Trend: Auto Electrification

Basil Alsikafi Jan 8, 2020 2

I've previously written about the impact of electrification on dealerships here. But that was written in an era where Tesla's Model S and X were basically the entire electric vehicle market. In 2019, 40 electric models were introduced - mostly in the back half of the year. In 2020, 14 more are scheduled to be introduced. By 2021, they will be a mass market product.

For the most part, the vehicles introduced today are revision 1 vehicles. Manufacturers change the drive train to electric motors and batteries from the internal combustion engine. The heating system too, which previously relied on a byproduct of combustion is replaced, but generally few systems have been altered. In revision 2, as electric cars become more common and parts suppliers can make money selling next generation technology to multiple manufacturers this is likely to change.

Gentherm (THRM, no position at publication) manufactures specialized heating systems. For the doctors reading this, you might recognize their work manufacturing temperature control systems in the ICU or NICU, but their larger and more promising business is in automotive HVAC. For a company like Gentherm, electric vehicles represent an enormous opportunity. Previously, their business was installing radiant heating systems in more places in the car – mostly steering wheels and seats. But electric cars are electric and have different needs than combustion vehicles. Just like your iPhone's battery doesn't last as long in the winter as it did in the fall, electric cars have optimal operating temperatures (around the same temperature as humans) and anything higher or lower than that has a negative side effect on the electronics. For Gentherm, this is a huge opportunity. In their own words at a recent industry conference,

"Now let's translate that to what's really important to electric vehicle owners and that's range. This showed, if you look at the cold cycle, when you power up an HVAC system at about minus 7-degree C, so a little below freezing, your range drops 40% with the classic HVAC system. With our ClimateSense system, the reduction is only 10%. So 30 points improvement in overall vehicle range just through the optimization of thermal management in a car. Pretty dramatic. I think that really -- that statistics surprises a lot of people. But if you look at power management and -- or power utilization in a car outside of the powertrain, the HVAC system is the largest draw on power in a car."

Heating, a throwaway system that has been substantially the same for decades - siphoning off heat from the engine and redirecting it at the occupants - is a source of value moving forward. The modified space heaters currently installed in its place are likely to give away to something new as both occupants and batteries are better serviced. For Gentherm and companies providing systems like it, previously optional accessories, are more likely to be a key part of its customers' supply chains moving forward.

Electric cars have other needs as well, that are reordering if not completely shaking up their industries. Tires, which I previously noted is a part that moved, and therefore still needed to be changed in an electric world, turns out is a pain point for electric cars. Electric cars are heavier, provide more and instant torque, and are more sensitive to rolling resistance which limits range and tire noise which is more noticeable without the sound of the engine in the way. Satisfying each of these issues is hard and requires significant R&D investment to develop and use different compounds of different softness and design changes to the shape of the tread and sidewall of the tire. On their Q22019 earnings call, Goodyear Tire (GT, position held) noted,

"The weight and torque associated with these powertrains makes tire design much more complicated. This reduces the number of capable suppliers and has resulted in our win rate ***being nearly 2 out of 3 on electric vehicles last year****."*

That win-rate cannot be expected to last. Others will design and compete in electric tires. But tires for electric cars are different than those for combustion engines and the cost to compete in new electric tires is significantly higher than in combustion cars that have only changed incrementally for a century. Additionally, given the importance of the after-market and being able to widely manufacture and distribute, the industry is likely to change in a way that favors today's market share leaders. The small competitor earning small profits on thin margins is likely to have difficulty manufacturing an electric car tire, and the industry structure is therefore likely to change to favor those with the capability to invest. The big companies fighting for margin in the previous paradigm are able to turn the meagerness of profits against their smaller competitors as they benefit from the new one.

Other changes due to the electrification of automobiles are more than likely, but I found it interesting that with one change, in one downstream industry previously small suppliers are likely to get bigger while in another already big suppliers are likely to get even bigger. Perhaps as importantly, buying an auto or electrification ETF probably doesn't capture the nuance.

Thank you for reading this first edition of 2020 focused on the trends White Brook is focused on. I hope you enjoyed reading it as much as I did writing it and I hope to pull back the veil a little bit more on the issues White Brook is thinking about in the year ahead.

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