

# Talent solutions to the semiconductor crunch

Article

## The world is facing semiconductor and fab capacity shortages on a scale never seen before. Why and what can semiconductor companies do?

### Why?

First, because demand for semiconductors has never been greater. Private investment in computer and software companies is growing by the day. The pandemic has accelerated the pace of digitization and driven demand for consumer electronics to an all-time high.

Second, because volatile global conditions are piling pressure on semiconductor supply. Trade between semiconductor giants China and the US remains challenging and unpredictable, while global warming is leading to increasingly disruptive weather events. This year, Taiwan, which has the world's largest foundry footprint, was plunged into its worst drought in 56 years. The US chip industry was similarly hit by the 2021 freak winter storm and ensuing Texas power crisis.

The shortages created by this supply-demand imbalance are already having major real-world impacts. The automobile industry is expected to lose more than \$100 billion in sales in 2021 due to semiconductor scarcity—and the picture does not look like it will be improving any time soon.

### Make talent part of the solution

While challenges such as climate change and government intervention are too large for any business to tackle alone, there is one key factor that all organizations can—and must—take control of: talent.

Is your workforce achieving optimum levels of performance? Are you harnessing all the potential within your organization? Where are your current skills gaps? What leadership and talent do you need to take your business to the next level in areas such as supply chain, product and service quality, sustainability, operating model, digitization, cost efficiency, and business strategy?

Answering these questions can help you solve strategic issues and reshape your organization for a new generation of manufacturing and supply chain management.

### Capital investment has to be matched with investment in talent

From datacenters to wearable devices, from cars to coffee makers, virtually nothing today works without integrated circuits. To fulfill ever-increasing demand, companies in the semiconductor industry have been increasing their R&D spend and expanding capacity in existing and new fabs. In 2021 alone, major semiconductor companies have committed more than \$120 billion in capital spending to increase their fab footprints.

The question is: who is going to be doing all the highly technical work that this capital investment generates?

Organizations are already struggling to identify and recruit qualified candidates, particularly in areas such as predictive software and systems

development, validation and testing, chip design, and end-market expertise. Even when suitable candidates can be found, attracting them has proved a major challenge. These are people with highly sought-after skills who can take their pick of any of the leading technology companies. How do you convince them to move into a little-known industry with relatively few household names?

In fact, it is lack of talent, rather than lack of infrastructure or investment, that is limiting the ramp-up of semiconductor production capacity and slowing the development of intelligent supply chain and manufacturing capabilities. Organizations that can bridge the gap will gain a significant advantage over their competitors.

## Where should organizations focus their talent-building efforts?

We have identified three key areas where talent will be a deciding factor in the long-term competitiveness of semiconductor companies.

### 1. Digital transformation

While the semiconductor shortage appears to have caught many companies by surprise, others have clearly predicted and planned for it. These latter companies are the ones that have built predictive analytics into their supply chain management systems.

Take Toyota for example. Following previous supply chain shocks caused by tsunamis and earthquakes in Japan, they modified their just-in-time model to one that involves predicting manufacturing needs well in advance and building buffer inventory to meet them.

It's an approach that is made possible by advanced databases and tools that analyze the supply chain all the way up to the level of base raw materials. Even more important, it depends on having quality software talent and on providing employees with ongoing training in systems, validation and testing, and end-market expertise.

### 2. Crisis management

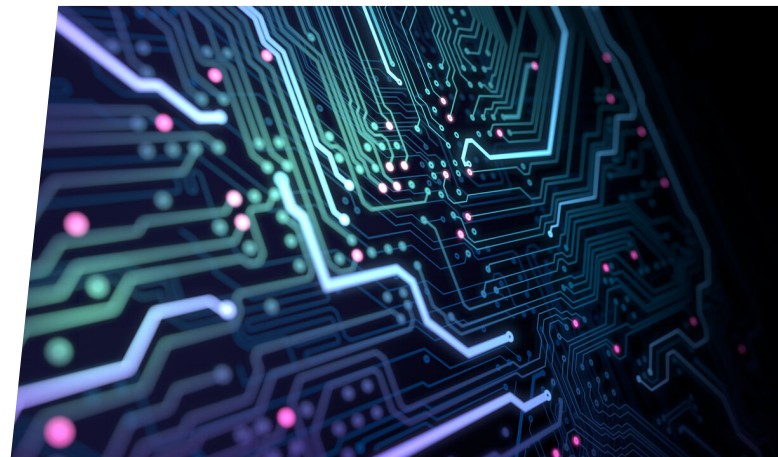
We saw above how global crises negatively impact the fragile semiconductor industry, whether it's storm-induced power outages, the drying up of foundry water supplies, or the Suez Canal blockage that recently brought supply lines to a standstill. As climate change accelerates, these crises will only grow – in volume, magnitude and unpredictability.

To meet the threat, every organization needs to form a resilient, agile, and cross-functional team trained in crisis management. This is what DHL Express did in 2010, upskilling employees through its Certified International Specialists (CIS) program. When coronavirus hit, DHL was able to keep pace with the sudden surge in ecommerce and international PPE shipments thanks to its earlier commitment to crisis management and the experience it had gained during the 2010 volcanic eruption of Eyjafjallajökull and 2011 tsunami in Japan. The organization also avoided layoffs by leveraging forecasts and customer feedback to reorient its workforce to higher-priority tasks. Companies looking to successfully navigate crises in the future should follow DHL's example and invest in the proper skills and procedures right now.

### 3. Building supplier partnerships

Why is the semiconductor shortage set to hit the auto industry particularly hard? One reason is the just-in-time inventory management philosophy that pervades the industry. The other reason is that the partnership between industry players and their semiconductor suppliers are not strong enough to weather the storm.

Selena Lacroix, Vice Chair of Korn Ferry's Technology Practice, explains, "Most OEMs assume high product quality and low prices as a given, and now also expect considerable flexibility and reactivity. When COVID-19 struck, many of them put a sudden stop to all orders. What they didn't anticipate was that other customers would jump into replace them, particularly in areas like consumer electronics where demand was surging. When auto sales began to pick up again, the semiconductor companies were unable to meet the industry's needs, resulting in production shutdowns and downgraded financial forecasts."



To avoid similar supply issues in the future, semiconductor companies and their customers need to build up emergency chip supplies as a buffer when crisis hits. This requires close partnership working to coordinate the appropriate quantities, prices, and stages for distribution. Meanwhile, advanced supply chain processes can provide suppliers and customers with a 360° view. This not only increases sales efficiency but also enables suppliers to offer better value and customer experience, encouraging OEMs to see them as true business partners rather than just suppliers.

To get it right, organizations will need international and diverse talent with the relevant skills across R&D, manufacturing, business units, sales operations, and other planning functions. Developing win-win relationships in the supply chain also requires leaders with strong strategic collaboration, and influencing skills.

## How can organizations develop a resilient talent pipeline?

There is no single solution for bridging the talent gap. To create a strong and flexible workforce for the years ahead, organizations will need to take a broad and proactive approach encompassing talent acquisition, talent management, and succession planning. Here are three key actions we think semiconductor companies should consider taking.

### Find and attract talent from new spaces

For at least a decade, semiconductor companies have struggled to find the talent they need within the semiconductor sector. The situation shows no sign of improving. To secure the skills they need for the future, organizations will have to bring in talent from elsewhere. But this is easier said than done. *Over 60% of executives surveyed by*

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Deloitte felt that companies in the semiconductor supply chain suffer from poor brand image compared to other technology companies.<sup>1</sup> Before they can attract high-quality candidates from outside the industry, organizations will need to work on raising awareness, strengthening their value proposition, and building their employer brand.

One area to focus on is recent graduates. Younger audiences want to know that their work will have a tangible impact on daily life. It’s why they find the big software companies so attractive. Better branding could help persuade these candidates to see the semiconductor in a similar light. Organizations need to find ways to communicate to graduates the extraordinary impact semiconductors have on everyday life, whether through 5G, IoT, automotive, industrial or consumer applications.

### Build the talent you have through upskilling

Upskilling has many advantages. In addition to being a highly effective complement to talent acquisition activities, it helps organizations to increase employee retention and strengthen their employer brands. Put simply, the more committed you are to developing talent, the more committed your talent will be to you. An effective upskilling strategy requires major buy-in from leaders, who will shoulder the responsibility for mentoring and coaching employees, but the investment is clearly worth it. In fact, without proper upskilling, organizations will not be able to achieve higher ROI from new digital technologies and tools.

Given the chronic shortage of talent within the semiconductor sector, organizations may even want to look beyond their immediate workforce. Korn Ferry’s Global Sector Lead for High-Tech & Semiconductor, Anoo bhav Singh, says, “One potential strategy is to develop and upskill local



talent through community education systems. The advantage of doing this is that it enables you to develop a sustainable pipeline while strengthening community bonds at the same time.”

This thought was echoed by Ajit Manocha, President of Semiconductor Equipment Materials International (SEMI), at a recent Leti Innovation Days event when he said, “Governments have realized that we need to support STEM education and skills development.” Manocha’s company is one of the founding partners of Microelectronics, Training, Industry and Skills (METIS), a four-year project launched in 2019 to fill the skills gap and boost workforce diversity by strengthening collaboration between the microelectronics industry and education providers.<sup>2</sup>

Other similar initiatives are springing up around the world. In 2020, the National Science Foundation, an independent agency of the U.S. government that supports fundamental research and education in all the non-medical fields of science and engineering, invested \$104 million to launch four new Engineering Research Centers. Companies should consider how they can leverage these government initiatives to upskill their own workforces.

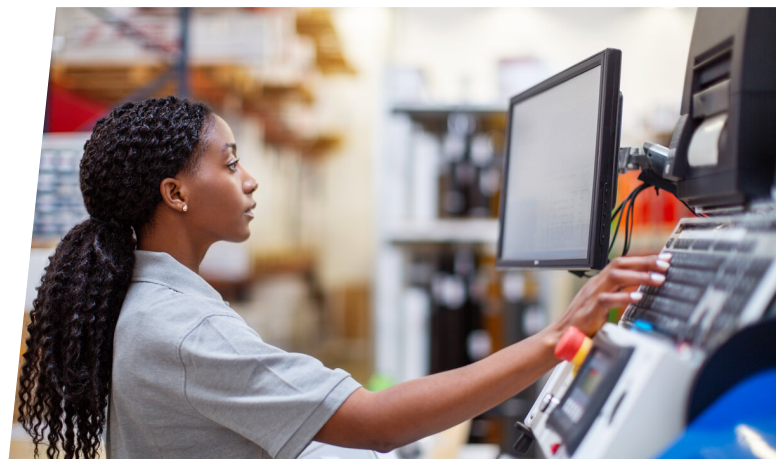
### Develop leaders who can drive your transformation

It’s not just employees who have to upskill. Leadership also needs to embrace new strategies and talent development approaches if it is to successfully navigate the challenges ahead. “Organizations in the semiconductor industry are going to have to adapt to new kinds of working,” says Selena Lacroix. “To do that, they will need new kinds of leadership talent. Some of that talent can be recruited from outside. But some will also need to come from within, which means

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identifying those who have the right leadership capabilities and mindsets and grooming them for the future. Effective leadership development will be critical for long-term success in the semiconductor industry.”

The stakes could hardly be higher. McKinsey predicts that the semiconductor industry could gain \$35-40 billion in value annually through the successful implementation of AI and machine learning alone.<sup>3</sup> But this will only be achievable if the transformation is driven by leaders who thrive in uncertainty, embrace innovation, and have the emotional intelligence to achieve results in any cross-cultural context. Learn more about the traits, competencies, and drivers of successful digital leaders [here](#).



### How Korn Ferry can help

Korn Ferry’s Global Technology Practice works in all aspects of the talent continuum across both high-technology and semiconductor sectors. We are actively helping our clients overcome semiconductor shortage challenges and achieve business growth by devising customized, effective, and sustainable talent strategies.

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### About Korn Ferry

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