

SWARCO DRIVEON

CORPORATE MAGAZINE | 1-2022

AMSTERDAM CALLING

Meet SWARCO at Intertraffic

THE HEAT IS ON

SWARCO Global Glass Beads Technology Center

AIRDEC

When traffic lights measure environmental data

NEW ON BOARD

A portrait of our UK family member HITEX





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DEAR READER!

Welcome to a new edition of our corporate magazine DRIVE ON. We publish it right in time for the largest traffic technology exhibition worldwide, Intertraffic Amsterdam, taking place from 29 March to 1 April 2022. Inside you read more about what you can expect to see on the SWARCO stands related to Intelligent Transport Systems and Road Marking Systems in hall 2 of the RAI fairgrounds.

Looking back on 2021 – another year dominated by the Corona pandemic and characterized by drastic price increases for raw materials and shortages in electronic components and logistic capacities – we can still be very satisfied with our business course and grateful to our esteemed business partners for their continued confidence in SWARCO's products, systems, services, and solutions, improving quality of life.

The past year was a special one for SWARCO, because we managed to close several transactions that let us welcome more than 1300 new colleagues and a combined net sales volume of some 250 million euros. Our objective of passing

the one billion euro net sales threshold is close at hand. Australian road marking specialist Supalux, Austria's leading road marking contractor Eisenschutz, UK-based road marking material manufacturer and service provider Hitex International, and ITS solutions provider Dynniq Mobility based in Amersfoort, the Netherlands, are now part of the SWARCO Group, extending our offerings, adding further market share and know-how, and accelerating our innovation roadmap. We look forward to giving you further insights in the enlarged SWARCO Group during Intertraffic Amsterdam at the end of March.

A particularly big hand goes to our committed colleagues in the SWARCO companies who went the extra mile time and again and turned our ambitious growth plan of 2021 into reality. A busy 2022 is lying ahead of us, in which we intend to harvest the fruits of an even stronger SWARCO Group.

Yours sincerely,
The SWARCO AG Executive Board



Michael Schuch
CEO



Günther Köfler
CAO



Günther Kitzmüller
CFO



IN DECEMBER 2021,
THE SWARCO AG
SUPERVISORY BOARD
APPOINTED SO FAR
SPEAKER OF THE BOARD
AND COO **MICHAEL
SCHUCH** CHIEF
EXECUTIVE OFFICER
(CEO) OF SWARCO AG.

READ BELOW HIS
MESSAGE TO THE
AUDIENCE OF
DRIVE ON.



SWARCO's Chief Executive Officer, Michael Schuch

STRONGER TOGETHER

A MESSAGE FROM SWARCO'S CEO

**Dear colleagues,
dear business partners,
dear industry professionals!**

Although it has been known for years that the industry we as SWARCO are active in is changing, the underlying dynamics are now different - more rapid, more fundamental and more interconnected. Just take the COVID-19 example that

changed user behavior, caused global supply chain shortages, high inflation rates, and changed labour market conditions. In my view, the only way to circumvent this development, especially as a billion-euro-Group, is to think in broader terms. We have to think global but act local close to the market and our customers. This principle is part of our DNA, instilled by the founder Manfred

Swarovski and carried on by all 5,200 SWARCO employees.

Strategic moves and investments

We demonstrated this thinking by some recent key strategic moves that really put us in an industry-leading position. We invested into the most advanced glass bead factory worldwide in Austria and expanded our production capacity in the US, underpinning our market leading position. We invested into innovative business models and pooled resources for topics where we see a strong strategic focus such as software and alternative uses of glass microspheres. Road marking producer and service provider SUPALUX near Perth became our first own base in Australia.

Last but not least, the acquisition of Dynniq Mobility, the single largest transaction in SWARCO's history, added more than 1,100 traffic experts to our Group. Now the integration efforts are in full swing, a project which is more of a marathon than a sprint. We are willing to take the necessary time to maximize the benefits of this integration, and make it a winning combination in the long run, rather than focusing on short term gains only. Making balanced, objective and fair decisions in the best interest of SWARCO is therefore our core principle.

Let me mention two examples of how we apply this approach in practice. In the HR field, it is crucial that we build the foundation for a joint culture and one-company mindset by one common set of values, purpose and vision. We set up a mid-term oriented cultural integration plan to form a solid base and will roll it out country by country. When it comes to the product portfolio, we are currently performing an extensive benchmarking analysis. From the outset

of our benchmarking, it became obvious that both SWARCO and Dynniq Mobility have an extraordinary range of products that, when combined, enables us to offer the number one product portfolio in the whole ITS industry. And we will even leverage on this unique positioning, as over 200 R&D domain experts are now continuously improving and amending our portfolio.

Rebranding of Dynniq Mobility

Concerning the Dynniq brand, we have been straight forward from the beginning that it will disappear. We are currently planning that in the course of 2022 all Dynniq entities will be rebranded under a common SWARCO brand, integrating the different country organizations wherever possible, but keeping them separate where different business models demand it in order to ensure continuity towards our established partnerships. At the same time we have to ensure the best use of our capabilities for the benefit of our clients and our future success.

There is still some way to go, but it is great to hear about the first joint success stories and the realization of benefits we envisioned early on in the acquisition process. We are more convinced than ever that this combination will create something greater than the sum of its parts. So my initial credo of "thinking in broader terms" will indeed be the case.

Constant moves forward

But we should never be complacent and stay where we are, also not once the mentioned investments and integrations have been successfully finalized. We need to strive to build on our market record number of R&D domain experts, across both the RMS and ITS division, and bring innovation to the market. Faster and clearly focused on real

customer problems. It is with our end-to-end solution thinking that we want to make it easier for our customers to do business with us.

Looking at our portfolio, we aim to combine our world-class in-house products to deploy or build the best systems and solutions for whatever is required to make the travel experience safer, quicker, more convenient and environmentally sound. In view of the advent of automated driving, we have the unique opportunity to better leverage the combination of our competences in ITS and RMS. And we see a lot of potential in added services to complement our portfolio wherever possible.

The people make the difference

Besides all this, we should not forget a key factor in our success story: our employees. Many companies put up a mission statement, values, leading idea, etc., most of them very similar, making distinction difficult when looking at websites or corporate presentations. However, what makes the difference is the way how the people live the values, the spirit, and the commitment in the daily working life and in their interaction with the business partners.

As a family business we strongly care about our employees. Economic performance is critical, but is not the only value that drives our decisions and prioritizations. Thus, it is the corporate culture that becomes a decisive differentiating factor on the market. We are convinced that our employees and our culture are core strengths of us, as they are based on a 50+ years heritage of a true family business. ◀

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SWARCO AT INTERTRAFFIC AMSTERDAM 2022

DEAR TRAFFIC INDUSTRY PROFESSIONAL!
 FROM 29 MARCH TO 1 APRIL 2022, THE **SWARCO GROUP** WILL PRESENT ITS COMPETENCES IN ROAD MARKING SYSTEMS AND INTELLIGENT TRANSPORT SYSTEMS AT INTERTRAFFIC AMSTERDAM.

After a four-year break, we look forward to welcoming the visitors on our stands in hall 2. For the first time, the SWARCO stands are no longer separated in hall 10 and hall 5. The entire SWARCO Group will appear on one location in the Smart Mobility segment in hall 2 with stand numbers 02.222 (ITS), 02.236 (RMS), and 02.332 (lounge area).

The Road Marking Systems (RMS) world of SWARCO will display on 154 m² latest retroreflective systems, integrating the premium reflective glass beads, SWARCO SOLIDPLUS. Our Dutch representative for road markings, **COATEQ**, can be met again on our stand, as can – for the

first time – the colleagues from **HITEX International**, one of the youngest SWARCO Road Marking Systems family members based in the UK. We will address how important high quality road markings are for the upcoming age of automated driving. Preformed markings, cycle path markings and airport markings are also part of our portfolio.

On 364 m², SWARCO will highlight ITS technologies that directly tackle the problem statements and the pain points of cities we identified in several hundreds of interviews with municipalities. SWARCO's holistic solution competence, condensed in the latest release of our urban mobility

management suite **MyCity**, will address the following topics:

1. Traffic congestion in urban areas
2. Urban air quality / sustainable transport management
3. Budget restraints / Total cost of ownership
4. Staying on top of technology / innovation
5. Scarcity of parking spaces (due to reduction)
6. Increasing safety for Vulnerable Road Users
7. Lack of internal capabilities & availability of resources
8. Lacking interoperability of systems
9. Traffic congestion in interurban areas



INTERTRAFFIC
 29 MAR - 1 APR 2022
 AMSTERDAM

10. Increasing safety for road users on highways and in tunnels. Visitors will experience for the first time, how SWARCO and the new colleagues of **Dynniq Mobility / Peek Traffic** will combine their know-how and portfolio to provide **urban ITS solutions** with added value for our customers. Traffic engineering and consulting expertise will be contributed by the German colleagues from **Schlothauer & Wauer**. Visitors will be informed about SWARCO's part in Cooperative, Connected, Automated Mobility (**CCAM**).


Learn how you can become part of our **Lighthouse Program** and benefit from networking, early information about latest developments, and the offer to actively co-create SWARCO solutions. Environmentally sensitive traffic management (ESTM), our smart **COMBIA** traffic signals integrating the new AirDec feature to measure environmental parameters, and the **SWARCO X-LINE** approach to make intersections greener, more intelligent, and easier to wire will be on display. Of course, our brilliant VMS technology of the PREMILUM brand, and the novel, modular **CUBILED** VMS for small-scale

uses will be eye-catchers on the stand. Learn how vulnerable road users of bicycles and scooters can get priority at intersections and how the application of Artificial Intelligence can make traffic flow better with less environmental impact.

Experience our parking guidance know-how and the **PARCO** app and how parking and charging of e-vehicles can be integrated. Our **MyHighway / MyTunnel** product will be premiered to show how to best manage interurban traffic scenarios.

This time, the Intertraffic Amsterdam start-up zone called **ITSUP** in hall 6 will have SWARCO as main sponsor. SWARCO's first Student Awardee will pitch her Master's thesis on traffic signal control optimization based on V2I communication in the ITSUP theater.

Join our Sustainability Challenge at Intertraffic aiming to be a proof of concept for collaborative mobility management scaled down in a playful way around the event, building upon the concept of collaboration and nudged individual actions that foster the common good by

SWARCO planting trees. Get your **free visitor badge** for Intertraffic by registering through the **SWARCO website**. We look forward to welcoming you in Amsterdam! The SWARCO TEAM  www.swarco.com

**SWARCO
 AFTERSHOW
 RECEPTION**

Celebrate with us and get in touch with our new family members!

When: Wednesday, 30 March 2022, 17:30 – 19:30 hrs.

Where: SWARCO stands 02.222 and 02.236

We look forward to welcoming you!



SWARCO ANNOUNCES IMPROVED PERFORMANCE, STABILITY, INTEGRATION AND SECURITY FOR THE MYCITY URBAN MOBILITY MANAGEMENT SUITE, THE FAST-MOVING, FLEXIBLE TECHNOLOGY FOR SMARTER, GREENER CITIES.



SWARCO MYCITY UPDATE

List of customers continues to expand and includes several high-profile cities

One year on since its initial launch in March 2021, the traffic technology group SWARCO has released details of the updates and improvements to MyCity, an urban mobility management suite for small, medium and large cities. The overall aim of the platform is to tackle problems associated with rapid changes to urban mobility and the underlying IT landscape, driven by urbanization and the increasing focus on city environments. The newest version of SWARCO MyCity now promises even better performance, stability, integration and security for tomorrow's world of connected mobility, where a myriad of smart devices are sharing large amounts of data in real-time.

Strengthening critical infrastructure

Traffic and mobility management are part of the critical infrastructure of any city so stability and reliable performance are prerequisites of a modern mobility management

platform used for these purposes. "With the technological updates since its initial launch, MyCity has significantly improved in performance and stability, despite the vast number of devices and customers connected to it," said Niko Stieldorf, Global Business Development Manager – Software Platform. In a connected world where critical infrastructure is constantly under threat of attack, the operational security of MyCity has also been strengthened. "Cyber security is a big topic for our customers, so we've also done a lot more to make MyCity even more secure since its launch," added Stieldorf. In fact, SWARCO has created a dedicated Security Operations team to put more emphasis on cyber security and build this out as a key differentiator for SWARCO's portfolio.

Strategy Manager – connecting & automating the solution portfolio

Another beneficial and new feature of MyCity is Strategy Manager, a tool that enables the system to react responsively and trigger automated and customizable actions based on the sensor data it is

receiving. "Think of the platform like a slice of lemon with the Strategy Manager sitting as an agnostic hub in the center and all the other segments around it, such as traffic management, air quality and parking guidance, and so on," explained Stieldorf. "The big benefit of the Strategy Manager is that customers have the possibility to not only consume solutions from various domains of mobility within a single platform, but they can now also connect the different features of the platform as well as external data sets. If there's a problem with air quality, for example, adjustments can be made to the traffic management side of things until the problem with the air quality is resolved. Essentially, the new Strategy Manager feature is a control center where inputs from any domain can trigger an output in a different domain. It's a real-life, readily-available and operational answer to the commonly stated but somehow elusive vision of becoming a smart, connected and green city." In parallel to the Strategy Manager is an improved scheduling feature. This makes it easy to schedule and automate specific actions for specific times.



Making better use of scarce skills

"One of the problems that our customers highlighted was the scarcity of skilled people to operate their systems and even when the talent is available they are often lacking the resources that enable them to focus on strategic topics to support the transition towards smarter, greener and connected cities," said Niko Stieldorf. "Together, the Strategy Manager, scheduling feature and a range of other MyCity-native features allow operators to automate certain workflows. Consequently, it's no longer necessary to have an operator monitor and manually respond to changes in air quality or congestion, for example, because such actions can now be automated. Similarly, when it's known in advance that traffic will be extra heavy, like during a football match, the scheduler can be programmed to automatically adjust traffic flows at certain times and in certain areas." This means that the skilled workers can now dedicate their valuable time to strategic topics and big projects rather than routine daily operations.

Flexible, open and agnostic – a game changer

Another significant update to MyCity is that it has expanded to accommodate more device types of various standards. "In an industry where there aren't, and

probably never will be, any globally unified protocol standards, it is important that city managers do not feel they are locked in to one particular provider and their portfolio," said Stieldorf. "The buzzword here is 'open platform', and that's exactly what MyCity is. We're making it accessible not only to more users, but also to other technology partners, so ultimately cities can benefit from a vast mobility ecosystem without having to worry about the complexities of integration."

MyCity: big wins in big cities

With its improved stability, better integration, tighter security and automated scheduling the appeal of MyCity is growing. "We've won some big, prestigious customers over the last year who are either using MyCity already or are currently in the process of implementing it," adds Stieldorf. "The list includes London and other European capitals, as well as The Hague, Trondheim, Wolverhampton, Zwickau and other cities".

Transforming the French capital

Possibly the most exciting addition to the list of cities that committed to using MyCity is Paris. The French capital has very progressive and ambitious plans to change its entire traffic and mobility landscape, so it is a huge endorsement for MyCity to be selected by the Parisian

mayor to play a central role in the city's transformation.

"Paris Mayor Anne Hidalgo has plans to drastically reduce car traffic in the city center, and during the pandemic they have introduced hundreds of kilometers of cycle lanes, all with the aim of reclaiming urban space dedicated to the car in favor of new, more user-friendly and less polluting means of transportation," knows Stieldorf. "We're very excited that MyCity is part of what will be an amazing change to a city that was once infamous for its congested streets and poor air quality." ◀

For more information about MyCity or to request a demo, contact us directly at mycity@swarco.com.



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FLOODING HAS BEEN
A LONG-STANDING
PROBLEM FOR
NORTH YORKSHIRE
COUNTY COUNCIL AND
LOCAL RESIDENTS.



FLOOD DETECTION IN THE NORTH YORKSHIRE DALES NATIONAL PARK

A particular stretch of the main road between the villages of Bainbridge and Wensley has often been affected by flooding due its close proximity to the River Ure and its flood plain. Indeed, on November 4, 2020, as the UK felt the force of the tail-end of Hurricane Zeta, the area had one month's rainfall in a single 24-hour period, leading to nine people having to be rescued by local emergency services after becoming stranded in the flood waters.

Due to a lack of initial funding, the Council was unable to invest in any flood warning systems, and previously relied on members of the public to inform them of any issues. This meant responses were limited to office hours. Once informed, North Yorkshire County Council could attend a site and manually deploy signage to inform drivers of the situation. When budgets later became available,

North Yorkshire County Council launched its Safer Roads Fund initiative. Its aim was to reduce the number of incidents caused by flooded roads by providing clearer information on the presence of rising water levels in a more timely manner. The council turned to SWARCO Traffic, whose head office is in nearby Richmond, to provide the solution based on the very latest thinking and smart technologies.

SWARCO took a holistic approach, delivering a solution that encompasses both hardware and management software to meet the council's needs. SWARCO installed an intelligent flood warning system comprising five flood detection sensors, that detect when surface water levels rise, and seven full colour matrix Variable Messaging Signs (VMS) that indicate flooding and road closures as they occur in real time.

Detection Technology

The five detection sensors are housed in subterranean chambers to measure the rise and fall of the water levels. Each sensor features a transducer which converts water into a 20mA analogue output. Using a UTMC car park count outstation interface, the water levels are converted into a simple 'car park' count. With no water pressure, the detection reports 'Spaces'. The next threshold, where water levels are rising, the detection reports 'Nearly Full', and 'Full' when flooding occurs. The pressure thresholds relate to water above the sensor at the same height as the road surface but can be adjusted using SWARCO's management software.

The sensors are connected to a nearby control and communications cabinet which is installed at height to avoid any



flood damage to components, which are battery powered with fuel cells to maintain the correct operating voltage. Each fuel cell has sufficient power to operate for up to two years. Through intelligent remote monitoring, alarms are generated should power run low between annual maintenance visits.

Flexible Signage

Providing further flexibility, the VMS have a full matrix area which enables future setting of messages to be edited, which means they can be used to negotiate changes in the weather other than rainfall, such as snow or high winds. They can also be used more generally to warn drivers of traffic or any road closures.

A Faster Response

SWARCO completed installation of the new flood warning system at the end of August 2021, and it has already proven how it is helping the local Council alert and warn drivers in a more efficient manner.

The new system is already proving its worth, none more so than on the last day of 2021. Heavy rainfall in the area in the early hours of 31 December activated the system. At 02:44, rising water levels caused one of the sensors to reach the 'Nearly Full' threshold triggering its associated sign to display a 'Flood Level Rising' alert message. Soon after, at 03:44 the 'Full' threshold had been reached, with the messaging switching to display 'Flooded – Road Closed' to clearly notify drivers, and road maintenance staff were immediately notified. By 10:42, water levels had receded to a safe, low level and the VMS messaging was updated to 'Receding Flood Level' and the affected section of the main road was reopened. In the space of just a few hours, the system showed how it can help to provide clear warning and guidance to drivers and keep them safe.

Brian McFarlane, Senior Project Manager at SWARCO Traffic, says a key challenge of the project was one of aesthetics: "Finding suitable locations to install the systems with subtlety, so that they blend

with the natural beauty of the National Park and local landscape, while at the same time ensuring the functionality of the systems were not affected was a key challenge, but one we managed to overcome.

Being based in North Yorkshire, we understand the impact flooding can have on the local communities, so we are extremely proud to have supported North Yorkshire County Council on this important initiative, which will have a positive impact in helping to protect drivers and ensure minimal disruption." ◀



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CSR – ACTING FOR SOCIAL WELL-BEING AND A MORE LIVABLE PLANET

CORPORATE SOCIAL RESPONSIBILITY IS A TOPIC OF CONSTANTLY GROWING IMPORTANCE FOR COMPANIES. SWARCO HAS BEEN TAKING ITS RESPONSIBILITY VERY SERIOUSLY OVER THE PAST DECADES, PROVING SOCIAL ENGAGEMENT, CREATING SUSTAINABLE PRODUCTS AND SOLUTIONS, AND INVESTING INTO THE WELL-BEING OF ITS HUMAN RESOURCES.

It is an undeniable fact that society has become much more aware of topics like climate change, decarbonization, ecological footprint, equal opportunities, and environmental friendliness. When participating in tenders, SWARCO faces more and more requirements related to proving sustainability, the creation of social value, and compliance with socio-economic standards, as for instance stated in the 17 UN Sustainable Development Goals (SDGs). For SWARCO, CSR has been a living reality for many, many years. We simply act, and do not so much talk about our green ambitions. This will not hinder us to do so more in the future. Our stake-

holders and future legal requirements such as non-financial reporting demand that from us.

In order to give the CSR topic more weight in our large group of companies, we installed a new function at the beginning of 2022. Daniel Meier, a long-time manager with SWARCO in Austria and Switzerland, has been nominated Head of Corporate Social Responsibility. His task will be to coordinate the various initiatives within SWARCO in terms of green thinking and sustainable solutions and to give central support from the headquarters to all SWARCO companies in CSR issues.

“Our customers ask us to provide measurable evidence for being green and sustainable”, says Daniel. “This goes far beyond saying that for SWARCO child labor is a no-go, that we apply a lot of recycling and try to avoid paper, or that we are in the process of converting our car fleets to e-vehicles.” Quantification and measurability are key to our CSR balance sheet, but that is easier said than done. SWARCO is aware of its responsibility as a good corporate citizen who knows about the environmental, social, economic, stakeholder, and voluntariness dimensions of CSR. Our group of compa-

nies was founded more than five decades ago by late Manfred Swarovski, a globally recognized advocate of road safety and related social prosperity. He walked the talk to give back part of his entrepreneurial success to society. Countless examples of charity activities, sponsorings, and the promotion of young people in sports and education evidence this. In this respect he internalized the conviction of his great-grandfather Daniel Swarovski, the founder of the famous Austrian-based crystal business, knowing that in the end it is a win-win situation:

“You will only achieve lasting success if you strive to think not only of yourselves, but also of others. Those who do this will doubtlessly be blessed with success.”

We will keep you posted on our website with more evidence from SWARCO in terms of corporate social responsibility and green action.



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ENVIRONMENTALLY FRIENDLY INTERSECTION CONTROL THROUGH DISTRIBUTED INTELLIGENCE. THAT IS THE SUCCESSFUL RECIPE OF SWARCO X-LINE COMBINING ENERGY-EFFICIENT TRAFFIC SIGNALS WITH A DECENTRALIZED CABLING OF SYSTEM COMPONENTS.

X-LINE YOUR INTERSECTION

The environmental friendliness of the systems mainly results from a greatly reduced use of copper cables and a reduced energy consumption of the overall system compared to previous systems based on conventional design", says Matthias Nolle, Product Manager Urban Traffic Control with SWARCO in Germany. The power consumption of the newly developed signals "FUTURLED 6 / X-LINE" could even be reduced to less than 1 watt, so that today an entire intersection has an energy consumption comparable to the consumption of a single lamp of a signal in the past.

Both the cable savings - including the saved pipes and civil engineering activities - and the energy savings result from the concept of distributed intelligence that underlies SWARCO X-LINE. The control technology of a traffic light system is no longer exclusively located in a control cabinet at the roadside, but distributed among control cabinet, pole and signal

head. "For example, since version 1.0, loops can be connected to poles and no longer have to be returned to the control cabinet, which is usually further away", Matthias Nolle explains a major advantage. The SWARCO X-LINE innovation therefore essentially comprises a completely newly created pole unit as well as low-energy signal heads specially designed for this technology. Both components can even be combined with the existing controllers, allowing existing installations to be converted to SWARCO X-LINE. Another advantage of this intelligent platform is the easy expandability of SWARCO X-LINE plants, making them future-proof.

Another positive effect on the environmental friendliness of SWARCO X-LINE is due to less civil engineering works and the usual related road congestion. This also means that air pollution is significantly reduced during the installation of the system.

We are going to exhibit SWARCO X-LINE at Intertraffic Amsterdam 2022 on stand 02.222. The environmental friendliness

of SWARCO X-LINE has already been recognized by the jury of the Intertraffic Awards, who nominated SWARCO X-LINE for the "Green Globe Award 2022". German VDE just published a new spec X-LINE fulfils, making it an open platform. ◀



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WHEN TRAFFIC LIGHTS MEASURE AIR QUALITY

MODERN LED TRAFFIC SIGNALS INDICATE MORE THAN JUST RED, AMBER OR GREEN. SMART FUNCTIONS ARE ADDED TO OUR EVERYDAY COMPANIONS AT INTERSECTIONS. SWARCO SHOWS WITH ITS COMBIA TRAFFIC SIGNAL GENERATION HOW TRAFFIC MANAGEMENT BECOMES MORE INTELLIGENT THROUGH ACCURATE ENVIRONMENTAL DATA. IN THE END, OUR QUALITY OF LIFE IS IMPROVED.



Air pollution is probably one of the biggest public health problems our world faces today. The World Health Organization (WHO) estimates that air pollution kills more than 7 million people worldwide each year, and that number could rise to 9 million by 2060 if we do not act now. Road intersections, in particular, are the focal point of urban pollution. In order for this to be curbed, it is important to effectively measure and

display environmental quality in a time-accurate manner. Accurate measurement of air quality directly at urban intersections therefore provides the relevant decision-making basis for effective measures to improve the quality of life.

For this reason, SWARCO has developed the intelligent AirDec solution, which is integrated into the COMBIA signal head to reliably record environmental data and pollutant levels directly at the intersection. This allows municipalities to set up a measurement network to monitor air quality. Through long-term monitoring, hotspots are identified and can be mitigated through appropriate traffic engineering, organizational and planning measures. Traffic signaling and environmental measurement thus become the basis for more sustainable traffic in urban areas. Since the AirDec module is an integrated part of the COMBIA signal head, no external sensors or housings are required at the

intersection. Thus, the intelligent COMBIA traffic signal family is ready for the age of "Smart Mobility" and contributes to a modern and uniform cityscape.

The data measured by sensors from AirDec not only include CO, NO2 and O3, but also noise, rain intensity or particulate matter. These data collected by AirDec are used to analyze the environment and provide important information on traffic volume, climatic conditions or pollution levels via a universal communication platform. Depending on the underlying data-based services, the information can be visualized or even further processed in different ways. This can be done either via our own SWARCO MyCity integration or via other adequate platforms.

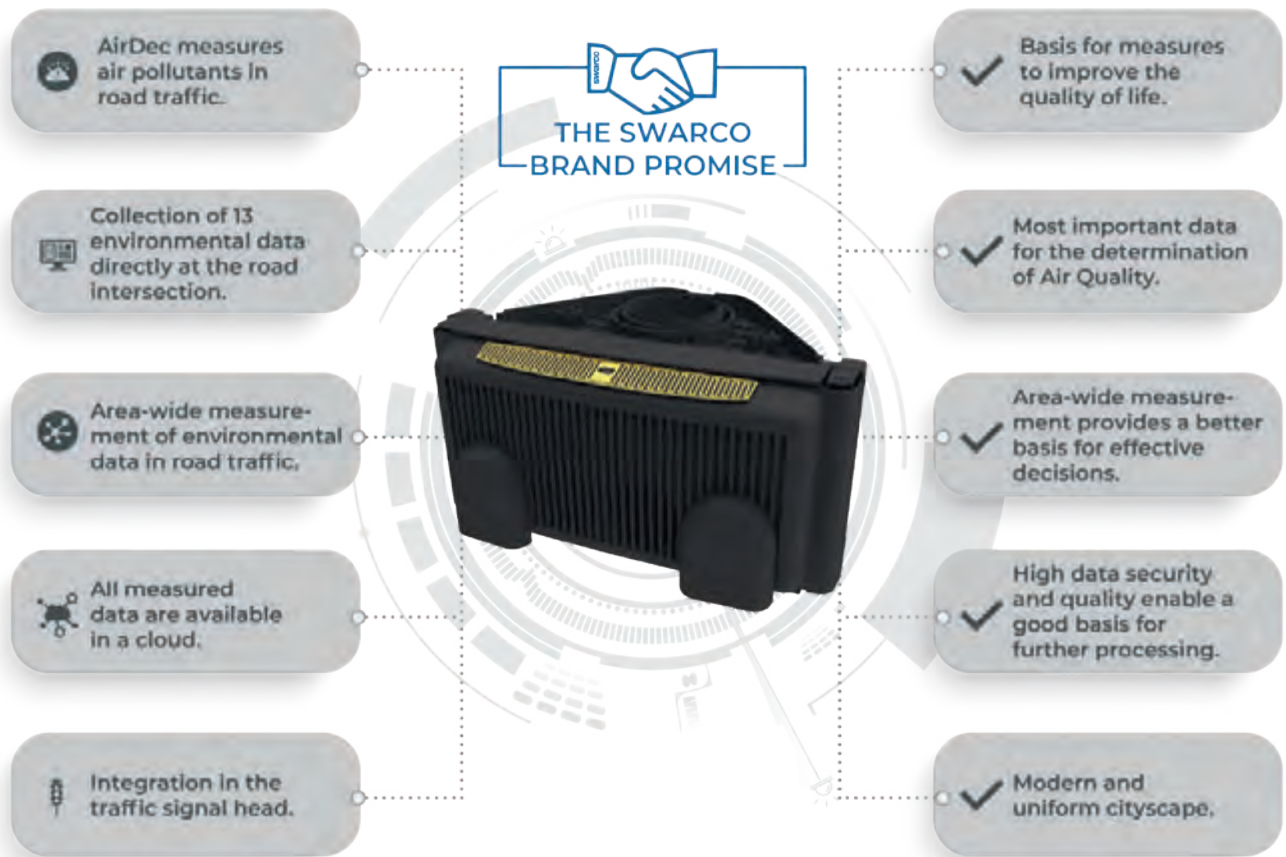
In Europe, numerous pilot installations are already in use by customers and partners. These cases illustrate that the measured data can be used as a good basis for decisive traffic measures. ◀



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Your benefits – Measurement of air quality and environmental data



WORKING IN THE CITY OF LIGHT

WINNING A PROJECT IN A FOREIGN COUNTRY OFTEN MEANS THAT PROJECT MANAGERS HAVE TO LEAVE THEIR USUAL WORKING ENVIRONMENT AND TEMPORARILY MOVE TO A NEW LOCATION. AS PART OF OUR EMPLOYER BRANDING INITIATIVES, WE HAD A CHAT WITH **CRISTINA GHIONE (CG)** WHO RUNS THE SWARCO MYCITY PROJECT IN THE FRENCH CAPITAL, PARIS.

DO: Who is your “normal” employer and what is your job at SWARCO Italia in Torino?

CG: I am employed by SWARCO Italia (former SWARCO Mizar) in Torino, which is immersed in the fabulous landscape of the Italian Alps. I work as a Project Manager in the urban traffic division, managing different types of projects in terms of duration, economic value and complexity, implemented in both European and non-European regions. The objectives of my role in the daily life are mainly to achieve the project goals with the team, ensure compliance with the agreed costs, time scales and quality, and achieve client satisfaction.



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DO: For how long have you been working with SWARCO?

CG: I started my collaboration in 2019. Three years have passed since my first day at SWARCO Mizar, first getting to know my colleagues in Turin and gradually collaborating jointly on various activities with other SWARCO enterprises. I really appreciate the international nature of the company and the possibility of being confronted with different realities, being part of a single group.

DO: What did you do before?

CG: Before starting my adventure with SWARCO, I completed my engineering studies in Turin at the Polytechnic university. During my studies, I have been visitor student at Koç University in Istanbul and spend a few months doing research in the UK. Later on I acquired some international work experience before joining SWARCO.

DO: Why were you chosen to be the project manager of our traffic management project in Paris?

CG: The reason for being chosen as a PM for the Paris project is a combination of previous professional experience, aptitude and ability to communicate in

the language of the project. In particular, having had the opportunity to work on a project of high complexity, such as the one in Doha in Qatar, in view of the Soccer World Cup 2022, allowed me to gain the experience and skills necessary to govern the Paris project.

DO: What kind of skills do you need in particular in that role?

CG: In addition to the conventional skills of project management, such as planning, cost, quality, risk, and budget management, the project requires particular skills in managing the team in a complex environment.

The Paris project requires a particular emphasis on ensuring coordination and developing cooperation between project members. In fact, the implementation of the project involves several working groups within SWARCO, in particular the German group from the SWARCO Solution Center in Berlin and the Italian group from Turin in cooperation with the French core team from Paris. It becomes essential for me to be able to establish the points of contact between our widespread working group, the stakeholders of the project consortium and the final customer, all while ensuring a good flow of communication and overcoming the



challenge of working for the first time with a French-speaking client.

DO: Who are your cooperation partners?

CG: Our final client is the City of Paris, but our contractor is CiELiS, the consortium formed by major French industrial players Citelum and Eiffage created for the project and in charge of the traffic lights and lighting management of the French capital. Within the consortium, there are different actors such as Accenture for program management, THALES with whom we interface for the cyber security and Citégestion for the maintenance subject. On the other hand, several internal companies of the SWARCO group orbit around the project and substantially contribute to it. The team that will implement the core of the new traffic management system suite MyCity will be from the SWARCO Solution Center (SSC) in Berlin, while SWARCO Italia will be mainly responsible for the development of the external interfaces and project management. Part of the project team, composed of system designers, is based in Paris and deals with the management of the requirements, the definition of

the specifications of the new system together with the customer. Finally, an important contribution, especially with regard to the functionalities that will affect the 2024 Olympic Games, is provided by SWARCO's innovation group. The Paris project therefore is a mosaic of stakeholders whose mutual input will be essential and will complete the final picture, the project goal.

DO: How do you live in Paris?

CG: I usually spend 70% of my time in Paris which means I'm on site about 3-4 days a week. From Turin, the city where I live, I can easily reach Paris by plane, however I usually use the high-speed train (TGV) which takes about 5h30min and allows me to work, make the journey more peaceful and environmentally friendly. My office is located at the CiELiS headquarters, in the Montparnasse area, in a 3-storey building, while the control room (PC Lutèce) is located in the city center on the Ile de la Cité, where meetings with the customer happen almost every week. Paris is a very charming city to live in, actually an open-air museum with cultural and historical heritage almost at every corner. Mobility through public transport is easy and

delicious bistros offer a variety of French dishes to taste.

DO: What is the purpose of the Paris project?

CG: Over the past years, the French capital has introduced incisive measures under the lead of mayor Anne Hidalgo to make Paris greener, fight congestion and reduce air pollution. Restricted access for cars to the city centre, a drastic reduction of parking spaces, an extension of the cycle path network to 1000 kilometers by 2024, and giving back famous Champs-Élysées to the pedestrians by cutting down its number of lanes for car traffic are some cornerstones in the green agenda of Paris. A major impact on CO2-reduction and energy use will come from the conversion of all street lighting of the metropolitan area with its 10 million inhabitants to LED technology. The contract for this has been awarded to CiELiS and SWARCO, as subcontractor, and will also have the goal to modernize the traffic management in Paris in the run-up to the Olympic Summer Games of 2024.

DO: Merci beaucoup, Cristina, for these interesting insights. ◀

HITEX - A NEW ADDITION TO THE SWARCO FAMILY

AFTER THE RECENT ACQUISITION OF THE HITEX INTERNATIONAL GROUP IN OCTOBER 2021, DRIVE ON (DO) SPOKE WITH **GEOFF LLOYD (GL)**, FOUNDER OF HITEX INTERNATIONAL GROUP, TO FIND OUT MORE ABOUT THE NEW SWARCO FAMILY MEMBER.

DO: Geoff, what are the beginnings of the Hitex Group?

GL: L&R Contracting was established in 1972 between myself and Ivor Roach. We used to work for my father who was a director of a surfacing company and at the time if they did a car park, they had to get a lining company from Yorkshire to come down and do the job. We thought rather than get somebody from 100's of miles away that it would make more sense to have a local service to complete projects. The first job we did was a pub car park in West Derby, Liverpool, which was completed with a tin of paint, a roller, and a straight edge. Over time, we continued to receive work and eventually were able to expand with additional crew members, trucks, and larger jobs.

As the business evolved, manufacturing our own in-house thermoplastic was a natural next step to ensure consistent and high-quality supply of product for L&R. Several years later, the opportunity to add Somerford to the group became possible, which was a powerful addition to the business. We had already been

purchasing equipment from Somerford since the very beginning, so it was also a natural integration within the Hitex group.

DO: Do you think the collaboration of the three companies (L&R Roadlines, Hitex Traffic Safety and Somerford Equipment) has been pivotal towards the Groups success?

GL: Most definitely. All three members of the group have contributed to the success of the company. Although they are all strong independently, together they complement one another very well. The group creates the unique ability to see a thermoplastic truck being built from the ground up, to material being produced and loaded on to that same truck, which then drives out with a fully equipped crew to apply on the road.

DO: What products and services do the Hitex Group offer?

GL: The group comprises of three interlinked companies L&R Roadlines, Hitex Traffic Safety and Somerford



Equipment. L&R install road markings, road safety surfacing and road repair products. Hitex Traffic Safety provide thermoplastic, preformed thermoplastic, modified MMA and epoxy road marking and surfacing materials for a wide range of applications and environments.

Somerford Equipment provide road marking equipment and have an excellent reputation for building high-quality road marking vehicles for over 40 years. The expertise ranges from standard thermoplastic equipment to completely custom builds for any road marking needs.

DO: After 50 years in the industry, where do you see the future of road marking?

GL: There is significant potential for the future of road markings, really on the innovation side. With the introduction of automated vehicles, ensuring the road markings are maintained is critical. However, the standards need to improve alongside this to ensure that maximum safety is achieved for all road users.

Even more important is ensuring that we get the basics right in the present. To be prepared for the future potential, there needs to be additional funding to improve road conditions today. This starts from the substrate, to ensure that it is fit for purpose and where the correct application of road markings can be effectively done. Only if we have the infrastructure improved in the present, can we then capitalise on the future potential within the industry.

DO: What moment in business stands out as one of your greatest achievements?

GL: There have been many good moments, it is difficult to single out any time in particular. Truthfully, the best achievements have really been driven by the people whom I have worked with and met over the years. Each and every one who has been a part of the Hitex group has contributed to the business it is today. L&R began with hard work, persistence and a strong support system which only grew alongside the business. A group can only be as strong as the

people in it, and I am proud to have been surrounded by such strength.

DO: What benefits do you think the acquisition of the Group by SWARCO will bring?

GL: A core benefit of the acquisition between SWARCO and Hitex is that it provides a terrific opportunity for knowledge-sharing between two strong and complementary organisations. This combined knowledge and expertise will provide a strengthened platform for future innovation in the marketplace.

Furthermore, this combination improves the product portfolio offering, providing a more comprehensive selection of road marking products for customers. A strong product portfolio supported by expert teams will undoubtedly create a successful path for the future. ◀



AND THE WINNER IS ...

ONE INITIATIVE OF SWARCO'S INNOVATION HUB IS TO FOSTER THE RELATIONSHIP WITH YOUNG TALENTS BY ACCOMPANYING THEM WITH THEIR MASTER'S OR DOCTORAL THESIS. ONCE A YEAR, A JURY AROUND LAURA COCONEA, HEAD OF OUR INNOVATION OFFICE, CONFERS THE **SWARCO STUDENTS' AWARD** IN THIS CONTEXT. LET US INTRODUCE YOU TO THE WINNER OF THE 2021 CONTEST.

She is 27 years old, and her name is Natalie Sautter. She holds a Bachelor's Degree in Environmental Engineering from the Technical University of Munich. In April 2020, Natalie joined the traffic planning, engineering and software company Schlothauer & Wauer GmbH, a SWARCO subsidiary headquartered in Berlin, with offices in Dresden, Augsburg, Tübingen, and Munich. In that company she completed her Master's studies in Civil Engineering with her thesis in February 2021.

At Schlothauer & Wauer, the award winner got deeply involved with the traffic engineer workstation LISA, implementing and testing rule-based traffic control. In her thesis entitled "Optimized traffic signal control strategies based on vehicle-infrastructure communication" she created control logics for emergency vehicle preemption in LISA for scenarios with and without V2I communication. Simulating the control logics for different intersection types and demand levels with the VISSIM tool, she found out that Vehicle-2-Infrastructure communication reduces the negative impact of emergency vehicle preemption on overall traffic. The average queue length at the end of the red traffic signal phase is reduced by up to 53 %, and the duration of emergency vehicle preemption decreases by up to 50 %.

Operation of a fully automated vehicle will increasingly emphasize not only the role of the vehicle, but also of the environment (i.e. the road and relative ITS infrastructure). Therefore, when autonomous vehicles will be widely operational, not only consumer preferences around car-ownership will transform, but also traffic management will need correction. "The awarded thesis perfectly fits our challenge of evolving traffic management towards automation", says Laura Cocone. "The choice of the topic, the outcomes, the

quality of the work as well as the overall interaction with Natalie as a person, made this experience the winning one." The contest will open again in 2022, and the call will be published on our website. This is because we believe that constant collaboration with academia and fresh future ITS experts represents a key element in driving innovation and the SWARCO portfolio towards the future. Due to the great success of her Master's thesis and the fantastic work environment at Schlothauer & Wauer, Natalie identified her passion for traffic signal control. Since March 2021, she has been pursuing her excitement about traffic signal control as a PhD candidate at the Chair of Traffic Engineering and Control at the Technical University of Munich.

What does the award for Natalie imply? SWARCO invites her to see the world's largest traffic technology exhibition, IntertrafficAmsterdam, at the end of March, paying for her trip and accommodation in the Netherlands and welcoming her on the SWARCO exhibition stand. Natalie's thesis will also be presented to a wider audience in the Intertraffic start-up theater called ITSUP in hall 6.

Congratulations, Natalie – and all the best for your future endeavors in traffic engineering and control! ◀





WITH INDUSTRY 4.0 - THE GROWING INTER-CONNECTIVITY OF DIGITAL MANUFACTURING PROCESSES - PRODUCING ANYWHERE HAS BECOME EASIER. MANY INDUSTRIES HAVE SWITCHED TO DECENTRALIZED PRODUCTION AND A WIDE-RANGING USE OF 3D PRINTING. SWARCO ADVANCED INDUSTRY SYSTEMS IS ALSO MOVING WITH THE TIMES HERE.

PRODUCTION OF THE FUTURE

Additive manufacturing, i.e. the use of 3D printers, has already been evolved and mature for a while. At this point, this method is competitive for the production of both small and large series: Shapes are free, not preconceived, and build volume is the only limiting factor. In combination with a potential reduction in transport costs, additive manufacturing is the way into the future. This is true for individual productions with low counts, but also for uniform large-series production. SWARCO Advanced Industry Systems supplies glass filler beads, a relevant component of materials for additive manufacturing.

Interconnected Service Providers, a New Business Model

Additive manufacturing technology also helps create new business models, for instance, service providers specializing in manufacturing prefabricated parts. For companies, the easiest way of handling decentralized production is to resort to specialized manufacturing suppliers. Using online platforms, they upload

production data and receive offers. The project is then allocated based on criteria such as “available capacity” or “capabilities”. This method, which is an alternative to companies building their own decentralized manufacturing structures, is already being used frequently today.

Perfect for Large- and Small-Scale Production

The advantages of decentralized manufacturing are not just for companies with smaller structures. The responsibility for production, and, if needed, even sales, is often handed over to external service providers, which helps companies dedicate all their capabilities to product design. In the production of highly individualized items this is a strong trend. Close cooperation and information exchange accelerate targeted product development, tailored to market. The innovation program SWARCO JOIN&GROW offers clients and partners a platform for joint product and process development for new industrial applications in the relevant target markets.

An Open and Exciting Future

Decentralized production has become a common method that is yet constantly evolving. The parameters relating to environmental protection and resource efficiency are particularly complex and fluctuating. Decentralized production and additive manufacturing undoubtedly have significant potential. These methods have set mass production on a journey which is far from over. Nowadays, it is more important than ever to monitor how they develop, and continuously adapt to them! ◀



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“THE NEXT GENERATION OF GLASS BEADS” HAS A NEW HOME – THE SWARCO GLOBAL GLASS BEADS TECHNOLOGY CENTER IN NEUFURTH, AUSTRIA.



THE HEAT IS ON IN OUR NEW PLANT IN AUSTRIA. PERFECT CONDITIONS FOR THE PRODUCTION OF PREMIUM REFLECTIVE GLASS BEADS

SWARCO | The Better Way. Every Day. | 22

With its SWARCO SOLIDPLUS & SWARCO DURALUX premium reflective glass beads, SWARCO Road Marking Systems plays a pioneering role. As part of high-performance marking systems, these glass beads make markings more visible and roads safer. Recently, production was moved to the new SWARCO Global Glass Beads Technology Center. At the business park in Neufurth, the company makes state-of-the-art technical standards a reality. Thus, SWARCO Road Marking Systems not only opens up new dimensions in quality management; it also further minimizes the premium glass beads' ecological footprint. Reflective glass beads are an integral part of modern marking systems and make roads safer. They reflect the beam from the headlight back to the driver, enhancing the marking's visibility significantly. This is of crucial importance, especially at night and in challenging weather conditions. SWARCO Road Marking Systems is one of the global players in this field. With its innovative production machinery and equipment at the new SWARCO Global Glass Beads Technology Center in

Neufurth, the company sets new quality standards in the production of high-grade reflective glass beads.

Ecological and Efficient

“Optimizing sustainability and increasing efficiency were two essential aspects in the planning of our new production site. And with the SWARCO Global Glass Beads Technology Center, we successfully achieved these goals. We managed to further minimize the ecological footprint of our premium glass beads,” Peter Tomazic, Vice President Region Europe at SWARCO Road Marking Systems, says proudly. By using state-of-the-art glass melters, production emissions can be reduced to a minimum. And the high degree of raw material efficiency increases SWARCO SOLIDPLUS' & SWARCO DURALUX' sustainability, too.

New Technologies for the Highest Quality Standards

In addition to all the positive ecological aspects, the new machinery and equipment open up new dimensions within the industry when it comes to production

quality. “For our new Technology Center, we developed unique transport systems that are extremely gentle on the product. The high degree of automation that we have implemented guarantees a production process that is both particularly stable and steady, which, in turn, results in a high and consistent product quality,” Peter Tomazic explains. All processes are displayed on screens in real time to ensure full transparency in production, allowing employees to focus entirely on process and product quality. “In addition to state-of-the-art standards, our site also offers significantly more space to keep developing our products, which is very important to us. After all, ‘The next generation of glass beads’ did not happen by chance – it is the result of many years of dedicated efforts by our experts at the Center of Competence. Now, we finally have the space to be able to put the full scope of the findings into practice and build on them further. That way, we continue to play a leading role in the field of high-performance marking systems. As a result, we can support our customers to be the best in their respective business areas,” Tomazic says. ◀

SWARCO GROWS – GROW WITH US!

```
def dream_job?  
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  superhero'  
  'passion',  
  'purpose'].  
include? end
```



DRIVE ON (DO) MET SWARCO'S HEAD OF HUMAN RESOURCES, **SIGRID KAPFERER (SK)**, TO LEARN MORE ABOUT THE COMPANY'S ROLE AS AN EMPLOYER AND CURRENT HR INITIATIVES.

DO: When you look at the HR industry, what are the biggest challenges at the moment?

SK: The past two years have been characterized by a major upheaval in the world of labor. Fixed, rigid processes and structures have had their day and have given way to a kind of "forced flexibility." Digital processes, virtual collaboration and leadership, and increased working from home have all moved to center stage from one moment to the next.

Another major challenge for companies is staff recruitment, as a tight labor market makes attracting employees a difficult undertaking. It is no longer enough to cover as wide a network of applicants as possible. Much more important these days are tailored approaches that identify and attract qualified and motivated talent. Here, the use of modern technologies will play an even more central role.

DO: Which role do social media play in application and HR processes?

SK: Nowadays, you have to actively approach applicants more and more. Recruiting through social media gives us completely new perspectives for attracting talent. Millions of users are on the various social media platforms every day. You can also reach people there who are not actively looking for new jobs. However, it is also important to address the right target group on the right platforms, and ideally to find a way of addressing them that stands out.

DO: What is currently happening at SWARCO in terms of HR?

SK: The SWARCO family has grown again. With the acquisition of Dynniq Mobility (Netherlands), Eisenschutz (Austria), Supalux (Australia) and the British road marking specialist HITEX Group (see portrait on page 16/17), SWARCO's workforce has grown from 3,800 to 5,200 traffic specialists. The new locations also open up new job opportunities, especially in the Netherlands, England and Scandinavia. In addition, we are currently looking for employees in a wide variety of locations,

especially in the area of software development. Therefore, we have launched an employer branding campaign ('Super Hero') to look for our software coding heroes of today and tomorrow. In addition to a dedicated landing page with information about the job, each individual's personal contribution to road safety, and the benefits at SWARCO, we also shot two videos. These videos give insights into the daily work at SWARCO and why exactly these superheroes are needed in our company. More videos on other work domains are planned to give applicants an authentic first-hand insight into our company. Our employees act as our ambassadors, so to speak, talking about their job and SWARCO's qualities as an employer. ◀

DO: Thank you very much, Sigrid.



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CURIOSUS?

You can find more information, in particular on the topic of software development, on our landing page at: <https://www.swarco.com/career/career-news/software-coding-superhero>

Or would you like to grow together with us in another area? Then find out about our job vacancies at: www.swarco.com/career

GÜNTHER KÖFLER (GK)
IS A MEMBER OF THE
SWARCO AG EXECUTIVE
BOARD, ACTING AS CHIEF
ADMINISTRATIVE
OFFICER (CAO). DRIVE
ON (DO) WANTED TO
KNOW MORE ABOUT
HIS JOB AND HIS
PERSONALITY.



SWARCO's Chief Administrative Officer, Günther Köfler

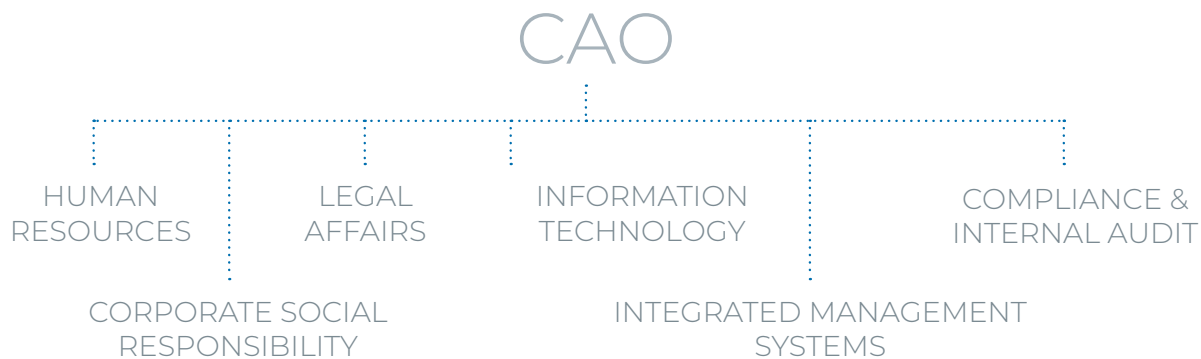
AN INTERVIEW WITH OUR CHIEF ADMINISTRATIVE OFFICER (CAO)

DO: You have been with SWARCO for 15 years now. What did you do before?

GK: Before and parallel to my studies, I worked for the telecommunications company T-Mobile in the sales department for a total of 8 years. After completing my law studies and various internships, I worked as an

assistant to a Member of Parliament in the European Parliament in Brussels. In 2006, I ended my subsequent engagement at the Office of the Tyrolean Government in favor of the job offer at SWARCO.

DO: If you compare SWARCO to your former employments, what is different?



GK: The almost 16 years at SWARCO have been by far the most important part of my professional career to date, and there is no real comparison between my previous positions. However, I can remember that I was immediately struck by the very nice, very human way of dealing with each other, as well as the fact that, despite all the intensity of the work, the sense of humor was never neglected.

DO: What is the portfolio you represent on the Executive Board?

GK: At the end of the day, it's quite a colorful mix of tasks for which I have departmental responsibility; in total, there are currently 6 areas: HR, IT, LEGAL, COMPLIANCE & INTERNAL AUDIT, CORPORATE SOCIAL RESPONSIBILITY and INTEGRATED MANAGEMENT SYSTEMS.

DO: What are the main topics in your focus for the next 12 months?

GK: Probably the most difficult question so far :-). SWARCO is currently strongly

characterized by growth and change, which results in a need for action in many areas - be it in terms of corporate culture, change management or organizational development. Furthermore, the omnipresent and still increasing shortage of skilled labor will keep us busy in the coming months, as will the challenges in a digital world - for example in the area of cybersecurity or the digitalization of our business processes. This year, we will also be focusing in particular on the issue of sustainability, where we want to set a stronger course by establishing Group-wide responsibility.

DO: When you look back on the past 12 months, what do you remember as particularly striking?

GK: The past year was undoubtedly characterized by our M&A activities. The large number of transactions, above all the merger with Dynniq Mobility with its 1,200 employees and over 200 million € in sales, made it an intensive year for us. In terms of workload, it was certainly borderline in some areas, which makes it all the more gratifying when the pride in what we have achieved is palpable everywhere.

What's next for SWARCO?

Besides our ongoing integration efforts we'll keep on moving – just as our market environment does. Change is the new normal, and it will constantly shape us and our way of working. Getting bigger as a company typically bears the risk of getting slower, and while there is an obvious need for structure and planning especially in view of SWARCO's pace of growth, we have to stay as agile as possible as an organization. And I'm confident that we'll manage to do so.

DO: What do you do in your spare-time?

GK: My hobbies are Verena (N/A), Martha (6), Florian (4) and Hannah (2) - so my wife and my three kids ;-). If there is still time left, I try to keep my soccer career alive and spend as much time as possible in the mountains - mainly hiking.

DO: Thank you very much, Günther.



SWARCO ROAD MARKING SYSTEMS TESTS AND APPLIES MARKING SYSTEMS AT ST. VALENTIN, AUSTRIA, AS AN EXCLUSIVE PARTNER OF DIGITRANS.



AUTOMATED DRIVING: ROAD MARKINGS IN PRACTICE TESTS

At the new Digitrans test site in St. Valentin/Lower Austria, the future of individual mobility undergoes extensive practice studies. As an exclusive partner, SWARCO Road Marking Systems is in charge of the marking systems,

demonstrating its system expertise. The premium glass beads developed by SWARCO Road Marking Systems ensure high retroreflection of the marking materials, which are produced in-house, too. SWARCO also handles their application on the test track with the help of its own striping companies, using four different systems. The goal is to further improve visibility of road markings for autonomous driving systems.

of the pioneers worldwide when it comes to system expertise. It is this expertise that we are able to demonstrate on the new Digitrans test track in different traffic scenarios,” says Friedrich Wiesinger, Team Leader Product Development at SWARCO Road Marking Systems.

Marking Materials, Glass Beads and Application from a Single Source

The future of individual mobility belongs to automated driving. Nowadays, semi-automated driver assistance systems are already an integral part of modern vehicles. For these systems to be reliable, the quality of lane markings is crucial. “In the field of marking systems, SWARCO Road Marking Systems is one

On the Digitrans test track in St. Valentin, SWARCO is responsible for the entire system expertise regarding the markings. “We do research and development, production, and application – in this way, we can ensure high quality all the way to the application of the markings on the road,” Wiesinger explains. In St. Valentin, four



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SWARCO Road Marking Systems' striping experts at work on the Digitrans test track in St. Valentin

striping teams are involved in the tests. Two teams are in charge of the plain markings, one team takes care of the structured markings, and another one, of the area markings. The marking materials and glass beads used are developed in-house.

A Wide Variety of Marking Systems for a Broad Range of Applications

The tests in St. Valentin are among the most comprehensive cross-company practice trials relating to semi-autonomous systems that are currently undertaken.

Different systems are used for the testing: “For plain markings, we use SWARCOFLEX in combination with cold spray plastics. For orange construction zone markings, we leverage the benefits of SWARCO SOLIDPLUS premium reflective glass beads. These premium glass beads are also utilized for structured markings where they are combined with cold plastics. For area markings, we rely on SWARCO SOLIDPLUS, too, but vary the system depending on the respective requirements,” Wiesinger explains. When it comes to area markings, the

combination of SWARCO SOLIDPLUS and cold spray plastics is ideal for stop lines and directional arrows. For pedestrian crossings, SWARCO Road Marking Systems has even been testing two systems. “Here, we use the combination of SWARCO SOLIDPLUS 100 and roller plastics on one half and apply SWARCO SOLIDPLUS 10 together with cold spray plastics to the other half,” Wiesinger describes.

The goal is to further optimize how sensors, and road and marking detection interact and work together. ◀



Pooling international know-how on a test track

The test track in St. Valentin, set up as early as the 1930s, is located on the grounds of the Magna Powertrain Engineering Centers Steyr. In the summer of 2021, Digitrans held the groundbreaking ceremony for the expansion of the test site into a state-of-the-art test center for automated driving and automated goods transport. As of summer 2022, the completed proving ground will offer numerous additional elements for the testing of automated driving functions under real-world conditions in a reproducible manner.

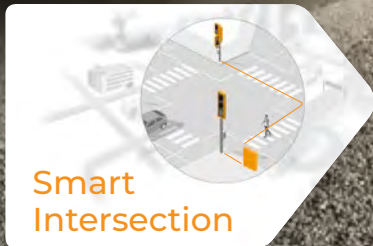
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