



# Women-led innovation in STEM in the Arab world

*Delivered at the*

**Young Arab Women Leaders Conference  
Royal Academy of Engineering, London**

*on the*  
**11 December 2017**

## **Opening Session**

**Founder and Chairman's  
Welcome & Keynote Remarks**  
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Fellow, Harvard Advanced Leadership Initiative 2017  
Commissioner, ILO Global Commission on the Future of Work

## Opening Acknowledgements

Your Excellencies, Distinguished Guests, Ladies and Gentlemen,  
Good Morning.

It gives me great pleasure, both personally and as Founder & Chairman of the Arab International Women's Forum, to welcome you this morning to the AIWF 10<sup>th</sup> *Young Arab Women Leaders* conference on 'Women-Led Innovation in STEM' at the Royal Academy of Engineering in London.

Following on from the success of the previous nine *Young Arab Women Leaders* conferences held in Amman, Beirut and Dubai, in Palestine, London, Doha, Kuwait City and Morocco, AIWF is indeed proud to be back in London, where *Young Arab Women Leaders* was launched in 2011 as a partnership between AIWF and PwC, with the full support of all AIWF Global Partners.

*Young Arab Women Leaders* conferences have, over the last six years, inspired young women leaders in entrepreneurship, business, professional life, public life, in academia, and now – in the STEM sectors.

Through this initiative, we aim to support women-led innovation in STEM by bringing together remarkable women scientists, engineers, entrepreneurs, researchers and academics, media, policy makers and civil society, to share valuable strategies for success together with personal stories of learning and achievements that inspire us all.

I am delighted to share that today we are set to welcome members, guests, Fellows and delegates from over 40 countries covering the US, UK, EU and the Arab world.

At the outset, the AIWF Board joins me in extending our warmest thanks and appreciation to the **Royal Academy of Engineering**, for its valued partnership and support of our conference today. We are honoured to have the presence of **Philip Greenish CBE**, CEO of the Royal Academy, who will be delivering a keynote welcome address this morning, and **Dr Hayaatun Sillem**, Deputy CEO and Director of Strategy, who will be chairing today's panel on advancing gender diversity in tech entrepreneurship and the digital economy.

Dr Philip and Dr Hayaatun, we greatly appreciate your support and that of your valued team at the Academy for our conference today. We look forward to building on this initiative by collaborating together in the future to further develop our shared mission to empower and support women in the STEM sectors.

I am delighted to take this opportunity to acknowledge the valuable support of the World Bank to The Arab International Women's Forum from the early days of AIWF and welcome and thank Ms **Blanca Moreno-Dodson**, Head of the Centre of Mediterranean Integration, The World Bank, for being with us today and representing the World Bank.

It gives me great pleasure to welcome our honoured Guest Speaker **Professor Dr Hayat Sindi**, an Arab woman leader in Science, Founder and President of the Institute for Imagination and Ingenuity, Member of the Scientific Advisory Board of the UN Secretary-General and Advisor to the President of the Islamic Development Bank. We are indeed honoured to have you with us Dr Hayat, as an inspirational Saudi woman leader and STEM role model for women and girls in the Kingdom and the wider Arab world.

Importantly this conference is another opportunity to acknowledge the most valuable support of **PwC**, AIWF Global Partner and our longstanding partner on the *Young Arab Women Leaders* initiative from its very beginning.

I am delighted to welcome **Pam Jackson**, Regional Deals Leader PwC Middle East, and I extend our warmest thanks and appreciation to you Pam and to all your colleagues at PwC in both London and in the UAE – especially to **Hani Ashkar**, Territory Senior Partner PwC Middle East and AIWF Board Member.

Here allow me to pay special tribute to **Warwick Hunt**, Chief Operating Officer and Managing Partner, PwC International, under whose leadership the *Young Arab Women Leaders* initiative was launched and whose partnership in those early days together with his continued dedication to the platform have contributed so greatly to its success. We thank you, Warwick, for the integral role you played in launching this initiative between AIWF and PwC, and

for your personal commitment to driving change for young people in the Arab world and globally.

Our deep appreciation goes to **PepsiCo**, AIWF Global Benefactor Partner, and to **Shell**, AIWF Global Partner, for lending invaluable support as Conference Partners today and for leading the way in driving gender diversity within their respective sectors in the MENA region and around the world.

Our great appreciation and warm welcome is extended to all our distinguished Guest Speakers, all prominent and accomplished women leaders who have taken time from very busy schedules to address our conference today.

Our distinguished Panel Chairs and speakers today come from diverse sectors spanning non-profit organisations, private sector corporations, the Royal Academy of Engineering, SOAS University of London, Imperial College London, and the University of Cambridge; leading pharmaceutical companies, healthcare AI and tech startups, Tech City UK, as well as the MENA-OECD Competitiveness Programme, the European Bank for Reconstruction and Development, and of course the World Bank – all represented here today. We are also delighted to welcome the Advisor to the Minister of Water and Irrigation in The Hashemite Kingdom of Jordan, Engineer **Susan Kilani**.

I also take this important opportunity to welcome AIWF Board Members and Guest Delegates, and all our Partners including **Pfizer**, **Nama Women Advancement Establishment**, **Vistra**, **Boodle Hatfield**, and **Janssen Pharmaceutical**, many of whom have travelled from across Europe, the Arab world and internationally to be with us today.

## About the Arab International Women's Forum and the *Young Arab Women Leaders* initiative

Distinguished Guests,

Allow me first to say a few words about the Arab International Women's Forum.

AIWF was established in London in early 2001 as an independent, not for profit development organisation, a unique network that links Arab women with their international counterparts to promote cross cultural diversity and to create greater global awareness of women's success and prospects in the Arab world.

AIWF moves the momentum for sustainable empowerment for women forward by collaborating closely with governments, the private sector, academic and civil society partners on a broad range of collaborative, impact-driven initiatives.

We foster advanced networking and close co-operation between the Arab, British and international business communities, with AIWF conferences, seminars, roundtable and networking events held over the past 16 years in Paris, London, Brussels, Madrid, Cairo, Amman, Washington DC, Sharjah, Beirut, Damascus, Doha, Ramallah, Dubai, Berlin, Kuwait and Morocco.

Each conference covers key topics that are critical to women's empowerment in the region foremost amongst them: Job creation, gender parity, sustainability, economic competitiveness, enablers for entrepreneurship and the development of a vibrant SME economy, technology, innovation, and collaboration across borders and through public-private partnership. Many of these key subjects shall be addressed in our conference sessions today.

## Women in STEM in the Arab world

Distinguished Guests,

Today's conference, 'Women Led Innovation in STEM', reflects AIWF's vision of advancing opportunities for women in STEM through education, collaboration, training, partnership and dialogue. We see the advancement of opportunities for women in STEM studies and stem jobs as not just a national education priority for the UK, the EU and in most MENA countries, but as a critical factor in future economic growth, stability and social mobility in a rapidly changing working environment.

Education is truly one of the Arab region's most important success stories. Largely due to the strong investment of Arab governments in education across the region, the MENA region has in recent decades 'quadrupled the average level of schooling since 1960, halved illiteracy since 1980 and achieved almost complete gender parity for primary education' (according to World Bank research). For many Arab women, not only has education enhanced economic opportunity and engagement, it has helped move gender diversity forward in the region, it has lifted families out of poverty and broken the cycle of under-privilege, deprivation and disenfranchisement.

In almost every MENA country, women are graduating from universities in far greater numbers than men and in subjects such as computer science, engineering and law, in what the World Bank has called a 'reverse gender gap'. In some Arab countries, the ratio of women to men studying STEM subjects at university is 2:1.

In the GCC, as many as 60% of engineering students in some universities are female, compared with 30% in the United States and Europe, according to UNESCO. In many of the oil-rich nations as well as Jordan and Palestine, girls out-perform boys in maths, and in Saudi, girls have long out-performed boys in science for decades according to the World Bank report on *Equality of Opportunity in Education in the Middle East and North Africa*.

In 10 Arab countries surveyed by UNESCO, women graduating in STEM subjects represented between 34% to 57% of graduates. Over 35% of tech businesses in the Arab world are women-led, compared to the global average of 10%. In Egypt, half of the

businesses invested in by angel investment groups are run by women. In an MIT Enterprise Forum Arab Start-up Competition, 48% of the 4,500 teams included women and the competition was ultimately won by a woman.

The MENA countries, especially the GCC states, Lebanon, Jordan, Morocco and Tunisia, are among the world's fastest-evolving hubs of tech entrepreneurship, with a dynamic entrepreneurial scene gaining momentum especially among young and female innovators in the MENA. Countless business incubators, clusters, and entrepreneurship acceleration programmes have been launched in major cities throughout the Arab region in the last five years, such as Astrolabs in Dubai, Cogite in Tunisia, and TechnoPark in Morocco.

We are also seeing the exciting growth of networking organisations, online web communities, publications, entrepreneurship training and mentorship initiatives, as well as funding competitions specifically targeted at women entrepreneurs with a special focus on those in tech innovation and social enterprise. As a result, we are seeing many rising stars of tech entrepreneurship in the region; creative, talented and highly ambitious young Arab women, many with advanced computer science degrees, launching innovative tech-based platforms and redefining traditional business models.

In the sciences, healthcare and engineering, female talent in the MENA region is incubated in world class Arab universities and international universities with satellite campuses across the region. Female STEM talent is being actively developed by the many multinationals with a presence in the MENA region and a commitment to improving diversity by recruiting and retaining the best and brightest Arab women.

Governments, universities and education free zones such as Dubai Knowledge Village in the UAE are working in partnership with the private sector and with international entrepreneur-led networks to launch Arab editions of international STEM empowerment initiatives, incubation centres and regional hubs to help Arab women and youth leverage every opportunity to innovate, scale and succeed in STEM.

Allow me to share a few examples:

In Morocco, the eSTEM network was launched by Moroccan women in tech to help build confidence and capacity in Moroccan high school girls to develop careers in scientific and technological fields. Using mentoring and role modelling, the programme aims to change the mindset of Moroccan girls towards the STEM sectors. The initiative focuses on *learning by doing*, through a programme of activities, remote coaching and mentorship. The programme has culminated so far in a Start-up Weekend for Women and a Global Entrepreneurship Summit held in Marrakech.

In Qatar, the Qatar National Research Fund, through its Qatar Research Leadership Program, is dedicated to producing home-grown scientists who are capable of steering the continuous development and sustainability of Qatar's research agenda and adding to the nation's pool of science and research talent.

In the UAE, which recently announced the appointment of the world's first Minister of Artificial Intelligence, the number of Emirati women joining the workforce as engineers and scientists has sharply increased in past years following substantial investment in STEM education and primary growth sectors, which have encouraged women to pursue their studies in STEM disciplines.

Emirati women in the nuclear sector tripled between 2014 and 2015, according to a report by the UAE mission to the International Atomic Energy Agency. ADNOC, the Abu Dhabi state oil and gas company, has pledged to fill 15% of its senior management roles with women by 2020.

According to a report by the Al Qasimi Foundation and the Economist, *UAE Economic Vision: Women in Science, Technology and Engineering*, STEM education is considered to be "the long-term solution to Emirati unemployment", noting: "A mismatch between labour market demand and educational output exacerbates jobless rates among citizens. Encouraging more nationals into STEM education will bolster future employment levels, as demand for such graduates is expected to soar thanks to government investment plans."

And in Lebanon, the American University of Beirut just last week announced that it is setting up an Innovation Park (the AUB-iPark)

as part of its mission to contribute to the development of entrepreneurship in Lebanon and the region. The AUB-iPark will serve as a comprehensive solution for developing innovative ideas and converting them into profitable and scalable start-ups; it will be a much-needed research window, and a means of sourcing venture capital to fund entrepreneurial projects. The Park will be a hub for collaborative innovation, with a technology lab for hardware, and a pool of AUB faculty members on hand to pass on their expertise to the next generation of Lebanese leaders in STEM.

Across the region, we clearly see a shift towards a highly-skilled, knowledge-based economy. Empowering more women in the critical STEM sectors will require a narrowing of the knowledge gap by educating more young women in the sciences, and eliminating diversity barriers for women's participation and leadership in STEM.

Globally, women face universal challenges in the workforce, given that our current working culture is based on inflexible practices and norms that are often incompatible with work / family / life balance. In STEM in particular, there are more nuanced barriers to female participation to be addressed.

These include the dominance of male staff at the higher levels and a lack of mainstream role models for young women in STEM or rather, the low visibility of successful women in STEM in the media. We must look for more ways to bring the best and brightest women leaders together and work harder to elevate the profile of successful role models who will inspire the next generation of STEM women leaders.

There is undoubtedly a strong increase in interest in STEM education among young Arab women, and stronger female representation can be achieved if there are more scholarships and grants available to women in STEM, more funding, more access to professional development and training opportunities that not only address technical skills but equally important leadership and communication skills.

## Why Women in STEM Matter: Preparing our Young Women Leaders for the Future Working World

Distinguished Guests,

STEM jobs are the jobs of the future, and empowering women-led innovation in STEM could make a game-changing contribution to narrowing the gender pay gap whilst levelling the playing field in STEM and other sectors for future generations.

At the recent World Science Forum held in Jordan in November and chaired by **Princess Sumaya bint El Hassan**, the President of Jordan's Royal Scientific Society and a UNESCO Special Envoy for Science and Peace, a resounding theme to emerge was that science is vital in helping the world deal with looming regional and global threats such as water scarcity, climate change and poverty. These are global problems that threaten our stability and challenge the future of our youth.

Applying science to find solutions to these global challenges is an urgent priority for many in the international development and STEM communities. The world is undergoing unprecedented transformation driven by technological developments as we enter the Fourth Industrial Revolution. This new era of creativity, disruptive innovation, and artificial intelligence is changing the way we consume, buy, travel, relate to others, live, and work, with 40% of jobs as we know them today expected to change over the next decade and a half.

The Arab world has a wealth of human talent which has for too long been underdeveloped and underutilised. Unless our young people are adequately prepared for the changes and challenges that lie ahead our workplaces and our economies will bear the brunt of these changes and will be left behind. We cannot allow that to happen.

We need partner-based strategies, new initiatives and importantly, much-needed funding, to narrow the gap between humanity's advances in science and technology and what Her Majesty Queen Rania Al Abdullah of Jordan recently called the global "scarcity of hope".

Her Majesty's remarks and the issues highlighted resonated deeply with my recent role as a Commissioner of the ILO Global Commission on the Future of Work, to which I was appointed in August 2017 as the only Commissioner from the Arab world.

I firmly believe that supporting women and young people to enter into STEM careers is key not only to advancing innovation in the increasingly globalised knowledge economy but to creating those decent jobs that are so desperately needed in the Arab world as well as elsewhere in the world.

## ‘Ploughing New Ground’: Introducing the Chairman’s Harvard ALI Special Project

Distinguished Guests,

Before concluding my remarks allow me to share briefly my own innovation led project which was incubated during my year of study at Harvard University as a Fellow of the Advanced Leadership Initiative Programme.

During this year I was able to pursue further my keen interest as a development economist in Food Water Energy Security challenges which are of great concern to many developing regions in the world and in particular to the MENA Region.

Many countries in the Middle East are considered both water and food insecure. This problem is exacerbated by climatic changes, scarcity of water resources and the challenges the region is encountering in absorbing the huge flux of refugees from Syria.

The population of Arab States is expected to reach 487 million by the year 2025 and food production will have to increase by 70% in order to sustain the growing population.

The looming scarcity of water in the Middle East is a huge challenge that requires an urgent response as access to water is a fundamental need for food security, human health and agriculture.

My Harvard ALI Project is titled PLOUGHING NEW GROUND: Sustainable Agriculture in the Mena Region (Jordan Project). The project is to develop a Social Enterprise that will provide an innovative model for sustainable development through Agriculture across the Mena region.

The Project will introduce modern 21 Century Technology and Innovation to the oldest industry in the world – Farming. The country chosen to launch the project is Jordan.

The Project will enhance food security; conserve scarce water resources; create job opportunities for local communities, for men and women and including the refugees.

It will provide jobs for the youth in entrepreneurial and technology-based agricultural enterprises, it will create economic opportunities, and importantly it will foster equilibrium between rural and urban communities; which is vital for social cohesion and stability.

The project will use both new technologies such as Hydroponics and vertical agriculture as well as traditional agriculture methods and is meant to be scaled-up and replicated across the wider MENA region in the years to come.

Importantly the project can act as a driver for change, demonstrating new models and, inspiring others to invest in smart agriculture.

I am delighted to share that the Project has already gained local support in Jordan from the public sector and the relevant Ministries as well as local farming community. I am delighted to share that the World Bank has agreed to provide funding for the Project, and our work commences in January 2018.

## Concluding Remarks

Distinguished Guests,

To Conclude,

It has been a privilege to welcome you this morning, to introduce you to AIWF and to the *Young Arab Women Leaders* initiative, and to share with you my reflections on women in STEM in the MENA region and the future of jobs in STEM.

I hope to have the opportunity to connect with many of you over the course of the day and to learn more about your projects and organisations, and the excellent work you are all doing to create valuable opportunities for the next generation of young women leaders in STEM.

We welcome you all and trust that today's conference, with your valued participation and contributions, will be a deeply enriching, informative, and truly productive experience for you, where we can all benefit from our shared exchange of ideas, culture, and insight.

Thank you for your kind attention.