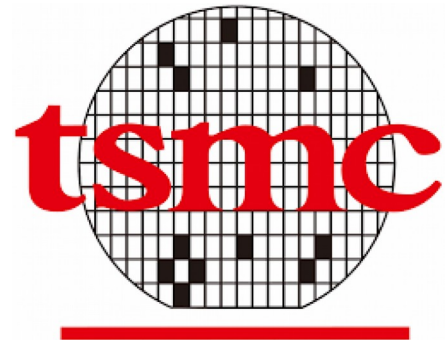## Executive Forum

Shaping the Digital Transformation

M. Marced
President
TSMC Europe, Amsterdam, Netherlands

Abstract
Maria Marced will explore the current Megatrends that are driving the Digital Transformation, through the deployment of 5G and High Performance Computing HPC. The Global pandemic is impacting all our lives, and the semiconductor industry is taking the opportunity to boost its innovation and transform our world. And TSMC technology and manufacturing excellence are accelerating the digital transformation.

Biography
President TSMC Europe
Mrs. Maria Marced is President of TSMC Europe, with responsibility for driving the development, strategy and management of TSMC's business in Europe.
Before joining TSMC, Maria was Senior Vice President and General Manager of Sales and Marketing at NXP Semiconductors/Philips Semiconductors.
Maria joined Philips Semiconductor as Senior Vice President and General Manager of the Connected Multimedia Solutions Business Unit, overseeing Philips' semiconductor solutions for Connected Consumer applications.
Prior to Philips, Maria was employed at Intel where she developed her professional career for more than 19 years, reaching the top position as Vice President and General Manager of Intel EMEA .
Maria, after finishing her studies at the "Universidad Politecnica de Madrid, Spain", worked as a development engineer for several companies, among others Electrooptica Juan de la Cierva, where she pioneered the usage of microprocessors; as well as Telefonica where she was part of a packet switching project, embryos of today's Internet.
Maria serves as a non-executive board member at Ceva Inc., and she serves as Chairwoman of the EMEA Leadership Council of the GSA (Global Semiconductor Association).
 Maria was born in Valencia-Spain and she is married with one daughter.

Insight from Kate Wilson on past year and the future

K. Wilson
VP of Marketing
Edwards Vacuum, Burgess Hill, United Kingdom

Abstract

As the newly appointed president of Edwards' semiconductor division, Kate Wilson talks about the situation in the semiconductor production supply chain, the challenges of the past year and how Edwards drives innovation that directly leads to their customers' success.

Biography

Kate Wilson has more than 25 years' experience in the development and delivery of vacuum and abatement solutions for the global semiconductor industry.

Kate joined Edwards in the UK in 1994 on the company's graduate scheme, moving on to develop her career through a number of product management and business development roles. In 1998, Kate relocated to the US to take up the role of Applications Engineer, working closely with semiconductor OEM customers to understand and develop solutions for their vacuum and abatement requirements.

From 2011, Kate played a key role in developing Edwards' global Applications capability, with a focus on knowledge management and the conversion of customer and market information into product requirements. In the role of Global Applications Manager, Kate relocated to Korea for two years, during which time she gained excellent knowledge of Korean culture and was instrumental in helping Edwards build customer knowledge and relationships across the Asia region.

Kate has held the role of VP Marketing Subfab Solutions for Edwards' global Semiconductor business, based in the UK, since 2017, successfully supporting revenue growth through the delivery of market technology roadmaps, differentiated products, sales support and operations forecasting enabling market share growth.

Since 2019, Kate has also served as Diversity Champion for the global vacuum and abatement business, and is a passionate ambassador for diversity and inclusion both within the organisation, and in the wider semiconductor and engineering sectors.

Kate will take up the role of President of Edwards' Semiconductor division in January 2021, based in Burgess Hill, UK.

Kate is a dual British and US citizen, and holds a BEng in Mechanical Engineering from Brunel University in the UK.

Smarter tools for smarter fabs - taking automation to the next level

R. Dorn
Industry Lead Hightech & Semiconductors
Google Corporation, Munich, Germany

Abstract

For years Semiconductor Manufacturers have been investing in automation and information technology. Typically, many industry 4.0 pilots and POC installations can be foud - often with unclear ROI.
The keynote will focus on new technologies like industrialized AI / ML to dramatically the cost and resource requirements of algorithm development, management and enterprise wide deployment. It will present and discuss the requirements for secure data collection and ingestion as well as outline the trends to support and automate AI model generation / deployment. These new technologies are critical to scale AI / ML across fabs, re-deploy scarce resources and ultimately achieve cost savings in the manufacturing process.

Co-presented with Jörg Recklies, Senior VP, Infineon Technologies

Biography

Ruediger Dorn is responsible for driving the Google business across customers in the High Tech and Semiconductor industry. In his work he specializes on how leading digital technologies can solve real business problems with a specific focus on innovation and operational excellence.
Prior to Google Ruediger has worked in several international leadership roles for leading US IT companies as well as consulting firms.

Testing Innovation – Beyond the traditional way of testing to meet the demands of Highly Complex Devices

C. Nair
CEO
AEM Holdings Ltd., Singapore, Singapore

Abstract

We live in a world that's almost entirely connected by semiconductors, and everything we touch is the result of the convergence of different kinds of technologies. As chips become more complex, testing in mission mode ensures reliability. It addresses all of the potential corner cases that may be prevalent when the product is deployed in a real system.

As a global leader in testing and handling solutions, we are committed to helping Semiconductor companies test a large number of chips. We enable them to cost-effectively get greater test coverage and ship out their products with a higher confidence level. In this presentation, the Chief Executive Officer of AEM, Chandran Nair, provides insights on how AEM is **Testing Innovation**.

Biography

As Chief Executive Officer of AEM, Chandran Nair takes the lead in growing the global business and expanding product offerings for the company. Together with his regional teams, Chandran is responsible for elevating AEM's position as the global leader in offering application-specific, intelligent system test and handling solutions for semiconductor and electronics companies serving the advanced computing, 5G, and AI markets. With over 25 years of an established career in the semiconductor and instrumentation and technology industries, Chandran is experienced in various portfolios, including engineering, sales, marketing, and strategic planning. He has led teams in Asia, Europe, and the US to implement
sales and marketing strategies and technology roadmaps to create robust and sustainable business growth and established meaningful relationships with partners and employees. Prior to joining AEM, Chandran was the President of the Robotics and Autonomous Systems Business Unit at ST Engineering, driving the projects on autonomous vehicles and robotics solutions for ports, logistics warehouses, and transport. Before ST Engineering, Chandran joined National
Instruments (NI) in 1997. He was responsible for the growth of the industry-standard modular instrumentation platform, PXI, and the expansion of NI's offices in APAC as Vice President. Under his leadership, NI's business in APAC achieved revenue growth of almost USD400 million. Chandran is recognized as an accomplished business and technology leader as well as an expert and thought leader in the engineering and tech global community. The Asian Manufacturing Awards presented him with the Industry Leader of the Year (2016), and he sits on the board of the Singapore Science Centre and the advisory board of the Advanced Remanufacturing and Technology Centre (ARTC).
Chandran is committed to inspiring, coaching, and empowering the people around him to innovate and grow their business.

How can a supplier help its customers fight climate change in the semiconductor industry?
-The Air Liquide case-

A. Misra
Group VP Sustainability
Air Liquide, Paris, France

Abstract

Air Liquide is a world leader in gases, technologies and services for industry and health. Its strategy for profitable growth over the long-term is that of a customer-centric transformation. It is based on operational excellence and the quality of its investments, on open innovation and the network organization already implemented by the Group worldwide. Air Liquide's ambition is to be a leader in its industry, deliver long-term performance and contribute to sustainability.

Air Liquide's performance and its sustainability commitment go hand in hand. This commitment is key for both motivating the Group's teams, nurturing the long-term trust of stakeholders and the Company's long-term sustainability. All of the Group's businesses are rolled out in a way that contributes to major environmental and societal challenges, providing industrial, transportation and healthcare solutions. These challenges, such as the climate and air quality, are growth drivers for Air Liquide. The Group is a responsible industry player, and at the end of 2018 committed to reducing the carbon intensity of its operations. Air Liquide contributes through its business and its commitment to reach certain Sustainable Development Goals (SDGs) introduced by the UN to eradicate poverty, protect the planet and guarantee prosperity for all by 2030. To illustrate this contribution, environmental and societal achievements are associated with the relevant SDGs in the performance section of this report.

As part of its global approach to the climate, Air Liquide has set the most ambitious objectives in its sector. Known as ACE, these objectives break down as follows:

Assets (A)
Within its activities, including production, distribution and services, Air Liquide is committed to reducing its carbon intensity (a) by 30% by 2025, based on its 2015 emission levels.

Customers (C)
With its customers, the Group is also committed to a sustainable industry by promoting low-carbon solutions and developing new solutions.

Ecosystems (E)
With ecosystems, via an active dialog with all players (public authorities, industrial partners, NGOs, etc.), Air Liquide is contributing to the development of a low-carbon society, notably by developing biomethane for industry and transport and promoting hydrogen which, in both terms of mobility and energy, will play a key role in the fight against climate change and energy transition.

For Air Liquide, strengthening dialog with Group employees, customers and patients, shareholders, suppliers, local communities and the public sphere is a strategic objective which contributes directly to the responsible growth that the Group seeks to implement. Through these ongoing discussions, the Group is committed to take into account their issues, identify priority development issues and share its ambition to contribute to a more sustainable world.

In particular, with its customers, the Group is committed to working towards a clean and sustainable industry. Thanks to its essential molecules management (oxygen, hydrogen, carbon dioxide…) and the in-depth knowledge of its customers' processes, Air Liquide offers technologies which allow them to improve the energy efficiency of their industrial processes and reduce their emissions.

Air Liquide has identified two key drivers to reach this objective:

(1) Rolling out low-carbon offerings and solutions
Air Liquide provides its customers with the possibility of outsourcing some of their processes in order to pool assets and thus reduce the amount of energy used by up to 20%. The Group is also developing offerings which will reduce transport related emissions, in particular through small production units installed at customers' sites and new-generation cylinders which are 40% lighter than those made of steel. To improve the energy efficiency of combustion in the steel and glass industries, Air Liquide provides oxy-combustion solutions. This process consists of enriching air with oxygen to reduce energy consumption.

(2) Co-developing innovative processes with its customers
Air Liquide is working in partnership with its customers to introduce new solutions that will reduce the environmental footprint in various business areas:
either by reducing, where possible, the CO_2 emissions of its customers by offering innovative solutions (EnScribe offer for semiconductor industry, for example);
or by capturing CO_2 to give it a second life (CCUS – Carbon Capture, Utilization and Storage)
or by storing it permanently (CCS – Carbon Capture and Storage, in depleted offshore natural gas reserves, for example).

Biography
As the Group VP of Sustainable Development at Air Liquide, Ashutosh is responsible for development and deployment of the Sustainability roadmap across the organization. This includes all environmental and societal components that are key to the Group's strategy. Prior to his current position, Ashutosh was the Chief Technology Officer of Air Liquide's Electronics business line, leading the definition of global technical vision and product development strategies for the semiconductor market. In previous role as the Worldwide Director of ALOHA™ Electronics Performance Materials, he oversaw Air Liquide's advanced precursor business that supplies leading edge materials for CVD and ALD processes.
Ashutosh joined Air Liquide in 1997. He holds a Ph.D. in Physical Chemistry and was nominated Air Liquide Group Senior Fellow in 2018. He is a co-author of the Handbook of Chemicals and Gases for the Semiconductor Industry, holds 27 US and International patents and has published over 25 research articles in refereed journals.

Enabling a sustainable semiconductor material supply chain

A. Steegen
Chief Technology Officer
Umicore, Brussels, Belgium

Abstract

Enabling a sustainable semiconductor material supply chain

Biography

An Steegen (°1971) holds a PhD 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 R&D in Fishkill, New York, in 2000. As R&D director and executive of IBM's International Semiconductor Alliance, she was responsible for IBM's advanced logic semiconductor technology development for the mobile and wireless application market.

In 2010, she rejoined imec, in Belgium. As Executive Vice President, she was in charge of imec's Semiconductor Technology & Systems division. Dr Steegen is a recognized leader in semiconductor R&D and an acclaimed and inspiring thought leader in innovation in the IoT and digitalization era.

In 2018, Dr An Steegen joined Umicore as Chief Technology Officer, responsible for the company's overall innovation strategy. She is in charge of Umicore's R&D in the areas of clean mobility materials, recycling and sustainability and she is responsible for Umicore's new business incubation in adjacent and new opportunity markets. She is also Executive Vice President of the Electro-Optical Materials and Metal Deposition Solutions business units .

Shaping the Global Digital Future Through Secure Information Sharing

W. Rhines
President and CEO
Cornami, Inc., Dallas, United States

Abstract

Historical growth of the semiconductor industry has been driven by idea sharing among companies and individuals throughout the world. Although the free flow of innovation, information and people is being challenged, it will soon become possible to exchange the benefits and insights gleaned from data analytics without revealing the actual data. Dr. Rhines will address the semiconductor and software innovations required for real-time fully homomorphic encryption to become a reality. With this capability, we can secure the data rather than the data center and share the information in our data without revealing the actual data.

Biography

WALDEN C. RHINES is President and CEO of Cornami, Inc., a fabless software and semiconductor company focused on intelligent computing for fully homomorphic encryption and machine learning. He was previously CEO of Mentor Graphics for 25 years and Chairman of the Board for 17 years. During his tenure at Mentor, revenue nearly quadrupled and market value of the company increased 10X.

Prior to joining Mentor Graphics, Dr. Rhines was Executive Vice President, Semiconductor Group, responsible for TI's worldwide semiconductor business. During his 21 years at TI, he was President of the Data Systems Group, held numerous semiconductor executive management positions and was directly responsible for the creation and growth of the digital signal processing business which eventually comprised about 50% of TI's total revenue.

Dr. Rhines has served on the boards of Cirrus Logic, QORVO, TriQuint Semiconductor, Global Logic, PTK Corp., SRC and as Chairman of the Electronic Design Automation Consortium (five two-year terms). He is a Lifetime Fellow of the IEEE and has served on the Board of Trustees of Lewis and Clark College, the National Advisory Board of the University of Michigan and Industrial Committees advising Stanford University and the University of Florida.

Dr. Rhines holds a Bachelor of Science degree in engineering from the University of Michigan, a Master of Science and PhD in materials science and engineering from Stanford University, a master of Business Administration from Southern Methodist University and Honorary Doctor of Technology degrees from the University of Florida and Nottingham Trent University.

Mastering the Edge: Critical Factors to Enabling Edge Computing

M. Geraets
Co-CEO
NXP Netherlands, Eindhoven, Netherlands

Abstract

There is no denying that cloud computing has been a top technology over the past two decades. As the pandemic has forced lockdowns, those who can do their jobs from a computer are still working – from home. This would have been impossible not that long ago. Even though the cloud is key for today, it can't handle the technologies of the future. Self-driving cars are a perfect example. They need to make ultra-fast, perfectly accurate decisions. There is no time to wait for data to be processed in a data center. This is where edge computing comes in. Edge computing cuts across the IoT - from home and work to the most complex of all, the vehicle. Coupled with the rising digitization that leads to everything connected, high-performance edge compute platforms are transforming ecosystems. In this talk, Maurice Geraets will share why mastering edge computing with the right level of safety and security is critical to enabling next-generation technologies.

Biography

Maurice Geraets MSc MBA is Co-CEO NXP Semiconductors Netherlands. He has over 25 years of experience in the IT and electronics industry and works at NXP Semiconductors since 2002. In his current position he focuses on disruptive innovations for 'secure connections for a smarter world'. This concerns e.g. intelligent transport systems (ITS) and automated driving. Next to his role at NXP, Maurice is active in the governance of the 1 billion Euro Dutch SmartwayZ program, is board member of several associations on automotive and mobility, is member of the Corporate Partnership Board of the OECD International Transport Forum and is member of the management committee of the European industry association AENEAS.
Mr. Geraets holds an Executive MBA degree and a Master of Science degree in Computer Science. Mr. Geraets is Dutch and was born in 1968.

Coming soon

K. Crofton
CEO
Comet Group, bern, Switzerland

Abstract

Coming soon

Biography
Kevin Crofton is CEO of Comet Group, a leading technology company in plasma control and x-ray space.

His career began 1982 in the aerospace sector. In 1994, Kevin Crofton switched to the semiconductor industry, where he held various management and leadership positions at companies like Lam Research Corporation in the USA, Newport Corporation, NEXX Systems and Aviza Technology UK (now SPTS Technologies). Kevin Crofton was President and Managing Director of SPTS Technologies from 2006 to 2020, and Senior Vice President of KLA.
Kevin Crofton holds an MBA with a concentration in international business from American University and a bachelor's degree in aerospace engineering from Virginia Tech University. He is very well established in the semiconductor industry: as an author of numerous important technical articles, as Vice Chairman of the SEMI International Board of Directors, winner of awards such as the MEMS Industry CEO of the Year 2013 and Board Chairman of Innovate UK's Compound Semiconductor Applications Catapult.

Where is the next generation of technology experts?

A. Schleicher
Director for Education and Skills
OECD, Directorate for Education and Skills, Paris,
France

Abstract
We need to learn for the digital world, but the digital world also opens up entirely new opportunities for learning

Biography
Andreas Schleicher is Director for Education and Skills at the Organisation for Economic Co-operation and Development (OECD). He initiated and oversees the Programme for International Student Assessment (PISA) and other international instruments that have created a global platform for policy-makers, researchers and educators across nations and cultures to innovate and transform educational policies and practices.
He has worked for over 20 years with ministers and education leaders around the world to improve quality and equity in education. Former U.S. Secretary of Education Arne Duncan said that Schleicher "understands the global issues and challenges as well as or better than anyone I've met, and he tells me the truth" (The Atlantic, July 11). Former UK Secretary of State Michael Gove called Schleicher "the most important man in English education" – even though he is German and lives in France.
Before joining the OECD, he was Director for Analysis at the International Association for Educational Achievement (IEA). He studied Physics in Germany and received a degree in Mathematics and Statistics in Australia. He is the recipient of numerous honours and awards, including the "Theodor Heuss" prize, awarded in the name of the first president of the Federal Republic of Germany for "exemplary democratic engagement". He holds an honorary Professorship at the University of Heidelberg.