

# Navigating innovation: A conversation with our CTO

We have made internal changes to equip ourselves for the future. Our Chief Technology Officer (CTO), **Dr. Carlo Tosi**, talks about balancing tradition and change, overcoming technical challenges and how his team approaches innovation.

## Can you share some highlights from your background and career journey that led you to the role of CTO at Evatec?

Sure, I'd love to share my journey with you. My academic background is in physics and material science and engineering, which I studied in Italy. I then worked at the Universities of Trent and Florence and at the National Institute for Nuclear Physics before moving to Switzerland. The early part of my career was dedicated to thin films and coatings for tribological applications. I soon moved into the world of semiconductors, focusing on thin film and bulk semiconductor radiation detectors for high energy physics applications. My transition from the academic world to business happened smoothly when I joined Oerlikon Solar in Switzerland. At Oerlikon, I started with the development and transfer of the PECVD production processes from the headquarters' pilot line to the customer's factory, and eventually, I ended up overseeing the integration of all the processes in the production line. This role involved the transfer of production processes globally, which was interesting and challenging! From there, I moved to ALSTOM and joined the Future Technology organization as Group Manager Innovative Components. This was an exciting time as I was part of a team that implemented an open innovation approach to scout new technologies and solutions for

future business. This was a particularly insightful experience and taught me a lot about innovation. Subsequently, I joined ABB Semiconductors as a Technology Manager, where I was responsible for the development activities related to bipolar power devices. This role included regular travel between sites in Switzerland and the Czech Republic, with a focus on improving communication and collaboration between the two development teams. Finally, in 2019, I joined Evatec as a Product Marketing Manager, a role that, although business-oriented, required significant technical knowledge. After a period of time as the BU Semiconductor leader, I had the opportunity to become Evatec's CTO, rounding off my career journey wonderfully.

## What has shaped your leadership style?

Overall, my leadership style has been shaped by a combination of technical expertise, adaptability, project and product management skills, business orientation and an understanding of the importance of open communication and collaboration. Every little detail can have a big impact when it comes to being successful, and blending creativity with careful execution is essential to successfully complete projects and respond to market needs.



## Who is Evatec...

### R&D at Evatec

#### Technology & Market Understanding:

Taking the right decisions in time comes from profound knowledge of devices, their technology, market intelligence and our employee's skills to identify the needs and expectations of customers two generations ahead.

#### Innovation Strength:

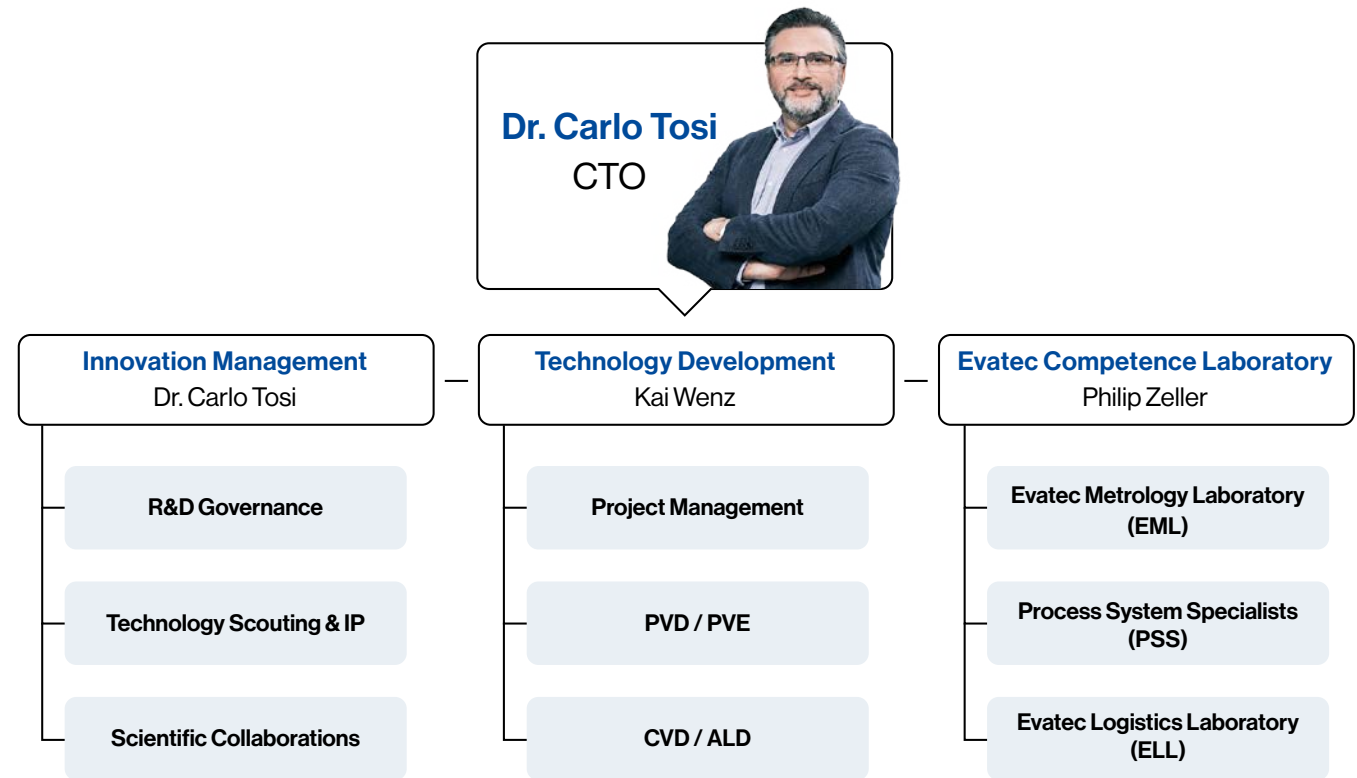
A strong technology portfolio exploits synergies across our markets giving stand out solutions for our customers that put them ahead of the pack.





At Evatec,  
everyone  
can come up  
with an idea,  
which could  
become a  
development  
project.





### CTO Organization at Evatec

#### What aspects did you inherit from the former CTO, and how have you built upon or transformed them?

He left behind an amazing team, and since taking over I've prioritized fostering an environment where each team member can use their skills and talents to the fullest.

#### What were the challenges after starting in your new role as CTO, and how did you address them?

The biggest challenge was a major reorganization of our company, including the CTO department. We had to focus on a smooth transition from the old organization to the new one in the initial weeks. We addressed this by defining our innovation process and the procedures necessary for our daily efforts, while at the same time not losing sight of our ongoing development projects. We also worked hard to bring our laboratory operational standard to the highest level. It's a continuous effort and there's much work still to be done. Our goal is to continually innovate not only our products, but also the way we navigate through innovation.

#### What strategic goals or innovations do you envision for your department?

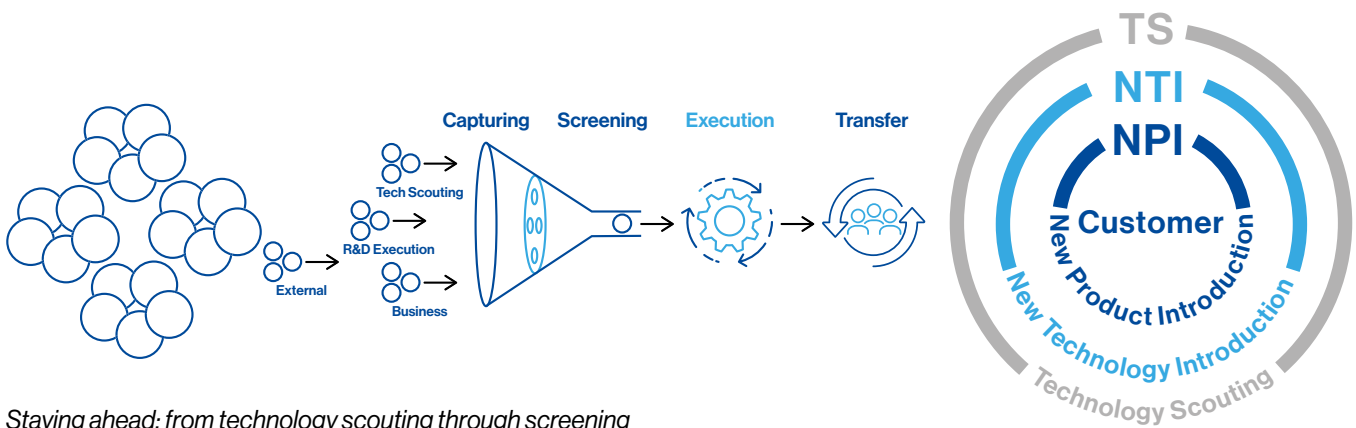
The semiconductor industry is always on the move, breaking barriers and setting new standards at a rapid pace. This evolution is driven primarily by aggressive investments in research and development. Can you imagine that almost 20% of the industry's annual revenue in the US is funneled back into R&D? We are talking about tens of billions of US dollars. As a supplier, we at Evatec know-how critical it is to keep up with this whirlwind of progress. But we don't just want to keep up. We want to lead. And that's why our number one goal is to always be at the cutting edge of our markets.

It's pretty amazing to think about how much digital computing has become a part of our everyday lives. It's all due to the incredible advances in hardware and software. And it's not just that - so many other technologies are also growing at an unbelievable pace. Just think about it - analogue electronics, memory and storage technology, advanced communication solutions, not to mention AI and energy generation and transformation. It's an exciting time to be in this industry.

Evatec already has a strong footprint in the discrete device market. We're talking about Wireless, MEMS, LED, AR, Power and so on. But that's not all. We're continuously growing our product base and refining our process solutions using the latest advanced process control techniques.

However, we're not just focusing on these areas. We're also keen to enhance our solutions for the CMOS frontend of the line, which includes both the front side and the back side of the wafer. For that we are currently working on several development projects, in collaboration with major market players, which will allow us to penetrate the memory business, for example. Packaging and interconnect solutions are also vital. That's why we're paying close attention to emerging trends such as chiplets, 3D integration, and fan-out wafer-level packaging (FOWLP).

Last but not least, we want to do all this following the best innovation and project management standards in order to provide our customers with the quality they expect from a Swiss company. For this, we've created a specialized team to oversee innovation governance, ensuring our customers receive nothing but the best.



*Staying ahead: from technology scouting through screening all the way to the best product or technology introduction.*

### How does your team approach innovation and what processes or frameworks guide idea generation and implementation?

Well, I'll try my best to keep the explanation brief. The R&D Department is composed of three teams, namely "Innovation Management", "Technology Development", and the "Evatec Competence Laboratory". Innovation Management is further structured into three parts: Governance, Technology Scouting & Intellectual Property, and Scientific Collaboration. Basically, Governance is where we define the way Evatec goes through the innovation process. For example, we have structured the Technology Scouting process, the New Technology Introduction (NTI) process and we largely contributed to the redefinition and implementation of the company's New Product Introduction (NPI) process.

At Evatec, everyone can come up with an idea, which could potentially become a development project. All you have to do is present your proposal to the Technology Scouting team. They will assess the proposal's potential and how well it fits with the company's strategy. It's not just technical experts who look at these proposals - business colleagues are also involved. If the proposal passes this screening phase, it might become an NTI project or be framed as an NPI project.

However, only the Product Marketing Manager can submit new product projects (NPI) to the Executive Board. That's because all NPI proposals need to get the buy-in of at least one of our two business fields either Semiconductor & Advanced Packaging, or Compound & Photonics. The

idea is to ensure that our innovation efforts are always linked to a return on investment.

Now, we also work with external partners on innovation initiatives. These collaborations are managed by the Scientific Collaborations team. They're in charge of finding new partners and proposing new collaborations.

Moving on, the Technology Development team is where the development projects come to life. The team is staffed with project leaders, engineers, and scientists, and it's they who hold all of Evatec's core PVD/PVE and CVD/ALD technical knowledge.

And of course, we have the Evatec Competence Laboratory (ECL). It's like our playground, equipped with over 30 vacuum deposition systems, representing all of Evatec's platforms, and more than 40 in-house metrology tools, including SEM, AFM, XRD, etc. It's essentially one of the best equipped labs around! We also have a chemical lab to aid our everyday work. We use the ECL for all sorts of things, like hardware, software and process development activities, customer demo and sampling, product maintenance, engineering initiatives, and a whole lot more.

So, that's a nutshell view of our R&D Department. I hope this gives you a general idea of how we're organized!

### Give us an example of significant technical challenges your department has overcome?

The team is constantly delivering great results, but I have to give a special shout-out to our PEALD initiative. This was a brand new technology for us and we've managed to develop and launch it successfully. One module is already docked to a CLUSTERLINE® of one of our customers. Right now, we're refining our solution which includes in-situ cleaning. We really think that our PEALD can be a game changer for a variety of applications, especially in a cluster configuration, where you can mix PEALD, PECVD, PVD, and etching all in one system.

### What excites you most for the future?

The investment we have made in optimizing our internal innovation processes is starting to pay off and we can focus better on execution of all the projects we have now prioritized, bringing new technologies or processes to market more quickly. There are so many fields where my team sees huge potential. I feel like "a kid in a candy store" so don't be surprised when we bump into each other in the corridor at our headquarters and you see me with a big smile on my face!



You can read more about **PEALD** on page 18 in this edition of **LAYERS**