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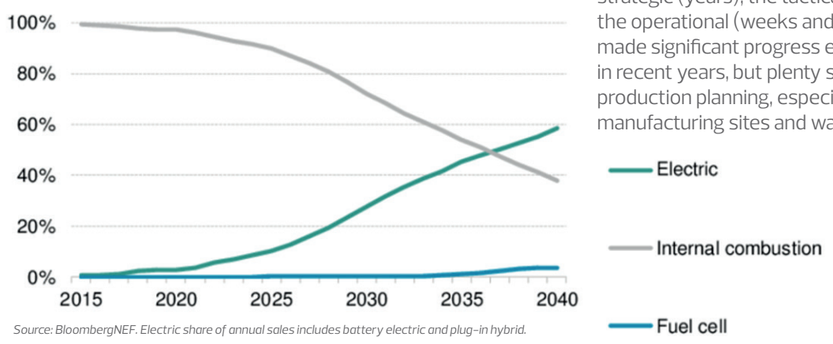
HOW PLANNING CAN HELP AUTO SUPPLIERS ADAPT TO PARTS SHORTAGES

Although the global automotive industry has made great strides in dealing with the ramifications of the COVID-19 crisis, it is still wrestling with many of the supply chain disruptions brought on by the global pandemic. The industry has shown tremendous resilience in its ability to manage pandemic-induced personnel challenges, including an increasing number of COVID-19 cases and a reduced labor force. Parts shortages, however, have been more challenging to navigate as the industry has ramped up production to meet unexpected demand. Severe congestion and delays at the ports and container shortages across the supply chain network have resulted in a lack of critical components needed to keep assembly lines running.

If the parts shortages weren't enough, suppliers are being hit with significant shipping price increases on the parts they can get. According to one carrier, freight prices were 170% higher in February than the same month last year. The industry has been able to navigate through this, to some extent, by switching to air cargo for critical parts. With the growth of e-commerce during the pandemic and the continued demand for personal protective equipment, however, available air cargo capacity is 20% lower than it was a year ago, and rates are expected to continue increasing in the near-term.

Global share of total annual passenger vehibcle sales by drivetrain



Source: BloombergNEF. Electric share of annual sales includes battery electric and plug-in hybrid.

Microchip supply crunch

Even if air cargo is an option for some parts, others simply can't be expedited, and microchips—which automakers use for a range of vehicle technologies—are one such example. Due to the China-U.S. trade war, the supply of microchips was under pressure even before the onset of COVID-19. As the world went virtual in 2020 and the demand for PCs, Chromebooks and tablets exploded, the demand for microchips soared, exacerbating the situation for automakers and other businesses. Unfortunately, this shortage couldn't be contained by simply seeking alternative sources of supply, or expediting via air freight. There just isn't enough capacity in the industry to meet demand.

Chip manufacturers are increasing their capital expenditure budgets to expand capacity, but this will take time. In the interim, both original equipment manufacturers and suppliers will need to become more agile in their ability to allocate scarce resources through production planning. They need to be able to adapt production plans based on changes in demand or supply on a weekly, if not daily basis. Sales and operations planning (S&OP) is the process many OEMs and suppliers are relying on to do just that.

Simply put, S&OP is the cross-functional process used by organizations to align supply with demand to achieve both strategic and financial objectives. The process typically works across the three time horizons, including the strategic (years), the tactical (quarters and months) and the operational (weeks and days). Many companies have made significant progress enhancing their S&OP capabilities in recent years, but plenty still struggle with demand and production planning, especially across multiple products, manufacturing sites and warehouses.

Another factor that we expect could affect supply and demand forecasting is electric vehicles and their growing market share. There are already more than 10 million electric vehicles on the road globally, according to BloombergNEF, and expectations call for 4.4 million global EV sales in 2021. We expect EV adoption to increase further as governments implement tougher fuel economy and carbon dioxide emission standards, especially in Europe and China. In addition, China recently reversed course and extended EV subsidies that were expected to be phased out at the end of 2020 until 2022.

Regulations, subsidies and the decreasing cost of batteries have all led almost all global OEMs to make commitments to accelerate their move toward electrification over the coming years, with General Motors Co. recently setting a 2035 target for its entire fleet to be electric. But the United States faces a dramatic supply gap for EV batteries compared to China and Europe: "If current trends continue, China is projected to have 140 gigafactories [that manufacture lithium-ion battery cells] by 2030, while Europe will have 17 and the United States, just 10," *The Washington Post* reported in February.

What does all of this mean for planning?

Accurately forecasting demand has always been a challenge, but market volatility and supply chain disruptions are making the ability to do so even more valuable. Having an accurate demand forecast helps suppliers adapt and plan for long lead items, reduced inventories, level production and avoid out-of-stock situations that could shut down a customer's assembly line. Having visibility into future demand is only part of the planning production equation, though. Equally important is having visibility into operations, including access to key data for on-hand and in-transit inventory, production plans, capacity constraints and resource requirements, to name a few.

Unfortunately, some suppliers still struggle with getting access to the operations data they need to make informed decisions. An example of this is the ability to view where a given part is used across all customers and applications. For some companies, all it takes is a simple click of a mouse to get this information and other relevant planning data, but for others, it's a highly manual process. And without this critical information, it is all the more challenging to optimize the allocation of scarce resources across multiple manufacturing sites supplying multiple vehicle programs and OEMs in various countries.

Given the recent supply chain disruptions and parts shortages, the ability to run fact-based production scenarios quickly is becoming a competitive differentiator. Many companies have recognized these challenges and have made the necessary investments in data, technology and analytics, but for those that have hesitated, time is of the essence. The more visibility planners have into their current demand and inventory, the better they will be able to optimize production to meet customer and business objectives.

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