest that driver talent plays a major role, especially when one driver repeatedly delivers most of the team's points despite equal machinery.

Next, we'll break down Red Bull, Mercedes, and McLaren comparing how each team's drivers performed against one another over the years. These point gaps help reveal how much of the team's success came from one dominant driver.

Mercedes Drivers Points Gap



At Mercedes, Lewis Hamilton consistently outscored his teammates, including Valtteri Bottas and George Russell. His dominance highlights both his talent and stability across seasons during the team's peak.

McLaren Drivers Points Gap



McLaren's driver points gap is more stable and balanced, with smaller differences between teammates. This suggests a more evenly matched lineup and less dependence on a single dominant driver.



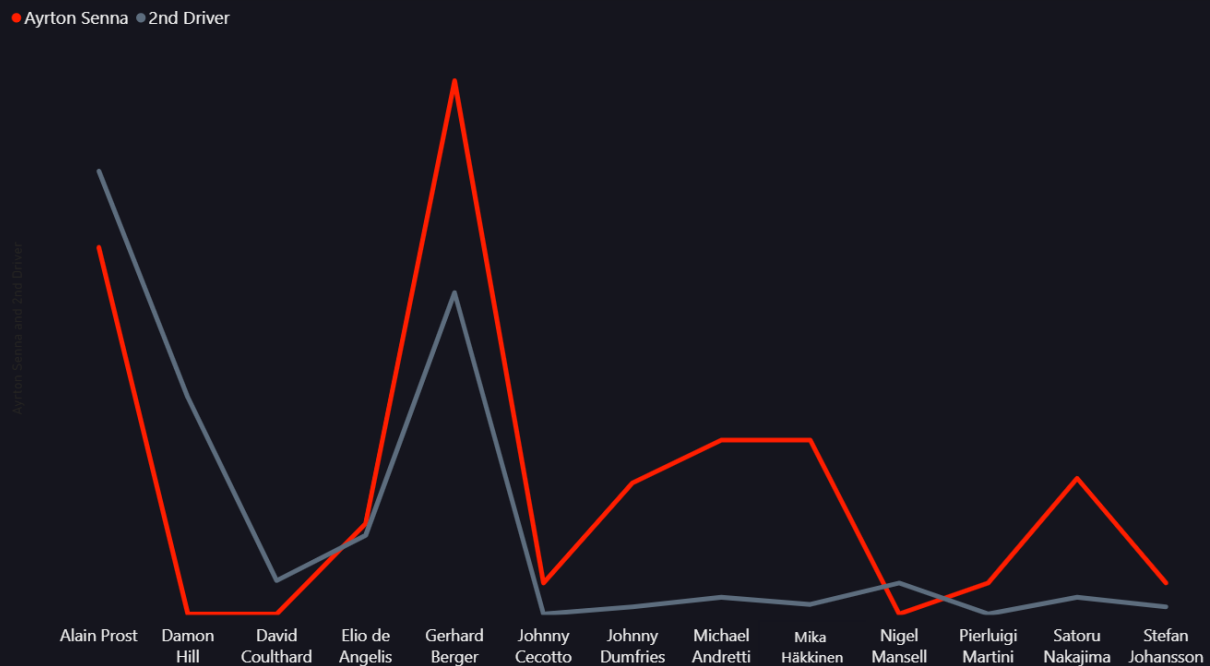
Max Verstappen outperformed each of his Red Bull teammates from 2016 to 2024.

The point gap increases dramatically starting in 2021, as Max became the team's clear lead driver.

Drivers like Gasly, Albon, and Pérez consistently scored far fewer points despite having the same machinery.

This highlights Max's exceptional consistency and talent and shows how, in some cases, driver performance can far outweigh even the advantages of a fast car.

To support the role of driver talent further, we look back at a legendary case Ayrton Senna during his time at McLaren.



We know from history that Ayrton Senna was one of the most talented drivers in Formula 1.

During his time at McLaren, the team won multiple championships — with Senna often outperforming even strong teammates like Alain Prost.

This example reinforces the idea that while a strong car is important, elite driver skill can be the defining edge in achieving greatness.

Conclusion: So, What Matters More - Driver or Car?

- Both the car and the driver are critical, but their impact varies depending on the context.
- In dominant teams like Mercedes and Red Bull, top drivers like Hamilton and Verstappen contributed most of the team's success.
- Teammate comparisons reveal that even in equal machinery, some drivers consistently outperform others highlighting the importance of skill.
- Historical cases like Ayrton Senna show that exceptional talent can define an era, even within a strong car.

Final Insight:

A fast car builds the foundation, but it's driver talent that often makes the difference between winning and dominating.

