



## 3D InCites Community Member Reflections: How Are We Addressing the Global Talent Shortage?

After a downturn in 2023, the semiconductor and microelectronics industries are expected to rebound in 2024 and beyond. As the US and EU Chips Act Funding begins to be dispersed, one of the ongoing challenges is finding the workforce needed to help these industries grow.

For this year's community reflection, we asked our members how their company approaching the global talent shortage. What challenges are they facing in their regions of the world, and what are they doing to address them? Here, four member companies share their stories: Trymax Semiconductor, Onto Innovation, ERS electronic GmbH, and Mosaic Microsystems.

### How Trymax is Navigating the Talent Shortage

By Peter Dijkstra, Trymax Semiconductor

The "Global Talent Shortage" is a buzzword that everybody uses nowadays. But what does it mean? The most used definition I found was that *employers cannot find the people they need with the right blend of technical skills and human strengths*.

The talent shortage is a significant concern in the U.S. economy, with the overall talent deficit expected to reach 600,000 by 2030 in the financial and business services sectors alone. This issue is closely followed by China, Japan, Germany, and the U.K.

The Semiconductor Industry Association (SIA) released a study on July 25, 2023, that highlighted a pressing issue: the U.S. is currently grappling with a substantial shortage of technicians, computer scientists, and engineers. According to the study, there is a projected



shortfall of 67,000 workers with these skill sets in the semiconductor industry. This talent scarcity is not limited to the U.S. alone, as evidenced by ASML's quest to hire an additional 4,000 engineers. Clearly, this issue is not confined to one region but can indeed be classified as a global shortage.

The impact of the talent shortage can have far-reaching consequences. It can lead to a series of challenges, including increased costs, decreased productivity, and missed opportunities for growth. It can also create social unrest as people who can't find good jobs become frustrated and angry. Fortunately, there are strategies businesses can use to overcome the talent shortage.

#### Look beyond the resume and the available position

At Trymax, we look for hidden talents, growth potential, and the broader contributions an applicant can make to the organization, rather than just matching their qualifications to the job description at hand.

#### Nurture existing talent within the company

We invest in the growth and development of our employees to help them reach their full potential while contributing to the company's long-term success. It's a proactive approach to talent management that benefits both the individual employees and the organization as a whole.

#### Take a data-driven approach to recruiting, e.g. sourcing analysis

Data-driven methods can enhance recruitment by improving decision-making, efficiency, and candidate experience while reducing costs and biases.

#### Involve employees in the process of finding new team members

This can be achieved through initiatives like an employee referral program, and also by including employees in the interview process. Their insights are invaluable for describing the job responsibilities and providing a glimpse into the work culture at Trymax.

Once hired, the next concern is how to keep talent. It is widely acknowledged that top-notch professionals are more likely to leave an organization if they find the company's processes disengaging. Top-notch professionals are driven by a combination of challenging work, opportunities for growth, recognition, and a positive work environment. This is precisely the ethos we uphold at Trymax. We ensure that talent feels responsible, well-accepted, and respected in their team and the organization. In other words, every person is seen and recognized.

## Fostering Innovation from Within

By Tom Bauer, Onto Innovation

As many organizations in the industry are grappling for external resources, Onto Innovation has expertly chosen to look inward. We recognize the unmatched talent that exists at our company already and have implemented a course of action that directly taps into that. Our employees continuously push the boundaries of innovation, so their long-standing commitment to Onto is nothing but an asset.

Onto talent has grown 40% since 2022, but despite the infusion of new talent, our average employee tenure is almost eight years. This centralized focus on employee retention has thus become the core of our strategy moving into 2024.

We have found that encouraging, educating, and advancing our workforce are key in this initiative to keep our employees satisfied in their professional careers. To achieve this, our human resources team has aimed to increase current employee ascension throughout the organization. Providing vertical and lateral movement opportunities ensures that our current talent is being used to their fullest potential and that their history with Onto is rewarded.

In 2022, this growth initiative provided approximately 20% of our team with promotional opportunities, well exceeding the 7% average documented by the Society for Human Resource Management Human Capital Benchmarking Report.<sup>1</sup> Thus, our engineers

and other employees are exposed to a broader set of opportunities. They get to expand their skills by learning alongside other groups, ultimately leading to improved industry problem-solving and technological innovation. Concurrently, our employees' drive for excellence is reignited as they tackle these new job tasks, generating higher employee satisfaction.

This retention plan works hand in hand with our strategy to invite newcomers to Onto. Our employees join and stay because of our attentiveness to their needs. We have established structured engagement programs to ensure that our employees feel supported. Our Buddy Program helps new hires integrate into life at Onto through the guidance of a current employee. We host learning opportunities covering topics on emotional intelligence, active listening, leadership competencies, and more. We prioritize the benefits of in-person interaction in a meeting room, in the lunchroom, or on the clean room floor. And Onto understands the needed balance of disconnecting outside of work hours.

Now more than ever, it is imperative that our human resources team is intentionally aligned with our business model to make effective talent-based decisions. We make it a priority for the team to understand the deep programmatic needs of the company and the technicality of our industry. They leverage analytics around lead time and critical high-volume needs to ensure proper timing and pipeline health for critical path resources.



We also partner with organizations like The Society of Women Engineers and Hack Diversity to broaden our reach and advance diversity of team thought. Our core contingent global staffing partners are also available to support the ebbs and flows of the business as we navigate the current climate.

As the future of hiring continues to change and the talent pool for the semiconductor industry remains strained, Onto Innovation remains focused on our current talent to ensure they feel supported in their growing career at Onto, leaving us with high employee satisfaction and an environment where newcomers want to join.

## Fueling the Workforce Through Investment and Engagement

By Sophia Oldeide, ERS electronic GmbH

It is an exciting time to be an equipment manufacturer in the European semiconductor industry. There is still a lot of buzz around the EU Chips Act and companies like Intel, TSMC, and GlobalFoundries & STMicroelectronics have announced huge investments in Europe over the next few years. However, Europe is already struggling to find skilled workers, which means talent shortage poses a significant challenge. As a smaller company situated on the outskirts of Munich, Germany, we are not immune to the impacts of this shortage. To tackle this challenge as a community, we would like to share a couple of strategies we use to address talent scarcity.

### Investing in the new generation

We recognize the importance of nurturing talent from the ground up, so ERS places a strong emphasis on recruiting students through comprehensive internship programs. Every year, ERS onboards 4-5 longer-term interns from various universities. We have worked with universities abroad in Vancouver, Dubai, and Paris, but are also focusing our efforts on building partnerships with universities here in Germany.

These internships go beyond the traditional coffee-fetching roles, providing hands-on experiences on real-world projects. By immersing students in our daily operations, we offer a unique opportunity for them to gain practical skills and a genuine feel for working at a

company in the semiconductor industry. This approach not only allows us to identify and nurture potential long-term talents but also fosters a culture of innovation and creativity. As these students grow within the company, they become integral parts of our workforce, contributing to our success while simultaneously addressing the talent shortage.

In our commitment to investing in the new generation, we organize and participate in several events annually, extending invitations to school classes or smaller groups of pupils to explore our headquarters and production facilities. To effectively address the challenge of the global talent shortage over the longer term, it is crucial to expose young people to diverse career and job prospects within our industry.

### Local engagement and brand-building

Understanding the importance of a strong local presence, our company actively engages with the community in different ways. We sponsor and collaborate with local organizations, for example, the local soccer and ice hockey teams. This fosters an awareness of our presence in the neighborhood and the exciting opportunities within our company and helps us create a positive brand image and tap into the local talent pool.

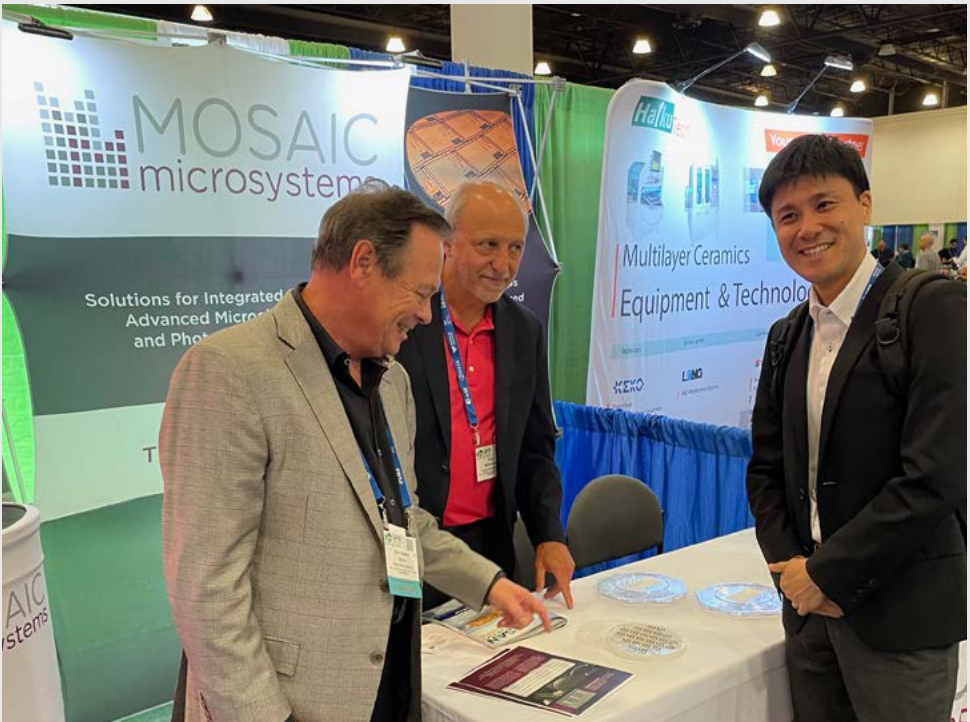
Since last year, we have also actively worked with the city council and other community actors on a campaign to promote the location as a business capital. This initiative goes beyond just finding talent, as it contributes to the overall economic development of the area.

Embracing a comprehensive strategy, these are some of the ways we have tackled the global talent shortage. By investing in students and young people, and actively engaging with the local community through collaborations with the city council and various stakeholders, we can quickly adapt to a rapidly growing industry.



## Think Globally, Act Locally

By Paul Ballentine, Mosaic Microsystems



In addressing the global semiconductor talent shortage, Mosaic Microsystems' approach is to think globally and act locally. We aim to become a leading worldwide supplier of glass interposers to the semiconductor industry by building on the considerable ecosystem in Rochester, NY, where a talented labor pool and top-notch colleges and universities exist.

Our approach consists of five parts. The first is to work with local and regional educational institutions to ensure an adequate supply of employees with the right skills, at the right levels, in the right numbers, and at the right time. This includes people with 2-year, bachelor's, and graduate degrees.

Mosaic has close ties with the University of Rochester and the Rochester Institute of Technology and already employs people who have graduated from both schools. RIT is an essential partner due to its Microelectronics Department, which is the first of its kind in the country, and its co-op program, which allows companies to hire college students temporarily and, if they are a good fit, hire them full-time once they graduate. RIT is also one of only six universities in the U.S. that is a member of the U.S.-Japan University Partnership for Workforce Advancement and Research & Development in Semiconductors for the Future (UPWARDS).

At the 2-year level, Mosaic will be working with Monroe Community College, which is the largest community college in Upstate New York and has two existing manufacturing programs that could be relevant: Optics Manufacturing and Precision Machining. Beyond the

Rochester area, four regional universities can provide us with well-trained students: Rensselaer Polytechnic Institute, Clarkson University, Cornell University, and Binghamton University. In addition to recruiting from these universities, we also have collaborations such as SBIR/STTR grants. This helps familiarize students with our technology so they can hit the ground running should they become employees.

The second part is to recruit from the existing labor pool in Rochester which consists of many highly trained and

experienced people who used to work for companies like Kodak and Xerox. Across Upstate New York there are people with experience in semiconductors from companies like IBM and GlobalFoundries.

The third part of the plan is to work with local community organizations such as RochesterWorks to help the economically disadvantaged and unemployed find jobs.

The fourth part of our plan is to provide on-the-job training and continuing education opportunities for existing employees through mentoring and professional development courses.

The fifth part is to reach out to local public schools — particularly the Rochester City School District, which has a high percentage of poor and disadvantaged students — to teach the students about opportunities in semiconductor manufacturing to develop a pipeline of future employees.

Having a high concentration of educational institutions with programs relevant to semiconductor manufacturing, a large workforce skilled in manufacturing, and a large underserved--and untapped — population will enable Mosaic to achieve its goal of having a well-trained and diversified workforce that supports our growth plans.

### References

1. [Society for Human Resource Management Human Capital Benchmarking Report, Employment Data, p. 10, SHRM Benchmarking 2023.](#)