

GMIS

Global Manufacturing &
Industrialisation Summit

THE GLOBAL MANUFACTURING & INDUSTRIALISATION SUMMIT

27 - 30 March 2017 | Paris-Sorbonne University Abu Dhabi, UAE

#GMIS2017

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GMIS

Global Manufacturing &
Industrialisation Summit



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A Message From The Chairman

Manufacturers play a crucial role in the evolving world economy, generating wealth for investors, taxes for governments, and jobs for communities - employing over half a billion people worldwide. But the sector also faces challenges. Rapid transformation driven by digital innovation, cost pressures, and geopolitical uncertainty necessitate a new approach and fresh thinking. It is my strongly held belief that with technology creating new solutions, value chains, and markets, this new era for the manufacturing sector also presents significant opportunities.

However, whether we are looking at how to navigate the challenges or realize new opportunities, the solutions can no longer be found in isolation. A global approach is required which includes bringing manufacturing closer to the UN Sustainable Development Goals (UN SDGs), for the benefit of businesses and the communities they serve.

A joint initiative by the United Arab Emirates and the United Nations Industrial Development Organization (UNIDO), under the patronage of His Highness Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, the Global Manufacturing and Industrialization Summit (GMIS) is a platform that presents the sector with an opportunity to do just that.

Building on the success of GMIS in 2017, the forum creates bridges between manufacturers, governments & NGOs, technologists, and investors to find new ways of harnessing emerging forces such as the Fourth Industrial Revolution. The Summit places manufacturing at the heart of economic transformation and government policy making, promoting it as a tool for global cooperation and collaboration.

By bringing together over 3,000 leaders from governments, the business community, and civil society organizations, and with industry leaders from over 40 countries represented at the Summit, this event provides a voice for the international manufacturing sector and a path forward for the industry. I am excited by the opportunities this collective effort embodies.

Together, working in partnership, we will build on the vitality of the manufacturing sector and the opportunities it presents.

Sincerely,
Khaldoon Khalifa Al Mubarak
Chairman of the Advisory Board



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#GMIS2017 OUTCOME STATEMENT

March 30, 2017

The inaugural Summit, organised in close collaboration between the United Arab Emirates and the United Nations Industrial Development Organization (UNIDO), took place in Abu Dhabi from 27 - 30 March 2017. #GMIS2017 set out to identify practical steps towards progress and to draw up a roadmap for development, driven by the collective action of governments, the private sector and civil society. It focused on the role of manufacturing in reconstructing the global economy and restoring global prosperity by debating six themes, namely: technology and innovation; global value chains; skills, employment and education; sustainability and the environment; infrastructure; standards and stakeholder alignment.

Harnessing the potential of the Fourth Industrial Revolution (4IR)¹ is crucial for all countries to create employment, reskill and train the workforce, increase incomes and, of utmost importance, reduce both poverty and inequality. Managed effectively, 4IR can promote the achievement of sustainable development across all its dimensions - economic, environmental and social. Indeed, it already supports equal opportunities for men and women and is premised against all forms of discrimination. The role of the private sector must focus not only on technological advancement and investments, but also on its key partner role, which is essential to achieving future global development in order to effectively and proactively resolve challenges emerging from 4IR.

¹Also referred to as the Next Production Revolution (NPR) and Industry 4.0.

Co-host



دائرة التنمية الاقتصادية
DEPARTMENT OF ECONOMIC DEVELOPMENT

Co-chair & Co-host



وزارة الاقتصاد
MINISTRY OF ECONOMY

Co-chair



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

10 CONSENSUS POINTS

- 1. 4IR and the SDGs:** The increasing convergence of industrial technologies presents an opportunity for governments to achieve the UN Sustainable Development Goals (SDGs). Harnessing the transformative effects of advanced technologies such as robotics, 3D printing and virtual reality will enable key players in the private sector, the public sector and civil society to identify concrete ways to shape factories of the future in meeting the UN Sustainable Development Goals (SDGs).
- 2. Role of Government and the Global Financial Community:** New financial schemes for funding technological convergence and enabling the adoption of The Fourth Industrial Revolution (4IR) technologies in a wide variety of countries are expected to emerge in support of start-ups and R&D in areas such as robotics and nanotechnologies. To this end, the government's role should be limited to the establishment and promotion of progressive regulatory environments, whilst investment banks, venture capitalists and institutional investors fuel, engage and systematically support emerging technologies and future research and innovation.
- 3. Involving Less-Developed Regions:** Although the transformation of industrial processes is taking place all over the world, corporate and government leaders recognise that many regions remain completely disconnected from these global networks and the knowledge related to infrastructure, systems and technologies. Engagement with less-developed regions in global value chains will enable them to optimise benefits from emerging production networks by localising the production of basic goods that are necessary for connectivity between the digital and operational worlds, and that are increasingly becoming low cost.
- 4. Engaging Local Suppliers:** In the same vein, many global companies are indirectly participating in global value chains through their interactions with suppliers locally (supporting qualification and production activities locally). These synergies will be instrumental in enhancing the performance of local economies in a global market.
- 5. Retraining the Workforce:** We must be mindful of the ramifications of advanced technologies on employment and we should offer the existing workforce training and reskilling opportunities. Economies need integrated vocational training and education packages which reflect future opportunities for young men and women.
- 6. Making Manufacturing Aspirational:** The Fourth Industrial Revolution (4IR) can help make manufacturing aspirational for today's youth across all nations, engaging them in new, exciting and phenomenally different jobs and occupations, such as smart manufacturing and circular economies, that ultimately contribute to the UN Sustainable Development Goals (SDGs).
- 7. Climate Action:** Safeguarding the environment remains a priority to both businesses and policy-makers to ensure that any negative corollary effects resulting from industrial processes are minimised or mitigated (wherever possible). Existing technologies like smart grids, offshore wind, carbon capture and sequestration technology, algae biofuel, geothermal energy, lithium-ion batteries, and concentrated solar voltaics can significantly reduce the emission footprint.
- 8. Smart Cities:** New developments in urban transportation can accelerate the trend towards smart cities because urbanisation will be intricately linked to the global sustainability agenda. Future transportation systems can lead to the development of new technologies for cities; introducing dramatic improvements in urban planning and building standards that promote the efficient use of water and energy. A multi-stakeholder approach towards new urban development models will also expedite the pace of re-inventing and rethinking infrastructure design, development and investment.
- 9. Standards:** Clear, concise and reliable international standards on technology interoperability, adoption, transfer and development are important to sustaining investments and minimising technological risks, whilst streamlining the global approach toward skills and capabilities development to help promote and accelerate knowledge transfer and fair trade.
- 10. Stakeholder Alignment:** Bringing together the key stakeholders – including different branches of governments, private companies, academic institutions – offers an opportunity to modify existing paradigms that need to adapt quickly to emerging conditions in the future. Examples of such stakeholder collaboration include jointly taking on the responsibility for training our youth, modifying existing Intellectual Property laws, and protecting the environment.

THE WAY FORWARD

In endorsing the 10 Consensus Points, GMIS participants support the importance and continuation of an ongoing Global Manufacturing and Industrialisation Summit to amplify the role of manufacturing, and to pave the way towards achieving the UN Sustainable Development Goals (SDGs).



H.E. Sultan bin Saeed Al Mansoori
UAE Minister of Economy



H.E. Li Yong
Director General, UNIDO



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OPENING CEREMONY





**Inauguration by the Vice President and Prime Minister of the UAE, Ruler of Dubai,
His Highness Sheikh Mohammed bin Rashid Al Maktoum**



Global Manufacturing &
Industrialisation Summit



“Today, the UAE might not be the first place that springs to mind when you think of manufacturing. But, as we stand on the cusp of a Fourth Industrial Revolution, it is nations like the United Arab Emirates which have the most to gain, and the most to offer, amid rapid changes in the manufacturing sector. The Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, H.H. Sheikh Mohamed bin Zayed bin Sultan Al-Nahyan, said last year that we should celebrate the UAE’s last barrel of oil. His confidence in our bright economic future will be realized by the UAE becoming the global hub for the ‘Fourth Industrial Revolution’ - the technological movement that is transforming the way we live, the way we work, and the way we interact with one another.”

H.E. Sultan bin Saeed Al Mansouri, UAE Minister of Economy



“GMIS is vital to gather the necessary exchanges of ideas, experiences, best practices and policies to power inclusive and sustainable industrialisation. Preparing for these changes is not just best practice, but a necessity. It is my belief that a strong focus on concrete outcomes and a visionary statement of how manufacturing has and will continue to transform our lives will motivate many of us to relentlessly pursue the 2030 development goals. Successful partnerships require the dynamism and drive of the private sector; the social perspective of civil society organisations; the knowledge of academia; and the policies of the public sector, to be able to tackle the challenges of disruptive technological change.”

H.E. Li Yong, Director General, UNIDO



“We must rethink education, we must reconsider the way we do business, and we must be prepared for a major adjustment socially, economically, and politically. We must expect a new lifestyle that empowers our youth to make a positive difference to our world. An apparatus, simply put, will be the outcome from the seamless integration of technology and manufacturing. GMIS has brought leaders from governments, businesses, and society to jointly map out the way ahead. And high among our priorities will have to be the challenge of restoring global prosperity in a world of uncertainty.”

Badr Al Olama, Head of the GMIS Organising Committee





MUBADALA INVESTMENT COMPANY, THE DUBAI FUTURE FOUNDATION AND GE LAUNCH THE REGION'S FIRST MICROFACTORIES IN THE UAE

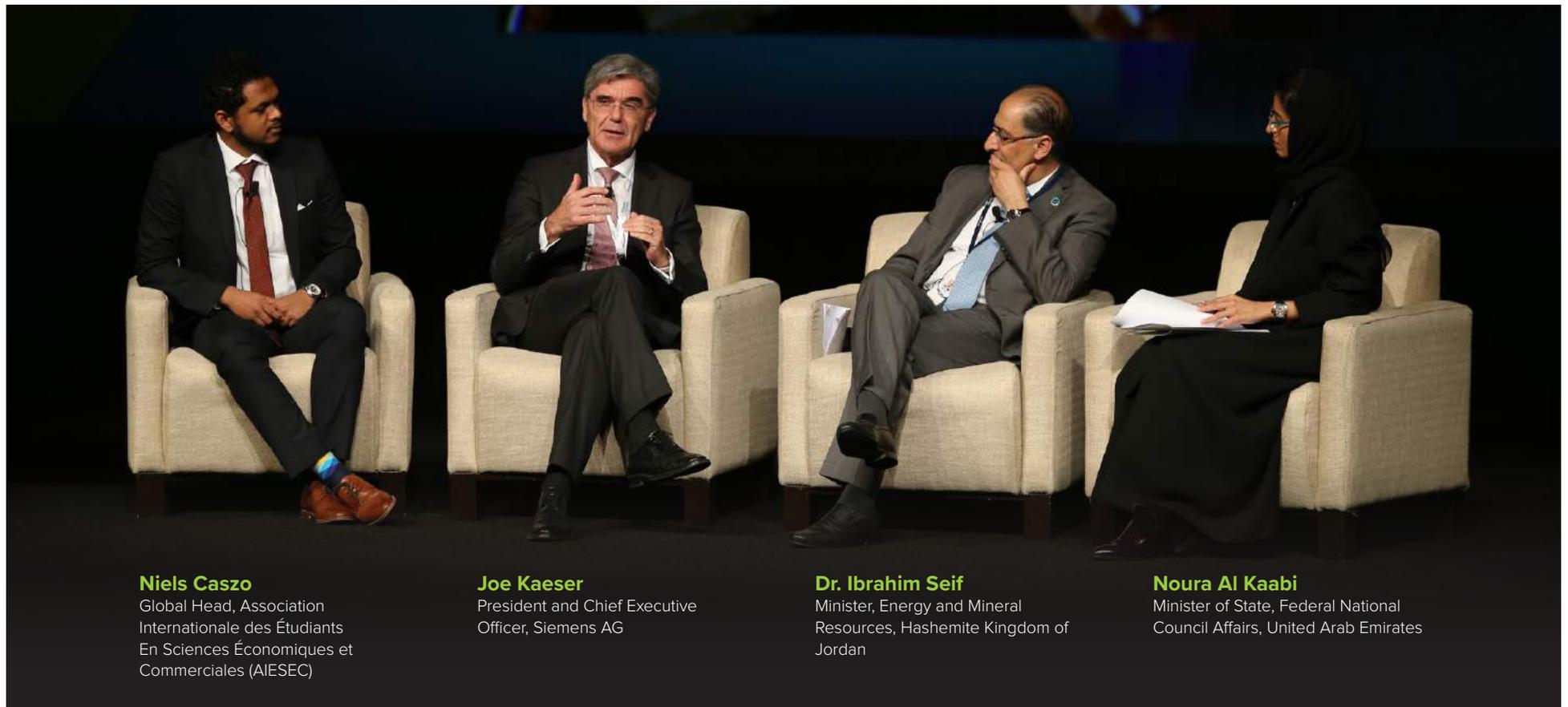


SIEMENS AG, STRATA MANUFACTURING AND ETIHAD ENGINEERING PRESENTED THE FIRST CERTIFIED 3D PRINTED AIRCRAFT INTERIOR PART IN THE REGION FOR ETIHAD AIRWAYS

27 March 2017

OPENING PANEL

Siemens AG grants up to € 100m to UAE universities



Niels Caszo

Global Head, Association
Internationale des Étudiants
En Sciences Économiques et
Commerciales (AIESEC)

Joe Kaeser

President and Chief Executive
Officer, Siemens AG

Dr. Ibrahim Seif

Minister, Energy and Mineral
Resources, Hashemite Kingdom of
Jordan

Noura Al Kaabi

Minister of State, Federal National
Council Affairs, United Arab Emirates

A Global Partner



MUBADALA



Mubadala is a pioneering global investor focused on driving commercial opportunities and investment performance to contribute to Abu Dhabi's long-term development.

Strategic partnerships with trusted investors who share our values and investment philosophy are at the heart of delivering on this mission, and Mubadala is proud of its diverse and mutually-beneficial partnerships with leading global organizations.

We have built on our nation's heritage and expertise in oil and gas to invest across the hydrocarbon spectrum, diversifying into industries and sectors with strategic growth potential that will continue to accelerate the UAE's economic growth.

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68,000 employees worldwide

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Global Manufacturing &
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SUMMIT DAY ONE

28 March 2017



“The Government of Abu Dhabi considers manufacturing industries as one of the main strategic sectors that contribute to growing the non-oil economy. Non-oil activities accounted for 51% in 2016; a leap of about 40% from 2005, and we have a target to achieve 64% of total GDP by 2030.”

H.E. Khalifa bin Salem Al Mansouri

Undersecretary, Abu Dhabi Department of Economic Development



10:15

HEAD-TO-HEAD KEYNOTE INTERVIEW

Today versus Tomorrow – Sustainable Strategies Today to Secure a Prosperous Tomorrow

Speakers:

H.E. Eng. Suhail Mohamed Faraj Al Mazrouei, UAE Minister of Energy

H.E. Dr Thani bin Ahmed Al Zeyoudi, UAE Minister of Climate Change and Environment

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

UAE Ministers say energy, human capital key to sustainable economies.

In-depth:

Setting the stage, Baptist explained how the economy and environment do not have to be in opposition with each other, even though the reality is that they often are unless appropriate policies and private sector actions are in place to ensure that they are not opposing.

H.E. Al Mazrouei said, “Three years ago, we began formulating a vision for a more sustainable economy for the UAE. After three years of a bottom-up approach, we will have almost 50% totally green sources of power generation by 2050, which takes care of the environmental impact. The best economical choice for those selling energy in the UAE was to go 50% green. We don’t need to subsidise power generation any more, and I’m sure we don’t need to subsidise when it comes to industry. It was a surprise for us, but I think it’s achievable. We have a road map and our target is going to need a huge investment of around \$192 billion over the next 30-32 years. It’s really a very exciting time for us to balance the equation and go from almost 98 per cent fossil fuel usage to 50% renewables. We have one of the most advanced energy sectors in the world. However, while energy is important, we need to move towards those industries in which we can have a more competitive advantage, which we can excel in.”

H.E. Al Zeyoudi said, “Heavy industry is important, but small and medium businesses are equally so. The UAE has excellent infrastructure and mechanisms in place to provide the right direction for small and medium businesses, which is part of Beeatna, the green growth strategy announced by His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE, and Ruler of Dubai. Our economic sectors in the UAE are up to date with the latest technologies to support growth. There are three points I would recommend emerging nations to follow to create sustainable economies. One, investing in human capital is essential to building a sustainable economy. Two, the government has to ensure the right policies and mechanisms are in place to attract manufacturing and industry into their country. Three, energy is a main element to consider; the UAE is lucky in this aspect, in that sustainable and renewable energy is an attractive sector for industries.”



10:35

KEYNOTE ADDRESS

Speaker:

H.E. Yosuke Takagi, State Minister of Economy, Trade and Industry, Japan

Session Summary:

Takagi said GMIS was a chance for international leaders to learn from each other: “International leaders gather here to seek new opportunities to offer innovative ideas and solutions.”

In-depth:

The Minister set out Japan’s current economic goals, which include a drastic improvement of productivity and the strengthening of human resources for the fourth industrial revolution - which is reshaping the manufacturing sector and which requires manufacturers to find more inclusive solutions to meet customer demands and solve challenges facing their industry. Takagi highlighted that the Japanese economy has been successful in adopting these new technological solutions, and stated “the strong economic ties between Japan and the UAE spans more than 40 years, especially in the energy sector. We hope that, through our participation at the Global Manufacturing and Industrialisation Summit, more Japanese companies will be encouraged to invest in the UAE.”

An increasing number of products are now inter-connected through the Internet of Things, creating added value for manufacturers, he said. He also called for a collaborative approach across the industry to create solutions for customer requirements – this is currently key for the Japanese industry.



10:45

KEYNOTE ADDRESS

Faster, Weirder, Better: The Future of Work in the Emergent Era

Speaker:

Beth Comstock, Vice Chair, GE

Session Summary:

Comstock said we are living in the “emergent era” and we must adapt the way we work, leaving behind old forms of bureaucracy, to account for that. “The collaboration of minds and machines together – there is an opportunity to tap into that,” she said. “Our best minds may not all be human, but even better is what happens when we combine the two.”

In-depth:

We are collectively and spontaneously reorganising around our digital information flows, Comstock told delegates, saying that information, once contained, now flows everywhere – into our brains and back out again from points all around us faster than ever before.

We know what happens when 3 billion people have access to the internet, she said, but we don’t know what will happen when 50 billion machines come online by 2020. “Something will emerge – what that is, we don’t yet know, but we are living in the “emergent era.”

“Workers must get used to ‘living in the in-between’ as old methods of manufacturing will be retained for some time, as they continue to work, while new ways will emerge - we must get used to toggling backwards and forwards between the two.”

GE’s strategies for the emergent era include working aggressively in 3D printing, and using machine learning to tell and predict which parts of a contract are going to need renegotiating. “We have gone from programming machines to teaching them; now they are beginning to free us up for more and better ways of working,” she said.



11:05

KEYNOTE INTERVIEW

Navigating the Emerging Industrial Renaissance

Speaker:

David Shark, Deputy Director General, World Trade Organization (WTO)

Moderator:

Paul Markillie, Innovation Editor, The Economist

Session Summary:

The UK's decision to leave the European Union is not an anti-trade phenomenon according to Shark, who told GMIS delegates: "The British government will be as involved in trade as ever, if not even more so."

In-depth:

Governments prepare people for the industrial renaissance, Shark said, by focusing on training people for the jobs of the future, while creating an environment that is conducive to efficient trade. He added that the World Trade Organization's Trade Facilitation Agreement offers potential savings of 14.3% in costs and a boost to trade of up to \$1 trillion per year. The challenge of automation is making sure it benefits all, telling delegates: "It's not something we have a choice over, it's happening, it comes with human knowledge, it's a natural instinct to try to do things more efficiently. We have to make sure the benefits are spread as widely as possible."

The fear of automation is not a new phenomenon, with the origins of the term "sabotage" dating from the industrial revolution in Europe, when workers would deliberately jam machines by throwing their sabots or wooden clogs into them, in protest against being replaced by machines. There will be 'fewer and fewer' jobs in the future that do not require abstract thinking, said Shark, adding that 50% of the value of certain products, such as smartphones, is the know-how that goes into them.



11:25

KEYNOTE ADDRESS

Digitalisation - Driving Innovation, Transforming Society

Speaker:

Jan Mrosik, CEO Digital Factory Division, Siemens AG

Session Summary:

Companies must embrace digitalisation as an enormous business opportunity in the coming decade, Mrosik said, quoting an Accenture report: "Half of the Fortune 500 companies that disappeared since 2000 did so because they did not embrace digital."

In-depth:

Mrosik described five business necessities in the digital age:

1. Speed (revolutionising production to bring goods to market faster than ever)
2. Flexibility (luxury cars built in one million different configurations)
3. Quality (which he described as 'mandatory in the industrial environment')
4. Efficiency
5. Security (the need for sophisticated protection from system intrusion)

Siemens now creates digital twins, not only of its products, but of production systems, including automated systems and equipment used on the shop floor, to improve and streamline its processes. An example of the Siemens systems in action is at Maserati, specifically for its volume production car the Ghibli, for which production times have reduced from 30 months to 16 months, while producing three times as many cars as before.

Examples of the German conglomerate collaborating with organisations in the UAE include working with Etihad Airways and Strata Manufacturing to create 3D printed aircraft components. Siemens donated €100 million in software licenses to five UAE universities to help educate students and potential employees about the possibilities of digitalisation as the opportunity of the future, he said.



11:45

KEYNOTE ADDRESS

Rethink Manufacturing! We're in the Experience Economy

Speaker:

Bernard Charlès, Vice Chairman and CEO of Dassault Systèmes

Session Summary:

Charlès argued that it was a myth that the digital world is taking over manufacturing: “Manufacturing by itself is not going to be guided by the digital world, it is the other way around – the new imagination will produce a new kind of capacity to produce what is needed for society,” he said.

In-depth:

Charlès said the Boeing 777, the first aircraft to be created with a digital prototype instead of a physical prototype, changed the world of aerospace and the industrial world in general. “The world is facing overcapacity today. However, the solutions which are offered are not satisfactory because they have to be more sustainable. So, our bet is that doing more of the same product will not make it. Our vision of the future is to think and imagine differently. It's not more of the same thing – it's about creating [a] universe where you can integrate all effects.”

He said Dassault's vision is to think digitally of ‘a universe where you can create all effects’, and to think in terms of the human imagination revolutionising manufacturing. “If we want to be living in a sustainable world, we have to change the relationship between product, nature and life. And the beauty of the digital world [is that] it can change the frontiers.”

He gave an example of the young people or students of today, who are interested not just in products, but experiences – to create experiences, content is required. For them, it is important to see previous incarnations of products or experiences, the present and the future, so they can imagine how things will be in years to come. Another Dassault Systèmes initiative is to digitalise the whole of Singapore, to find ways to make it as efficient and safe as possible. It was found that by using monitors to track the movements of a group of students around the city that the transport system was not suited to their requirements, and that knowledge gained from the process can be used to find ways to address that.



12:05

KEYNOTE ADDRESS

New Industry Revolution: Enabling Economic Transformation and Development

Speaker:

H.E. Zhang Feng, Chief Engineer, Ministry of Industry and Information Technology, People's Republic of China

Session Summary:

"No country is immune to the global economy," was the message from the Chief Engineer from China's Ministry of Industry and Information Technology, who said, "Big data, cloud computing, robots and other technologies change the way we manufacture and produce. This has also impacted the way we live, and lead and govern sustainable development."

In-depth:

Zhang Feng said that the Chinese economy's continued growth is evolving into a more advanced stage during the Fourth Industrial Revolution, and that the country considers innovation to be a driving force of this change, and plays a key role in the China Manufacturing 2025 vision. "On one hand, we focus our efforts on upgrading," he said. "We have stepped up efforts to develop a modern and industrial system, with coordinated balance of development between the different regions of China."

He added that the onus was on developed countries to provide more support to the developing countries for their industrial development and support, adding that China is beginning to work together with other countries to play a part in this development process.



14:00

AUDITORIUM

Focus on the United States of America

Speakers:

Dr Susan Helper, Frank Tracy Carlton Professor of Economics, Weatherhead School of Management, Case Western Reserve University; Former Chief Economist, US Department of Commerce; Former Member of the White House Staff

Danny E Sebright, President, US-UAE Business Council

Moderator:

Paul Markillie, Innovation Editor, The Economist

Session Summary:

Contrary to political rhetoric that ‘we don’t make anything anymore’, manufacturing in the USA has grown in recent years. “Between about 2000 and 2010, the US lost about a third of its manufacturing jobs, but between 2010 and 2015, the US gained back 800,000 manufacturing jobs,” said Dr Helper.

In-depth:

The Obama administration can be given some of the credit for the resurgence of manufacturing, Dr Helper claimed, while a growing recognition of the hidden costs of manufacturing abroad had also played a part. Around 9% of the workforce of the USA is currently engaged in manufacturing with a projected increase of 10-12% compared with 20% in Germany. While jobs in engineering were increasing, the number of minimum wage temporary jobs, offering no security or training, has also risen, with a corresponding increase in the number of industrial accidents. Dr Helper named improving the quality of jobs as a key issue for the industry to navigate.

Sebright told delegates that hearing a Chinese president talk about the importance of open markets while the USA leant towards protectionism was ‘very troubling’ adding that the new administration had been slow to forge international trade links. “America has been built on immigration, the best and the brightest coming in and looking for a new start,” said Sebright. “We need to get around this, as our country has been built on being open and allowing the best and the brightest to come and contribute.”



14:00

BREAKOUT ROOM A

Focus on the Food and Beverage Industry

Speakers:

Brett Rierson, Head, Global Post-Harvest Knowledge & Operations Centre (KNOC), World Food Programme

Joachim Yebouet, Chief Executive Officer, East African Tiger Brands Industries

Reid Paquin, Industry Solutions Director – F&B CPG, GE Digital

Günter Hemrich, Deputy Director, Nutrition and Food Systems Division, Food and Agriculture Organization of the United Nations

Navas Meeran, Chairman, Eastern Condiments

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

The world's population will grow by 80 million people per year to reach 10 billion by 2050, presenting increasing challenges for global food security. "The food security problems in the world are not over, they're not resolved," said Hemrich. "There's still 700 million people suffering under nutrition and, at the same time, other groups of malnutrition are growing."

In-depth:

Technology such as airtight containers to transport produce could be one solution for problems with post-harvest loss, which accounts for the loss of 30 to 40% of harvest for farmers in much of Africa and Asia. The problem of food leaving the agricultural environment edible, but being ruined before it can be transported to a consumer, was something that had to be addressed, said Rierson.

Airtight containers or 'hermetic storage', prevent wastage as food remains fresh longer and any remaining pests or insects will not survive without oxygen. The production of the containers is a multibillion dollar business opportunity, Rierson said, and food transported in this way could maintain its organic status as the use of airtight conditions to control pests negates the need for pesticides. The issues of digitalisation and automation in food manufacturing were also discussed. Paquin said his organisation created digital twins of manufacturing equipment to predict outcomes – meaning preventive measures can be taken against downtime to make the process more efficient and productive. At the same time, a mono-food culture is not desirable, with consumers preferring food that respects their traditional cuisine culture, presenting a further challenge to producers.



15:00

AUDITORIUM

Focus on Asia Pacific

Speakers:

Anders Karlborg, Assistant Chief Executive Officer, ZTE Corporation

Professor Daniel M. Cheng, Chairman, Federation of Hong Kong Industries

Arthur Tan, Chief Executive Officer, Integrated Micro-Electronics; President and Chief Executive Officer, Ayala Industrial Technology Holdings

Yan Yunfu, Executive Director and Chief Engineer, Shanghai Zhenhua Heavy Industries Co.

H.E. Lu Pengqi, Vice Chairman, China Council for the Promotion of International Trade (CCPIT)

Moderator:

David Wijeratne, Managing Director - Growth Markets Centre Lead, PriceWaterhouseCoopers

Session Summary:

China was held up as an example of a manufacturing industry embracing 'smart manufacturing' or automation. "The Chinese labour force themselves do not see themselves as manufacturers. None of these people want to be a worker in a factory – the workforce has to be replicated by automation, not because of costs, but because of needs," said Tan.

In-depth:

In China, the levels of advancement in manufacturing vary from province to province, according to Professor Cheng, but delegates heard that Chinese manufacturers are adapting fast to automation. At the same time, it was acknowledged that in some sectors, human skill is not easy to replicate. It takes 15 seconds to explain to a human that an alteration is required in a method of production, said Tan, but it can take an entire day to re-programme a robot. In some sectors, such as the jewellery industry, there is collaboration between humans and robots, known as "co-bots", with gem-setting carried out by machines, but polishing still carried out by humans.

Tan also said the country's size and diversity offers potential in terms of manufacturing, as costs vary from province to province – if costs rise in one province, manufacturers can outsource to another. The attractiveness of establishing manufacturing hubs in countries such as Vietnam and the Philippines was highlighted, thanks to highly educated workforces. However, the geography of the Philippines – an archipelago – can make exporting a challenge.



15:00

BREAKOUT ROOM A

Focus on the Automotive Industry

Speakers:

Paolo Scudieri, CEO, Adler Group

Yury Vasilyev, CEO, Russian Technological Society

K. K. M. Kutty, Chairman, South West Group

Moderator:

Paul Markillie, Innovation Editor, The Economist

Session Summary:

The automotive industry has generated over \$2 trillion to date, employs 10 million people, and by 2020 is expected to produce 100 million cars per year. “The automotive field is also one of the ‘capital intensive areas’, so the largest automakers need to invest more and more money to promote innovation,” said Scudieri.

In-depth:

Three major car companies in India are going to make driverless cars, said Kutty, showing the importance of the technology to the future of the automotive industry. The technology was hailed as safer than sharing a road with non-autonomous driving by Vasilyev, who said he looked forward to seeing autonomous vehicles in action in his native Russia.

Delegates heard that there needs to be more strategy and synergy between governments and car manufacturers. Scudieri cited an example that, by 2020, China will impose a quota that 8-10% of cars must be an ‘alternative traction’, to say that companies need to meet with governments to discuss flexible production schedules that both parties agree on. Even though autonomous or self-driving cars will arrive on the market, allowing drivers to simply get into the vehicle and let it take them to their destination, there will still be those who prefer a manual driving experience, Scudieri added.

“There will always be an audience that will buy very prestigious cars and then drive [them] with no automatic-shift gearboxes; they will have the manual [driving experience] so they experience the thrill to command an extraordinarily powerful asset.”



16:00

AUDITORIUM

Focus on Europe

Speakers:

Benjamin Gallezot, Deputy Director General, Directorate General for Enterprise (DGE), Ministry of the Economy, Industry and Digital Affairs, France

Roland Sommer, Director General, Association Industry 4.0, Austria

H.E. Stefano Firpo, Director-General for Industrial Policy, Competitiveness and SME's, Ministry of Economic Development, Italy

H.E. Gleb Nikitin, First Deputy Minister of Industry and Trade, Russian Federation

Moderator:

Axel Threlfall, Editor-at-Large, Reuters

Session Summary:

Brexit was described as potentially catastrophic for the EU. "Brexit is a disaster in my opinion, for everybody and particularly the UK," Firpo told delegates.

In-depth:

Gallezot said the extent of the consequences of the UK's decision to leave the EU would not be known until exit negotiations had been completed. "We cannot know until the negotiations, because there are so many scenarios," he said, adding "All are bad, but some are catastrophic."

Sommer told delegates that Europe was in a period of strong technological development, but that the continent was still lagging behind the US. Gallezot disagreed, saying the diversity of Europe meant that different countries specialised in different areas of technology. The importance of collaboration was emphasised repeatedly.

Gallezot said collaboration between states had improved in the last decades, while Nikitin said trade ministers needed to put aside political differences and tensions to keep an open dialogue. Firpo said the rise of technology would inevitably bring about social problems relating to unemployment, as automation replaces the human workforce, and countries must work together to address issues.



16:00

BREAKOUT ROOM A

Focus on the Healthcare Industry

Speakers:

H.E. Dr Amin Hussain Al Amiri, Assistant Undersecretary for Public Health Policy and License Sector, UAE Ministry of Health and Prevention

Dr. Shamsheer Vayalil, Founder and Managing Director, VPS Healthcare

Arun Panchariya, Executive Director, Ajooni Biotech

Jean-Paul Scheuer, Country Chair and General Manager Rx, Gulf Countries and Yemen, Sanofi

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

The percentage of GDP spent on healthcare globally will continue to rise, from an estimated 9.993% in 2014 to between 10.4% and 10.5% in 2020. Al Amiri said the UAE had a goal of achieving a world class healthcare system, quoting H.H. Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE, Ruler of Dubai, who said: “The health of our citizens cannot be measured by any cost, and treatment is a vested right for them.”

In-depth:

Emerging and lower income countries will drive the rise in healthcare spending, along with the expansion of services in developed countries, said Al Amiri. In the UAE, healthcare spending is forecasted to rise to US\$20.03 billion by 2020, compared to US\$16.12 billion in 2016.

Scheuer raised the issue of drug approvals, saying having a manufacturing facility in the UAE does not currently automatically mean products will be approved in neighbouring countries.

In response, Al Amiri said a more unified approach to the administration of drugs in the region was being considered, stating if a drug was approved in a “reference country” – Jordan, Morocco, Saudi Arabia, Kuwait or the United Arab Emirates – it should automatically be accepted across the region.

The prospect of technology playing a major part in healthcare was raised by Dr Vayalil, who said it was likely that companies like Apple will come up with innovations that cause major disruptions in the healthcare industry within the next decade. Al Amiri said a high-tech mirror, capable of measuring vital signs including blood pressure, sugar and cholesterol and transmitting them to a digital file for a physician, was expected to be licensed for use in UAE hospitals.



17:00

SUMMIT DAY 1 CLOSING KEYNOTE ADDRESS

Hyperloop and Manufacturing – This Changes Everything

Speaker:

Nick Earle, SVP, Global Operations, Hyperloop One

Session Summary:

The first tests of Hyperloop One, the futuristic vacuum and linear motor-based high speed transport system, could take place as early as this summer in the Nevada Desert. Earle told delegates: “It’s not so much geography that is the big determining factor any more, but actually maybe connectivity.”

In-depth:

The Hyperloop will have its ‘Kitty Hawk moment’ this summer, Earle said, when the first tests of high speed pods travelling through the vacuum tubes, for both passengers and freight, will take place at a public event. Travelling at speeds of 1080 kmph/671 mph, on demand rather than on schedule, the Hyperloop would cut journey times from Dubai to Abu Dhabi to 12 minutes, or allow freight and passengers to travel anywhere within the Gulf within 90 minutes.

Earle said companies would be able to draw their employees from a radius of 700 miles. Working on the basis of 21 Hyperloop connections in 21 cities in the USA, the system could eliminate 6 million truck journeys annually and reduce pressure on ports by speeding up the flow of goods. It was suggested that Hyperloop could help Amazon reduce its number of warehouses from 109 to 18, at an annual saving of \$390 million. The Hyperloop would be three times faster than high speed rail, according to Earle, and simpler to facilitate. For high speed rail, the land needs to be cleared, whereas for Hyperloop it is a matter of boring holes for the concrete pillars that support the structure, he said.





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Industrialisation Summit

SUMMIT DAY TWO

29 March 2017



“Private vehicle manufacturers need to shift their focus from market share to mobility share.”

“It is the responsibility of governments to make strong commitments to create the transport of the future, tailored to their country’s specific needs.”

H.E. Mattar Mohammed Al Tayer

Director General and Chairman of the Board, Dubai Roads and Transport Authority (RTA)

10:20

KEYNOTE INTERVIEW

Speaker:

Mudassir Sheikha, CEO and Co-Founder, Careem

Moderator:

John Deferios, Emerging Markets Editor, CNN

Session Summary:

Car manufacturers will have to shift their focus in the future to account for the impact of the ride sharing economy, as studies have shown that in the future, one shared vehicle will replace between nine and 13 private vehicles. Sheikha suggested that driverless technology is advancing faster than expected, with driverless pods likely to be on roads as early as next year.

In-depth:

In addition to the impact of the ride sharing economy, delegates heard that 25% of journeys in Dubai will be driverless by 2030, and, 50% of private cars will have self-driving features within a decade. Other 2030 targets include a 12% reduction in the carbon footprint of transport, decreasing the cost of mobility by 45%, and freeing up space currently occupied by parking to be used as public spaces through the increased use of public transport.

The success of ride hailing service Careem is based on the company's unique understanding of the local market, said Sheikha. Initiatives including allowing customers to pay with points through Etisalat (a telecommunications service provider in the UAE) sets Careem apart from rival firms such as Uber and Lyft. Careem is meeting challenges in less regulated environments, such as Pakistan, by partnering with a security company to introduce safety measures including detailed background checks for Careem drivers, who are known as captains. Sheikha described Dubai as a place where execution is world class – the Emirate has growth in mind and knows how to make it happen. The challenge in other countries for a company like Careem can be working under outdated transport laws that date from the days of the horse and carriage, yet still place restrictions on how ride hailing apps operate.



10:40

KEYNOTE ADDRESS

Shifting Economies and the Trends of Tomorrow

Speaker:

Robert E Moritz, Global Chairman, PricewaterhouseCoopers

Session Summary:

While digital technology is advancing fast, it is the responsibility of manufacturers to educate consumers how to use it. “The future we are talking about is in fact here today. The only question is how to enhance scalability and adoptability,” said Moritz. He also added “How you actually think about technology acumen and digital IQ of the consumer is equally important as enhancing the digital IQ of your own organisations and governments, and the onus is on the leadership team to bring that to life.”

In-depth:

Adoptability depends on factors including age, Moritz told delegates. As an example, a 21-year-old is likely to be more willing to get into a driverless pod than a 65-year-old, so it is the job of manufacturers to convince potential users that it is safe. Banks have introduced technology that means customers can do all their banking on a smartphone, meaning that they never have to go to a branch. However, the needs of older customers are not often met, meaning low pick up amongst that age group as opposed to the 25 to 35 year-olds.

Delegates heard that digital technology offers huge business potential, with billions of dollars in revenue available to those who adapt their products to the digital market. Moritz said “Massive amount of data is going to continue to increase when you look at the tremendous growth from data gathering techniques. We combine that with tremendous computing storage and capabilities to actually accelerate the learning and analyses necessary to make better and faster decisions. These decisions increase the efficiency of governments, the experiences of citizens, and the performance of businesses.”

The rise of technology has also shifted the balance and given ‘massive power’ to the consumer. As a CEO of a retail consumer company, it was once the case that if you have a problem with a product, it is easy to solve a problem on a singular basis – now if someone takes a picture and shares it on social media, it has the potential for 10-15% impact on revenue, said Moritz.

“My final point is how you bring humanity back into the digital world. How will [humans] interact with robotics, how leadership can create the right environment for success and collaboration, and what will be the implications to society” he said.



11:00

KEYNOTE ADDRESS

The Transformative Implications of Dark Data for Manufacturing and Society

Speaker:

Dr Bernard Meyerson, Chief Innovation Officer, IBM

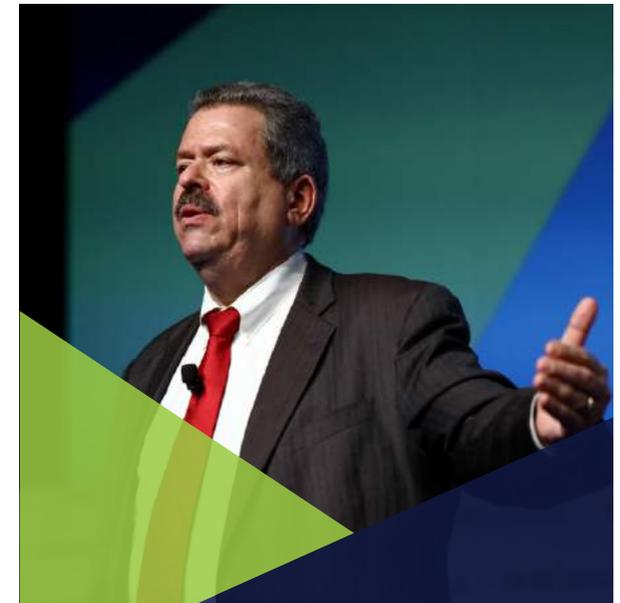
Session Summary:

Enormous revenue boosts are available to manufacturers who understand and put to use “dark data” – information gathered but not habitually put to use. “They [Statoil] informed us that they estimated we had saved them \$10 billion per year. We charged them \$3 million for the work,” Dr Meyerson said. “This is not new from our own perspective – going back over 10 years we invested roughly US\$ 17 billion acquiring companies that do analytics as well as another billion developing internal capabilities” he added.

In-depth:

Digital sensors, which report data to engineers when components are in need of maintenance, can revolutionise processes and offer savings. He said “The jobs that will be created are extraordinarily high-skilled, high paying jobs. [This is] somebody who truly understands the workings of the end-to-end ecosystem and can leverage the sophisticated technologies”

As well as working with Statoil to use data from their offshore oil platforms to help improve the efficiency of their operations, Dr Meyerson also cited IBM’s partnership with Schaeffler, a bearings company whose products are used in jet engines and high speed trains, producing parts that automatically and digitally inform an engineer of incidences of wear or need for replacement. “Remember the idea of predictive, the idea of understanding the system to such an extent [that] you can predict the future and also have the opportunity to change the future. This can have a fantastic financial impact that most people tend to ignore,” said Dr Meyerson who also cited the company’s work with aircraft manufacturer Boeing, helping them devise a sensor system based on need rather than time, which allowed them to know when bolts would need tightening rather than sending in an engineer to do a manual check, a process he described as “unimaginably expensive”.



11:00

KEYNOTE PANEL

On the Edge of Technological Convergence

Speakers:

Mohammad Ehteshami, Vice President and General Manager, Additive Integration, GE Additive
Assem Khalaili, Executive Vice President, Industry Customer Services MEA, Siemens Middle East
Dr Chungyan Gu, Chairman and President, ABB China

Moderator:

Reinhard Geissbauer, Partner and Industry Lead, Industry 4.0, strategy&

Session Summary:

Technologies such as 3D printing have growth potential in the GCC, according to Ehteshami, stating “You no longer need big, heavy industry. All you need is a programmer that inputs code into the machine and the part comes out.” He described 3D printing technology as ‘a huge opportunity’ for the region.

In-depth:

The future of manufacturing is man and machine working together, because while automation and robotics grow ever more sophisticated, humans still have the most flexible learning ability on earth. The technology of 3D printing can serve to simplify the supply chain as, in the past, customers in need of spare parts would order it and wait several months for it to arrive. With 3D printing, provided the technology has been correctly maintained, the customer could start printing the part on the same day, and it would be ready the following day. In addition, an engineer can send a file of data from anywhere in the world to a 3D printer. Ehteshami told the audience that GE’s latest turboprop jet engine was 35% 3D printed and that he hoped to see hundreds of jet engine parts designed and made by other manufacturers using the method in the future. He appealed for investment in the printing technology to allow manufacturers to move faster towards more widespread use. Regarding concerns that automation will mean widespread job losses in manufacturing, Khalaili said new technology will not replace human input, but improve the quality of life of manufacturers, who will be able to work shorter hours as they depend on smart machines and automation.



12:00

KEYNOTE INTERVIEW

Finding Transformational Ideas in the Age of Disruption

Speaker:

Scott Fancher, Senior Vice President, Program Management, Integration & Development, The Boeing Company

Moderator:

John Deferios, Emerging Markets Editor, CNN

Session Summary:

Aircraft manufacturers still have opportunities for expansion, as 90% of the world's population have not yet travelled. Fancher described this as "a great potential market around the world" for The Boeing Company.

In-depth:

Airline traffic continues to grow at about 2% above GDP every year, with only slight fluctuations. Aircrafts being built by Boeing are 20% more efficient than previous models, and the company is continually looking out for disruptive innovations. Fancher cited the Dreamliner 787, Boeing's most fuel-efficient airliner, which was pioneering in its use of composite materials and is now deployed around the world, enabling 130 new routes that weren't previously considered economical.

Fancher said Boeing was always looking for disruptive technologies as a means of streamlining its business, not just in the final products but also in production methods, and cited the use of artificial intelligence as a key example of that.

Locations will continue to be an advantage for Gulf airlines, delegates heard, as 80% of the world's population live within eight hours flight of Abu Dhabi – geography that is not going to change.

"Over the long haul, we think this is going to be a great market and we think that Gulf carriers have great business models," said Fancher, who also told delegates that the market for supersonic air travel has not yet been established, as the quantity of energy required to fly a supersonic passenger jet for any distance is uneconomical.



12:20

THE GREAT DEBATE

Skills 4.0

Speakers:

Dr. Carl Benedikt Frey, Co-Director, Oxford Martin Programme on Technology and Employment, University of Oxford

David Hoey, Chief Executive Officer, WorldSkills International

Tod Laursen, President, Khalifa University

Moderator:

Axel Threlfall, Editor-at-Large, Reuters

Session Summary:

Manufacturers of today must “upskill” their workers to prepare them for the jobs they will be doing 20 years from now, with concerns about artificial intelligence (AI) replacing labour described as ‘scaremongering’ by a leading academic. “If you go back to the first industrial revolution you will find not a single argument that is being raised in the contemporary debate that was not raised back then,” said Dr Benedikt Frey.

In-depth:

Panelists agreed technology is advancing so fast that young people entering university today will be working with products that have not yet been invented and will have unimaginable opportunities. But Dr Benedikt Frey sounded a note of caution, saying that while technology may be moving fast, the implementation was not happening as fast as expected, citing similarities to the first industrial revolution, which took nearly 100 years for the economic impact of widespread use of machines to be seen. He advised manufacturers to carefully study the occupational changes that are taking place in the market and try to plan ahead by upskilling the workers to enable them to be usefully employed 20 years from now.

For Laursen, artificial intelligence may not be as threatening to jobs as perceived. He cited his experience of watching the Sheikh Mohamed bin Zayed International Robotics Challenge as an example of how far the technology has to go in some areas, for example creating a robot to replace engineers and technicians in a maintenance environment, and then teaching them to select the right tool and use it correctly is proving to be a challenge to engineers.

While Hoey was keen to emphasise the need for young people to consider roles considered ‘not appealing’ by older generations, such as welding, now requires advanced technological skills. The importance of universities in teaching analytical skills that help adapt to change and acquire new skills was also cited.



14:00

AUDITORIUM

Focus on Africa

Speakers:

H.E. Ahmed Abtew, Minister of Industry, Ethiopia

Dr. Carlos Lopes, Professor of Economics, University of Cape Town; Former Executive Secretary, United Nations Economic Commission for Africa (UNECA)

H.E. Kalilou Traore, Commissioner of Industry and Private Sector Promotion, Economic Community of West African States (ECOWAS)

Senator Joshua P. Setipa, Ministry of Trade & Industry, Lesotho

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

The panel agreed that African states must integrate with each other to provide a solid base for industry and investment in the future, and that this would benefit smaller countries such as Lesotho, which may struggle to attract foreign investment. "If we go in that direction, then not only it will favour the building of a much more solid manufacturing capacity in the continent, but it will attract others to come as well," said Lopes.

In-depth:

While there is a view that infrastructure and poor access to finance are preventing African manufacturing from growing, the continent exports \$500 billion worth of manufactured goods, putting it on par with India. While India is just one country, it has a population that is 54 times that of Africa, suggesting the engagement of the population in manufacturing is high. Investment from other countries is happening, with Chinese and Turkish manufacturers so far the largest investors in Ethiopia.

Senator Setipa said efforts were being made to improve access to finance in Africa, which can be an issue for those embarking on major projects, while Abtew stated that problems with the Ethiopian infrastructure are also being addressed through an extensive road building programme over the last 25 years, providing better connections to ports and the international markets.

The panel agreed that more should be done to bring more women into the workforce. For example, only 30% of Ethiopian women go to university, and they usually take on low-level jobs. However, Abtew said external markets are already attracted to Ethiopia due to five reasons: Stability, availability of a workforce 24 hours a day, a young labour force for labour-intensive industries (70% of the population is under 30), low production costs and cheap electricity. For Lopes, Africans themselves must also do more to address negative perceptions about the continent, which could be deterring investment. Lopes stated that in the Strait of Malacca, there are five times more pirates than the Somali coast, adding that Lagos has a purchasing power five times higher than that of Mumbai.



14:00

BREAKOUT ROOM A

Focus on the Aerospace Industry

Speakers:

Jan Pie, Secretary General, Aerospace and Defence Industries Association of Europe (ASD); Chairman-Elect, International Coordinating Council of Aerospace Industries Associations (ICCAIA)

Michel Peters, CEO, NLR (Netherlands Aerospace Centre)

Robert S. Harward, Vice Admiral, USN (Ret) SEAL and Chief Executive - UAE, Lockheed Martin International

Tetsuro Hisano, Vice President & General Manager of Commercial Airplane Programs Management Office, Mitsubishi Heavy Industries

Moderator:

Axel Threlfall, Editor-at-Large, Reuters

Session Summary:

30,000 new aircrafts will be needed within the next 20 years, as the aerospace industry emulates the automotive industry with increasing use of automation. “The order books are full for the two largest aircraft manufacturers, Boeing and Airbus, for the coming ten years. We can talk about the market’s next upturn, but we don’t yet know when the downturn will come,” said Pie.

In-depth:

As the use of automation increases in aircraft manufacturing, so will the number of pilotless drones, and as the number of aircrafts continues to grow, the industry will grow increasingly complex, Pie highlighted. The use of green technology to power aircraft was also considered, with Hisano highlighting some companies that use sunshine to create fuel forms of bacteria, harnessing the energy used to produce oil. However, low oil prices mean alternative fuel sources become less of a priority. Pie agreed that sustainable fuel was “not a quick fix” for the industry.

Pie also stated that global spending on the defence aerospace sector had increased every year for a decade. Harward said that growth would continue due to the increased threat level, and believed that defence aerospace will rely more on automation in the future as workers will still need to stay ahead of the technology curve, as the issue of quality will always trump the price factor in the defence sector.

The issue of 3D printing arose once more – Pie told the audience that it was already in use in the commercial aviation sector, deployed in the manufacturing of landing gear. Peters predicted that the technology will inevitably be key for aerospace in the future.



15:00

AUDITORIUM

Focus on South Asia

Speakers:

H.E. Ghulam Murtaza Khan Jatoi, Minister of Industries and Production, Pakistan
Shaffi Mather, Managing Director, Eram Group

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

Panellists discussed the volatile nature of the political relationship between India and Pakistan, with Mather highlighting the impact to a promising joint enterprise between Pakistan and India to fund an ambulance service for Karachi which had been affected by the Mumbai terror attacks in 2008: “Unfortunately, just before we were slated to launch and work together in Karachi, the unfortunate Mumbai terror attacks happened,” he said. “The political issues are something outside the control of businesses. That leadership has to come from the political leadership of the nation.”

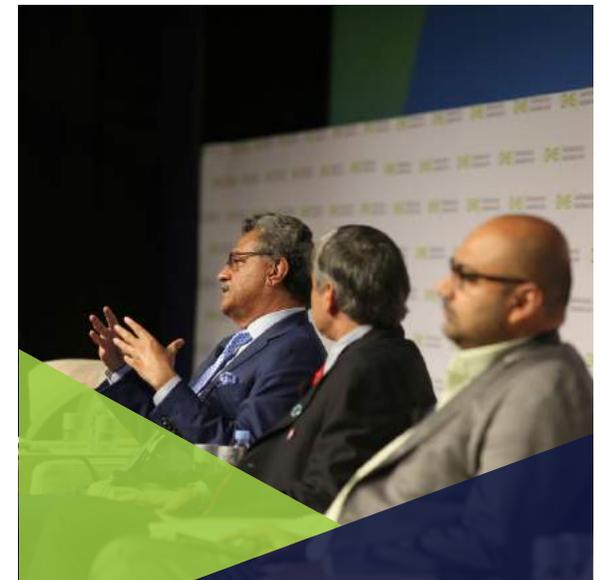
In-depth:

Jatoi went some way to suggest that geopolitical differences were being overcome, for example initiatives taking place under the China-Pakistan Economic Corridor (CPEC) – a \$54 billion series of projects under construction in Pakistan, designed to modernise the country’s infrastructure and facilitate land transportation of Chinese goods through the country for export. Jatoi said that a pipeline connecting with India was one project which would help solve Pakistan’s issues with energy shortages and attract further investments.

For Mather, there is still much to be done in improving relations between the two countries, saying India and Pakistan must get both diplomatic and commercial relations right or risk jeopardising the potential for a future regional cooperation.

Mather put a positive spin on India’s role in manufacturing saying government policies had already helped the country attract investors, leading towards India becoming one of the world’s top five automobile manufacturers. Mather stated that the Indian Prime Minister had ambitions to bring the country into the world’s top 50 in terms of doing business, as it was currently ranked 128. The country also has ambitions to shake off any image of being a low-cost manufacturing nation, and instead be considered as a place to produce high value goods.

Regarding the role of women in the workforce, Mather said that increasing numbers of women in political leadership roles in India resulted in the gender balance shifting. An example of this shift is being witnessed in Kerala where women outnumber men in medical and engineering schools.



15:00

BREAKOUT ROOM A

Focus on the Textiles and Garments Industry

Speakers:

Georg Dieners, Chief Executive Officer, OEKO-TEX

Le Tien Truong, CEO, Vietnam National Textile and Garment Group

Iwan Setiawan Lukminto, President Director, PT Sri Rejeki Isman Tbk

H.E. Amir Hossain Amu, Minister for Industries, Government of the People's Republic of Bangladesh

Moderator:

Paul Markillie, Innovation Editor, The Economist

Session Summary:

Automation is infiltrating the textile industry, but the replacement of humans is far off when it comes to the actual stitching of garments. "Automation has been applied in the textile sector in spinning and weaving, but machines were already doing a lot of the work," said Truong. "That is the textile sector; it is different. 90% of people we employ are in the garment sector."

In-depth:

The world's population will continue to grow, and so will the textile industry as demand increases. For Dieners, the question is where will the industry be focused? Asia, Africa, Europe or South America were all suggested as places that may see an increase in the textile and garment manufacturing industry.

The textile and garment industry will need to focus on sustainability in the future, finding new ways to manufacture which will save water and energy. Automation may play a part in that, by reducing the level of human error which leads to a large number of garments being rejected.

However, while automation may be on the rise in the textile sector through automating spinning and weaving, the garment sector is likely to lag behind because the technology is not yet available to accurately sew a garment with the same precision as a human.

Where automation may play a part is the "wet processes" – bleaching, printing and dyeing of garments. This was also a key area in finding ways to make the industry more sustainable, as manufacturers should consider ways to reduce the amount of water used. The cost of garment manufacturing is increasing, as wages rise in countries where clothes have been traditionally manufactured at low cost. The minimum wage in Bangladesh had risen by 223% in five years, and similar increases were reported in Vietnam.



16:00

AUDITORIUM

Focus on Latin America

Speakers:

Humberto López, Country Director, Latin America and the Caribbean, World Bank

Professor João Carlos Ferraz, Professor, Institute of Economics, Federal University of Rio de Janeiro

H.E. Merlin Alejandrina Barrera López, Vice Minister of Trade and Industry, El Salvador

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

Manufacturing in Latin America has been on the decline for the past 20 years. While the output used to be approximately 30% in most countries, today it's 15%. "If you look at the erosion of the labour force [in manufacturing], it's half of what we used to have 20 years ago," said Humberto López.

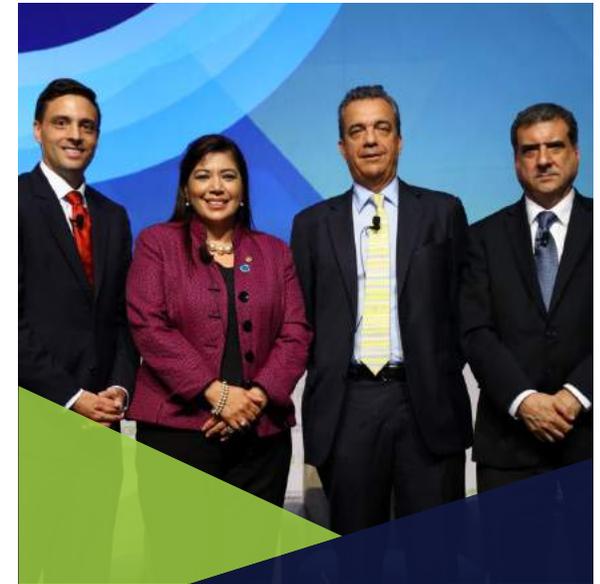
In-depth:

Latin America's growth in the first decade of the 21st century was driven by the commodities market, not manufacturing, according to Humberto López. He attributed the success in the commodities sector to geography, but said the continent's lack of competitive advantage in manufacturing is policy-based. Lopez laid the blame for the lack of growth in manufacturing on a number of issues: Lack of infrastructure, inability of companies to innovate, micromanagement and micro-policy, and low standards of education – with only 50% completing secondary school. Humberto López stated that in Central America, a truck travels at an average speed of 11kmph, making it difficult for manufacturers to be competitive due to the amount of time it takes for their products to reach the market. The lack of infrastructure means logistics is, on average, between 15-30% of the final value of Latin American products, while in some countries it is as high as 40%. In Organisation of Economic Co-operation and Development (OECD) countries, it is as low as 8%.

Humberto López addressed the issue of corruption, long associated with Latin American countries, saying a "cleansing process" was currently underway, not just in politics and regional businesses but in large international corporations too. The jailing of politicians and major businessmen involved in wrongdoing will act as a deterrent and offer more predictable outcomes to those hoping to do business in Latin America.

El Salvador has experienced growth levels of less than 3% for three decades, but the traditionally agricultural country is finding new ways to embrace industry, through textiles, plastics and pharmaceuticals, and the orange economy - including videogames and animation. The government has a vision of working in partnership with the industrial sector and with schools and universities to establish which industries should be prioritised to improve growth and reindustrialise the economy.

While the threat of increased protectionism by the USA continues to be a concern for El Salvador, it still remains an important market, particularly in the textile sector.



16:00

BREAKOUT ROOM A

A Focus on the Electronics Industry

Speakers:

Chen Rengui, Senior Vice President, BOE Technology

Matthew Putman, CEO, Nanotronics

H.E. Sharan Burrow, General Secretary, International Trade Union Confederation (ITUC)

Moderator:

Paul Markillie, Innovation Editor, The Economist

Session Summary:

Sustainability in the electronics industry does not just benefit the planet but has potential to create higher revenues. Putman said: “It is the mentality change – young entrepreneurs will have it – it’s immediately relative to large companies – the longer you can keep something going, reuse things for different purposes, the better yields are, the higher your profits are, so that’s a huge incentive for big companies.”

In-depth:

Concerns about a lack of diversity in electronics were raised, and delegates heard that it was still seen as ‘a boy’s game’, and that issues including equality of pay and sexual harassment were a problem. Sustainability will become increasingly important, with union leaders now being taught that in the future, they will bargain for resource productivity this will be the new wealth. Practises such as ‘urban mining’ – finding valuable materials and extracting them from waste, will also come to the fore.

Burrow put forward the suggestion that the potential impact of new technology on the supply chain was not being adequately addressed in industries, citing the implications for the garment industry when a customer can walk into a shop and ask for a customised pair of jeans to be 3D printed.

The influence of the consumer on products is expected to continue to grow, with the business to business or B2B model being left behind in favour of C2M – customer to manufacturer, as consumers demand faster and faster turnarounds in terms of updates and their influence increases over the products they buy.

For Rengui, the future of electronics manufacturing lies in companies communicating and sharing information with one another. He said it was vital for there to be a shared ecosystem of resources to allow companies to integrate with each other.

The automation of the assembly line in electronics was inevitable according to Rengui and Burrow, and a necessity for Putman, whose field is nanotechnology. “Humans cannot see things this small,” Putman explained, “and they don’t have the ability to keep up in the rapid rise in the demands of consumers.”



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SUMMIT DAY THREE

30 March 2017

“We are a nation that has a mission in life, we are a nation that has a calling in life, and our calling is very simple – how we improve human life.”

H.E. Mohammed Abdullah Al Gergawi

UAE Minister of Cabinet Affairs and the Future

“What has been achieved in the UAE so far is nothing short of a miracle. It is because of leadership and the clear strategic vision that was always there from day one.”

H.E. Khaldoon Khalifa Al Mubarak

Chairman, Executive Affairs Authority of Abu Dhabi

Managing Director and Group Chief Executive Officer, Mubadala Investment Company



10:20

KEYNOTE INTERVIEW

A Focus on Human Capital, Innovation, Diversification, Global Safety and Security

Speakers:

H.E. Saif Al Hajeri, CEO, Tawazun Economic Council & Tawazun Holding

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

Tawazun has found new ways to inspire passion and dedication about manufacturing amongst the Emirati youth population as well as diversify in the workforce through the recruitment of women. “It is really important for the UAE and the GCC to be ready for what’s after oil,” Al Hajeri stated.

In-depth:

Creating a strong manufacturing industry in the UAE requires capable workers among the local population, Al Hajeri highlighted, in which Emirati women are a key part of the workforce on the assembly line at Caracal, a UAE-based small arms manufacturer established by Tawazun. A recruitment campaign called the “Daylight Programme” was specifically aimed at employing women to work at the manufacturer, which is based in a business park 40 km from Abu Dhabi. A children’s nursery was established for workers, flexible working hours were introduced and, in some cases, company-provided transportation. These initiatives had allowed the women to thrive in the programme, which also provided English tuition and technical training.

Al Hajeri said it was hoped that not only the women, but the children going to the nursery while their mothers worked in the factory, would be inspired to work in the manufacturing industry and become the engineers of the future.

Tawazun has seen a “snowball effect” of increased recruitment of young Emirati men and women through the organisation’s work with technical high schools and universities to instil passion amongst the youth about manufacturing. Their programmes had helped students gain hands-on practical experience of manufacturing to help inspire and prepare them for future careers in the industry.

Al Hajeri advised manufacturers hoping to succeed in the UAE not to dismiss working with SMEs, as they currently make up approximately 70% of the UAE economy.



10:45

FIRESIDE CHAT

Emerging Global Supply Chains

Speaker:

Kathryn E. Wengel, Worldwide Vice President and Chief Supply Chain Officer, Johnson & Johnson

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

Just 5% of supply chain officers in Fortune 500 companies are women, Wengel highlighted stating: "If we think about manufacturing and broader STEM (science, technology, engineering and maths) there are millions in unfilled STEM jobs in the world. The manufacturing industry must take steps to ensure more women enter the industry and STEM in general."

In-depth:

The impact of new technologies such as 3D printing will have different effects, depending on the level of regulation in each manufacturing sector. For example, using 3D printing to create the headband for a set of headphones could be implemented quickly, whereas regulation will be tight for 3D printed surgical products, such as prosthetic knee joints – with years of testing required to prove that the additive product performs better than a traditional solid titanium product.

The ability of additive manufacturing to transform both the manufacturing model and the business model is a certainty, but the speed at which it happens will depend on the level of regulation in each industry, said Wengel.

While Johnson & Johnson has a reputation for making baby shampoo, the largest part of its business is healthcare - for example, 80% of all sutures carried out globally are made by Johnson & Johnson, and a large proportion of the company's business is pharmaceuticals. Healthcare has the potential for improvements in standards across a fragmented industry using digital twins of products, for example, of vaccines, to guarantee standards and consistency. Healthcare companies are realising that the more consistent they are with standards, industry standards, in general, are improved, making companies more competitive. At present, the healthcare model is that patients pay to see the doctor whether or not they are cured, either through insurance, cash or taxes to their government. In the future, this will change such that the patient pays depending on the outcome, Wengel stated.



11:10

PANEL DISCUSSION

The Infrastructure of the Future

Speakers:

H.E. Falah Mohammed Al Ahababi, Chairman, ZonesCorp

Hans-Peter Egler, Chief Executive Officer, Global Infrastructure Basel

H.E. Dr Elham M.A. Ibrahim, Vice Chair, World Energy Council

Wang Jun, Vice President, China Rail Rolling Stock Company (CRRC)

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

The public and private sectors must work in partnership with financiers to create sustainable infrastructure, Al Ahababi told the summit, with panellists also highlighting the need for stability to attract investment. “You need clarity,” said Al Ahababi, “the private sector needs transparency. You need vision and a target, and the private sector will come.”

In-depth:

Panelists highlighted that, at present, there is a lack of “interesting” projects for the private sector to invest in. There needs to be a shift in thinking and a greater emphasis on education to develop the necessary skills to create largescale infrastructure projects, as well as capacity building across the board to allow the good ideas for largescale infrastructure projects to come to fruition. High-speed rail links can contribute to improved infrastructure and economy, notably the high-speed Beijing to Shanghai link, which has seen cities along the route experience a 0.7% increase in GDP as a result.

The need for countries to work together to solve energy shortages was stressed. For example, African countries that may be rich in resources but do not have the tools to harness them for power should work with those who do.

The UAE is an example of a country currently investing heavily in infrastructure. This is evident in ports, airports and power generation, and Al Ahababi also highlighted the need for new projects to be sustainable and attractive to private sector investment.

Egler said governments need to understand the importance of maintaining stability in their countries in order to attract investment. He said: “Stability is the motor of economic growth, social development, and also sustainable development.”



13:00

HEAD-TO-HEAD KEYNOTE INTERVIEW

The Next 50 Years

Speakers:

H.E. Mohammed Abdullah Al Gergawi, UAE Minister of Cabinet Affairs and the Future

H.E. Khaldoon Khalifa Al Mubarak, Chairman, Executive Affairs Authority of Abu Dhabi, Managing Director and Group Chief Executive Officer, Mubadala Investment Company

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

The UAE's visionary leadership is what has marked it out for success in the region, said Al Gergawi: "If I look at one success factor, I would say leadership, if you look at Sheikh Zayed [bin Sultan Al Nahyan, founder of the UAE] he had vision to make things happen," he said. Al Mubarak agreed, saying what had been achieved in the UAE was 'nothing short of a miracle adding, "It is because of leadership and the clear strategic vision that was always there from day one."

In-depth:

Many countries had similar opportunities to the UAE, being rich in natural resources, but had failed to show the same level of progress due to a lack of stability and leadership. Their Excellencies said it was impossible to predict the future, but there was a confidence that the UAE will be a global player if it continues to play to its strengths. "We have to know our strengths and we have to identify areas that we are really good at. The whole process is evolving on a daily basis," said Al Gergawi. "We decided that we would like to be a global player, it's a decision."

Al Gergawi said he expected robots to play a major role in life and that, in the future, students graduating high school would be expected to know how to code as it will play such an important role in the jobs of the future.

Examples of UAE success stories include the country's airlines and the expansion of Dubai International Airport, from just one runway in the 1960s to one of the world's busiest airports. Another was a new solar plant in Dubai, said Al Mubarak, that can produce electricity at a cost of just two cents per kilowatt, down from 60 cents per kilowatt six years ago, making the UAE a global player in renewables.

The UAE's small size could be a disadvantage, but also an advantage in that it is a country that can adapt quickly to changing times, Al Mubarak said, adding that the country needs to continue to be wise and pick and choose the correct industries to invest in by looking at them from a global perspective.

Al Gergawi concluded that investment in educating the workforce to meet the challenges of the future was key.



13:30

PANEL DISCUSSION

Financing in the New Age of Technological Convergence

Speakers:

Baihas Baghdadi, Managing Director and Global Head of Trade and Working Capital, Barclays
Roberto Mancone, Managing Director and Global Head of Disruptive Technologies and Solutions, Deutsche Bank
William Shor, Managing Director, Caspian VC Partners
Srinivasan Sriram, Founder & CEO, Skuchain

Moderator:

Mustafa Al Rawi, Business Editor, The National

Session Summary:

Companies are evolving to straddle different sectors in the tech revolution – If Starbucks were a bank it would be ranked in the top 10 in the USA in terms of deposits thanks to its pre-paid card, while Domino's Pizza has embraced the tech sector to provide customers with bespoke, app-ordered pizza. "Human buying behaviours have changed – that is a fundamental disruption of the way we have been operating," said Baghdadi.

In-depth:

Technology has the capability to greatly improve the banking process and potentially save the banking sector. For example, the use of blockchains can speed transactions from 15 to 20 days to just four hours, and technology has given rise to a new level of transparency in the sector.

Baghdadi said blockchain technology will increase transparency in the banking sector as, in the past, banks kept information secret. However, blockchain technology is about sharing information, which has the potential to kill off fraud and offer greater visibility in the market to banks, buyers and sellers.

The advantage of new technology is not having to rely on specific business relationships, but working with multiple partners or suppliers all around the world.

However, the technology could have implications for jobs as banks could generate data automatically, negating the need for data analysts.

In addition, while investments were in the past based on relationships, data has become more important in investment decisions, which Sriram described as 'not relationship centric, it's data-centric'. The Internet of Things will also have an impact on the efficiency of supply chains, with supply chain managers able to track merchandise, wherever it is in the world, thanks to digital sensors.



14:15

CLOSING KEYNOTE PANEL DISCUSSION

Driving Change – A New Roadmap for Sustainable Industrialisation

Speakers:

Alistair Nolan, Senior Policy Analyst, OECD Directorate for Science, Technology and Innovation
H.E. Abdulla Al Maeni, Director General, Emirates Standardisation and Metrology Authority (ESMA)
Jean Bennington Sweeney, Chief Sustainability Officer, 3M
H.E. Kevin McKinley, Acting Secretary General, International Organization for Standardization (ISO)
H.E. Karmenu Vella, European Commissioner for Maritime Affairs and Fisheries (video only)

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

The concept of 3D printing as “environmentally benign” was challenged by Nolan, who said the need for purity of feedstock precluded recycling and, in some cases, feedstock is toxic. “What we want with manufacturing, is that it pays the cost of its externalities, whether it be in carbon emissions or other areas,” he said. “Governments need to create environments which are stable and allow the private sector to make long-term investments.”

In-depth:

As well as the discussion around the sustainability of 3D printing, Nolan also spoke about the sustainability of buildings and the need to reduce their carbon footprints by 60%.

Sustainability challenges vary from one part of the world to another for manufacturers, from water shortages, to energy shortages, to lack of skilled human capital, said Bennington, adding that 3M sees sustainable practices in terms of their economic benefits. Fewer materials to make a product mean greater profitability, a better product for customers, and that money is saved in reusing rather than throwing away materials. Citing a 3M factory outside Sao Paolo – Brazil, in a water stressed area, Bennington said purified water has been used in the manufacturing process, something she described as “not sustainable”, so alternative methods and ways to reduce water usage were sought, as helping customers to solve sustainability issues is a business advantage.

Al Maeni said the UAE was focused on sustainability, issuing regulations and moving towards alternative energy through the use of solar power, not only for energy generation but for transport through solar panel-charged cars, as well as decreeing that plastics used in the UAE must be biodegradable.

In a recorded message, Vella said only half of plastic waste is currently recycled, and that his organisation would grant €650 million to “circular economy” projects, concentrating on sustainability or the use of recycled materials. Europe is already seeing an increase in demand for new business activities, including recycling, upgrading and manufacturing. Companies in the transport and logistics sector are seeing old certainties questioned as new business models are becoming more prominent, with a potential for global benefits to supply chains.



13:30

CLOSING REMARKS

Speakers:

Badr Al Olama, Head of GMIS Organising Committee

Ludovico Alcorta, Director of UNIDO's Development Policy, Statistics and Research Branch

Moderator:

Simon Baptist, Global Chief Economist, The Economist Intelligence Unit (EIU)

Session Summary:

Uncertainty about what technology means for the manufacturing industry must be tackled, said Alcorta. "We are facing disruption, which is generating immense fear and uncertainty, we must tackle that, if we do not convince people that technology in the end may be for the good of all, we will not be able to move forward," he said.

In-depth:

The Fourth Industrial Revolution will only be a true industrial revolution if sustainability is taken into account, Corta highlighted. If that is not done, the 'revolution' may take the industry backwards rather than forwards. However, he said he felt confident that the industry was beginning to have a better understanding of what the tech revolution would mean for it, but it was important for all stakeholders to continue to work together to understand it.

Al Olama said Sheikh Mohamed bin Zayed's announcement of the Sheikh Mohammed bin Rashid Award for Global Prosperity was a "game changer" as it showed that it takes innovation in manufacturing to solve global problems.

Baptist described the summit and the collaboration between UNIDO and the UAE's Ministry of Economy as a great example of global partnership.

"We have some benchmarks with which to hold ourselves accountable for when we are back here in 2019," he said.





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