TREXIN INSIGHT PAPER

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GLOBAL CHIP SHORTAGE

The semiconductor – what is the shortage?

WHAT IS THE CHIP SHORTAGE?

Shortly after the COVID-19 pandemic began in 2020, there was an abrupt shortage in the chip supply. What is this "chip" and what does it mean? The "chip" is the semiconductor used in modern edge technology, in almost everything we use today, from smartphones to laptops, modems, cars, and even household appliances. They play a vital role in all types of products that compute or process information. Initially, inflation fell as overall consumer demand decreased and economies worldwide shut down.

With the lockdown in place, the consumer market for products such as electronics, cars, and anything that was not a necessity fell drastically. As more and more people started working from home, an increase in the demand for semiconductors was seen. Folks working from home now required better and more robust technology that pertains to all kinds of online work and meetings. The chip was required for products like modems and routers so that everyone sitting at home could work more efficiently and effectively. As the manufacturing was already down all over the world due to the pandemic, along with China and Taiwan being our primary sources of the semiconductors, we started seeing a shortage in the chip supply which led to a domino effect causing a whirlwind of shortages across different industries throughout the world.

The automobile industry was one of the first industries to be affected by the chip shortage. Although consumer demand was not expected to rise, the auto industry bounced back so quickly that by the end of the third quarter of 2020 the demand for cars had reached new levels, with basically no supply. This further widened the demand-supply gap for the chip and in turn fueled the infamous pandemic-generated inflation.

HOW HAS IT AFFECTED INDUSTRIES ACROSS AMERICA?

The global chip shortage did not only affect the automobile industry, it also ended up hitting 169 different industries across America, including the tech industry. A lot of manufacturing companies were compelled to cut back production by 25%. The supply shock led many companies to postpone and delay their projects. Product backlogs became the new norm with even giants like CISCO.

WHERE ARE WE NOW WITH THE CHIP SHORTAGE?

Although the supply constraint lasted well into 2022, we are seeing the demand and supply gap decrease. Since the world has seen a surge in the demand for semiconductors, the United States has finally decided to start making its chips. It seems that the United States has become far too dependent on chips from China and Taiwan (who make the smallest chip most cost-effectively). Furthermore, it causes a concern that if we keep buying from the outside world, we will fall behind in the digitally transforming world. Now, Intel has decided to take back its place as the leading company in the manufacturing of semiconductors. It is currently building two factories in Arizona which are said to be completed in three years' time.

Even though we are taking steps in the right direction by manufacturing our chips, is it wise to say that a single company can overcome such an issue? Some products require older versions of the chip. If Intel focuses on innovating and creating more robust chips than any other company, we will still face a shortage of older semiconductors. Although we

will be amplifying the domestic economy to somewhat reduce future supply risks associated with the chip, the chip industry relies on much more of a "complex global web of companies for raw materials, production equipment, design software, talent and specialized manufacturing."

HOW WAS TREXIN IMPACTED?

In late 2021, a large Med Tech company engaged Trexin for help in addressing supply gaps during the shortage. Chip suppliers were having trouble meeting production demands for life-saving devices. Our Client put together a crack team to strategize how to respond to the drop in supply. Several mitigation efforts were proposed to ensure patients had the devices they needed. Trexin was able to help lead and provide guidance to a cross-functional Client team and model supply and demand scenarios based on these mitigation efforts. A key mitigation strategy was to launch a non-chip shortage affected device that could fill the supply gap. Trexin led a cross-functional team of our Clients' engineers and business leaders to take the device from idea to field-launch in five months – the fastest launch our Client had ever completed. The product was launched in mid-2022 and served a critical role in keeping patients healthy.

Having chips manufactured here in America is clearly the solution to avoid such dependency in the future.

REFERENCES

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