

## SMART Workforce

### How to Approach the Semiconductors Skills Shortage



E. Rudnick  
Managing Director of Central Europe  
MRL Consulting Group, Hove, United Kingdom



#### **Abstract**

We all know the skills gap is looming in the semiconductor industry and sourcing the right talent is top of the agenda for most businesses. In today's talk, David Stone and Enrico Rudnick from MRL Consulting Group will discuss the skills shortage in more detail. This includes what the skills shortage means long term and why it's imperative to be changed. How people can take advantage of opportunities within the sector across technical and commercial roles highlighting the skills needed and what businesses need to do to overcome the skills gap and what initiatives can be put in place.

#### **Biography**

Enrico Rudnick started his recruitment career in 2001. Now the Managing Director of Central Europe for MRL Consulting Group, Enrico has 13 years of experience of recruiting all functional disciplines at all levels within our specialist market segments of "Semiconductors & Components" and "Capital Equipment".

As well as managing the entire team in Central Europe, driving the business development strategy alongside our CEO David, Enrico is very much still involved in placing world-class talent at the highest level across the semiconductor and capital equipment market.

## **METIS: MicroElectronics Training, Industry and Skills: Europe's Newest and Largest Electronics Education Initiative**



E. Demircan  
Director Advocacy and Public Policy  
SEMI Europe, Brussels, Belgium



### **Abstract**

METIS, approved by the European Commission, is the newest and largest electronics education initiative in Europe. Funded by the Erasmus+ Program, the initiative brings together industry and university partners to connect students and employers to boost career opportunities in the electronics industry. The project focuses on key technological, environmental and societal trends shaping the future of electronics technology; identifies emerging job profiles and develops a modern curriculum as well as an innovative learning platform accessible to all. Emir Demircan will present the project concept and present what METIS provides for businesses and students at all levels.

### **Biography**

Emir Demircan, Director of Advocacy and Public Policy, SEMI Europe. He is a professional in public policy and government affairs in engineering technologies. At SEMI, he is responsible for leading pan-European advocacy actions on technology, talent, regulatory and government incentives. He previously worked in the 3D printing, chemical and digital sectors. He studied international political economy at King's College London.

E. Demircan  
Director Advocacy and Public Policy  
SEMI, Bruxelles, Belgium



### **Biography**

Emir Demircan, Director of Advocacy and Public Policy, SEMI Europe. He is a professional in public policy and government affairs in engineering technologies. At SEMI, he is responsible for leading pan-European advocacy actions on technology, talent, regulatory and government incentives. He previously worked in the 3D printing, chemical and digital sectors. He studied international political economy at King's College London.

## The UN IPCC GHG Guidelines (2019) and the Impact on the Semiconductor Industry; What are the Changes & Implications?



M. Czerniak  
Environmental Solutions Business Development  
Manager  
Edwards, North Somerset, United Kingdom



### Abstract

For the last 4 years, a team of 190 lead authors working for the United Nations' Intergovernmental Panel on Climate Change have been refining the 2006 Guidelines document for calculating Greenhouse Gas (GHG) emissions from all anthropogenic (i.e. human activity) sources, which has recently been published on the IPCC website. This presentation discusses the motivation for undertaking this work, compares and contrasts the 2006 and 2019 documents, and assesses the implications for the electronics and semiconductor industries, including additional gases that are now included, two new mechanisms for by-product PFC formation (including their magnitude), and the inclusion of PFC emissions from printed circuit board (PCB) waterproofing (the first time this has been considered).

### Biography

**Dr./Mr./Ms.:** Professor

**Name:** Mike Czerniak

**Job Title:** Environmental Solutions Business Development Manager

**Dept.:** Marketing

**Company:** Edwards

**Education:**

1982 PhD Electrical Engineering, University of Manchester

**Experience:**

2016-now, Lead Author on UN IPCC 2019 GHG Guidelines

2016-now, Visiting Industrial Professor, University of Bristol

2014-now, Co-Chair SEMI E167 & 175 Energy-Saving standards

1995-now, Marketing & Business Developpt., Edwards

1982-1995, Semiconductor Manufacturing Technology: Philips, Cambridge Instruments, VSW, Vacuum Generators

## IoT with a Soft Touch: Connecting for a Sustainable Future



L. Van der Perre  
Prof.  
KU Leuven, Department of Electrical Engineering,  
Gent, Belgium



### Abstract

In the next decade, a tremendous growth of number of embedded IoT nodes is expected, fueled by rapid technological developments in micro- and nano-systems (MEMs/NEMs) and embedded intelligence (microcontrollers and compute engines). This technology can be easily designed to fit in many applications addressing challenges in our society. These range from environmental monitoring, reducing waste, improving food and water safety, increasing efficiency in farming and logistics, and many more.

This talk will introduce the basic architecture of an IoT system and embedded connected devices. The technological challenges involved in their deployment will be summarized.

The IoT 'with a soft touch' is an essential ingredient for a sustainable future. We designed a building box for technological experimentation. It will be provide to groups of high-school students enabling them to establish their own remote sensing applications. We aim to appeal to and engage a diverse young community. Their creativity can fuel the innovation looked for!

### Biography

Liesbet Van der Perre received the M.Sc. degree in Electrical Engineering from KU Leuven, Belgium, in 1992. She graduated summa cum laude with a PhD degree in electrical engineering from the same university in 1997.

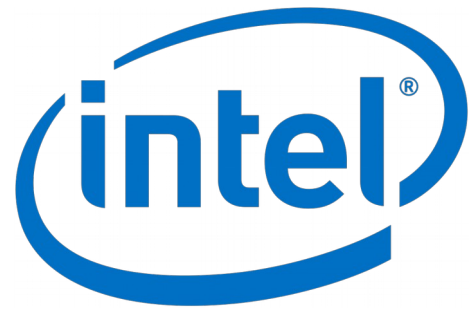
Dr. Van der Perre joined Imec as a senior researcher in 1997 in the wireless group. She took up responsibilities as system architect, project leader, program manager, and was the director of Imec's Green Radio program. Currently, Prof. Liesbet Van der Perre is a full professor in the DRAMCO group ([www.dramco.be](http://www.dramco.be)) of the Electrical Engineering Department of the KU Leuven and a Lise Meitner guest professor at Lund university.

Her main research interests are in energy efficient wireless communication for IoT and (beyond) 5G systems. She is (co-)author of over 350 scientific publications. Dr. Van der Perre is a member of the Board of Directors of the companies Zenitel and Crescent.

## Semiconductor Manufacturing – Enabling the Data Revolution



B. Capraro  
Research Manager, Silicon Technology  
Intel Research and Development Ireland Ltd,  
Leinster, Ireland



### Abstract

The world as we know it is changing at a rapid pace, in fact, the rate of change that we are experiencing in our modern world is exponentially greater than any previous time in history, and it's not letting up! Moore's Law (named after one of the Intel co-founders, Gordon Moore), has provided the opportunity to use technology for the greater good, to help augment and provide better lives for all on the planet. It has enabled a "data-rich" environment, the correct and responsible use of which will enable us to manage our daily tasks more easily, tackle very complex issues, and have fun experiences. This short talk will provide a brief insight into the semiconductor manufacturing industry, and how it has strived for many years to produce the underpinning technologies of our modern world, and how Intel expects to continue the data revolution with sustainable state-of-the-art semiconductor manufacturing.

### Biography

Bernie received a Masters Degree in Engineering (MEng) from Newcastle upon Tyne Polytechnic (with Distinction) and has been working at Intel for the past 22 years holding various Engineering and Management roles across the wafer fabrication facilities. Bernie is currently responsible for all silicon nanotechnology research involving Intel in Ireland, helping to identify potential future technology options to Intel in collaboration with Research Centres, Academia and Industry across Ireland and Europe.

In addition, Bernie owns the relationship development within Ireland's Third Level Education Institutions, helping to produce a highly educated talent pool in the region, progress Intel's research agenda, and help set policy direction for the good of both Academia and Industry. In February 2019, Bernie was announced as an Adjunct Professor within Ireland's first Technological University, TU Dublin.

Bernie's semiconductor career spans 32 years, with other Process and Equipment Engineering positions held at Telefunken GmbH (Ge), Nortel/Bell Northern Research (UK/Canada), Applied Materials (UK) and Newport Wafer Fab (UK).



C. Melvin  
Director of Operations  
Semi Europe, Berlin, Germany



### Biography

Cassandra Melvin received her BS in Business Management and Neuropsychology at Rensselaer Polytechnic Institute and is Director of Operations at SEMI Europe. For the nine years prior to joining SEMI, she held the position Global Product Manager at Atotech Deutschland GmbH, where she was responsible for managing several hundred electroplating chemistry products in its Semiconductor and Functional Electronic

Coatings division. She began her career at the SUNY Polytechnic Institute (formerly the College of Nanoscale Science and Engineering) as a Business Manager focused on strategic and technical programs for semiconductor chemistry and equipment manufacturers. She also held various project and program management roles in clean room operations and IT at SUNY. Cassandra's written work has been published in leading technical magazines and presented at key conferences globally. As an advocate for diversity and inclusion, she is actively involved in SEMI's efforts to promote diversity within the semiconductor industry.

## Stone David



D. Stone  
Chief Executive Officer  
MRL Consulting Group, Brighton, United Kingdom



### Biography

David Stone, a career recruiter since leaving University, is the Chief Executive and co-founder of MRL Consulting Group (established 1997). Listing his core duties as being, “the recruitment, retention & motivation of great people”, David oversees all offices and activities within MRL and sets the strategies for the company’s continued successes.

Married, with 5 children, David is a champion of workplace best practice & employee wellbeing and attracted worldwide attention when MRL became the first international recruitment company to implement a 4 day working week in May 2019. He has particular personal interest and expertise in the global semiconductor marketplace.

## Lievens Tom



T. Lievens  
VP HR & Organizational Development  
Edwards, West Sussex, United Kingdom



### Biography

Tom Lievens has devoted 20+ years' of his career to Human Resources and holds currently the position of Vice President Human Resources at Edwards.

Edwards is a global leader of vacuum and abatement with over 5,000 passionate employees in the Semiconductor industry. With a global footprint, Edwards is present in all the major semiconductor markets worldwide.

Prior to his current role, Tom was VP HR in Power Technique within the Atlas Copco Group, HR Director Belgium-France at VDL Group, Senior Consultant at Hudson and Senior Advisor at the Belgian employer federation Agoria.

Within his current global responsibility, the main focus areas are Learning & Development, Talent Management, Diversity and Inclusion and Organizational Development.

Tom, who lives in the UK, is a Belgian national and holds a Bachelor degree in Social Science.



## Michalopoulou Eleni



E. Michalopoulou  
PhD Student in the department of Chemistry and  
the Atmospheric Chemistry Research Group  
University of Bristol, Bristol, United Kingdom



### Biography

Eleni has a background in physics, oceanography, environment and meteorology. As part of her undergraduate studies she worked for the Hellenic National Meteorological Service using satellite data and atmospheric modelling. She spent 2 years doing field work focusing on marine research where she focused on oceanography and anthropogenic pollutants (e.g. microplastics). In 2015 she started her PhD in atmospheric chemistry in the University of Bristol where she worked on quantifying perfluorocarbon emissions from the aluminium, semiconductor and rare earth smelting industries. Eleni is a co-author in the Intergovernmental Panel on Climate Change chapter on emissions from the metal industry. Finally, Eleni has been on developing multidisciplinary approaches and sustainable development with a particular focus on global challenges and development strategies.

## Clark Emily



E. Clark  
SSC Sales  
Applied Materials GmbH, Feldkirchen, Germany



## Biography

Emily Clark is the Service Sales Manager for central Europe at Applied Materials and based out of Munich. She joined Applied Materials in October 2018 and has recently received the award for “Best Performance by New Sales Person”. Previously, Emily lead European wide sales teams in the optics industry before moving to the semiconductor industry. She holds a Master’s degree in Engineering Physics from the Technical University Munich.

## Harrington Claire



C. Harrington  
VP - Global HR  
SPTS Technologies Ltd, A KLA Company, Newport,  
United Kingdom



### Biography

As Vice President of Global HR at SPTS Technologies Claire is responsible for all aspects of SPTS's global HR organisation and also oversees the Health and Safety team at the Newport headquarters. Claire joined SPTS in September 2012 as HR Director and promoted to her current role in February 2018. Prior to joining SPTS, Claire worked for a number of years in the food, steel manufacturing, and semiconductor industries. Claire has a wealth of experience in Human Resources and Training, and holds a degree in Psychology and an MSc in Human Resource Management.

## Maayan Lior



L. Maayan  
Corporate Vice President, Business Development  
& Chief Marketing Officer Marketing officer  
Orbotech Ltd. a KLA company, Yavne, Israel



### Biography

Mr. Lior Maayan is a Corporate Vice President, Strategy & Business Development, and Chief Marketing Officer of Orbotech, a KLA company, where he has been responsible for the Company's overall marketing, business development and M&A strategy since September 2014. Prior to joining Orbotech, Mr. Maayan served as the Chief Executive Officer of OrSense Ltd., where he successfully led the inception, development and commercialization of the world's first noninvasive hemoglobin monitoring system. Previously, Mr. Maayan was Chief Operating Officer at Compugen Ltd., a leading life sciences company. Before that, he served in a number of R&D, marketing and managerial positions at Scitex Corporation Ltd (now part of HP / Kodak). Mr. Maayan holds an MBA from INSEAD in Fontainebleau, France; an MSc in Behavioral and Management Sciences from the Technion, Israel's Institute of Technology; and a BSc in Physics and Mathematics from the Hebrew University, as a graduate of the Talpiot program.

## Robson James



J. Robson  
Corporate Vice President and Regional General  
Manager  
Applied Materials Europe, Global Field Group,  
Alzenau, Germany



### Biography

James Robson is a corporate vice president and regional general manager of Applied Materials in Europe for the Global Field Group. He is responsible for European customer accounts with over \$1B revenue and achieving operational efficiencies across all segments and support functions. In this role, he chairs the European Regional Council to ensure the company has the correct talent and a competitive infrastructure in the regions to support Applied's strategy. He also serves as co-legal managing director for the company's site in Alzenau, Germany.

Mr. Robson first joined Applied Materials in April 1989 as a process engineer in Etch and has held a variety of positions in engineering, sales, marketing and management across the business units, including general manager of European Crystalline Silicon Solar Products; vice president of global sales for the Energy and Environmental Solutions group; and general manager of the Glass and Web divisions. He also was vice president and strategic account general manager for Infineon / Qimonda and European Regional Accounts. Prior to joining Applied Materials, Mr. Robson served as a line process engineer at Siemens Microelectronics in Regensburg, Germany and at General Instruments in Scotland.

Mr. Robson received an honors bachelor of science degree in electrical and electronic engineering from the University of Edinburgh.

## Steegen An



A. Steegen  
CTO  
Umicore, Corporate, Olen, Belgium



### Biography

Dr. An Steegen holds a Ph.D in Material Science and Electrical Engineering from the Catholic University of Leuven, KUL, in collaboration with the Interuniversity Microelectronics Center, IMEC, in Belgium. She joined IBM Semiconductor in Fishkill, New York, in 2000. As Semiconductor Technology R&D Director, she was responsible for IBM's advanced logic technology development for the mobile and ASICS market and she served as host executive in charge of IBM's International Semiconductor Development Alliance. In 2010, Dr. Steegen rejoined IMEC as Executive Vice President for Semiconductor Technology & Systems. She was in charge of IMEC's technology portfolio and strategic innovation in the areas of ICT, health, entertainment, mobility and energy with partnerships across the entire semiconductor eco-system.' Dr. Steegen is recognized as leader in semiconductor R&D. She holds many patents and she is an acclaimed and inspiring thought leader in innovation in the IoT and digitalization era. She is a member of the SEMI Board of Industry Leaders and she is a frequently asked speaker at the semiconductor industry's prominent conferences and events. Recently, Dr. An Steegen joined Umicore as Chief Technology Officer, responsible for the company's overall innovation strategy and in charge of Umicore's central R&D to ensure the business units technology leadership in the areas of clean mobility materials, recycling and sustainability. With her background, she will empower Umicore's transformation in this age of accelerated digitalization. Dr. An Steegen is a member of the Board of Directors of Barco NV, Kortrijk, Belgium, since 2017.

## **Weiher Susan**



S. Weiher  
VP Operations Engineering  
OSRAM, OS - Operations, Regensburg, Germany

### **Biography**

Dr. Susan Weiher is an Industry Veteran with 28 years of experience in the Semiconductor industry. Upon Completion of her PhD. of Chemical Engineering from Stanford University in 1991, Susan joined a young and upcoming industry - Semiconductor Equipment Manufacturing- as a development engineer for Applied Materials. Shortly after launching her first product for the DRAM industry, Susan moved to Europe to support product proliferation and win new customers for AMAT as a Process Development manager. After 22 years at AMAT, she took the next step in her career to move closer to the end users of the chips build by AMAT equipment and joined GLOBALFOUNDRIES to run the Advanced Manufacturing Engineering and operation team at GF Fab 1 in 2013. The step to the manufacturing side brought many new challenges and a much deeper appreciation for the complexity and innovation of semiconductor manufacturing. This year on October 1, Susan took the next step and joined OSRAM Opto as the VP of Engineering.