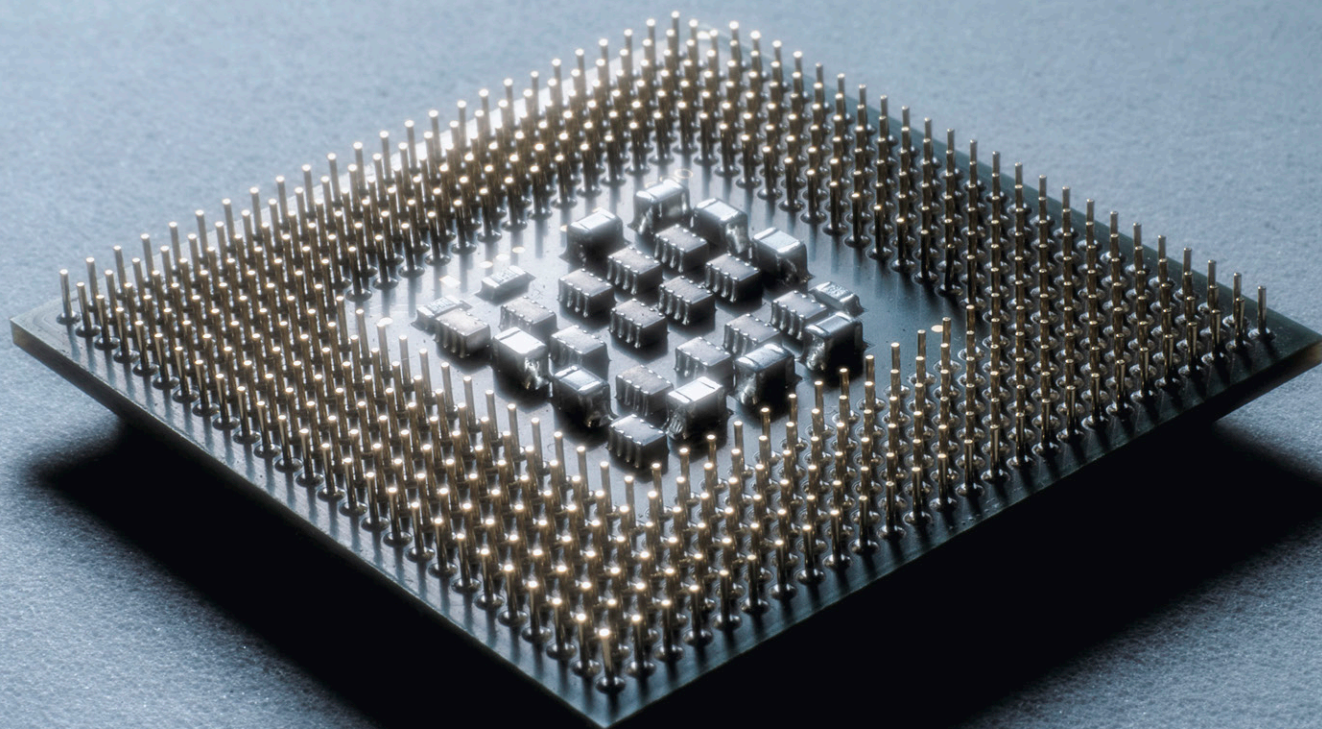


Advanced Electronics Practice

Navigating through change: An interview with NXP Semiconductors' Kurt Sievers

A new CEO reflects on the past year and looks at what's ahead
for semiconductors.



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Kurt Sievers was nominated to be president and CEO of NXP Semiconductors in early March of 2020, days before the COVID-19 pandemic began shutting down economies worldwide. McKinsey's Abhijit Mahindroo, Sven Smit, and Anupama Suryanarayanan recently spoke with Sievers about the challenges presented by the COVID-19 crisis, NXP's evolving strategy, and the future of the semiconductor industry.

McKinsey: Your first days have been spent shepherding NXP through the COVID-19 crisis. What have you learned about leadership during these times?

Kurt Sievers: It's important to remember how a well-considered succession plan can help a company. I am a very lucky member of an organization with a very thoughtful plan. NXP began preparing the plan at least two years before I took over in March, which made it comparatively easy for me to take the lead, despite the pandemic and the suddenly difficult environment. For my own succession one day, I will do my best to replicate this plan.

Second, human relationships clearly matter, and I was fortunate to have relationships with all essential stakeholders when I was announced as CEO, because I wasn't new to the company. I wasn't new to investors, customers, or employees. You learn the importance of human relationships in those moments when you have to rely on other people.

I made very timely decisions on work-from-home regimens, keeping visitors from our sites, and similar topics during the pandemic, so we took action more quickly than many governments or other institutions. NXP's actions are not simply a product of my wisdom; I just had the courage to listen to my advisers and move quickly.

The game isn't over yet, but we've been successful in keeping the infection numbers in the company very low. In addition to protecting employees' safety and health, this has allowed us to maintain business continuity. We didn't have to stop R&D projects or close factories because of the timeliness of

our decisions. Sometimes I think it's better to make a quick decision, even if you don't have all the context yet.

Finally—and this is more of an experience than a learning—it's amazing how far you get if you manage to keep your people engaged. It's amazing what an organization can deliver with such people on staff, even if they are working remotely and separated from each other.

McKinsey: What will be different about the post-COVID-19 world?

Kurt Sievers: The use of digital tools will not go backward after COVID-19 is controlled, since we've all learned to use them for the better. I don't believe that all companies will maintain a work-from-home routine for all employees, though, and certainly not in our industry. Like many other industries, the semiconductor sector involves complex innovation, and that's not a one-person job. It's something you have to do together, and I think inventiveness and the power of innovation are suffering because people are not together in a room. That's why I'm not so sure that corporate life will change that much. I also believe that the focus will return to global trade issues and climate change—two things that are more sustained challenges than the pandemic.

McKinsey: Let's shift gears from the macro-environment to NXP. NXP has been a leader in the semi industry—one of the first players in transistors and integrated circuits, one of the first integrated device manufacturers, one of the first companies to undertake large-scale private-equity plays in semi, and one of the first to follow an asset-light model, among other portfolio-shaping moves. Looking forward, what is the path ahead for NXP?

Kurt Sievers: We do have a history of firsts, and a lot of our tech leadership is our heritage from Philips and Motorola, given our acquisition of Freescale.

I think in ten-year steps. My vision of the future is based on the fact that semiconductor growth is driven by very few absolute killer applications, and these come and go. Between, say, 2000 and 2010,

the focus was on computers and laptops; between 2010 and 2020, smartphones, tablets, and cloud computing were the big deal. In the next ten years, cloud computing will continue, but it will be very strongly complemented by edge computing and edge applications. That's not just the processing itself, but everything that comes with it.

Over the past five years, we have assembled a portfolio that aligns with the needs of edge applications. That's why we acquired Freescale. We needed the processing portfolio to improve our capabilities. We also needed connectivity, which is why we acquired wireless-connectivity assets from Marvell almost a year ago. We do have very good capabilities in low power, cybersecurity, and functional safety. We are building muscle in artificial intelligence. Those are the elements that are really needed to build complete edge applications.

I really think we are fortunate. It's partially a result of how we've been building the portfolio over the past years, but it also feels like the time is ripe for finding an opportunity out there.

McKinsey: NXP has undertaken some major portfolio realignment. Can you talk about the company's evolution?

Kurt Sievers: We deliberately went away from mobile communications on the modem side and from products for digital consumers, including TVs, optical storage, and even audio offerings. Those were good businesses from a market perspective, but we felt that sustainable growth with reasonable profitability was impossible. We instead focused on building automotive, even though the sector wasn't a given in those days. We also built a position in industrial, which was a well-kept secret but is now becoming more popular, and we're now a major player there.

We do still have a focused play in mobile—for example, contactless payments, transit ticketing, door opening in hotels. That all has to do with security, ultra-wideband technology, and the use of communications. Although I wouldn't say we're a mobile company, we are experiencing strong growth in this area because we use the mobile ecosystem

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to enable our technology, which ends up in smartwatches and different applications. We still have our communications infrastructure, and we are clearly a leader in the radio-power side of things. We're already investing in 6G, by the way, but that's more of a focused play.

Overall, you could say we really have only two large segments—automotive and industrial—and a few very well-defined focused plays, which is certainly very different from what it used to be.

McKinsey: Let's go deeper into some of these portfolio elements now. Automotive electronics are proliferating like never before, fundamentally changing the driving experience. How do you envision the future of automotive—in terms of the electronics that will be deployed—and the role that NXP will play in the transformation?

Kurt Sievers: The future is clearly about advanced driver-assistance systems [ADAS] and electrification. And that will not just dominate for the next two to four years; I believe it's going to keep us busy for easily ten years. The growth of ADAS looks straightforward on the surface, but it has very deep implications for the architecture of the car and the whole value chain. I still believe that autonomous driving is feasible, although this development is further out. When that occurs, companies will need business models that are designed to facilitate transportation, such as fleet services, rather than ones that focus on meeting the needs of individual car owners.

Electronics will be the backbone of a car, and OEMs will need to have strong electronics and software to survive. I cannot stress enough the importance of software, since I think it will largely determine who will be in the value chain and what value is created at different levels. OEMs will increasingly work directly with semiconductor and software companies to drive innovation.

That shift is obviously significant. Tesla already follows that model, and it's part of the company's DNA. The rest of the industry is still trying to catch up and understand how to make the shift.

Obviously, it's more difficult when you have legacy systems and processes.

This is a prime time for semiconductor companies to help with innovations, including those that improve safety and reduce emissions. The challenge, of course, is that the volume of new cars is relatively low. Normally, we deal with industries that have very high scaling factors for individual products but that show little variation in terms of models. That lets semiconductor companies get their products into many devices. However, in automotive, there are only 85 million cars produced in a good year; for 2020, it will probably be somewhere in the neighborhood of 74 million due to the impact of COVID-19. Unless you have an application that is very common in cars, volumes will be low. You will need either incredible market share or very high levels of standardization across the industry. Otherwise, you will never achieve the scale required to recoup the investment you made to develop sophisticated systems.

The good thing is that trends like advanced driver-assistance systems and electrification drive strong growth in semiconductor content in cars. One example is radar, which is in the ADAS domain, where we have already reached a \$500 million run rate. That's obviously still embryonic because there are many, many cars that don't even have radar yet. We will see a triple acceleration of this because all cars will eventually get radar; many will get multiple radars, such as front-facing radars and side radars for blind-spot detection. The value per radar system is going up because the performance requirements are continually increasing for accuracy and other features. NXP has a large market share for radar.

That brings up another point: automotive requirements are becoming incredibly complex, and that will be an issue. In the past, semiconductor companies focused on simple microcontrollers and analog products within automotive. Quality was important, but the products were relatively unsophisticated, and the required investment was small. The business case for simple products was decent because you could rely on long-

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standing demand. Now, the equation is tilting because the product volumes are small but the complexity per application is skyrocketing. I don't think that the industry has determined how it will deal with this challenge.

McKinsey: You called industrial applications the industry's best-kept secret. What are some of the challenges related to the Industrial Internet of Things, and how is NXP gearing up for those?

Kurt Sievers: Industrial is totally different from automotive. The market includes Siemens, Schneider, and a few other large companies, but there's also a very large number of relatively small companies, so the name of the game is distribution. You need to be exposed in the distribution channel to be able to serve the market.

Small industrial companies are typically not knowledgeable about electronics and have a great need for solutions. In the best case, they will need a reference design from us with a very well-developed software-development kit that allows them to get a product out in two or three months. Industrial solutions may also be more sticky than automotive ones because nobody wants to change the design in that market.

NXP has the required solution capabilities, including security, connectivity, and our MCU/processor capabilities. Connectivity was a missing piece. That's why we acquired wireless-connectivity assets from Marvell. The fact that most industrial applications are now cloud connected makes things even more interesting, and we know how to enable this.

Small industrial companies need someone like us to facilitate the relationship with the large cloud players.

McKinsey: Let's discuss your focused plays, including your role in mobile payments. After powering semiconductor growth over the past decade, the mobile sector has matured in terms of growth. What disruptions or innovations do you foresee for this sector?

Kurt Sievers: As I mentioned, we're not a mobile player per se but have built a position in mobile wallet over the past six to eight years. Mobile-payment applications usually have three anchors: hardware-based cybersecurity, near-field-communication [NFC] radio, and a great deal of security software. NXP's role in mobile-wallet software may be a well-kept secret, but we are definitely not just a hardware company. If we did not offer a significant

portion of the software required, we would never have been able to help smaller companies that have lagged behind the large players that went into mobile wallet earlier.

We are interested in expanding our mobile-payment technology to other use cases, such as transit ticketing, and we have made a big move into ultra-wideband radio, where NFC is one of the enablers of the mobile wallet. The UWB chip, which is just a different radio, will be the enabler of completely different use cases. Just like we use mobile payment to get rid of coins and cash, we could use ultra-wideband technology to get rid of mechanical keys for autos and houses if it is embedded in smartwatches, phones, or other devices. The principle is the same as with mobile payments—you need security at the personal level. NXP is already deeply embedded in IoT, and we are working with lock companies to create electronic door locks. Next year, many prominent car companies will allow you to open vehicles with your phone based on NXP's ultra-wideband technology.

McKinsey: Shifting gears, recently there have been many big-ticket M&A deals announced within the semiconductor industry. If they proceed, 2021 could see another wave of consolidation. What does this trend portend for NXP and the broader industry?

Kurt Sievers: In general, I think the semi industry is not yet at the end of the required consolidation. At the same time, I do believe that geopolitical issues may complicate M&A.

I believe many companies are becoming involved in deals because of their very high valuation. It's just that they have new currency called equity, so they are leveraging that—nothing unusual. We have our eyes wide open and know what others are doing, but we're not going to be misled by this and just fall into a fever of doing a deal. We know where we want to go.

McKinsey: Let's expand on the geopolitical issues you mentioned. In 2020, we also saw unprecedented geopolitical developments that had material



Kurt Sievers

Education

Earned a Master of Science degree in physics and IT from the University of Augsburg

Career highlights

NXP Semiconductors

(2020–present)

President and CEO

(2018–2020)

President

(2009–2018)

Member of executive management team

(1995–2009)

Progressed through a series of sales and marketing, product definition and development, strategy, and general-management-leadership positions across a broad number of market segments

implications for the semiconductor industry. How do you see this playing out in 2021 and beyond?

Kurt Sievers: Many trade tensions are really about the ownership of technology. That has been true historically and will continue to be true. Economic leadership will depend so much on technology over the next ten, 20, or 30 years.

An industry like semiconductors requires global scale, and that's why geopolitical issues are becoming such an inhibiting factor. In the worst case, they force companies to burn a lot of money and decelerate the speed of innovations that could have helped the world manage problems such as climate change and poverty. That's the tragic negative implication from all of this.

McKinsey: What advice would you give to people who are just starting their careers in the semiconductor industry?

Kurt Sievers: My advice is totally independent of semiconductors. Ideally, you should have the courage to take the time to find out what you really like to do. That is not a naive statement. Of course, you will have a couple of mornings when you get up and don't feel particularly enthusiastic about your day, but you should be in an area that plays to your strengths, ignites your passion, and ideally

is more than a profession for you. That's my most important advice—to have the courage to do this.

Learning from others is a big deal. Lessons that come from a book are not the most important; it's what life teaches you in professional and nonprofessional circumstances, and that really has to do with the individuals with whom you interact. There's a little bit of luck involved in finding good leaders to serve as role models; it's not always easy. I've been fortunate to work with many different good leaders. From each person, I could pick and choose what appealed to me.

The semiconductor industry is small; you meet the same people over and over again. Learning from mentors and growing through character is essential for keeping you in the game—hopefully, ahead of it—and sustaining you. If you do not have character, you may have a lot of quick wins but not sustainable success.

And, lastly, if you want to lead people, you need people who actually love to follow you. They will do it because they like you. That doesn't mean you are everybody's favorite, but people understand you because you're authentic and you feel trustworthy. It boils down to building your character and being real.

Kurt Sievers is the president and CEO of NXP Semiconductors. This interview was conducted by **Abhijit Mahindroo**, a partner in McKinsey's Southern California office; **Sven Smit**, a senior partner in the Amsterdam office; and **Anupama Suryanarayanan**, a consultant in the Silicon Valley office.

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