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Fab Management Forum (FMF)

Drivers of Digitalisation: What is Digitalisation and Why can it Change so much?

G. Hopf
Professor for Digital Transformation
Duale Hochschule Baden-Württemberg (State Cooperative University Baden-Württemberg), Ravensburg, Germany

DHBW
Duale Hochschule
Baden-Württemberg

Abstract

Digital Transformation is often misunderstood as a mere collection of computer-based technologies which allow for more efficient processes and possibly new product or service features. The change brought about by digitalisation however is more fundamental. The keynote will present and discuss the underlying powers of change which drive the digital transformation and which need to be understood in order to grasp and utliize its full powers of “creative destruction”.

Biography

Prof. Dr. Gregor Hopf received his PhD at the London School of Economics and is Professor for Digital Transformation at Baden-Württemberg’s State Cooperative University. In his research he specialises on questions of digital transformation namely online business models and online communication. Until 2016 he was the Head of the Taskforce for Digital Transformation of the State of Baden-Württemberg, coordinating all aspects of the government’s digital transformation agenda directly reporting to the prime minister.

SEMI Market Outlook – Semiconductor Equipment and Materials Forecasts

C. Tseng
Director, Industry Research and Statistics
SEMI, Milpitas, United States

Abstract

coming soon

Biography

Clark Tseng, Director of Industry Research and Statistics at SEMI, is responsible for developing and executing the global strategy for SEMI industry research and statistics products and services. His major responsibility is to track and analyze semiconductor manufacturing supply-chain dynamics worldwide with the emphasis in Asia-Pacific and China. His research also spans over adjacent microelectronics industries including Foundry, Memory, OSAT, MEMS, and Automotive semiconductor. His expertise includes in-depth analysis of the industry dynamics, as well as the fundamentals of market forecasting, competitive analysis, and strategic planning. In addition, Clark is responsible for managing market statistics partnerships globally. Before SEMI, Clark worked for Qimonda as the manager at Strategy and Business Development division, where he managed market & competitive intelligence function in Asia/Pacific. Prior to Qimonda, he has also held various analyst positions in IDC covering semiconductor and telecommunication markets.
Clark Tseng received a Bachelor of Business Administration and a Bachelor of Arts in International Relations from National Chengchi University in Taiwan.

Industrial Internet of Things in Western Digital Wafer Operation

F. Zhang
Director
Western Digital, Advanced Data Analytics,
Fremont, United States

Abstract

Industrial Internet of Things (IIOT) is a network of sensors, connections, data storage, data processing, data analytics, and automation. It is an important part of industrial 4.0.

WDC HDD Wafer Operation has aged tool bases, many of which are not supported by the vendors any more. To replace the obsolete tools, it would require huge capital investment. At the same time, in order to deliver better performance, every new generation of magnetic head design post more and more challenge on the equipments. IIOT becomes a cost effective solution to address the equipment challenges.

We have developed an IIOT infrastructure with standard components, of which leverages the existing factory system and state-of-art IT platforms. The internal IIOT solution considers the scalability, safety, support, latency, and automation. Several hundreds of sensors were deployed in the production. The internal solution is cost effective and significantly improved the yield. We has demonstrated millions dollars of capex and opex savings from IIOT projects.

Biography

Feng is the Directior of Advanced Data Analytics in WDC Wafer Operation. His team works on IIoT and advanced analytics. Feng has more than 15 years experience in magnetic head industry from research, failure analysis, yield engineering, to data analytics. He had a PhD degree in Materials Science from Columbia University in the City of New York.

AMLS Hybrid Implant Technology and Product

G. Horn
Director
Middlesex Industries SA, Sorengo, Switzerland

Abstract

Automated **M**aterial **L**ogistic **S**ystems (AMLS) are the infrastructures of modern manufacturing. In semiconductor factories there have been a) **M**anual **D**iscrete **L**ot (**MDL**), b) **A**utomated Discrete **V**ehicle (**DV**), and c) **A**synchronous **T**rack (**AT**) Work in Process transports employed. DV and AT systems span the 200 to 300 mm Wafer format manufacturing. Capabilities and shortcomings characterize each of the above. Integrating the two is superior to either one alone. A new technology c) Hybrid, is the implantation of AT networks into existing DV installations.

b) DISCRETE VEHICLE (DV) AMLS. Conceptually simple discrete vehicle delivery is popular. Discrete vehicles delivering wafer lots is easily understood. It is exactly as manual delivery before, but automated. Also easily understood is the dropping of wafer lots from overhead. Therefore, AMSL systems combining these concepts are dominant. They simply automate the manual delivery method. But discrete delivery logistics has no absolute mathematical solution. It works with heuristics. Capacity constraints and system instability, requiring storage, are the draw backs.

c) AT NETWORKS. Asynchronous Track AMLS is based on continuous flow of work, massively parallel, and asynchronous. Such networks are always, and immediately available to transport, without capacity constraints. And can respond to load spikes, eliminating instability. And so, reduce fab cycle times. However, they need external hoists to connect to tools.

d) DV & AT HYBRID AMLS. Asynchronous Track (AT) network island implants into Automated Discrete Vehicle (DV) AMLS impart greatly increased fab capacity, (balanced process capacities).

Ref: Nonlinear growth of Variance in the Process Gaps. A cause of long Cycle times. G. W Horn, W. Podgorski, PhD, CSTIC, 2020

Biography

George W. Horn

Mr. Horn received his BA degree from Harvard University in 1961, and his BS/MS degree in Applied Physics in 1963, also from Harvard University. He spent 7 years working at Ilikon Corporation in space technology. The company was a contractor for the Gemini and Apollo space programs. Later he focused on manufacturing science and statistical process control. He is a past director of the Washington based Automation Forum.
During his years at Ilikon he served as Director of Applied Physics (Special Applications of Kinetic Theory). In 1970 Mr. Horn joined Middlesex General Industries as a founder, and served there as Applications Manager. In 1998 He founded Middlesex Industries SA, Switzerland and Middlesex Industries KK in Japan. He now serves as Chairmen for all Middlesex corporations. Mr. Horn has several publications and holds patents related to upper atmosphere simulation, and manufacturing technologies. He has developed the guiding principles for AMHS in Clean manufacturing industries such as Disk Memory Media, Pharma, and primarily Front end Semiconductors, concurrently developing the principles for conveyor based transport of Silicon Wafer Carriers. Globally first, his design was used to build integrated AMHS, direct tool to tool method, in IC manufacturing. His latest studies in AMHS are published in IEEE transactions. He is holder of numerous recent US, China, Taiwan, EU, and Korea patents in AMHS technology.

Mr. Horn is a 20-year resident of Switzerland, where he lives today.

Cost-effective Automation for Legacy Factories

D. Suerich
Product Evangelist
PEER Group, Kitchener, Canada

Abstract

The Industrial Internet of Things (IIOT) and rise of 5G have increased demand for electronics, and have introduced renewed need for automation at existing 200mm facilities. These “legacy” factories already run at full capacity and have little or no room for expansion, so manufacturers are seeking innovative ways to introduce Smart Manufacturing initiatives, increase productivity, and optimize throughput and yield to meet the increased demands. New facilities built to support older nodes sizes also want to capture market share, and have the same needs as their legacy counterparts.

Although older node sizes and technologies are back in fashion, that doesn’t mean these facilities are limited to outdated manufacturing paradigms. Ambitious factories are looking at hyper-automated 300mm facilities to learn best-in-class methods for deploying automation and advanced manufacturing techniques. The SEMI® automation standards related to 300mm manufacturing describe efficient ways to implement automation, and these same models can be used in any facility, new or retrofit, to achieve major gains.

PEER Group® provides products and solutions (including our PEER FACTORY® Station Controller, PFSC™) to rapidly update factory-wide connectivity, data collection, and control systems and allow any factory to integrate new and existing equipment efficiently. We help customers leverage best practices for factory automation and enable the latest advancements in analytics, scheduling, advanced process control, and predictive maintenance.

Biography

Doug Suerich is Product Evangelist at The PEER Group Inc., the semiconductor industry’s leading supplier of factory automation software for smart manufacturing and Industry 4.0. Doug focuses on big data and remote connectivity solutions that help manufacturers collaborate securely on tools and data in production environments. A passionate advocate for smart manufacturing, Doug serves as an active member of the SEMI® SMART Manufacturing Technology Community, Americas Chapter.

Doug has over 20 years of experience leading software teams for a variety of industries including semiconductor, manufacturing, and transportation. Most recently, he was involved in architecting PEER Group’s remote connectivity solution, Remicus™, and he was a champion in promoting the use of cloud computing and latest-generation web technologies.

Prior to joining PEER Group, Doug was a software development manager, automation engineer, information systems specialist, and consultant. He has extensive experience designing and integrating robust automation software solutions. Doug holds a Bachelor of Applied Science with Honours in System Design Engineering from the University of Waterloo.

Correct Material Selection and Life-Time Prediction of Elastomer Parts Using FEA Simulations

M. Gulcur
Material Development Manager
Trelleborg Sealing Solutions, Tewkesbury, United Kingdom

Abstract

Choosing the right elastomer sealing material has utmost importance to maintain vacuum integrity in semiconductor processes therefore keeping the tool downtimes at minimum. Qualification of a new elastomer sealing material brings some risks for the end user as installing a new material can cause contamination or premature failures which can cause more damage than the benefits of the new sealing material. At this point, it is important for an elastomer part manufacturer to provide relevant data to prove the suitability of the material to the application such as plasma exposure tests in various different process gasses, outgassing, trace metal and extractables analyses results and to help understand other factors like the damping behaviour of the material.
During a new material qualification another important topic is to determination of the lifetime of the sealing materials. It is extremely important for semiconductor OEMs to specify the right sealing material and microchip manufacturers to maximize the mean-time between cleans (MTBC). Sealing force created by a sealing part and its decrease over time. By using correct tests on this behaviour for input in advanced Finite Elemental Analysis (FEA), it is possible to predict the lifetime of the sealing parts by simulation. Such an analysis allows to capture the influence of both material properties and seal design on the lifetime. By combining data measured at elevated temperatures, a lifetime prediction for long time scales can be carried out based on test data of short time scales. The FEA will provide a prediction on the loss of sealing force over years and these results allow to estimate how many years the function of the seal can be fulfilled.

Biography

Murat Gulcur is Material Development Manager at Trelleborg Sealing Solutions UK. He has 17 years of experience in the field of elastomer technology and semiconductors, mainly single molecule/organic electronics. He holds a PhD degree in chemistry from Durham University (UK), has co-authored research papers in renowned journals and holds several patents.

Technology and Equipment Roadmaps Enabling the More-than-Moore Wave

M. Rosa
Sr Director, Technical Marketing
Applied Materials, Santa Clara, United States

Abstract

During the past 20 years, the semiconductor industry has seen multiple transitions in enabling technologies supporting the growth of new markets, from what was the PC era to the era of Mobility and Social Media to what has now come to be defined as the era of AI, Industry 4.0, and Big Data. With each transition, these enabling device technologies also evolved—some moving to smaller nodes or larger wafer sizes, others requiring new materials or new unit process technologies. And, while the advanced-node devices continue to scale in support of these transitions, the growing segment of device technologies known as More-than-Moore (MtM) has swelled in volume to the point where none of the MtM market segments today (IoT, communications, automotive, power, and sensors) would be possible without these enabling device technologies.

This presentation addresses the pivotal role MtM device technologies have played amidst the waves of industry transition. Through a lens of nine distinct megatrends currently shaping our society, it looks at what the future holds for this growing class of enabling device technologies. Along the way, it also discusses on-wafer technology inflections and their impact on product roadmaps of equipment providers in this space. Finally, it highlights several key device-level industry segments and discusses the key material or unit process technologies enabling next-generation capabilities in each, together with the role Applied Materials' 200mm/300mm MtM equipment plays delivering them.

Biography

Mike and his team are responsible for defining strategic and technical product marketing and communications, technology inflections, and roadmap requirements for the continued development of ≤200mm and 300mm semiconductor equipment and processes for More-than-Moore (MtM) device technologies. Mike also supports the MtM Equipment group in a strategic business development capacity, focusing on M&A and inorganic revenue generation. With over 20 years of technology-focused product and business development experience Mike brings to his role significant MtM domain knowledge and technology commercialization expertise. Before joining Applied Materials, he held various contributor level and senior leadership positions within the United States and Australia, working for technology-focused companies that include Xerox Corp., PARC Inc., Australian Microelectronics Centre (AMC) and National ICT Australia (NICTA).

He holds a Ph.D. in MEMS / Microsystems design and fabrication and an MBA with dual majors in Marketing and Business Strategy. He has authored more than 40 journal and conference publications and holds more than 28 U.S. patents concerning various applications of MtM technology.

Bevel Polishing – An Emerging Process Technology for Europe

R. Richter
President
EBARA Precision Machinery Europe GmbH,
Managing Director, Sauerlach, Germany

Abstract

EBARA is a long term, trusted supplier to the semiconductor industry. Our products and solutions for CMP, plating, vacuum, abatement and process water can be found in many fabs and sub fabs around the globe. The EBARA staff supports our customers to ensure them enjoying superior value from choosing EBARA. In Europe we have support teams in Ireland, Scotland, several locations in Germany and Austria, in France, in Israel and Italy.
Our customers generally value the quality and longevity of EBARA products, its low cost of ownership and reduced environmental footprint.

On a top level Bevel Polishing falls into the category of “Abrasive Wafer Processing” same as Front-, Backside Grinding and Chemical Mechanical Polishing.

Different needs drive these processes:

- Grinding:
Grinding is predominantly used in Si-substrate manufacturing to flatten the wafer surface after sawing of the Si ingot. There are also applications for thinning down the wafer to enable thinner die geometries. The need here is driven by die form factor requirements for mobile or tablet applications or better heat transfer considerations as needed in advanced processors.

- CMP:
Chemical Mechanical Polishing which first emerged in the early 90s was required to reduce the topology build-up on the wafer surface causing problems
with focus-depth in lithography process with 0.25um or smaller geometries.
EBARA has been at the forefront of CMP process and equipment development ever since 1987. EBARA was the first CMP equipment supplier offering a “Dry-in, Dry-out” polisher with integrated cleaning stations and thereby offering customers at that time unprecedented cost advantages by eliminating the need of stand-alone wafer cleaners and more importantly allowing the “dirty” CMP process to be installed right in the fab clean room.
Today there are practically only two suppliers for advanced CMP processing left and EBARA is one of them. However, EBARA is the only supplier offering a 300mm CMP system with 4 totally independent platens – separate slurry supply, separate heads – and 2 fully independent cleaner lines. While this seems like “infrastructure overkill” this equipment concept allows both, unprecedented very high throughput single platen processes as well as parallel processing of 2 or more processes in a single system WITHOUT any risk of contamination. While the former enables high volume manufacturers like foundries or large IDMs to enjoy lowest cost per wafer, the latter allows automotive IC makers with long qualification and ramp up cycles to keep their capital need at lowest level during the ramp phase.

With its collaboration activities at leading foundries and large volume device makers and at European technology drivers such as IMEC (need to check if we can use the name but this should not be a problem as this is public domain knowledge) EBARA is in a unique position to develop process and equipment technology synchronized with market needs.
However, EBARA’s CMP engagement is not limited to advanced lithography nodes on 300mm wafers. EBARA supports extensive development of “More than Moore” processes to. Furthermore, EBARA has identified early on a need to support the 200mm market with better than refurbished CMP cores. In Europe, we know that for many applications 200mm processes are not only viable but mandatory to meet end customer cost expectations. In 2016 EBARA launched its F-REX200M2 platform offering full process transportability from the prior F-REX200 respectively EPO series as well as extending the capability with end-point systems for oxide and metal topologies. With its factory automation options the platform integrates nicely into the highly automated 200mm fab environments we have today.

- Bevel:
More than a decade ago memory device makers started to realize that damage to the wafer bevel caused by certain etch processes created a risk of wafer edge debris causing “killer defects” on the active wafer surface. Yield loss of up to 3% was suspected and seen in some cases.
With its expertise in CMP polishing as well as in-situ cleaning EBARA has investigated and developed early on equipment and process solutions to help customers solving their edge problems by “conditioning” the bevel.
The equipment allows “Dry in, dry out” loading via 300mm FOUPs, 200mm Open Cassette or even SMIF interfaces and offers up to 3 polishing steps using a unique concept.

In Europe the demand and opportunity for such a capability is clearly seen in advanced “More than Moore” processes.

EBARA is actively engaged with its European customers to develop and improve the processes and also equipment technology solutions where needed. EBARA is working very hard to be an integral part of the European semiconductor ecosystem.

Biography
Reinhart Richter is serving as President of EBARA Precision Machinery Europe GmbH since 2015. EBARA is a supplier for CMP and plating equipment as well as vacuum pumps and abatement systems.
Prior to EBARA, Reinhart has worked for over 13 years at Multitest as Vice President Sales and Marketing and later President successfully promoting the company’s transition to a leading edge solution supplier for advanced test handlers, test sockets and DUT boards. After the acquisition of Multitest by LTX-Credence, he served the newly formed Xcerra Corp. as Chief Technology Officer. Before joining Multitest, he held various positions at KLA-Tencor Corp., BBN Inc., and IABG.
Reinhart Richter holds a M.Sc. and Ph.D. in Solid State Physics from McGill University, Montreal, Canada, and has authored over a dozen peer reviewed scientific papers.
From 2014 to 2017 Reinhart has served on the SEMICON Advanced Packaging and Test Conference Committee.

How to Replace FSI Tools with BATCHSPRAY® Equipment, while Reducing Chemical Costs and Achiving more Clean Room Space?

M. Buchberger
Project Development Engineer
Siconnex, Project Development Engineer, Hof bei
Salzburg, Austria

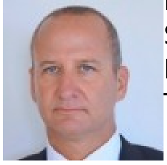
Abstract

A case study, that was done together with a customer, shows the benefits of moving from FSI tools to a BATCHSPRAY® equipment.
Due to that change the customer generated clean room space and reduced the chemical consumption to a minimum.
These benefits were also achieved by a new wafer handling system for automated BATCHSPRAY® equipment. It is called Retainer Comb Handling system (RCH).
With that system Siconnex generates a huge open area on the wafer surface by which a good chemical exchange is given.
This means high cost savings as well as a good return on invest.

Biography

Mario is Project Development Engineer at Siconnex in Austria.
He is responsible for generating selling potentials at different customers worldwide.
With a wide expirience in chemistry and after three years as a Process Engineer he moved to the sales department in 2019.
His focus is on Cost of ownership & Return on invest calculations as well as technical sales support.

From Smart Manufacturing Vision to Innovative Advanced Service Solutions



E. Shekel
Senior Vice President Service Strategy and Excellence
Tokyo Electron Limited, Hadera, Israel

Abstract

AI technology continuously becomes a key enabler for smart manufacturing. We / Tokyo Electron（TEL） see our equipment on a development roadmap from Single Standalone Tool to providing integrated manufacturing solutions enabled by AI. TEL will provide an insight where we see the actual benefits of data analysis in the process from R&D and Ramp Up, to High Volume Manufacturing. (e.g. Process Optimization and Virtual Metrology.)

Through TEL SERVICE ADVANTAGE, we can respond to our customers' requests and technical advancements promptly. An important component is our remote connection and data analysis capability. TEL analyzes equipment data from various sensors without the need of a physical on site presence, and provides solutions matched to customer-specific needs.

Biography

Eyal is a twenty-seven years veteran in the Semiconductors industry. Upon his graduation as a Mechanical Engineer from the Technion (Israel leading technical institute), Eyal has joined Applied Materials. In 1997 he has moved-on to Tokyo Electron, served as the Regional Service Manager of Israel, and soon after appointed as the company General Manager.

Since 2005 Eyal has been part of the TEL European senior management, and up to 2019 was responsible for the Service and Support Operations for TEL Europe as a Senior Vice President.

Last year, Eyal has transferred this responsibility onwards, and is now SVP for Service Strategy and Excellence. In parallel Eyal co-leads (as two in a box) the corporate Global Service Committee in TEL Japan.

Incorporating Subfab into Factory and Tool Digital Twins

M. Neel
Marketing Manager - Intelligent Manufacturing Systems
INFICON, Intelligent Manufacturing Systems, Boston, United States

Abstract

The impact that facilities and subfab components has on the performance of process equipment is important at all levels of manufacturing. As part of an Industry 4.0 Smart factory, the ability to sense all relevant parameters, connect the subfab components to the Digital Twins, and predict performance degradation or failure is critical to providing much needed information and enabling better operations and process control. This discussion will focus on multiple integration and interoperability points allowing for: 1) Integrating pump and abatement systems with a factory-wide FDC system to provide better data collection and analysis to the tool-based Digital Twin, 2) Providing process data and state information from the FDC system to the pump control framework to allow for better predictability of future failure, 3) and FDC system providing full health and state information from the equipment and subfab components to the factory Digital Twin and WiP Scheduling system to provide optimal operational efficiency.

Biography

Michael Neel is the Marketing Manager for INFICON's Intelligent Manufacturing Systems (IMS) focusing on process control and factory operations optimization. Michael has worked in the Semiconductor Industry for 26 years of which half has been with INFICON providing leadership in process control and factory optimization software systems. Michael graduated from Texas State University with a Bachelors of Science in Chemistry, Masters in Technology, and a Masters of Business Administration from St. Edwards University.

Skills for the Workforce

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

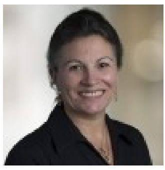
Biography

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.

Successful Strategies to Attract Young Professionals



C. Pelissier
Business Line Manager EMEA
Edwards Ltd, Semiconductor, Burgess Hill, United Kingdom

Abstract

At Edwards we believe that the successful attraction of talented young professionals to our industry comes from listening and understanding what is important to young people and what they want to achieve in their careers. Our attraction strategy aims to connect with our audiences in more meaningful and emotional ways – we know young people want to learn and opportunities for career development are crucial, but they also want to make a difference, and sustainability has never been more important.

Today's young adults are having to deal with a range of issues which can impact the career choices they make. From the impact of COVID-19 and action on climate change, to challenging cultural attitudes, including those related to gender, racial, mental and physical health discrimination – we believe that businesses who are committed to improving people's everyday lives, as well as protecting our planet offer the most appeal to young people.

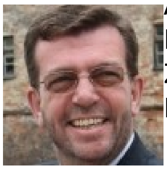
Our engagement with the next generation of young professionals focuses on the important issues that matter to them. At Edwards we look to do this through our:

- targeted outreach and social media brand engagement and its real connection to protecting the environment
- global career and development opportunities offered both in our organisation and the semiconductor industry
- promotion of diverse role models representing the wide fabric of the Edwards community and the different careers available

Biography

Christine Pelissier is Business Line Manager EMEA at Edwards Vacuum. She has over 25 years' experience successfully growing markets and customers in a high-tech environment and has broad international experience building networks in North America, Europe, and Asia. Prior to joining Edwards, Christine has held senior strategic marketing positions, business development, operations and applications roles with Applied Materials, KLA-Tencor and Soitec.

Skills in the Workforce and People in Processes



A. C. Zimmer
Executive Search & Selection Consultant
ZIAN & Co industrial consulting and recruitment,
Munich, Germany

Abstract

Optimizing people and teams for semiconductor fab manufacturing processes

- Go away from vertical structures and organizations, move into horizontal organizations
- Relocate responsibility to where it is sensible, i. e. to the front-office people handling the job currently at hand
- Create specific, cross-functional teams to deal with specific tasks
- Make sure the best prepared person will lead the team, not the most senior
- Everybody should be aware of the fact that he/she might be asked to step down, if somebody else is better prepared to handle the job at hand
- Stop penny-pinching!

Strategies in attracting young professionals to the semiconductor industry

- Go into schools and universities
- Invite young “high potentials” into the company
- Encourage external support by supporting your local school /university
- Describe exactly why semi is attractive, but tell them: You’ll become addicted, once you’ve joined the branch!
- Communicate, communicate, communicate!

Discussions about critical new skills needed in the microelectronics workforce

- Obviously, the willingness to follow up with the development and the requirements in new technologies and applications
- Furthermore, the willingness “never stop learning”; open communication; flexibility, both horizontally and vertically; give orders and take orders; listen to people: colleagues, clients, suppliers; give and accept remuneration packages which will consider the performance of the company, of the team, and of yourself

Talks on transferring skills from leading experts to younger people and new hires as part of succession planning

- Start implementing new ideas and visions into the educational, long-term plan of new hires and internal “high potentials”
- Support external schooling, if necessary
- Plan for enough time for classes “on the job”
- Bring in retired people, who might be happy to lend a helping hand
- Discuss the career path with employers at least once a year AND STICK TO IT!

Business insights for anticipating future skills needs

- Home office work
- New communications
- Faster decisions, locally, not at HQ

- More responsibility delegated
- More room for improvement suggestions in terms of organizational and decisional processes
- Stop controlling, let the people do their job

Biography

Personnel and industrial consultant with 20+ years experience. Specialist for High-End technologies (LED, PV, semiconductor, electronics, test & measurement, etc.). Active throughout Europe. Customers in Europe, USA, Asia. Permanent visitor of leading exhibitions and conferences ww (INTERSOLAR [EU, USA, PRC], EU PV SEC, SEMICON, LIGHT&BUILDING, ELECTRONICA, PRODUCTRONICA). Excellent international peer-network (Web 2.0). Fluent in three languages, written and spoken. Experienced sales & project manager, coach, used to handle budgets and lead personnel. Customer, target and solution oriented. 10 years professional international industry experience in controlling, marketing, sales, change management, re-engineering. Team builder

How to Attract New Graduates into the Semiconductor Industry

S. Edmondson
CEO of UK Electronics Skills Foundation
TechWorks, UK Electronics Skills Foundation,
Livingston, United Kingdom

Abstract

"There are some practical things that every single company could do now to move beyond good intentions."

Stew Edmondson,
CEO of the UK Electronics Skills Foundation

Technology is a catalyst for social and economic change in our constantly evolving world. Electronic products have become essential to society and are a fundamental enabler of our modern, connected, lifestyle.

However, there is a fundamental problem in our country. The UK's participation in and leadership of these technological advances is being limited by a chronic skills shortage in Electronics. Put simply, over a number of years, too few students have been studying electrical & electronic engineering. This, in combination with an ageing workforce, means that there now are insufficient graduate engineers to drive forward innovation and progress.

Based on data recently provided to the UKESF from the Higher Education Statistics Agency, we can see the scale of the problem. The data shows that, in last 5 years, the number of UK domiciled first year students in Mechanical Engineering has increased by 29%, whereas the number of first year students on Electronic & Electrical Engineering degree courses has actually fallen slightly.

So what can companies do? People certainly 'get' the skills issue, recognise its importance and want solutions. The problem is that these solutions are almost generational in their nature. However, there are some steps that every company could take to move beyond good intentions.

We know that recruiting graduates is not straightforward especially as demand is outstripping supply. In addition, attracting the most capable graduates to a business isn't easy - there is a lot of competition for the best Electronics brains. While Tech giants like Google, Facebook and Microsoft are names that will be familiar to these graduates; other companies may not have quite the same profile.

That said, the UKESF believes that you do not necessarily have to compete on the same level. It is important to recognise that Millennials are often driven by purpose and meaningful challenge. It also pays dividends to get a head start and connect with potential graduate engineers whilst they are still studying at university.

Biography

Stewart Edmondson is the CEO of the UK Electronics Skills Foundation (UKESF). He read for a degree in Electronics at the University of Salford and went on to serve 24 years in the Royal Air Force. His military career culminated as the Commanding Officer of Number 1 Radio School, delivering training and education for all of the RAF’s ICT specialists. Subsequently, he pursued his interest in training and technology with a role at QinetiQ, before gaining further commercial experience at Xchanging and then BAE Systems. He has been a Chartered Engineer for over 20 years and was elected as a Fellow of the Institute of Engineering & Technology in 2009.